EPA Registration No. 100-1169 Vol. 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND
TOXIC SUBSTANCES

SEP 26 2005

Mr. Jerry Wells
Syngenta Crop Protection, Inc
P. O. Box 18300
Greensboro, NC 27419-8300

Dear Mr. Wells:

Subject: Touchdown Total Herbicide (Add Canola and Other Changes)
EPA Registration No. 100-1169
Application Dated July 1, 2005

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act as amended is acceptable, provided you make the following changes to your Conditions of Sale and Limitation of Warranty and Liability, before you release the product for shipment.

1. Revise the last sentence of the second paragraph to read "**To the fullest extent permitted by law**, all such risks shall be assumed by Buyer and User..."

2. Revise the second sentence of the third paragraph to read "...not reasonably foreseeable to or beyond the control of the Seller or Syngenta, and **to the fullest extent permitted by law,** Buyer and User assume the risk of any such use."

3. Revise the second sentence of the fourth paragraph to read "**TO THE FULLEST EXTENT PERMITTED BY LAW,** THE EXCLUSIVE..."

Submit one copy of your final printed labeling incorporating the above changes before you release the product for shipment.

Sincerely,

Vickie K Walters for
James A. Tompkins
Product Manger 25
Herbicide Branch
Registration Division (7505C)

GROUP	9	HERBICIDE

Touchdown Total™
IQ® Technology
Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:	
*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-1169

EPA Est. 100-LA-001 [2.5, 30, 120 gal.]
EPA Est. [Bulk]

ACCEPTED
with COMMENTS
In EPA Letter Dated:
SEP 26 2005
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 100-1169

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if inhaled. Avoid breathing spray mist. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Long sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Socks and shoes

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Control Statement

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations
Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, fiberglass, plastic, or plastic-lined steel containers.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and Buyer and User assume the risk of any such use. SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall SYNGENTA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitations of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are **NOT** within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage

Keep container closed to prevent spills and contamination.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Recyclable/Refillable Containers

Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

Container Disposal

Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

GENERAL INFORMATION

Touchdown Total is a nonselective foliar systemic herbicide used to control a broad spectrum of emerged grass and broadleaf weeds, both annual and perennial, in:

- alfalfa, clover, and other legumes
- berries, fruits, nuts, and vines
- canola, including glyphosate-tolerant
- Christmas trees
- conservation compliance/conservation reserve program (CRP)

- corn, including glyphosate tolerant
- cotton, including glyphosate tolerant
- fallowland and postharvest
- farmsteads
- grasses and grass seed production
- herbs
- pastures
- peanuts
- small grains
- sorghum
- soybeans, including glyphosate-tolerant
- sugarcane
- sunflower
- vegetables

Touchdown Total is formulated as a liquid concentrate which contains 4.17 pounds acid equivalent per gallon.

GENERAL USE PRECAUTIONS

- Touchdown Total requires actively growing green plant tissue to function. Application to drought-stressed weeds or weeds with little green foliage (i.e. mowed, cut, or hailed on weeds); weeds covered with dust; weeds damaged by insects or diseases may result in reduced weed control.

- Touchdown Total does not provide soil residual control of weeds. Weeds emerging after application will require retreatment.

- Heavy rainfall or irrigation shortly after application may require retreatment.

- Tillage or mowing within 3 days following application may reduce weed control.

- Do not apply this product through any type of irrigation system.

- DO NOT spray if conditions of thermal inversion exist, or if wind direction and speed may cause spray to drift onto adjacent nontarget areas. Drift minimization is the responsibility of the applicator. Consult with local and State agricultural authorities for information regarding avoiding or minimizing spray drift.

- Touchdown Total is not volatile and cannot move as a vapor after application onto nontarget vegetation.

- It is recommended that the spray system be thoroughly cleaned with water and a commercial tank cleaner after each use.

- Spray solutions of Touchdown Total should be mixed, stored, and applied using only plastic, plastic-lined steel, stainless steel, or fiberglass containers. Concentrate should not be stored in galvanized steel, carbon steel, or unlined steel containers.

- There are no rotational crop restrictions following application of this product.

- Severe damage or destruction may be caused by contact of Touchdown Total to any vegetation (including leaves, green stems, exposed non–woody roots, or fruit) of crops, trees, and other desirable plants to which treatment is not intended, except as specified for glyphosate–tolerant crops.

- In crop areas, do not exceed a total of 5.8 qts./A. In noncrop areas, do not exceed a total of 7.6 qts./A.

- Do not exceed 0.7 qt./A by air unless otherwise specified on this label.

- For broadcast postemergence treatments, do not harvest or feed treated vegetation for 8 weeks following application, unless otherwise specified.

- The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed maximum use rate.

GLYPHOSATE RESISTANT WEED MANAGEMENT

Some naturally occurring weed biotypes resistant to glyphosate may exist through normal genetic variability in any weed population. The repeated use of herbicides with the same mode of action is known to lead under certain conditions to a selection of resistant weeds. Certain agronomic practices reduce the likelihood that resistant weed populations will develop and integrated strategies are known to manage such problem weeds.

Glyphosate is the active ingredient in the herbicide Touchdown Total. The primary mode of action of glyphosate involves inactivation of the target enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS). This enzyme is involved in the synthesis of several essential amino acids that are the building blocks for proteins needed for plant growth and development. In susceptible weeds glyphosate binds tightly to EPSPS rendering the enzyme inactive. With the inactivation of EPSPS, the plant is unable to produce certain essential amino acids resulting in plant death. Initial studies on the mechanistic basis of resistance to glyphosate in various weed species have to date, revealed EPSPS target site resistance, and involvement of differences in translocation as important. Other mechanisms by which plants can become resistant to herbicides include differences in uptake, metabolism and sequestration. Within the USA specific biotypes of horseweed/marestail, *Conyza canadensis* and rigid ryegrass,

Lolium rigidum have become resistant to glyphosate. The first incident reported to the Herbicide Resistance Action Committee (HRAC) of glyphosate resistance was in 1998 on rigid ryegrass. Horseweed resistance was subsequently confirmed in 2000.

Following is a list of Best Weed Management practices to be considered in glyphosate-based programs.

Diversify glyphosate-dependent weed control programs with alternative herbicides or cultural practices.

a. In Roundup Ready® (RR™) corn and RR soybean systems do not use more than two applications of a glyphosate based herbicide over a two year period. Diversify with alternative herbicides/cultural practices.
b. In RR cotton up to three glyphosate applications may be used in crop per year if employing in-crop cultivation/residual herbicide.
c. Use alternative burndown and/or residual herbicides for RR crops likely to require more than one application of glyphosate.
d. To manage RR resistant volunteers rotate RR crops with conventional crops.
e. Use full label rates of glyphosate and tank mix partners. Minimize weed escapes.
f. Monitor treated weed populations for any loss of field efficacy.
g. Contact your local extension specialist, certified crop advisor, and/or manufacturer for herbicide resistance management and/or integrated weed management recommendations for specific crops and resistant weed biotypes.

Since the occurrence of resistant weeds is difficult to detect prior to use, Syngenta Crop Protection accepts no liability for any losses that may result from the failure of Touchdown Total to control resistant weeds.

APPLICATION AND MIXING DIRECTIONS

TIMING

Touchdown Total should be applied to actively growing emerged-weeds. Annual weeds of 6 inches or less in height are typically the easiest to control. Generally, more effective control of perennial weeds is achieved at the flowering or seedhead stage. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for specific application timing.

When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth to appear prior to application. When perennial weeds have been mowed or grazed, allow new growth to reach recommended stage prior to application.

Visible effects on annual weeds occur within 2-4 days after application; effects on perennial weeds may take 7 days or longer. Extremely cool or cloudy weather following treatment may slow activity.

RATES

Follow recommended rates for Touchdown Total listed in the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections. Use the higher label rates when weeds are dense or large. Also, use higher application volumes and pressures when weed vegetation is dense.

SPRAY ADDITIVES

Ammonium Sulfate (AMS) – Control of annual and perennial weeds with Touchdown Total may be improved by adding dry ammonium sulfate at 1.0 to 2% by weight or 8.5-17.0 lbs./100 gals. of water. Liquid formulations of AMS may be used at an equivalent rate. Do not reduce use rates of Touchdown Total when using AMS.

Drift Control Agents – Drift control agents may be used with Touchdown Total.

TANK MIXES WITH RESIDUAL HERBICIDES

Refer to crop sections for recommended tank mixes. Tank mixes of Touchdown Total with other pesticides, fertilizers, or any other additives except as specified on this label or other approved Syngenta supplemental labeling may result in tank mix incompatibility or unsatisfactory performance. It is recommended that the compatibility of any tank mix combination be tested on a small scale such as a jar test before actual tank mixing.

Always refer to labels of other pesticide products for mixing directions and precautions which may differ from those outlined here. Use in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

Tank Mixing Recommendations:

1. Fill spray tank ½ full with clean water.
2. Begin tank agitation and continue throughout mixing and spraying.
3. Add AMS (if used).
4. Add dry formulations (WP, DF, etc.) to tank.
5. Add liquid formulations (SC, EC, L, etc.) to tank.
6. Add Touchdown Total.
7. Fill remainder of spray tank.

APPLICATION EQUIPMENT AND TECHNIQUES

- Avoid drift. Applications should not be made in low level inversion conditions, when winds are gusty or under any other conditions which favor drift. Inversions are characterized by stable air and increasing temperatures with height above the ground. The applicator may detect the presence of an inversion by producing

smoke and observing a smoke layer. Drift may cause damage to any vegetation contacted to which treatment is not intended.

- Compatibility with drift control additives may vary. It is recommended that the combination be tested on a small scale such as a jar test. Read and follow manufacturer's directions for use. A reduction in weed control may occur when drift control agents are used.

- All equipment must be properly maintained and washed to remove product residues after use.

BROADCAST APPLICATIONS

Ground

Applications should be made in 3-40 gals. of water per acre.

When foliage is dense, spray volume should be increased to ensure coverage of the target weeds. Flat-fan nozzles will result in the most effective application of Touchdown Total. Spray boom and nozzle heights must be adjusted to provide coverage of target weed. Flood nozzles may result in reduced weed control due to inadequate coverage.

Air

Applications should be made in 3-15 gals. of water per acre.

Spray should be released at the lowest height consistent with effective weed control and flight safety. Applications more than 10 ft. above the canopy should be avoided.

Use the largest droplet size consistent with good weed control. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding inappropriate spray boom pressure. Solid stream or low shear nozzles may be utilized to reduce small droplet formation. These nozzles direct the fluid parallel to the existing airflow to reduce shear effects. Other techniques may include reducing the fan angle of flat fan nozzles if used, or reducing the deflector plate angle if deflector type nozzles are used. Ensure the spray is released at an appropriate distance below the airfoil.

For best results, each specific aerial application vehicle used should be quantifiably pattern tested for aerial application of Touchdown Total initially and every year thereafter. To minimize drift, it is suggested aerial application equipment produce the following minimum spray deposition characteristics:

Volume Median Diameter (VMD)	› 400 microns
Volume Diameter (VD) {0.9}	› 200 microns

Prolonged exposure of Touchdown Total to uncoated steel surfaces may result in corrosion and possible failure of the part. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion. To prevent corrosion of exposed parts, thoroughly wash aircraft after each day of spraying to remove residues of Touchdown Total accumulated during spraying or from spills. Landing gear are most susceptible.

For aerial application in California, refer to the Federal Supplemental Label for aerial application for specific instructions, restrictions, and requirements. For aerial application, consult with State or local authorities regarding any additional requirements for aerial treatments. Banvel tank mixtures may not be applied by air in California.

Avoid direct application to any body of water.

SHIELDED/HOODED APPLICATION

Use shielded/hooded sprayers to control weeds between rows while protecting the crop from the herbicide. Keep shields/hoods as close to the ground as possible and avoid ground speed in excess of 5 mph. Use appropriate nozzles, spacing, and pressure to achieve coverage without allowing spray to touch or drift onto the crop. Maintain equipment in good operating condition to prevent leakage or dripping onto the crop. Refer to state extension service recommendations and equipment manufacturers' guidelines for more information on proper operation of shielded/hooded sprayers.

SPOT TREATMENTS

For annual weeds less than 6 inches, use a 0.4 to 0.7% v/v solution. For annual weeds over 6 inches, use a 0.7 to 1.1% v/v solution. Use a 0.7 to 1.5% v/v solution for most perennials (see Table 3 for specific rates and timing). When using motorized spot spray equipment (rider bar), use a 2.2% v/v solution. See Spot Spray Dilution Table below for rates of Touchdown Total/volume of finished spray solution. Spray the solution on actively growing weeds until uniformly wet but not to the point of runoff. Retreat 14-21 days later if regrowth occurs.

Touchdown Total Spot Spray Dilution Table

Solution Strength	To Make This Volume			
	1 gallon	10 gallons	25 gallons	100 gallons
0.4%	0.5 fl. oz.	5 fl. oz.	12 fl. oz.	3 pts.
0.7%	0.9 fl. oz.	9 fl. oz.	1.4 pts.	5.6 pts.
0.9%	1.2 fl. oz.	12 fl. oz.	1.9 pts.	3.8 qts.
1.1%	1.4 fl. oz.	14 fl. oz.	2.2 pts.	4.4 qts.
1.5%	1.9 fl. oz.	1.2 pts.	3 pts.	1.5 gals.
2.2%	2.8 fl. oz.	1.8 pts.	4.4 pts.	2.2 gals.

WIPER APPLICATION

Touchdown Total may be applied using a wiper or "wick" applicator (e.g. rope, sponge, or porous plastic applicators) for selective control or suppression of annual and perennial weeds which become taller than the crop or desirable vegetation. Mix 3 quarts of Touchdown Total in 2 gals. of water unless directed otherwise in this label (See **General Use Precautions** for Berries, Fruits, Nuts, and Vines). Precautions should be taken to avoid contact with crops or desirable vegetation. Equipment should be operated at speeds of 5 mph or less. Use slower speeds where weeds are dense. For improved control, make two applications in opposite directions.

CDA EQUIPMENT

For control of annual weeds with hand held equipment, apply a 20% solution of Touchdown Total at a flow rate of 2 fl. oz. per minute and a walking speed of 1.5 mph (1 qt./A). For perennial weeds, use a 20 to 30% solution of Touchdown Total at a flow rate of 2 oz. per minute and a walking speed of 0.75 mph (2 to 3 qts./A). For vehicle mounted equipment, apply in 3 to 15 gals. of water per acre. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Precautions should be taken to avoid contact with crops or desirable vegetation.

CROP USE DIRECTIONS

This section is organized alphabetically by crop categories. There may be several crops listed in a crop category.

ALFALFA, CLOVER, AND OTHER LEGUMES

Touchdown Total may be used on the legume crops listed below:

Alfalfa	Lespedeza	Trefoil
Clover	Lupine	Velvetbean
Kudzu	Sainfoin	Vetch

Method of Application: Before, during, or after planting but before crop emergence; renovation; spot spray (alfalfa and clover only); wiper/wick (alfalfa and clover only); preharvest (alfalfa only); and postharvest.

Preplant/Preemergence, Dormant, or Renovation

Deep tillage following treatment of weeds with Touchdown Total or a sequential application of Touchdown Total may be required to control well established perennials.

Preharvest (Alfalfa Only)

Use this treatment to eliminate or destroy declining alfalfa stands. Up to 3.0 pts. per acre of Touchdown Total may be applied as a broadcast spray with ground or aerial equipment at least 36 hours before harvest. Applications may be made any time of the year when the alfalfa crop is in the bud to flower stage of growth. Deep tillage following preharvest treatment or a postharvest application of Touchdown Total may be required to provide control of well established perennials.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions for Alfalfa, Clover, and Other Legumes

- Spot and wiper/wick application must be made at least 14 days before grazing or harvest of forage and hay.
- Preharvest and renovation applications can be made with no more than 1.5 pts./A at least 36 hours before grazing or harvest of forage or hay.
- Do not apply a preharvest treatment on alfalfa grown for seed as a reduction in germination or vigor may occur.

Tank Mixtures for Preplant/Preemergence, Dormant, or Renovation Use for Alfalfa, Clover, and Other Legumes

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Buctril®	Karmex®	Prowl®	Velpar®
Dual MAGNUM	Kerb®	Pursuit®	
Eptam®	Lexone®/Sencor®	Trifluralin	

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

BERRIES, FRUITS, NUTS, AND VINES

Touchdown Total may be used on both bearing and nonbearing crops listed below.

Almond
Apple
Apricot
Atemoya
Avocado
Banana
Barbados cherry (Acerola)
Beechnut
Blackberry
Blueberry
Boysenberry
Breadfruit
Brazil nut
Butternut
Calamondin
Canistel
Carambola
Cashew
Cherimoya
Cherry (sweet, sour, tart)
Chestnut
Chinquapin
Chironja
Lemon
Lime
Loganberry
Longan
Loquat
Lychee
Macadamia
Mandarin
Mango
Mangosteen
Marmaladebox (genip)
Mayhaw
Nectarine
Olallieberry
Olive (postdirected only)
Orange (all)
Oriental pear
Papaya
Passion fruit
Peach
Pear
Pecan
Persimmon

Citron (postdirected only)
Citrus hybrids
Cocoa bean
Coconut
Coffee
Crabapple
Cranberry
Currant
Date
Dewberry
Durian
Elderberry
Fig
Filbert (Hazelnut)
Gooseberry
Grapefruit
Grapes (all)
Guava
Hickory nut
Huckleberry
Jaboticaba
Jackfruit
Kiwi fruit
Kumquat
Pineapple
Pistachio
Plantain
Plum
Plumcot
Pomegranate
Prune (all)
Pummelo
Quince
Rambutan
Raspberry (black, red)
Sapodilla
Sapote (black, mamey, white)
Satsuma mandarin
Soursop
Sugar apple
Tamarind
Tangelo
Tangerine
Tangor
Tea
Walnut (black, English)
Youngberry

Method of Application: Preplant; preemergence; directed spray (except cranberry); middles (between rows of trees); strips (in rows of trees); perennial grass suppression (chemical mowing); post harvest (cranberry); and wiper/wick applicator equipment.

General Use

Applications may be made with boom equipment; shielded sprayers; CDA; hand-held and high-volume wands; lances; orchard guns; or wiper/wick application equipment, except as directed in the **GENERAL USE PRECAUTIONS FOR BERRIES, FRUITS, NUTS, AND VINES** section. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Multiple applications may be necessary to control certain perennial weeds. For residual weed control, tank mix Touchdown Total with residual herbicides as prescribed in the **TANK MIXTURES FOR BERRIES, FRUITS, NUTS, AND VINES** section, or make multiple applications.

General Use Precautions for Berries, Fruits, Nuts, and Vines

- Do not allow the spray, spray drift, or mist to contact foliage, fruit, shoots, branches, canes, suckers, open wounds, or green parts of crops. Contact with any crop part other than mature brown woody bark can result in severe crop injury.

- Avoid contact with stumps as injury to adjacent trees may occur from root grafting.

- Do not apply in a tank mix in Puerto Rico.

- For **PEACHES** grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, apply Touchdown Total with a shielded applicator which prevents contact with foliage, suckers, or bark of trees. Apply no later than 90 days after first bloom to avoid severe damage. Avoid application to peach trees with recent mechanical injury or pruning wounds. Apply only near trees which have been planted in the orchard for two or more years. SEVERE INJURY WILL OCCUR IF ANY PORTION OF THE PEACH TREE IS CONTACTED WITH SPRAY OR SPRAY DRIFT.

- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah, and Washington, **any** application equipment listed for these crops may be used.

- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in all other states not previously listed, use only wiper/wick application equipment.

- For **GRAPES** grown in the Great Lakes and Northeast regions, apply Touchdown Total prior to the end of bloom stage to avoid injury, or apply with shielded equipment.

- For **COFFEE and BANANA**, delay application 3 months after transplanting to allow the new plants to become established.

- For all other crops in this section, allow a minimum of 3 days between application and transplanting.

- For **BLACKBERRY, BLUEBERRY, BOYSENBERRY, CRANBERRY, CURRANT, DEWBERRY, ELDERBERRY, GOOSEBERRY, HUCKLEBERRY, LOGANBERRY, OLALLIEBERRY, RASPBERRY, AND YOUNGBERRY,** mix 3 qts. of Touchdown Total in 4 gals. of water for wiper/wick applications.

- Allow at least **17** days from the last application to harvest of **stone fruit or olives.** For olive groves, apply only as a directed spray.

- Allow at least **3** days from last application to harvest of **nuts.**

- Allow at least **30** days from last application to harvest of **cranberries.**
- Allow at least **28** days from last application to harvest of **coffee.**
- Allow at least **1** day from the last application to harvest of **banana, citrus, guava, papaya, plantain, or pome fruit (except mayhaw).**
- Allow at least **14** days from last application to harvest of **acerola, atemoya, avocado, breadfruit, canistel, carambola, cherimoya, cocoa beans, coconuts, dates, figs, genip, grapes, jaboticaba, jackfruit, longan, lychee, mango, mayhaw, passion fruit, persimmon, pomegranate, sapodilla, sapote, small berries, soursop, sugar apple, tamarind, and tea.**

Post–Harvest Cranberry

Application of Touchdown Total may be made following harvest of cranberries to control troublesome annual and perennial weeds. Do not apply directly to cranberry vines. Vines that are sprayed will be injured and may die. Apply Touchdown Total in a 0.4 to 0.7% solution if using hand–held equipment after the vines are dormant. Use properly calibrated precision application equipment; wiper wisk, spot sprayer which protects the cranberry plant from Touchdown Total spray. Do not treat more than 10% of the bog.

Tank Mixtures With Residual Herbicides and 2,4-D for Berries, Fruits, Nuts, and Vines

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 3.6 qts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations or weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol®	Krovar®	Sim-Trol®
Direx®	Princep® 4L	Sinbar®
Goal®	Princep Caliber 90®	Solicam®
Karmex	Prowl	Surflan®
Kerb	Simazine	2,4-D

Refer to the individual product labels for precautionary statements, restrictions, recommended rates, approved crops, and a list of weeds controlled.

Tank Mixture With Goal Herbicide in Row Middles

Apply Touchdown Total at 12 to 24 fl. oz./A in a tank mix with 3 to 12 oz. of Goal 2XL

herbicide for the control of annual weeds that are a maximum of 6 inches in height or diameter including annual sowthistle; crabgrass; common cheeseweed; common groundsel; common lambsquarters; common purslane (suppression); common ryegrass; filaree (suppression); hairy fleabane; horseweed/marestail; junglerice; London rocket; redroot pigweed; shepherdspurse; and stinging nettle. For control of common cheeseweed up to 3 inches in diameter, apply 12 to 24 fl oz./A of Touchdown Total with 3 to 12 oz./A of Goal.

Refer to the Goal label for precautionary statements, restrictions, and approved crops.

Hard to Control Weed Recommendations in Citrus (Florida and Texas Only)

To control or suppress the perennial weeds listed in the following table, apply the recommended rate of Touchdown Total in 3 to 30 gals. of water per acre. Use 10 to 30 gals. per acre if weed foliage is dense. Apply when weeds are actively growing. Refer to the **PERENNIAL WEED CONTROL** section, Table 3, for application timing. If weeds have been mowed or grazed, allow new growth to reach recommended growth stage prior to application.

	Rate of Touchdown Total (Quarts per Acre)			
Weed Species	**0.7**	**1.4**	**2.2**	**3.6**
Bermudagrass	B	B	PC	C
Guineagrass				
Texas and Florida	B	C	C	C
Ridge	NR	B	C	C
Florida Flatwoods				
Paragrass	B	C	C	C
Torpedograss	NR	S	PC	C

B = Burndown
C = Control
NR = Not Recommended
PC = Partial Control
S = Suppression

For goatweed, apply 1.4 to 2.2 qts. of Touchdown Total per acre. Apply in 20 to 30 gals. of water per acre when plants are actively growing. Use the 1.4 qts. rate on plants less than 8 inches tall and 2.2 qts. on plants greater than 8 inches tall. When plants are greater than 8 inches tall, the addition of Krovar™ I or Karmex™ may improve control. If using a tank mix, refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Perennial Grass Suppression (Chemical Mowing) of Orchard Floors

For best results, mow to an even height and apply Touchdown Total 3 or 4 days later.

Do not add AMS to the spray solution. Application must be made 1-3 weeks ahead of seedhead emergence.

Bahiagrass

Touchdown Total can be used to inhibit seedhead emergence and suppress vegetative growth for approximately 40-50 days with a single application. By using a sequential application, suppression of vegetative growth and inhibition of seedhead emergence can be extended to 120 days. Apply Touchdown Total at 20-30 days after complete green-up or after mowing to 4 inches tall. When a single application is planned, use 3 to 6 fl. oz. of Touchdown Total per acre in 10 to 20 gals. of water. When a sequential application is planned, use 3 to 6 fl. oz./A for the first application followed by another application of 1.5 to 4 fl. oz./A 40 to 50 days later.

Bermudagrass

For Suppression Only:

East of the Rocky Mountains – Apply 4 to 12 fl. oz. of Touchdown Total in 3 to 20 gals. of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. Use 2 to 6 fl. oz./A if a lesser degree of suppression is desired. A sequential application can be used when regrowth occurs.

West of the Rocky Mountains – Apply 4 to 12 fl. oz. of Touchdown Total in 3 to 20 gallons of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. A sequential application of 4 to 7 fl. oz. can be used when regrowth occurs.

For Partial Control and Burndown:

Touchdown Total can be used for burndown and partial control of bermudagrass at 1.4 to 2.9 pts. in 3 to 20 gals. of water per acre. Use 1.4 pts. east of the Rocky Mountains and 2.9 pts. west of the Rocky Mountains.

Use this treatment only if reduction of the bermudagrass stand can be tolerated. Allow at least 14 to 21 days for complete burndown.

Cool Season Grass Covers (Fine Fescue, Kentucky Bluegrass, Orchardgrass, Quackgrass, Tall Fescue)

For suppression of orchardgrass, fine fescue, tall fescue, and quackgrass, apply 3 to 6 fl. oz. of Touchdown Total in 10 to 20 gals. of water per acre. See **SPRAY ADDITIVES** section for rates.

For suppression of Kentucky bluegrass, use 2 to 4 fl. oz. of Touchdown Total.

CANOLA (NOT GLPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION AND MIXING DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Canola

- Up to 48 fl. oz./A of Touchdown Total may be applied per year as broadcast sprays with ground or aerial equipment.
- Avoid contact with canola foliage.

CANOLA, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY CANOLA)

Do not use this product on canola containing the Roundup Ready Gene planted in the following states: Alabama, Delaware, Florida, Georgia, Kentucky, Maryland, New Jersey, North Carolina, Tennessee, Virginia, and West Virginia.

Method of Application: Before, during, or after planting; and postemergence in canola varieties that have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION AND MIXING DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Canola

- Up to 48 fl. oz./A of Touchdown Total may be applied per year as broadcast preplant or preemergence sprays with ground or aerial equipment.
- Up to 24 fl. oz./A of Touchdown Total may be applied postemergence per cropping season from crop emergence until the 6-leaf stage. Applications made later during bolting or flowering may result in crop injury and yield loss.

- A single postemergence application of this product may be made over glyphosate-tolerant canola up to the 6-leaf stage at a rate of 10-17 fl. oz./A. Avoid spray overlaps which may result in temporary yellowing of the canola, delayed flowering, or growth reduction. Similar symptoms may occur if rates above 10 fl. oz./A are applied after the 4-leaf stage of the canola.

- Split (sequential) postemergence applications may be made by applying 12 fl. oz./A at the 1-3 leaf stage of glyphosate-tolerant canola, followed by a second application of 12 fl. oz./A at a minimum split of 10 days, but the second application must not be later than the 6-leaf stage. No more than two postemergence over-the-top applications may be made from crop emergence to the 6-leaf stage of the glyphosate-tolerant canola.

- The last application must be made at least 60 days before harvest of canola.

CHRISTMAS TREES

Method of Application: Postdirected spray; site preparation; and spot spray.

Touchdown Total may be used prior to planting Christmas trees; or as a postdirected spray and spot treatment around established Christmas trees.

Follow the directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

General Use Precautions for Christmas Trees

- Avoid contact of spray, drift, or mist with foliage or green bark of established Christmas trees.

- This product is not recommended for broadcast applications over the top of Christmas trees.

CONSERVATION COMPLIANCE/CONSERVATION RESERVE PROGRAM (CRP)

Method of Application: Rotating out of CRP, site preparation (sequential herbicide applications), dormant beneficial plant management; postemergence; and wiper/wick.

- Site Preparation: Prior to application, removal of excessive vegetation by grazing, mowing, burning, etc. may improve control. When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth before application. When perennial weeds have been mowed or grazed, allow regrowth to reach recommended stage (see **PERENNIAL WEED CONTROL** section, Table 3, for rates and timing).

Sequential applications of Touchdown Total and Gramoxone® Max herbicides are effective in controlling established CRP grasses. Refer to the Gramoxone Max herbicide label for recommended rates and tank mixes.

Touchdown Total/Gramoxone Max Herbicide Sequential Program (Spring Application)

Weed Species	Program A	Program B
Fescue Orchardgrass Ryegrass	Gramoxone Max at 1.7 to 2.7 pts./A followed 7-10 days later with Gramoxone Max at 2.0 to 2.7 pts./A	Touchdown Total at 1.4 to 3.0 pts./A followed 10-14 days later with Gramoxone Max at 2 to 2.7 pts./A

- Dormant Beneficial Plant Applications: Apply 9 to 12 oz./A in early spring before desirable species, such as crested and tall wheatgrass, break dormancy. Late fall applications can be made after desirable grasses have reached dormancy. If perennial grasses are not dormant at time of application, stunting can occur.

- Touchdown Total may be tank mixed with other herbicides registered for this use such as atrazine, dicamba, and 2,4-D.

- There are no rotational crop restrictions following application of Touchdown Total. Read and follow crop rotation label restrictions for all tank mix products.

CORN (FIELD CORN, POPCORN, SEED CORN, AND SWEET CORN – NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting but before crop emergence; hooded sprayers; spot spray; preharvest; and postharvest.

Follow the directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Corn

- Crop plants contacted by Touchdown Total will be injured or killed.

- Spot application must be made prior to corn silking.

- For hooded sprayer applications, do not exceed 24 fl. oz./A per application; nor 2.2 qts./A per year.

- Do not graze or feed corn forage or fodder following hooded sprayer applications.

- Preharvest application must be made at least 7 days before harvest.
- Apply no more than 24 fl. oz./A by air; and 2.2 qts./A by ground preharvest.

Tank Mixtures for Corn

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10 to 70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.
Touchdown Total can be tank mixed with the following products:

Aim™
Ambush®
Atrazine
Axiom™
Balance®
Basis®
Bicep Lite II MAGNUM®
Bicep MAGNUM®
Bicep II MAGNUM®
Broadstrike®
Bullet®
Callisto™
Clarity®
Degree™
Degree Xtra™
Distinct™
Dicamba
Dual MAGNUM®
Dual II MAGNUM®
Extrazine® II
Frontier®
Fultime™
Guardsman®
Harness®
Harness Xtra
Hornet™
Lariat®
Lasso®
Lightning™
Linex®
Lorox®
Lumax™
Marksman®
Micro-Tech®
Prowl
Simazine
Surpass® EC
Surpass 100
Topnotch®
Warrior®
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprayers

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Corn must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max herbicide may be considered for Hooded Sprayer applications in corn. Use Gramoxone Max at 0.75 to 1.3 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

Preharvest

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete. Do not apply a preharvest treatment on corn grown for seed as a reduction in germination or vigor may occur.

CORN, GLYPHOSATE-TOLERANT (INCLUDING AGRISURE™ GT AND ROUNDUP READY CORN)

Method of Application: Before, during, or after planting; and postemergence in corn varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS**

CONTROLLED section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Corn

- Applications of Touchdown Total to corn hybrids which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum amount of Touchdown Total which may be applied from all applications is 5.75 qts./A.
- Maximum preplant/preemergence rate is 3.6 qts./A.
- Maximum amount of Touchdown Total applied over-the-top of the crop from all applications is 70 fl. oz./A.
- Make postemergence applications from emergence through the V8 stage or until corn reaches 30 inches, whichever comes first with no more than 35 fl. oz./A for any single application. Applications of Touchdown Total at a maximum rate of 35 fl. oz./A may be made to corn from 30 to 48 inches in height using ground equipment and drop nozzles only.
- Avoid application of spray into whorls of corn plants.
- Allow a minimum of 50 days between postemergence application and harvest of forage.
- Make preharvest applications at least 7 days before harvest with no more than 24 fl. oz./A.

Tank Mixtures

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10-70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds,

consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.

Touchdown Total can be tank mixed with the following products:

Aim	Distinct	Linex
Ambush	Dicamba	Lorox
Atrazine	Dual Magnum	Lumax
Axiom	Dual II Magnum	Marksman
Balance	Extrazine II	Micro-Tech
Basis	Frontier	Prowl
Bicep Lite II MAGNUM	Fultime	Simazine
Bicep MAGNUM	Guardsman	Surpass EC
Bicep II MAGNUM	Harness	Surpass 100
Broadstrike	Harness Xtra	Topnotch
Bullet	Lariat	Warrior
Callisto	Hornet	2,4-D
Clarity	Karate	
Degree	Lasso	
Degree Xtra	Lightning	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Annual Weeds

Touchdown Total will control annual broadleaf weeds and grasses when applied as directed. Apply Touchdown Total at a minimum of 24 fl. oz./A from emergence through the V8 (8 leaves with collars) or until the corn height reaches 30 inches, whichever comes first.

When corn height is from 30 to 48 inches drop nozzles are required. Refer to Table 1 for specific rate information. Touchdown Total alone will not provide residual control. To control new weed flushes, repeat applications may be required.

Perennial Weeds

Touchdown Total will control or suppress perennial weeds with one or more applications. Successful control of perennial weeds is affected by proper timing of application. Refer to Table 3 for specific rate and timing information.

Tank Mixtures (Postemergence)

Touchdown Total can be tank mixed with the following products:

Ambush	Harness
Atrazine	Harness Xtra
Bicep MAGNUM	Karate
Bicep Lite II MAGNUM	Marksman
Bicep II MAGNUM	Surpass EC
Clarity	Surpass 100
Dicamba	Topnotch
Dual II MAGNUM	Warrior
Fultime	2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete.

COTTON (NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence; hooded sprayer; recirculating sprayer; spot spray; wiper/wick applicators; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section, for application rates and timing.

General Use Precautions for Cotton

- Spot applications must be made prior to boll opening.
- Preharvest, hooded, and wiper/wick applications must be made at least 7 days before harvest.
- Do not apply more than 24 fl. oz./A by air; nor more than 48 fl. oz./A by ground for preharvest.
- Do not feed or graze treated cotton forage or hay following preharvest application.

Tank Mixtures for Cotton (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol®	Direx	Staple®
Clarity	Dual MAGNUM	Valor®
Command®	Dual II MAGNUM	Zorial®
Cotoran®	Karmex	2-4,D
Cotton-Pro®	Meturon®	
Cy-Pro®	Prowl	

Refer to individual product labels for precautionary statements, restrictions, rates and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Apply in 10-20 gals. of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.

- Use low drift nozzles

Tank Mixtures (Hooded)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. Do not apply a preharvest treatment on cotton grown for seed as a reduction in germination or vigor may occur.

For **defoliation, desiccation, or regrowth control** of cotton, apply 24 fl. oz./A to 48 fl. oz./A. Apply in 3 to 30 gals. of water per acre by ground or in 3 to 15 gals. of water per acre by air.

Refer to the **WEEDS CONTROLLED** section for application rates and timing.

Touchdown Total can be tank mixed with the following products for improved defoliation or boll opening.

DEF®
Dropp®
Folex®
Prep™

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Cotton, Glyphosate-Tolerant (Including Roundup Ready Cotton)

Method of Application: Before, during, or after planting; postemergence; postdirected; hooded; and preharvest in cotton varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Cotton

- Applications of Touchdown Total to cotton varieties which are not glyphosate

tolerant will result in severe crop injury and reduced yields.

- Maximum preplant/preemergence rate is 3.6 qts./A.
- Make postemergence applications from ground cracking until the 4-leaf stage of cotton at a maximum of 48 fl. oz./A per season with no more than 24 fl. oz./A for any single application.
- Apply no more than 48 fl. oz./season by precision, postdirected, or hooded application methods between the 5-leaf stage and lay-by. Apply no more than 24 fl. oz./A for any single application by these methods.
- Apply a maximum of 2.9 qts./A by postemergence and directed/hooded applications from cracking to lay-by.
- Do not apply more than 24 fl. oz./A by air; nor more than 48 fl. oz./A by ground for preharvest.
- Preharvest applications must be made at least 7 days before harvest.
- Drift control agents may be used.

Tank Mixtures (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol	Direx	Staple
Clarity	Dual MAGNUM	Valor
Command	Dual II MAGNUM	Zorial
Cotoran	Karmex	2-4,D
Cotton-Pro	Meturon	
Cy-Pro	Prowl	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Make postemergence applications from ground cracking until the 4-leaf (node) stage of development (until the fifth true leaf reaches the size of a quarter) at a maximum single application rate of 24 fl. oz./A with no more than 48 fl. oz./A per season. Sequential over the top applications of Touchdown Total must be at least 10 days apart and cotton must have at least two nodes of incremental growth between applications.

Postdirected or Hooded Applications

Touchdown Total may be used through precision postdirected or hooded sprayers through the lay-by stage of cotton. Applications that contact the cotton leaves may result in boll loss, delayed maturity, and/or loss of yield. Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Apply in 10 to 20 gallons of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Application Requirements:

- Postdirected applications should be used that directs the spray towards the base of the cotton plant. For best results, apply to weeds less than 3 inches tall being careful to minimize contact of the spray with cotton leaves.
- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Tank Mixtures (Postdirected or Hooded)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Tank Mixtures with Dual MAGNUM

Touchdown Total can be applied with Dual MAGNUM from cotton emergence through the 4-leaf (node) stage of development (until the 5th true leaf reaches the size of a quarter). Do not use additional AMS or adjutants. Do not use this mixture if cotton plants are under any type of stress including, but not limited to drought, insect, disease, or mechanicals. Occasionally following application, cotton leaves may exhibit necrotic spotting which will not affect normal plant development.

For use in the following states: AL, AR, AZ, CA, FL, GA, KS, KY, LA, MD, MO, MS, NC, NM, OK, SC, TN, TX, and VA.

Refer to the Dual MAGNUM label for precautions and restrictions.

Salvage Treatment

Touchdown Total may be used after the four leaf stage of development and should only be used where weeds threaten to cause a loss of crop. A rate of 24 fl. oz./A may be applied either as a postemergence spray to the crop or a postdirected spray.

SALVAGE TREATMENTS WILL RESULT IN SIGNIFICANT BOLL LOSS, DELAYED MATURITY, AND/OR YIELD LOSS.

Preharvest

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. No enhancement of harvest aids will occur on glyphosate tolerant cotton. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

FALLOWLAND AND POSTHARVEST USE

Method of Application: Chemical fallow; fallow beds; stale seedbeds; aid to tillage; and postharvest.

Touchdown Total may be applied by ground or air during the fallow period prior to planting or emergence of any crop listed on this label. There are no rotational crop restrictions following application of this product.

Chemical Fallow - Ecofallow

Touchdown Total may be used in place of tillage to control annual weeds or volunteer wheat in fallow fields. Repeat applications may be necessary to control weeds emerging after application. Refer to Table 1 for use rates and timing. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of annual weeds listed in Table 2. Tank mixing with atrazine may provide residual control.

Postharvest Chemical Fallow for Cereals

Touchdown Total may be applied after harvest to control newly emerged weeds, volunteer cereals, or weeds which were present at harvest. Allow sufficient time after harvest for weed regrowth to occur before making application. Refer to Table 1 for use rates and annual weeds controlled. Higher rates may be required for control of large weeds which were present at the time of harvest. Repeat applications may be necessary for fall germinating weeds. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of weeds listed in Table 2. A postharvest tank mix with atrazine may be used if the field will be planted to corn or sorghum or laid fallow the following season. A tank mix with atrazine may be applied for residual control of certain annual weeds such as common lambsquarters, kochia, mustards, pigweeds, and volunteer wheat. Tank mixing with atrazine may result in reduced performance.

Aid to Tillage

Touchdown Total may be used in conjunction with tillage operations in fallow systems to control cheat, downy brome, foxtails, tansy mustard, and volunteer cereals. Apply 4 to 9 oz./A of Touchdown Total in 3 to 10 gals. of water/A. Apply before weeds exceed 6 inches in height. Application must be followed by tillage no later than 15 days after treatment or before weed regrowth. Allow at least one day after application before tillage. Tank mixes with residual herbicides may reduce performance. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Fallow Beds/Stale Seedbeds

Touchdown Total may be used to control weeds in fallow or stale seedbeds, including preplant/preemergence of any crop. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** section for application rates and timing. Touchdown Total can be tank mixed with 2,4-D, dicamba, or Goal herbicide for improved control of certain weeds.

Tank Mixture with Goal Herbicide

Apply Touchdown Total at 6 to 12 oz. with Goal herbicide at 2 to 3 oz./A for control of chickweed, common cheeseweed, and common groundsel that are less than 3 inches in height or diameter. Apply Touchdown Total at 12 to 17 fl. oz. with Goal at 2 to 3 oz./A for control of common cheeseweed, common groundsel, and horseweed/marestail that are a maximum of 6 inches in height and length; or chickweed, London rocket, and shepherdspurse that are a maximum of 12 inches in height or length.

Postharvest Use

Touchdown Total may be applied after harvest of any crop to control newly emerged weeds, volunteer crops, or weeds which were present at harvest. Refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for use rates. Repeat applications may be necessary to control weeds emerging after application. Use the higher rate on heavy or sodded infestations.

General Use Precautions for Fallowland and Postharvest Use

- Allow sufficient time for weed regrowth to occur after harvest before making applications.
- Avoid application after plants have been exposed to a severe frost.
- Refer to the individual labels of all products used in a tank mix for precautionary statements, recropping intervals, restrictions, and a list of weeds controlled.
- Touchdown Total will not control volunteer glyphosate-tolerant crops.
- There are no rotational crop restrictions following application of this product.

FARMSTEADS (NONCROP)

Method of Application: General nonselective weed control, trim-and-edge, chemical mowing, cut stumps, and habitat management.

Applications can be made in noncrop areas on the farm such as:

Barrier strips
Ditchbanks
Dry ditches and canals
Equipment areas
Farm buildings
Farm roads
Farmyards
Fence rows
Fuel storage areas
Rights-of-way
Shelterbelts
Soil bank land

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

Tank Mixtures for Farmsteads

Refer to the **ANNUAL WEEDS CONTROLLED** section, Table 1, for application rates and timing. For annual weeds, use 0.7 to 2.9 qts./A of this product when weeds are less than 6 inches tall and 1.1 to 2.9 qts./A when weeds are greater than 6 inches tall.

Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. For perennial weeds, apply 1.5 to 3.6 qts./A in these tank mixes. For tank mixtures with these products through backpack sprayers, handguns, or other high-volume spray-to-wet applications, see the **APPLICATION EQUIPMENT AND TECHNIQUES** section of this label for recommended rates.

Touchdown Total can be tank mixed with the following products:

Banvel®
Direx
Diuron
Princep Caliber 90
Simazine
Surflan
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Chemical Mowing

Touchdown Total will suppress perennial grasses listed in this section to serve as a substitute for mowing. Apply Touchdown Total at a rate of 3 to 6 fl. oz./A . Use 3 to 4 fl. oz. of this product per acre when treating Kentucky bluegrass. Apply treatments in 10 to 20 gals. of spray solution per acre. Chemical mowing applications may be made along farm ditches and other parts of farmsteads.

Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

Cut Stumps

Alder
Eucalyptus
Madrone
Oak
Reed, giant
Salt-cedar
Sweetgum
Tan oak
Willow

Touchdown Total will control regrowth of cut stumps and resprouts of many types of woody brush and tree species, some of which are listed. Apply Touchdown Total using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50 to 100% solution of Touchdown Total completely covering the freshly-cut surface immediately after cutting. Application delay may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

Habitat Management - Habitat Restoration and Maintenance

Touchdown Total may be used to control exotic and other undesirable vegetation in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broad spectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. Touchdown Total can be tank mixed with the following products:

Banvel
Direx
Diuron
Princep Caliber 90
Simazine
Surflan
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Wildlife Food Plots

Touchdown Total may be used for site preparation for control of annual and perennial weeds prior to planting wildlife food plots. Any wildlife food species may be planted or native species may be allowed to repopulate the area after applying Touchdown Total. If tillage is needed to prepare a seedbed, wait 7 days after application before tillage.

General Use Precautions for Farmsteads

- Avoid contact with the foliage of ornamentals or other desirable plants.
- Repeat applications may be necessary.
- Avoid making cut stump applications as injury to adjacent trees may occur from root grafting.

GRASS SEED PRODUCTION

Method of Application: Before, during, or after planting, but before crop emergence; renovation; site preparation; shielded/hooded sprayers; wiper/wick applicators; spot treatments; creating rows in annual ryegrass.

Apply to turf or forage grass areas grown for seed production. Applications MUST be made prior to the emergence of the crop to avoid crop injury. For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions

- Do not disturb soil or underground plant parts before treatment. Tillage or renovation techniques such as vertical mowing, coring, or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.
- Do not feed or graze treated areas for 8 weeks following application.
- Vegetation contacted by Touchdown Total will be injured or killed.
- For spot treatments, apply prior to heading of grasses.

Shielded/Hooded Sprayers

Use Instructions: Apply 0.7 to 2.2 qts. of Touchdown Total in 10 to 20 gals. of water per acre to control weeds in the rows. Uniform planting in straight rows aids in shielded/hooded applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields/hoods.

Wiper/Wick Applicators

Applicators should be adjusted so that the wiper contact point is at least 2 inches above the desirable vegetation. Weeds should be a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when height of weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. Better results may be obtained if 2 applications are made in opposite directions.

GRASSES

Touchdown Total can be used in the production of grasses listed below:

Bahiagrass
Bermudagrass
Bluegrass
Bromegrass
Fescue
Orchardgrass
Ryegrass
Timothy
Wheatgrass

Method of Application: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions for Grasses

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

Tank Mixtures for Grasses Preplant/Preemergence, Dormant, or Renovation

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

HERBS (PEPPERMINT, SPEARMINT)

Method of Application: Spot spray

Touchdown Total may be applied as a spot spray in peppermint and spearmint. Apply spray-to-wet with hand-held equipment, such as backpack and knapsack sprayers, pump-up pressure sprayers, handguns, handwands, or any other hand-held or motorized spray equipment used to direct the spray solution on to a limited area.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions

- Apply at least 7 days before harvest.
- Plants contacted by Touchdown Total will be injured or killed.

PASTURES

Touchdown Total can be used on pastures of the following types:

Alfalfa
Bahiagrass
Bermudagrass
Bluegrass
Bromegrass
Clover
Fescue
Orchardgrass
Ryegrass
Timothy
Wheatgrass

Method of Application: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

For best results, remove domesticated livestock 14 days before treatment. Allow 2-6 inches of new growth prior to treatment.

To aid in renovation of pastures, Touchdown Total may be applied at 8 to 46 oz./A to dormant pastures. Applications of Touchdown Total to green, nondormant plant tissue of desirable species will cause stunting, plant injury, or plant death.

General Use Precautions for Pastures

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

Tank Mixtures for Pastures

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

PEANUTS

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

SMALL GRAINS

Touchdown Total may be used on the small grain crops listed below:

Barley	Rye
Buckwheat	Teosinte
Millet (pearl, proso)	Triticale
Oats	Wheat (all)
Rice	Wild rice

Method of Application: Before, during, or after planting, but before crop emergence; as a spot spray (except rice); preharvest (wheat, feed barley); postharvest; and wiper/wick (wheat only).

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Small Grains

- Apply at least 7 days before harvest at no more than 24 fl. oz./A preharvest in wheat and feed barley.
- For wiper/wick applications in wheat, allow at least 35 days between application and harvest.
- Crop plants contacted by Touchdown Total will be injured or killed.
- Avoid treating rice fields or levees when the field contains flood water.

Tank Mixtures for Preplant/Preemergence Use for Small Grains

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds. Under certain conditions, the mixture of Touchdown Total with one or more herbicide tank mix combinations may result in a reduction of activity.

Dicamba
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest (Wheat and Feed Barley Only)

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied after the hard dough stage of grain (30% or less grain moisture). Cool, wet, and/or cloudy weather conditions following application may slow down the activity of this product. Do not apply a preharvest treatment on grain grown for seed as a reduction in germination or vigor may occur.

Red Rice Control Prior to Planting Rice

Prior to application, flush fields to promote uniform germination of red rice. Apply Touchdown Total at 36 to 48 fl. oz./A on red rice with at least 2 leaves and which is no more than 4 inches tall. Red rice with less than 2 developed leaves at the time of application may be only partially controlled.

Do not reflood rice fields for 8 days following application.

SORGHUM (MILO)

Method of Application: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; hooded sprayers; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sorghum

- Contact with sorghum foliage may result in crop injury.
- Spot applications must be made before heading of milo.
- Wiper and wick applications must be made 40 days before harvest. Do not feed or graze wiper/wick treated milo fodder. Do not ensile wiper/wick treated foliage.
- Apply no more than 2.2 qts./A per season by hooded applications.
- Do not feed or graze sorghum forage and fodder after hooded applications.
- Preharvest applications must be made at least 7 days prior to harvest with a maximum of 1.4 qts./A.

Tank Mixtures for Sorghum (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Atrazine	Dicamba	Karate
Bicep Lite II	Dual II MAGNUM	Prowl
Bicep Lite II MAGNUM	Frontier	Warrior
Bicep II MAGNUM	Guardsman	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground. Treat before tillers extend between the drill rows as spray contacting these tillers may kill the main plant.
- Sorghum must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.

- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max Herbicide may be considered for hooded sprayer applications in sorghum. Use Gramoxone Max at 0.75 to 1.25 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max Herbicide label.

Preharvest (Except California)

For weed control and desiccation of sorghum, apply 24 to 48 fl. oz./A. Apply in 3 to 30 gallons of water per acre by ground or in 3 to 15 gallons of water per acre by air.

Apply after most of the heads have matured. Apply when grain moisture is 30% or less. Development of immature heads will be interrupted and yield potential will be affected when applications are made too early. Do not apply a preharvest treatment on sorghum grown for seed as a reduction in germination or vigor may occur.

SOYBEANS (NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; preharvest; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Soybeans

- Soybeans, except glyphosate-tolerant varieties, will be injured or killed when contacted with Touchdown Total.
- Spot application must be made prior to initial pod set.
- Wiper/wick application must be made at least 7 days before harvest.
- Make preharvest applications at least 7 days before harvest of soybeans with no more than 4.3 qts./A by ground; and no more than 24 fl. oz./A by air.
- Allow at least 25 days before grazing or harvesting for livestock feed following harvest aid application.

Tank Mixtures for Soybeans (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

For use with 2,4-D on perennial weeds, consult Table 3.

Touchdown Total can be tank mixed with the following products:

Authority™	FirstRate™	Linex	Scepter®
Authority Broadleaf	Flexstar®	Lorox	Sencor
Broadstrike	Frontier	Lorox Plus	Squadron®
Canopy®	Fusilade®	Partner®	Steel™
Canopy XL	Fusion®	Preview®	Turbo®
Command®	Gemini®	Prowl	Warrior
Cover™	Karate	Pursuit	2,4-D
Dual MAGNUM	Lasso	Pursuit Plus	2,4-DB
Dual II MAGNUM	Lexone	Reflex®	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans and may aid in crop dry down. Apply to mature soybeans when pods have lost their color. Do not apply a preharvest treatment to soybeans grown for seed as a reduction in germination or vigor may occur.

SOYBEANS, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY SOYBEANS)

Method of Application: Before, during, or after planting; postemergence; and preharvest in soybean varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Soybeans

- Applications of Touchdown Total prior to soybean emergence should not exceed a total of 3.6 qts./A.
- Make postemergence applications from cracking throughout flowering of soybeans at a maximum of 2.2 qts. per season with no more than 48 fl. oz./A for any single application.
- Make preharvest applications at least 14 days before harvest with no more than 24 fl. oz./A.
- All Touchdown Total applications for a soybean crop should not exceed a total of 5.8 qts./year.
- Do not graze or harvest for forage or hay.
- Drift control agents may be used.

Preplant/Preemergence

Touchdown Total may be used as a broadcast spray to control emerged annual and perennial weeds. Apply before, during, or after planting of soybeans. Touchdown Total can be tank mixed with the following products:

Authority	Dual II MAGNUM	Lexone	Reflex
Authority Broadleaf	FirstRate	Linex	Scepter
Boundary	Flexstar	Lorox	Sencor
Broadstrike	Frontier	Lorox Plus	Squadron
Canopy	Fusilade	Partner	Steel
Canopy XL	Fusion	Preview	Turbo
Command	Gemini	Prowl	Warrior
Cover	Karate	Pursuit	2,4-D
Dual MAGNUM	Lasso	Pursuit Plus	2,4-DB

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Annual Weeds

Apply Touchdown Total at 12 to 48 fl. oz./A from cracking through full flowering of soybean plants to control annual weeds. For best results, make the first application of Touchdown Total at 24 fl. oz./A within 30 days after planting on weeds up to 6 inches tall. Refer to Table 1 for specific rate information. Touchdown Total will not provide residual control. To control new weed flushes, repeat applications may be required.

Perennial Weeds

Apply Touchdown Total at 24 to 48 fl. oz./A to actively growing perennial grasses, sedges, and broadleaf weeds. Applications in crop on glyphosate-tolerant soybeans normally occur before perennial weeds reach the most desirable growth stage for control. Treatments made prior to the timing designated in Table 3 may require retreatment. Best control will be obtained when perennial broadleaf weeds are treated in the early bud to flowering stage and when perennial grasses are in the boot to seedhead stage. Refer to Table 3 for additional rate and timing information.

Tank Mixtures

Touchdown Total may be tank mixed with one or more of the following products:

Basagran®
Bravo®
Classic®
FirstRate
Flexstar
Fusilade
Fusion
Karate
Pinnacle®
Pursuit
Quadris®
Raptor™
Reflex
Reliance™ STS®
Scepter
Synchrony® STS®
Tilt®
Warrior

Use a minimum of 12 to 17 fl. oz./A Touchdown Total in mixture with postemergent tank mix herbicides on 3 inch tall weeds. Use a minimum of 17 to 24 fl. oz./A Touchdown Total in mixture with postemergent tank mix herbicides on 3-6 inch tall weeds. Under certain conditions, the mixture of Touchdown Total with one or more of the above mentioned herbicides may result in a reduction of activity. Tank mixes can result in increased crop injury as compared to either product used alone. Refer to individual product labels for precautionary statements, restrictions, rates, and list of weeds controlled.

Preharvest

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans. Apply to mature soybeans when pods have lost their color.

SUGARCANE

Method of Application: Before, during, or after planting, but before emergence of plant cane; spot spray; hooded sprayers; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sugarcane

- Do not apply to vegetation in or around ditches, canals, or ponds containing water.
- Do not feed or graze treated sugarcane foliage following spot spray application.
- Avoid contact with sugarcane foliage, as severe damage or destruction may result.

Tank Mixtures for Preplant/Preemergence Use for Sugarcane

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Atrazine	Lexone/Sencor
Banvel	Prowl
Clarity	Trifluralin
Karmex	2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the

spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Sugarcane Ripening

To hasten ripening and extend the period of high sucrose levels in sugarcane see the following recommended use rates and application timing for each state listed.

LA – Apply 4.5-6 fl. oz./A 3–5 weeks before harvest of **ratoon cane only.**
TX – Apply 4.5-6 fl. oz./A 3–5 weeks before harvest of **ratoon cane only.**
FL – Apply 4.5-6 fl. oz./A 3–5 weeks before harvest of **last ratoon cane only.**
HI – Apply 4.5-6fl. oz./A 4–10 weeks before harvest.
PR –Apply 4.5-6 fl. oz./A 3–5 weeks before harvest of **ratoon cane only.**

Use of this product may not increase sucrose content control under conditions of good natural ripening.

Fallow Treatments

For removal of the last stubble of ratoon cane between sugarcane crops, apply 3.0 to 3.6 qts. in 10 to 40 gals. of water per acre to new growth having at least 7 new leaves. Allow 7 days between application and tillage.

SUNFLOWER

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sunflowers

- Make only one preplant or preemergence application with no more than 24 fl. oz./A.

- Do not graze or feed sunflower forage.
- Avoid contact with sunflower foliage.

Tank Mixtures for Preplant/Preeemrgence Use for Sunflower

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 1.5 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Eptam
Prowl
Trifluralin

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

VEGETABLE CROPS

Touchdown Total may be used on the vegetable crops listed below:

Amaranth
Arrugula
Artichoke (Jerusalem)
Asparagus
Beans (all)
Beet, garden
Beet, sugar
Broccoli (all)
Brussels Sprouts
Cabbage (all)
Cabbage (Chinese)
Cantaloupe
Cardoon
Carrot
Casaba
Cavalo Broccolo
Cauliflower
Celeriac
Celery
Celery (Chinese)
Celtuce
Chard (Swiss)
Chayote
Chervil
Chick peas
Chicory
Chrysanthemum
Collards
Corn salad
Cress
Cucumber
Dandelion
Dock (sorrel)
Eggplant
Endive
Fennel (Florence)
Garlic
Gherkin
Ginseng
Gourd, edible
Groundcherry
Guar
Horseradish
Kale
Kohlrabi
Leeks
Lentils
Lettuce
Melons (all including citron, crenshaw, honey balls, honeydew, mango, musk, Persian)
Mizuna
Mustard greens
Okra
Onions (green, spring, Japanese bunching)
Parsley, turnip-rooted
Parsnip
Peas (all)
Pepinos
Pepper (all)
Potato (Irish)
Pumpkin
Purslane
Radish
Radish, oriental (daikon)
Rape greens
Rhubarb
Rutabaga
Salsify, black
Salsify (oyster plant)
Salsify (Spanish)
Shallots
Spinach (all)
Spinach, mustard
Squash (summer, winter)
Sweet potato
Tomatillo
Tomato
Turnip
Watercress
Watermelon
Yams

Method of Application: Broadcast application before transplanting or before, during, or after planting but prior to crop emergence if direct seeded; spot spray; wiper/wick (rutabaga only); postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** for application rates and timing.

General Use Precautions for Vegetable Crops

- For **Asparagus,** do not apply broadcast within one week of emergence of first spears. Spot applications can be made immediately after cutting, but before emergence. Spears can be harvested 5 days after spot application. Postharvest applications can be made as a directed or shielded spray avoiding contact of the spray with the ferns, stems, or spears.

- Wait 3 days after application before planting cantaloupe, casaba, chayote, Chinese okra, Chinese waxgourd, cucumber, cucuzza, edible gourd, eggplant, gherkin, gourds, groundcherry, melons (all), pepper (all), pumpkin, squash, tomatillo, watercress, and watermelon.

- If transplanting into plastic mulch, ensure residues of this product are removed from the plastic prior to transplanting. Residues can be removed by a minimum of ½ inch of sprinkler irrigation or rainfall.

- Wiper/wick applications to rutabagas must be made at least 14 days before harvest.

Tank Mixtures With Residual Herbicides for Preplant/Preemergence Use in Vegetables

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol
Command
Dual MAGNUM
Dual II MAGNUM
Fusilade DX
Goal
Kerb
Lexone
Lorox
Matrix®
Prefar®
Prowl
Sencor
Trifluralin
Treflan®
Turbo

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

WEEDS CONTROLLED

Water volumes of 3 to 40 gallons per acre by ground equipment and 3 to 15 gallons by air are recommended. Use the minimum spray volume that provides adequate coverage.

When tank mixing with residual herbicides, refer to the individual crop section for recommendations.

Apply to actively growing weeds.

Table 1: Annual Weed Control – Touchdown Total Rates

Use the higher end of the rate range when stressful growing conditions or dense plant populations exist.

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Anoda, spurred	*Anoda cristata*	17–24	24–30			
Barley	*Hordeum vulgare*				12–17	17–24
Barnyardgrass	*Echinochloa crus-galli*	24	17–24	24–35		
Bassia, fivehook	*Bassia hyssopifolia*		24			
Bittercress	*Cardamine* spp.			6–12	12–17	
Bluegrass, annual	*Poa annua*			6–12		
Bluegrass, bulbous	*Poa bulbosa*			6–12		
Bristly starbur	*Ancanthospornum hispidum*		12–17	17–24		
Brome, downy[1]	*Bromus tectorum*		9–12	12–17		
Brome, Japanese	*Bromus japonicus*		6–12	12–17		17–24
Browntop panicum	*Panicum fasciculatum*		6–12	17–24		26–35
Buckwheat, wild[2]	*Polygonum convolvulus*	24				
Buffalobur	*Solanum rostratum*	17–24	24–36	24–36		
Burcucumber	*Sicyos angulatus*		12–17	17–24		

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Burgherkin	*Cucumis anguria*	17–24	24–36			
Buttercup [3]	*Ranunculus* spp.			6–12	12–17	
Camphorweed	*Heterotheca subaxillaris*		24–36			
Canarygrass	*Phalaris canariensis*		17–24			
Carolina geranium[4]	*Geranium carolinianum*	17–24	24–36			
Carpetweed	*Mullugo verticillata*		12–17	17–24		
Cheat	*Bromus secalinus*		6–12		12–17	
Chervil	*Anthriscus cerefolium*				6–12	
Chickweed, common	*Stellaria media*			6–17	17–24	
Chickweed, mouseear	*Cerastium vulgatum*		6–12	6–17	17–24	
Citronmelon	*Citrullus lanatus*	17–24	24–35			
Cocklebur, common	*Xanthium strumarium*			6–12	12–17	17–24
Coffee senna	*Cassia occidentalis*	17–24	24–35			
Corn[5]	*Zea mays*		6–12	12–17		17–24
Corn speedwell	*Veronica arvensis*			6–12		
Cowpea	*Vigna unguiculata*	17–24	24–35			
Crabgrass[6]	*Digitaria* spp.	12	12–17	17–24		
Crotalaria, showy	*Crotalaria spectabilis*	12–17	17–24	24–35		
Croton, tropic	*Croton glandulosus*	17–24	24–35	–		
Crowfootgrass	*Dactyloctenium aegyptium*	6–12	12–24	24–48		
Cutleaf eveningprimrose[4]	*Oenothera laciniata*	17–24	26–35			
Devil's–claw (unicorn plant)	*Proboscidea louisianica*	17	24			
Dwarfdandelion	*Krigia cespitosa*				6–12	
Eastern mannagrass			6–12	12–17		
Eclipta	*Eclipta prostrata*	12–17	17–24	24–35		
Fall panicum	*Panicum dichotomiflorum*	6–12	17–24	24–35		26–35

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Falsedandelion	*Pyrrhopappus carolinianus*				12–17	
Falseflax, smallseed	*Camelina microcarpa*			6–12		
Fiddleneck	*Amsinckia* spp.		17	24–35		
Filaree	*Erodium* spp.		17–24	24–35		
Fleabane, annual	*Erigeron annus*		6–12		12–17	
Fleabane, hairy	*Conyza bonariensis*		17–24	24–35		
Fleabane, rough	*Erigeron strigosus*	6–12	12–17	17–24		
Florida beggarweed	*Desmodium tortuosum*		12–17	17–24		
Florida pusley	*Richardia scabra*	17–24	24–35			
Foxtails	*Setaria* spp.		6–12	12–17	17–24	
Goatgrass, jointed	*Aegilops cylindrica*		6–12	12–17		
Goosefoot, neetleleaf	*Chenopodium murale*		24–35			
Goosegrass	*Eleusine indica*	12–17	17–24	24–35		
Grain sorghum (milo)	*Sorghum bicolor*		6–12	12–17	17–24	
Groundcherry	*Physalis sp.*		24–35			
Groundsel, common	*Senecio vulgaris*		12–17			
Hemp sesbania	*Sesbania exaltata*	12–17	24–29	29–36		
Henbit	*Lamium amplexicaule*		17–24	26–35		
Hophornbeam copperleaf	*Acalypha ostryifolia*	17–23	26–35			
Horseweed/Marestail[8]	*Conyza canadensis*		12–17	17–24	24–35	
Itchgrass	*Rottboellia cochinchinensis*		6–12	17–24	24–35	
Jimsonweed	*Datura stramonium*			17–24	24–35	
Johnsongrass, seedling	*Sorghum halepense*		6–12	12–17	17–24	24–35
Junglerice	*Echinochloa colona*	12–17	17–24	24–35		
Knotweed	*Polygonum aviculare*		17–24	24–35		
Kochia[3]	*Kochia scoparia*		12–17	17–24		
Lambsquarters, common	*Chenopodium album*		17-24	24-35	35-40	
Lettuce, prickly	*Lactuca serriola*		12–17	17–24		

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Little barley	*Hordeum pussillum*		6–12	12–17		
London rocket	*Sisymbrium irio*		6–12			17–24
Mayweed	*Anthemis cotula*	12–17	17–24		24–35	
Morningglory [4,7]	*Ipomoea* spp.	17–24	24–35			
Mustard, blue	*Chorispora tenella*		6–12	12–17	17–24	
Mustard, tansy	*Descurainia pinnata*		6–12	12–17	17–24	
Mustard, tumble	*Sisymbrium altissimum*		6–12	12–17	17–24	
Mustard, wild	*Brassica kaber*		6–12	12–17	17–24	
Nightshade, black	*Solanum nigrum*	17	17–24	24–35		
Nightshade, hairy	*Solanum sarrachoides Sendtner*	17	17–24	24–35		
Oats	*Avena sativa*	12	12–17		17–24	
Oats, wild	*Avena fatua*	12	12–17		17–24	
Panicum, Texas	*Panicum texanum*		6–12	17–23		24–35
Pennycress, field	*Thlaspi arvense*		6–12	12–17		
Pigweed	*Amaranthus* spp.			12–17	17–24	24–29
Poinsettia, wild	*Euphorbia heterophylla*	12–17	24–35			
Prickly sida (Teaweed) [4,7]	*Sida spinosa*	17–24	24–35			
Puncturevine	*Tribulus terrestris*	17–24	24–35			
Purslane, common	*Portulaca oleracea*	17–24	24–35			
Rabbitfootgrass	*Polypogon monspeliensis*		17–24			
Ragweed, common	*Ambrosia artemisiifolia*		12–17	17–24	24–35	
Ragweed, giant	*Ambrosia trifida*		12–17	17–24	24–35	
Red rice	*Oryza sativa*	17–24				
Redweed	*Melochia corchorifolia*	17–24	24–35			
Rockpurslane Redmaids	*Calandrinia sp.*		17–24			
Rye	*Secale cereale*		6–12		17–24	24–35
Ryegrass, Italian	*Lolium multiflorum*		17–24	24–35		
Sandbur, field	*Cenchrus incertus*		12	12–17		

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Sandbur, southern	*Cenchrus echinatus*	6–12	12–17	17–24		
Shattercane	*Sorghum bicolor*		6–12	12–17	17–24	
Shepherdspurse	*Capsella bursa-pastoris*		6–12	12–17		
Sicklepod	*Cassia obtusifolia*	17–24	24–35			
Signalgrass, broadleaf	*Brachiaria platyphylla*	12–17	17–24	24–35		
Smartweed (ladysthumb)	*Polygonum persicaria*		17–24	24–35		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		17–24	24–35		
Sowthistle, annual	*Sonchus oleraceus*		17–24	24–35		
Spanishneedles	*Bidens bipinnata*		17–24	24–35		
Speedwell, purslane	*Veronica peregrina*			6–12		
Sprangletop	*Leptochloa* spp.		6–12	12–17	17–24	
Spurge, prostrate	*Euphorbia* spp.		12–17	17–24		
Spurge, spotted	*Euphorbia maculata*		12–17	17–24		
Spurry, umbrella	*Holosteum umbellatum*		12–17			
Stinkgrass	*Eragrostis cilianensis*			12–17		
Sunflower, common	*Helianthus annuus*			6–12	12–17	
Thistle, Russian	*Salsola iberica*		17–24	24–35		
Velvetleaf[1]	*Abutilon theophrasti*		17–24	24–35		
Virginia copperleaf	*Acalypha virginica*	17–24	24–35			
Virginia pepperweed	*Lepidium virginicum*				12–17	
Waterhemp	*Amaranthus* spp.		17–24	24–35		
Wheat	*Triticum aestivum*		6–12	12–17	17–24	
Wild Buckwheat	*Polygonum convolvulus*		17–24	24–36		
Wild-proso millet	*Panicum miliaceum*		17	24	35	
Witchgrass	*Panicum capillare*			12–17		
Woolly cupgrass	*Eriochloa villosa*		12–17	17–24		
Yellow rocket	*Barbarea vulgaris*			12–17	17–24	

[1] In no-till systems, use 17 oz./A.

[2] Maximum runner length. For control of wild buckwheat >3" in runner length, use sequential applications of 24 oz./A.
[3] Control will be reduced at the button stage.
[4] When the predominant weed species include Carolina geranium, cutleaf eveningprimrose, and henbit that are less than 6 inches tall, Gramoxone Max should be considered as an alternative.
[5] Will not control glyphosate-tolerant volunteer corn.
[6] Plant diameter.
[7] Multiple applications may be required.
[8] Will not control glyphosate–tolerant marestail/horseweed. Glyphosate–tolerant biotypes can be controlled by timely application of Gramoxone Max plus either 2,4-D and/or a PSI herbicide prior to planting.

Table 2: Annual Weed Control – Touchdown Total Rates in a Tank Mix with 0.25 lb. a.i./A of Dicamba or 0.5 lb. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	MAXIMUM HEIGHT/ LENGTH	Touchdown Total FLUID OUNCES PER ACRE
Kochia (dicamba only)	*Kochia scoparia*	6"	12–17
Lettuce, prickly	*Lactuca serriola*		
Morningglory	*Ipomoea* spp.		
Ragweed, common	*Ambrosia artemisiifolia*		
Ragweed, giant	*Ambrosia trifida*		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		
Velvetleaf	*Abutilon theophrasti*		
Cocklebur, common	*Xanthium strumarium*	12"	
Fleabane, rough	*Erigeron strigosus*		
Horseweed/Marestail*	*Conyza canadensis*		
Kochia	*Kochia scoparia*		
Lambsquarters, common	*Chenopodium album*		
Pigweed	*Amaranthus* spp.		
Sunflower, common	*Helianthus annuus*		
Thistle, Russian	*Salsola iberica*		

Read and follow dicamba and 2,4-D labels.

*Glypyhosate–tolerant biotypes less than 3 inches tall can be controlled by Gramoxone Max plus either 2,4-D or a triazine-based herbicide.

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lb. a.i./A of Dicamba or 0.5 lb. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Alfalfa	*Medicago sativa*	1.5	1-1.5		At 6-8 inch stage or more after final cutting in fall. Deep till 7 days after treatment.
Artichoke, Jerusalem	*Helianthus tuberosus*	1.5	2.2-3.6		At or after flowering.
Balsam-apple [1]	*Momordica charantia*	1.5			Apply at or beyond bloom.
Bahiagrass	*Paspalum notatum*	1.5	2.2-3.6		Early seedhead stage.
Barley, foxtail	*Hordeum jubatum*	1.5	0.75-1.6		4-6 inch stage.
Bentgrass	*Agrostis* spp.	1.5	1.1		Should have at least 3 inches of growth. Ensure entire crown area has resumed growth prior to fall application. Till 7-10 days after application.
Bermudagrass	*Cynodon dactylon*	1.5	2.2-3.6		Seedheads present; may require retreatment.
Bermudagrass, water (knotgrass)		1.5	1.1		Apply when water bermudagrass is 12-18 inches in length. Allow 7 days before flushing or flooding the field. Not registered for use in California on this weed.
Bindweed, field	*Convolvulus arvensis*	1.5	2.7-3.6		At or after flowering, west of Mississippi River, in late summer for best results.
			2.2-2.7		At or after flowering, east of Mississippi River, in late summer for best results.
			1.4	Yes	At or after flowering for control, multiple applications may be required. Do not apply by air.
			0.7-1.4	Yes	For suppression on irrigated agricultural land, by ground equipment only. Apply in fall or following harvest on runners 12 inches or more in length.
Bindweed, field (continued)	*Convolvulus arvensis*		0.4	Yes	For suppression by ground or aerial applications. Apply by air in fallow and reduced tillage systems only. Applications should be delayed until maximum emergence has occurred and when vines are between 6-18 inches in length.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
			0.7-3.6		**In California**: Apply at 12 inches or greater runner length. Use high end of rate range where dense populations exist. For suppression on land which is irrigated and tilled, use 0.7 qt./A.
Bluegrass, Kentucky	*Poa pratensis*	1.5	0.75-1.4		Apply at boot to early seedhead stage.
			0.75–1.1		For partial control in pasture or hay crop renovation, apply when plants are 4-12 inches.
Blueweed, Texas	*Helianthus ciliaris*	1.5	2.7-3.6		Apply at or beyond bloom west of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
			2.2-2.7		Apply at or beyond bloom east of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
Brackenfern	*Pteridium aquilinum*	0.7-1.1	2.2–3.3		Fronds fully expanded and at least 18 inches long.
Bromegrass, smooth	*Bromus inermis*	1.5	0.75-1.6		Apply when most plants are at the boot to early seedhead stage.
			0.75-1.1		For partial control in pasture or hay crop renovation, apply to actively growing plants 4-12 inches in height.
Bursage, woollyleaf	*Ambrosia grayi*	1.5	1.4	Yes	Apply to actively growing plants at or beyond flowering.
			0.75	Yes [1]	Apply to actively growing plants at or beyond flowering.
Canarygrass, reed	*Phalaris arundinacea*	1.5	1.6-2.2		Boot to head.
Cattail	*Typha* spp.	1.5	2.2-3.6		Early head to early bud.
Clover, red Clover, white	*Trifolium pratense* *Trifolium repens*	1.5	2.2-3.6		Early head to early bud. May require retreatment.
Cogongrass	*Imperata cylindrica*	1.5	2.2-3.6		Late summer/fall, greater than 18 inches in height. May require retreatment.
Dallisgrass	*Paspalum dilatatum*	1.5	2.2-3.6		Early head to early bud.
Dandelion	*Taraxacum officinale*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dayflower[1]	*Commelina* spp.	1.5	1.1-1.6		Less than 4 inches in height.
Dock, curly	*Rumex crispus*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dogbane, hemp	*Apocynum cannabinum*	1.5	3.3		Late bud to flower. May require retreatment.
			0.4	Yes	Actively growing at 6-12 inch stage for suppression.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Dogfennel	*Eupatorium capillifolium*	1.5	2.2-3.6		Actively growing, less than 12 inches in height.
Fescue	*Festuca* spp.	1.5	2.2-3.6		Apply when most plants have reached the early head stage.
Fescue, tall	*Festuca arundinacea*	1.5	0.75-2.2		Apply 2.2 qts./A when most plants have reached boot to early seedhead stage. Fall applications only: Apply 0.75 qt./A when plants are 6-12 inches in height. A spring applied sequential treatment of 0.75 pt./A will improve long term control.
Goatweed	*Scoparia dulcis*	1.5	1.4-2.2		Less than 8 inch stage.
Guineagrass	*Panicum maximum*	0.7	1.6-2.2		7-10 leaf stage.
Horsenettle	*Solanum carolinense*	1.5	2.2–3.6		Early bud stage.
Horseradish	*Armoracia rusticana*	1.5	3.3		Apply when most plants have reached the late bud to early flower stage in late summer or fall.
Iceplant	*Mesembryanthemum crystallinum*	1.1–1.5	–		At or beyond the early bud stage.
Johnsongrass	*Sorghum halepense*	0.7	0.4-2.2		Apply at boot to head stage and in the fall prior to frost. Use 0.7 to 1.4 qts./A for annual tillage systems. Use 1.4 to 2.2 qts./A on no-till acres. Allow 3-7 days before tillage.
			0.4		For burndown, apply when plants are 12 inches in height and allow 3 days before tillage.
Kikuyugrass	*Pennisetum clandestinum*	1.5	1.6-2.2		Spray when most kikuyugrass is at least 8 inches in height. Allow 3 or more days after application before tillage.
Knapweed	*Centaurea* spp.	1.5	3.3		Apply in fall at late bud to flower stage.
Lantana, largeleaf[1]	*Lantana camara*	1.0	–		Apply at or beyond bloom stage.
Lespedeza	*Lespedeza spp.*	1.5	2.2-3.6		Apply when most plants have reached the early bud stage.
Milkweed, common	*Asclepias syriaca*	1.5	2.2	Yes	Apply when most plants have reached the early bud stage.
Milkweed, honeyvine	*Ampelamus albidus*	1.5	1.6-3.3	Yes	Late bud to early flower. May require retreatment.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Muhly, wirestem	*Muhlenbergia frondosa*	1.5	0.75-1.6		Use 0.75 to 1.6 qts./A in pasture, sod, or noncrop areas. Spray plants 8 inches or more in height. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage.
Mullein, common	*Verbascum thapsus*	1.5	2.2-3.6		Early bud.
Napiergrass	*Pennistum purpureum*	1.5	2.2-3.6		Early head stage.
Nightshade, silverleaf	*Solanum eleagnifolium*	1.5	1.6		Apply when 60% of plants have berries. Apply fall treatments before a killing frost.
Nutsedge, purple Nutsedge, yellow	*Cyperus rotundus* *Cyperus esculentus*	0.7-1.5	0.4-2.2		Apply 2.2 qts./A for control of nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Sequential applications: 0.7–1.4 qts./A applied to plants in the 3-5 leaf stage or less than 6 inches tall. Repeat treatments at this stage for long term control. For partial control: apply 0.4–1.4 qts. per acre. Treat when plants have 3-5 leaves or less than 6 inches tall. Repeat treatments at this stage for long term control.
Orchardgrass	*Dactylis glomerata*	1.5	0.75-1.6		Apply 1.4 qts./A on plants at early boot to seedhead stage. For partial control in pasture or hay crop renovation, apply 0.75–1.1 qts./A. Apply to actively growing plants 4-12 inches in height. In orchardgrass sods rotated to no-till corn: Apply 0.75–1.1 qts. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be required for optimum results.
Pampasgrass[1]	*Erianthus ravennae*	1.0-1.5			Apply at or beyond boot stage.
Paragrass	*Brachiaria mutica*	1.5	2.2-3.6		Early seedhead stage.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Phaseybean[1]	*Phaseolus lathyroides*	1.5	1.6-3.3		Less than 8 inches tall.
Phragmites[1]	*Phragmites* spp.	1.0-1.5	2.2-3.6		For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Repeat treatments may be necessary. Visual control symptoms will be slow to develop.
Poison hemlock	*Conium maculatum*	1.0-1.5			Apply as a spray to wet treatment. Optimum results are obtained when plants are treated at the bud to full-bloom stage of growth.
Pokeweed, common	*Phytolacca americana*	1.5	1.1		Apply to actively growing plants up to 24 inches in height.
Quackgrass	*Agropyron repens*	1.5	0.75-2.2		Apply 0.75–2.2 qts./A in annual cropping systems, or in pastures and sods where deep tillage is used. Do not tank mix with a residual herbicide at the 0.75 qt. rate. Spray when quackgrass is 6-8 inches in height. Do not till between harvest and fall applications or in the fall or spring prior to spring application. Allow 3 or more days after application before tillage.
			1.6-2.2		Apply in pastures, sod, or noncrop areas where deep tillage will not follow the application. Spray when quackgrass is at least 8 inches in height.
Redvine[1]	*Brunnichia ovata*	1.5	0.5-1.6		For suppression, apply 0.5 qt./A at each of two applications 7-14 days apart or a single application of 1.6 qts./A. Apply to plants greater than 18 inches tall in September/October to plants which have been growing 45-60 days since the last tillage. Make application at least 1 week prior to killing frost.
Ryegrass, perennial	*Lolium perenne*	1.0	0.75-2.2		Apply 0.7–2.2 qts./A when most plants are in the boot to head stage or prior to frost. In noncrop or areas where no tillage is practiced, use 1.6–2.2 qts./A. Do not tank mix with residual herbicides when using the 0.75 qt./A per acre rate.
Smallflowered Alexandergrass	*Brachiaria subquadripara*	1.5	1.6-3.3		Less than 4 inches in height, actively growing.
Smartweed, swamp	*Polygonum coccineum*	1.5	2.2—3.6		Early bud, 12 inch stage.
			0.4	Yes	Early bud, 12 inch stage.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Sowthistle, perennial	*Sonchus arvensis*	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage.
Spurge, leafy	*Euphorbia esula*	1.5	0.4	Yes	For suppression: greater than 12 inches tall in late summer.
Sweet potato, wild [1]	*Ipomea pandurata*	1.5			*Apply at or beyond flowering stage.*
Switchgrass	*Panicum virgatum*	1.5	1.1-2.2		Boot to head stage.
Thistle, artichoke [1]	*Cynara cardunculus*	1.5			Apply when plants are beyond the bloom stage.
Thistle, Canada	*Cirsium arvense*	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage. For fall applications or following mowing, allow a minimum of 6-8 inches rosette development.
			0.4-0.7	Yes	For suppression: Apply in late summer or fall after harvest, mowing, or tillage. Allow rosette regrowth to be a minimum of 6 inches in diameter before treating. Allow 3 or more days before tillage.
Timothy	*Phleum pratense*	1.5	1.6-2.2		Boot to head; wait 3 days before tillage.
Torpedograss[1]	*Panicum repens*	1.5	2.7-3.6		At or beyond seedhead. Repeat applications will be required to maintain control. Fall treatments must be made prior to a killing frost.
Trumpetcreeper[1]	*Campsis radicans*	1.5	1.6		Late September/October applications on actively growing plants at least 18 inches in height; retreatment may be required. Make applications at least one week before killing frost.
Vaseygrass	*Paspalum urvillei*	1.5	2.2-3.6		Apply at early head stage.
Vetch	*Vicia* spp.	1.5	1.4-2.9		Boot to head.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Virginia creeper	*Parthenocissus quinquefolia*	1.5	3.3		Full leaf expansion.
Velvetgrass	*Holcus* spp.	1.5	2.2-3.6		Early head stage
Wheatgrass, western	*Agropyron smithii*	1.5	1.6-2.2		Boot to head.

[1] Partial control.

Table 4: Woody Brush and Trees Controlled

Apply Touchdown Total after full leaf expansion, unless otherwise directed. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. In most areas, best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring to early summer when brush species are at high moisture content and are flowering.

Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing, or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Reduced performance may result if fall treatments are made following a frost.

When plants are growing under stressed conditions, or where infestations are dense, Touchdown Total may be used at 3.6 to 7.6 quarts per acre or a 0.7 to 1.5% solution for spot spray clean-up.

The following are controlled with 1.6 to 2.2 qts.[1]	
Birch	Rose, multiflora
Cherry; bitter, black, pin	Salmonberry
Elderberry	Sweetgum
Hawthorn	Thimbleberry
Hazel	Trumpetcreeper
Oak, southern red	
The following are controlled with 2.2 to 3.3 qts.[1]	
Alder	Oak, post
Blackberry	Quaking Aspen
Honeysuckle	Willow
The following are controlled with 2.7 to 3.6 qts.[1]	
Kudzu	
Poison ivy/Poison oak	
The following are controlled with 1.6 to 3.6 qts.[1]	
Ash[2]	Oak; black, white[2]
Bearmat (Bearclover)[2]	Oak; northern, pin
Beech[2]	Oak, scrub[2]
Blackgum	Persimmon[2]
Bracken	Pine
Cascara[2]	Poplar, yellow[2]
Ceanothus[2]	Redbud, eastern
Chamise[2]	Russian olive[2]
Dogwood[2]	Sage, white[2]
Elm[2]	Saltcedar
Florida holly (Brazilian peppertree)[2]	Sassafras[2]
Gorse[2]	Sourwood[2]
Hickory[2]	Sumac; poison, smooth, winged[2]
Hornbeam, American[2]	Swordfern[2]
Locust, black[2]	Vine maple[2]
Manzanita[2]	Virginia creeper
Maple, red	Waxmyrtle, southern[2]
The following are controlled with 3.6 qts.[1]	
Broom; French, Scotch	Maple, sugar
Buckwheat, California[2]	Monkey flower[2]
Catsclaw[2]	Sage, black
Coyote brush	Sage brush, California
Eucalyptus	Tallowtree, Chinese
Hasardia[2]	Tan oak resprouts[2]
Madrone resprouts[2]	Tobacco, tree[2]

[1] Alternatively, use a 1.5% solution for spot spray clean-up.
[2] Provides partial control

This product is sold only for uses stated on its label. This formulation is covered by U.S. Patent No. 5,468,718.

Ambush®, Bicep MAGNUM®, Bicep Lite II MAGNUM®, Bicep II MAGNUM®, Bravo®, Callisto®, Caparol®, Cotoran®, Devrinol®, Dual MAGNUM®, Dual II MAGNUM®, Eptam®, Flexstar®, Fusilade®, Fusion®, Gramoxone®, Karate®, Lumax®, Princep®, Princep® Caliber 90®, Quadris®, Reflex®, Solicam®, Tilt®, Touchdown Total™, Warrior®, Zorial®, and the Syngenta logo registered trademarks of a Syngenta Group Company

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Sim-Trol® registered trademark of Spicam Agro USA, Inc.

Valor® trademark of Valent Agricultural Products

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For non-emergency (e.g., current product information), call Syngenta Crop Protection at 1-800-334-9481.

Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

Base Label
(2.5, 30, 120 gal. and bulk)

GROUP	9	HERBICIDE

Touchdown Total™
IQ® Technology
Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use in attached booklet.

EPA Reg. No. 100-1169
EPA Est. 100-LA-001 [2.5, 30, 120 gallon]
EPA Est. _____ [Bulk]

Touchdown Total™ and the Syngenta logo are trademarks of a Syngenta Group Company

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Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

2.5, 30, 120 gallons
Net Contents

___ gallons [Bulk]
Net Contents

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if inhaled. Avoid breathing spray mist. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**	

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, fiberglass, plastic, or plastic-lined steel containers.

[Bulk]:

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and Buyer and User assume the risk of any such use. SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall SYNGENTA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE**

RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.

Syngenta AND SELLER OFFER THIS PRODUCT, AND BUYER AND USER ACCEPT IT, SUBJECT TO THE FOREGOING CONDITIONS OF SALE AND LIMITATIONS OF WARRANTY AND LIABILITY, WHICH MAY NOT BE MODIFIED EXCEPT BY WRITTEN AGREEMENT SIGNED BY A DULY AUTHORIZED REPRESENTATIVE OF SYNGENTA.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage

Keep container closed to prevent spills and contamination.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

G 1 1 0 1 0 1 1 1 1 6 9 1 1 1 ~~[illegible]~~ 7/6/05

3. [illegible] PUBLICATION NECESSARY ☐ YES ☐ NO	4. PETITION NO.	5. RECEIVED ON [illegible] MO DAY
6. METHOD OF SUPPORT ☐ [illegible] ☐ [illegible] ☐ [illegible]	7. PRODUCT MANAGER	NO. 8. PROJECTED RETU[illegible] MO DAY
9. DATE PULLED 8/30/05	10. DATE PUBLISHED AWP	11. ACTION TYPE Add ~~[illegible]~~ Glyphosate tolerant Canola & other Changes 300 — CODE 12. OUTGOING DATE MO DAY

[illegible]	REVIEW TYPE	REVIEWER CODE (Initials)	SIGNATURE OF REVIEWER	COMMENT CODE	DATE REVIEW COMPL[illegible] MO DAY
A	REVIEWABILITY TEAM				
B	PRODUCT MANAGER TEAM EFFICACY REVIEW				
C	PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW				
D	PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW				
E	PRODUCT MANAGER TEAM RESUBMISSION REVIEW				
F	PRODUCT MANAGER		V/CW	RL	08/30/05
G	INTERAGENCY REFERRAL		Warranty		
H	COST-BENEFIT REVIEW				
I	PUBLIC COMMENTS REVIEW				
J	EEE BRANCH INSECTICIDE EFFICACY				
K	EEE BRANCH HERBICIDE EFFICACY				
L	EEE BRANCH FUNGICIDE EFFICACY				
M	EEE BRANCH ROBENTICIDE EFFICACY				
N	EEE BRANCH DISINFECTANT EFFICACY				
O	CHEMISTRY BRANCH RESIDUE CHEMISTRY				
P	EEE BRANCH ENVIRONMENTAL CHEMISTRY				
Q	TOXICOLOGY BRANCH HUMAN SAFETY				
R	EEE BRANCH ENVIRONMENTAL SAFETY				
S					
T					

PRODUCT MANAGER SIGNATURE	TYPE OF RESPONSE	CODE

EPA Form 8570-13 (3-75)

Please read instructions on reverse before completing form.

United States Environmental Protection Agency Washington, DC 20460	[ ] Registration [x] Amendment [ ] Other	OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 100-1169	2. EPA Product Manager James A. Tompkins	3. Proposed Classification [x] None [ ] Restricted
4. Company/Product (Name) Touchdown Total™ Herbicide	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Syngenta Crop Protection, Inc. P. O. Box 18300 Greensboro, NC 27419 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

[x] Amendment - Explain below.

[ ] Resubmission in response to Agency letter dated _____

[ ] Notification - Explain below.

[ ] Final printed labels in response to Agency letter dated _____

[ ] "Me Too" Application.

[ ] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.).

Enclosed is an application to amend the registration of Touchdown Total Herbicide by making the following changes, which are considered by Syngenta to be administrative in nature.

- Added "low foam technology" logo to the front panel of the label.
- Addition of a section – **Canola, Including Glyphosate Tolerant**.
- Revised the **Corn, Glyphosate-Tolerant (Including Roundup Ready Corn)** section by: 1) adding Agrisure™ GT to the heading of this section, 2) adding/revising the **General Use Precautions for Glyphosate-Tolerant Corn** section, 3) revising the **Postermergence – Annual Weeds** section.
- Added Clarity® and Valor® to the **Cotton (Not Glyphosate-Tolerant)** section.
- Added Bravo®, Quadris®, Tilt® to the **Soybeans, Glyphosate-Tolerant** section; also deleted 2,4-DB from this section.
- Revised the **Sugarcane Ripening** section.
- Revised rates for lambsquarters in **Table 1**.
- A few administrative wording clarifications have been made in certain sections of the label.

Section – III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [x] No	[ ] Yes [x] No	[ ] Yes [x] No	[ ] Metal [x] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) _____
Certification must be submitted	If "Yes" Unit Packaging wgt. / No. per Container	If "Yes" Unit Packaging wgt. / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[x] Label [ ] Container	2.5, 30, 120 gallons and Bulk	[x] On Label [ ] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [x] Other Pressure Sensitive

Section – IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Jerry Wells	Senior Regulatory Product Manager	336-632-6324

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature Jerry Wells	3. Title Senior Regulatory Product Manager	6. Date Application Received **(Stamped)**
4. Typed Name Jerry Wells	5. Date July 1, 2005	

Fee for Service

This package includes the following

- ○ New Registration
- ◉ Amendment

☐ Studies? ☐ Fee Waiver?

☐ volpay % Reduction: ___

for Division

- ○ AD
- ○ BPPD
- ◉ RD

Risk Mgr. 25

Receipt No.	S- 781270
EPA File Symbol/Reg. No.	100-1169
Pin-Punch Date:	7/6/05

☑ This item is NOT subject to FFS action.

Action Code:		Parent/Child Decisions:
Requested:		
Granted:		
Amount Due:	$ _____	

Reviewer: [signature] Date: 7/11/2005

Remarks:
TRB: OK 7/11/05
D.R.

NON – FEE

Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

syngenta

VIA COURIER

July 1, 2005

Document Processing Desk (AMEND/E-SUB)
Office of Pesticide Programs (H7504C)
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2
1801 South Bell Street
Arlington, VA 22202

Attn: Mr. James A. Tompkins

Dear Mr. Tompkins:

SUBJECT: APPLICATION FOR AMENDED REGISTRATION
TOUCHDOWN TOTAL™ HERBICIDE – EPA REG. NO. 100-1169
SUBMISSION OF REVISED PROPOSED LABELING

Enclosed is an application to amend the registration of Touchdown Total Herbicide by making the following changes, which are considered by Syngenta to be administrative in nature.

- Added "low foam technology" logo to the front panel of the label.
- Addition of a section – **Canola, Including Glyphosate Tolerant**.
- Revised the **Corn, Glyphosate-Tolerant (Including Roundup Ready Corn)** section by: 1) adding Agrisure™ GT to the heading of this section, 2) adding/revising the **General Use Precautions for Glyphosate-Tolerant Corn** section, 3) revising the **Postermergence – Annual Weeds** section.
- Added Clarity® and Valor® to the **Cotton (Not Glyphosate-Tolerant)** section.
- Added Bravo®, Quadris®, Tilt® to the **Soybeans, Glyphosate-Tolerant** section; also deleted 2,4-DB from this section.
- Revised the **Sugarcane Ripening** section.
- Revised rates for lambsquarters in **Table 1**.
- A few administrative wording clarifications have been made in certain sections of the label.

This amendment qualifies as a fast-track label amendment, and does not fall under actions listed in the Pesticide Registration Improvement Act of March 17, 2004.

Five copies of the Touchdown Total label are enclosed; one copy is highlighted to show the changes made to the label. Also enclosed are a CD of the Touchdown HiTech label for electronic submission and review, the Certification with Respect to Label Integrity form, and EPA Form 8570-1 – Application for Pesticide Amendment.

syngenta

Thank you for your consideration of this label amendment. If you have any questions, please contact me at 336-632-6324.

Sincerely,

Jerry Wells

Jerry Wells
Senior Regulatory Product Manager

Enclosures

Certification with Respect to Label Integrity

Version: 9/11/02

I certify that the information (including, but not limited to, text, tables, and graphics) contained in the electronic file identified below by file name and submitted with this certification is the same information as that on the paper copies of these documents included with this submission.

PROPOSED LABEL		
EPA Registration #	Date Submitted to EPA	Electronic file name
100-1169	07/01/2005	000100-01169.20050701.TOUCHDOWNTOTAL-AMEND-JUNE05.pdf

I certify that the statements that I have made on this form are true, accurate, and complete. I acknowledge that any knowingly false or misleading statements may be punishable by fine or imprisonment or both under applicable law.

Pat Dinnen
Signature

July 1, 2005
Date

Pat Dinnen
Name (typed)

Regulatory Specialist, Herbicides
Title

The Electronic Copy of the Label Submitted with this Application has been Removed by the Front End Processing Unit for Entry in the Electronic Label Library (ELL).

Please contact either Tom Harris (RD) or Bob Schultz (IRSD/ISB) for Assistance.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

NOV - 1 2004

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Mr. Jerry Wells
Syngenta Crop Protection
P. O. Box 11300
Greensboro, NC 27419-8300

Dear Mr. Wells:

Subject: Touchdown Total Herbicide (Add Referral Statement to Master Label)
EPA Registration No. 100-1169
Application Dated August 23, 2004

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Amended labeling supercedes all previously accepted ones. A stamped copy of labeling is enclosed for your records.

Sincerely,

Vicki K Walters for

James A. Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505C)

GROUP	9	HERBICIDE

Touchdown Total™
IQ® Technology

Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-1169

EPA Est. 100-LA-001 [2.5, 30, 120 gal.]
EPA Est. [Bulk]

ACCEPTED
NOV - 1 2004
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended for the pesticide registered under EPA Reg. No. 100-1169

SCP 1169 MAS

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if inhaled. Avoid breathing spray mist. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Long sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Socks and shoes

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations
Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, fiberglass, plastic, or plastic-lined steel containers.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and Buyer and User assume the risk of any such use. SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall SYNGENTA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitations of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are **NOT** within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage

Keep container closed to prevent spills and contamination.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Recyclable/Refillable Containers

Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

Container Disposal

Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

GENERAL INFORMATION

Touchdown Total is a nonselective foliar systemic herbicide used to control a broad spectrum of emerged grass and broadleaf weeds, both annual and perennial, in:

- alfalfa, clover, and other legumes
- berries, fruits, nuts, and vines
- Christmas trees
- conservation compliance/conservation reserve program (CRP)
- corn, including glyphosate tolerant

- cotton, including glyphosate tolerant
- fallowland and postharvest
- farmsteads
- grasses and grass seed production
- herbs
- pastures
- peanuts
- small grains
- sorghum
- soybeans, including glyphosate-tolerant
- sugarcane
- sunflower
- vegetables

Touchdown Total is formulated as a liquid concentrate which contains 4.17 pounds acid equivalent per gallon.

GENERAL USE PRECAUTIONS

- Touchdown Total requires actively growing green plant tissue to function. Application to drought-stressed weeds or weeds with little green foliage (i.e. mowed, cut, or hailed on weeds); weeds covered with dust; weeds damaged by insects or diseases may result in reduced weed control.

- Touchdown Total does not provide soil residual control of weeds. Weeds emerging after application will require retreatment.

- Heavy rainfall or irrigation shortly after application may require retreatment.

- Tillage or mowing within 3 days following application may reduce weed control.

- Do not apply this product through any type of irrigation system.

- DO NOT spray if conditions of thermal inversion exist, or if wind direction and speed may cause spray to drift onto adjacent nontarget areas. Drift minimization is the responsibility of the applicator. Consult with local and State agricultural authorities for information regarding avoiding or minimizing spray drift.

- Touchdown Total is not volatile and cannot move as a vapor after application onto nontarget vegetation.

- It is recommended that the spray system be thoroughly cleaned with water and a commercial tank cleaner after each use.

- Spray solutions of Touchdown Total should be mixed, stored, and applied using only

plastic, plastic-lined steel, stainless steel, or fiberglass containers. Concentrate should not be stored in galvanized steel, carbon steel, or unlined steel containers.

- There are no rotational crop restrictions following application of this product.
- Severe damage or destruction may be caused by contact of Touchdown Total to any vegetation (including leaves, green stems, exposed non–woody roots, or fruit) of crops, trees, and other desirable plants to which treatment is not intended, except as specified for glyphosate–tolerant crops.
- In crop areas, do not exceed a total of 5.8 qts./A. In noncrop areas, do not exceed a total of 7.6 qts./A.
- Do not exceed 0.7 qt./A by air unless otherwise specified on this label.
- For broadcast postemergence treatments, do not harvest or feed treated vegetation for 8 weeks following application, unless otherwise specified.
- The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed maximum use rate.

GLYPHOSATE RESISTANT WEED MANAGEMENT

Some naturally occurring weed biotypes resistant to glyphosate may exist through normal genetic variability in any weed population. The repeated use of herbicides with the same mode of action is known to lead under certain conditions to a selection of resistant weeds. Certain agronomic practices reduce the likelihood that resistant weed populations will develop and integrated strategies are known to manage such problem weeds.

Glyphosate is the active ingredient in the herbicide Touchdown Total. The primary mode of action of glyphosate involves inactivation of the target enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS). This enzyme is involved in the synthesis of several essential amino acids that are the building blocks for proteins needed for plant growth and development. In susceptible weeds glyphosate binds tightly to EPSPS rendering the enzyme inactive. With the inactivation of EPSPS, the plant is unable to produce certain essential amino acids resulting in plant death. Initial studies on the mechanistic basis of resistance to glyphosate in various weed species have to date, revealed EPSPS target site resistance, and involvement of differences in translocation as important. Other mechanisms by which plants can become resistant to herbicides include differences in uptake, metabolism and sequestration. Within the USA specific biotypes of horseweed/marestail, *Conyza canadensis* and rigid ryegrass, *Lolium rigidum* have become resistant to glyphosate. The first incident reported to the

Herbicide Resistance Action Committee (HRAC) of glyphosate resistance was in 1998 on rigid ryegrass. Horseweed resistance was subsequently confirmed in 2000.

Following is a list of Best Weed Management practices to be considered in glyphosate-based programs.

Diversify glyphosate-dependent weed control programs with alternative herbicides or cultural practices.

a. In Roundup Ready® (RR™) corn and RR soybean systems do not use more than two applications of a glyphosate based herbicide over a two year period. Diversify with alternative herbicides/cultural practices.
b. In RR cotton up to three glyphosate applications may be used in crop per year if employing in-crop cultivation/residual herbicide.
c. Use alternative burndown and/or residual herbicides for RR crops likely to require more than one application of glyphosate.
d. To manage RR resistant volunteers rotate RR crops with conventional crops.
e. Use full label rates of glyphosate and tank mix partners. Minimize weed escapes.
f. Monitor treated weed populations for any loss of field efficacy.
g. Contact your local extension specialist, certified crop advisor, and/or manufacturer for herbicide resistance management and/or integrated weed management recommendations for specific crops and resistant weed biotypes.

Since the occurrence of resistant weeds is difficult to detect prior to use, Syngenta Crop Protection accepts no liability for any losses that may result from the failure of Touchdown Total to control resistant weeds.

APPLICATION AND MIXING DIRECTIONS

TIMING

Touchdown Total should be applied to actively growing emerged weeds. Annual weeds of 6 inches or less in height are typically the easiest to control. Generally, more effective control of perennial weeds is achieved at the flowering or seedhead stage. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for specific application timing.

When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth to appear prior to application. When perennial weeds have been mowed or grazed, allow new growth to reach recommended stage prior to application.

Visible effects on annual weeds occur within 2-4 days after application; effects on perennial weeds may take 7 days or longer. Extremely cool or cloudy weather following treatment may slow activity.

RATES

Follow recommended rates for Touchdown Total listed in the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections. Use the higher label rates when weeds are dense or large. Also, use higher application volumes and pressures when weed vegetation is dense.

SPRAY ADDITIVES

Ammonium Sulfate (AMS) – Control of annual and perennial weeds with Touchdown Total may be improved by adding dry ammonium sulfate at 1.0 to 2% by weight or 8.5-17.0 lbs./100 gals. of water. Liquid formulations of AMS may be used at an equivalent rate. Do not reduce use rates of Touchdown Total when using AMS.

Drift Control Agents – Drift control agents may be used with Touchdown Total.

TANK MIXES WITH RESIDUAL HERBICIDES

Refer to crop sections for recommended tank mixes. Tank mixes of Touchdown Total with other pesticides, fertilizers, or any other additives except as specified on this label or other approved Syngenta supplemental labeling may result in tank mix incompatibility or unsatisfactory performance. It is recommended that the compatibility of any tank mix combination be tested on a small scale such as a jar test before actual tank mixing.

Always refer to labels of other pesticide products for mixing directions and precautions which may differ from those outlined here. Use in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

Tank Mixing Recommendations:

1. Fill spray tank ½ full with clean water.
2. Begin tank agitation and continue throughout mixing and spraying.
3. Add AMS (if used).
4. Add dry formulations (WP, DF, etc.) to tank.
5. Add liquid formulations (SC, EC, L, etc.) to tank.
6. Add Touchdown Total.
7. Fill remainder of spray tank.

APPLICATION EQUIPMENT AND TECHNIQUES

- Avoid drift. Applications should not be made in low level inversion conditions, when winds are gusty or under any other conditions which favor drift. Inversions are characterized by stable air and increasing temperatures with height above the ground. The applicator may detect the presence of an inversion by producing

smoke and observing a smoke layer. Drift may cause damage to any vegetation contacted to which treatment is not intended.

- Compatibility with drift control additives may vary. It is recommended that the combination be tested on a small scale such as a jar test. Read and follow manufacturer's directions for use. A reduction in weed control may occur when drift control agents are used.

- All equipment must be properly maintained and washed to remove product residues after use.

BROADCAST APPLICATIONS

Ground

Applications should be made in 3-40 gals. of water per acre.

When foliage is dense, spray volume should be increased to ensure coverage of the target weeds. Flat-fan nozzles will result in the most effective application of Touchdown Total. Spray boom and nozzle heights must be adjusted to provide coverage of target weed. Flood nozzles may result in reduced weed control due to inadequate coverage.

Air

Applications should be made in 3-15 gals. of water per acre.

Spray should be released at the lowest height consistent with effective weed control and flight safety. Applications more than 10 ft. above the canopy should be avoided.

Use the largest droplet size consistent with good weed control. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding inappropriate spray boom pressure. Solid stream or low shear nozzles may be utilized to reduce small droplet formation. These nozzles direct the fluid parallel to the existing airflow to reduce shear effects. Other techniques may include reducing the fan angle of flat fan nozzles if used, or reducing the deflector plate angle if deflector type nozzles are used. Ensure the spray is released at an appropriate distance below the airfoil.

For best results, each specific aerial application vehicle used should be quantifiably pattern tested for aerial application of Touchdown Total initially and every year thereafter. To minimize drift, it is suggested aerial application equipment produce the following minimum spray deposition characteristics:

Volume Median Diameter (VMD)	› 400 microns
Volume Diameter (VD) {0.9}	› 200 microns

Prolonged exposure of Touchdown Total to uncoated steel surfaces may result in corrosion and possible failure of the part. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion. To prevent corrosion of exposed parts, thoroughly wash aircraft after each day of spraying to remove residues of Touchdown Total accumulated during spraying or from spills. Landing gear are most susceptible.

For aerial application in California, refer to the Federal Supplemental Label for aerial application for specific instructions, restrictions, and requirements. For aerial application, consult with State or local authorities regarding any additional requirements for aerial treatments. Banvel tank mixtures may not be applied by air in California.

Avoid direct application to any body of water.

SHIELDED/HOODED APPLICATION

Use shielded/hooded sprayers to control weeds between rows while protecting the crop from the herbicide. Keep shields/hoods as close to the ground as possible and avoid ground speed in excess of 5 mph. Use appropriate nozzles, spacing, and pressure to achieve coverage without allowing spray to touch or drift onto the crop. Maintain equipment in good operating condition to prevent leakage or dripping onto the crop. Refer to state extension service recommendations and equipment manufacturers' guidelines for more information on proper operation of shielded/hooded sprayers.

SPOT TREATMENTS

For annual weeds less than 6 inches, use a 0.4 to 0.7% v/v solution. For annual weeds over 6 inches, use a 0.7 to 1.1% v/v solution. Use a 0.7 to 1.5% v/v solution for most perennials (see Table 3 for specific rates and timing). When using motorized spot spray equipment (rider bar), use a 2.2% v/v solution. See Spot Spray Dilution Table below for rates of Touchdown Total/volume of finished spray solution. Spray the solution on actively growing weeds until uniformly wet but not to the point of runoff. Retreat 14-21 days later if regrowth occurs.

Touchdown Total Spot Spray Dilution Table

Solution Strength	To Make This Volume			
	1 gallon	10 gallons	25 gallons	100 gallons
0.4%	0.5 fl. oz.	5 fl. oz.	12 fl. oz.	3 pts.
0.7%	0.9 fl. oz.	9 fl. oz.	1.4 pts.	5.6 pts.
0.9%	1.2 fl. oz.	12 fl. oz.	1.9 pts.	3.8 qts.
1.1%	1.4 fl. oz.	14 fl. oz.	2.2 pts.	4.4 qts.
1.5%	1.9 fl. oz.	1.2 pts.	3 pts.	1.5 gals.
2.2%	2.8 fl. oz.	1.8 pts.	4.4 pts.	2.2 gals.

WIPER APPLICATION

Touchdown Total may be applied using a wiper or "wick" applicator (e.g. rope, sponge, or porous plastic applicators) for selective control or suppression of annual and perennial weeds which become taller than the crop or desirable vegetation. Mix 3 quarts of Touchdown Total in 2 gals. of water unless directed otherwise in this label (See **General Use Precautions** for Berries, Fruits, Nuts, and Vines). Precautions should be taken to avoid contact with crops or desirable vegetation. Equipment should be operated at speeds of 5 mph or less. Use slower speeds where weeds are dense. For improved control, make two applications in opposite directions.

CDA EQUIPMENT

For control of annual weeds with hand held equipment, apply a 20% solution of Touchdown Total at a flow rate of 2 fl. oz. per minute and a walking speed of 1.5 mph (1 qt./A). For perennial weeds, use a 20 to 30% solution of Touchdown Total at a flow rate of 2 oz. per minute and a walking speed of 0.75 mph (2 to 3 qts./A). For vehicle mounted equipment, apply in 3 to 15 gals. of water per acre. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Precautions should be taken to avoid contact with crops or desirable vegetation.

CROP USE DIRECTIONS

This section is organized alphabetically by crop categories. There may be several crops listed in a crop category.

ALFALFA, CLOVER, AND OTHER LEGUMES

Touchdown Total may be used on the legume crops listed below:

Alfalfa	Lespedeza	Trefoil
Clover	Lupine	Velvetbean
Kudzu	Sainfoin	Vetch

Method of Application: Before, during, or after planting but before crop emergence; renovation; spot spray (alfalfa and clover only); wiper/wick (alfalfa and clover only); preharvest (alfalfa only); and postharvest.

Preplant/Preemergence, Dormant, or Renovation

Deep tillage following treatment of weeds with Touchdown Total or a sequential application of Touchdown Total may be required to control well established perennials.

Preharvest (Alfalfa Only)

Use this treatment to eliminate or destroy declining alfalfa stands. Up to 3.0 pts. per acre of Touchdown Total may be applied as a broadcast spray with ground or aerial equipment at least 36 hours before harvest. Applications may be made any time of the year when the alfalfa crop is in the bud to flower stage of growth. Deep tillage following preharvest treatment or a postharvest application of Touchdown Total may be required to provide control of well established perennials.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions for Alfalfa, Clover, and Other Legumes

- Spot and wiper/wick application must be made at least 14 days before grazing or harvest of forage and hay.
- Preharvest and renovation applications can be made with no more than 1.5 pts./A at least 36 hours before grazing or harvest of forage or hay.
- Do not apply a preharvest treatment on alfalfa grown for seed as a reduction in germination or vigor may occur.

Tank Mixtures for Preplant/Preemergence, Dormant, or Renovation Use for Alfalfa, Clover, and Other Legumes

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Buctril®	Karmex®	Prowl®	Velpar®
Dual MAGNUM	Kerb®	Pursuit®	
Eptam®	Lexone®/Sencor®	Trifluralin	

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

BERRIES, FRUITS, NUTS, AND VINES

Touchdown Total may be used on both bearing and nonbearing crops listed below.

Almond
Apple
Apricot
Atemoya
Avocado
Banana
Barbados cherry (Acerola)
Beechnut
Blackberry
Blueberry
Boysenberry
Breadfruit
Brazil nut
Butternut
Calamondin
Canistel
Carambola
Cashew
Cherimoya
Cherry (sweet, sour, tart)
Chestnut
Chinquapin
Chironja
Lemon
Lime
Loganberry
Longan
Loquat
Lychee
Macadamia
Mandarin
Mango
Mangosteen
Marmaladebox (genip)
Mayhaw
Nectarine
Olallieberry
Olive (postdirected only)
Orange (all)
Oriental pear
Papaya
Passion fruit
Peach
Pear
Pecan
Persimmon

Citron (postdirected only)
Citrus hybrids
Cocoa bean
Coconut
Coffee
Crabapple
Cranberry
Currant
Date
Dewberry
Durian
Elderberry
Fig
Filbert (Hazelnut)
Gooseberry
Grapefruit
Grapes (all)
Guava
Hickory nut
Huckleberry
Jaboticaba
Jackfruit
Kiwi fruit
Kumquat
Pineapple
Pistachio
Plantain
Plum
Plumcot
Pomegranate
Prune (all)
Pummelo
Quince
Rambutan
Raspberry (black, red)
Sapodilla
Sapote (black, mamey, white)
Satsuma mandarin
Soursop
Sugar apple
Tamarind
Tangelo
Tangerine
Tangor
Tea
Walnut (black, English)
Youngberry

Method of Application: Preplant; preemergence; directed spray (except cranberry); middles (between rows of trees); strips (in rows of trees); perennial grass suppression (chemical mowing); post harvest (cranberry); and wiper/wick applicator equipment.

General Use

Applications may be made with boom equipment; shielded sprayers; CDA; hand-held and high-volume wands; lances; orchard guns; or wiper/wick application equipment, except as directed in the **GENERAL USE PRECAUTIONS FOR BERRIES, FRUITS, NUTS, AND VINES** section. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Multiple applications may be necessary to control certain perennial weeds. For residual weed control, tank mix Touchdown Total with residual herbicides as prescribed in the **TANK MIXTURES FOR BERRIES, FRUITS, NUTS, AND VINES** section, or make multiple applications.

General Use Precautions for Berries, Fruits, Nuts, and Vines

- Do not allow the spray, spray drift, or mist to contact foliage, fruit, shoots, branches, canes, suckers, open wounds, or green parts of crops. Contact with any crop part other than mature brown woody bark can result in severe crop injury.

- Avoid contact with stumps as injury to adjacent trees may occur from root grafting.

- Do not apply in a tank mix in Puerto Rico.

- For **PEACHES** grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, apply Touchdown Total with a shielded applicator which prevents contact with foliage, suckers, or bark of trees. Apply no later than 90 days after first bloom to avoid severe damage. Avoid application to peach trees with recent mechanical injury or pruning wounds. Apply only near trees which have been planted in the orchard for two or more years. SEVERE INJURY WILL OCCUR IF ANY PORTION OF THE PEACH TREE IS CONTACTED WITH SPRAY OR SPRAY DRIFT.

- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah, and Washington, **any** application equipment listed for these crops may be used.

- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in all other states not previously listed, use only wiper/wick application equipment.

- For **GRAPES** grown in the Great Lakes and Northeast regions, apply Touchdown Total prior to the end of bloom stage to avoid injury, or apply with shielded equipment.

- For **COFFEE and BANANA**, delay application 3 months after transplanting to allow the new plants to become established.

- For all other crops in this section, allow a minimum of 3 days between application and transplanting.

- For **BLACKBERRY, BLUEBERRY, BOYSENBERRY, CRANBERRY, CURRANT, DEWBERRY, ELDERBERRY, GOOSEBERRY, HUCKLEBERRY, LOGANBERRY, OLALLIEBERRY, RASPBERRY, AND YOUNGBERRY,** mix 3 qts. of Touchdown Total in 4 gals. of water for wiper/wick applications.

- Allow at least **17** days from the last application to harvest of **stone fruit or olives.** For olive groves, apply only as a directed spray.

- Allow at least **3** days from last application to harvest of **nuts.**

- Allow at least **30** days from last application to harvest of **cranberries.**
- Allow at least **28** days from last application to harvest of **coffee.**
- Allow at least **1** day from the last application to harvest of **banana, citrus, guava, papaya, plantain, or pome fruit (except mayhaw).**
- Allow at least **14** days from last application to harvest of **acerola, atemoya, avocado, breadfruit, canistel, carambola, cherimoya, cocoa beans, coconuts, dates, figs, genip, grapes, jaboticaba, jackfruit, longan, lychee, mango, mayhaw, passion fruit, persimmon, pomegranate, sapodilla, sapote, small berries, soursop, sugar apple, tamarind, and tea.**

Post–Harvest Cranberry

Application of Touchdown Total may be made following harvest of cranberries to control troublesome annual and perennial weeds. Do not apply directly to cranberry vines. Vines that are sprayed will be injured and may die. Apply Touchdown Total in a 0.4 to 0.7% solution if using hand–held equipment after the vines are dormant. Use properly calibrated precision application equipment; wiper wisk, spot sprayer which protects the cranberry plant from Touchdown Total spray. Do not treat more than 10% of the bog.

Tank Mixtures With Residual Herbicides and 2,4-D for Berries, Fruits, Nuts, and Vines

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 3.6 qts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations or weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol®	Krovar®	Sim-Trol®
Direx®	Princep® 4L	Sinbar®
Goal®	Princep Caliber 90®	Solicam®
Karmex	Prowl	Surflan®
Kerb	Simazine	2,4-D

Refer to the individual product labels for precautionary statements, restrictions, recommended rates, approved crops, and a list of weeds controlled.

Tnak Mixture With Goal Herbicide in Row Middles

Apply Touchdown Total at 12 to 24 fl. oz./A in a tank mix with 3 to 12 oz. of Goal 2XL

herbicide for the control of annual weeds that are a maximum of 6 inches in height or diameter including annual sowthistle; crabgrass; common cheeseweed; common groundsel; common lambsquarters; common purslane (suppression); common ryegrass; filaree (suppression); hairy fleabane; horseweed/marestail; junglerice; London rocket; redroot pigweed; shepherdspurse; and stinging nettle. For control of common cheeseweed up to 3 inches in diameter, apply 12 to 24 fl oz./A of Touchdown Total with 3 to 12 oz./A of Goal.

Refer to the Goal label for precautionary statements, restrictions, and approved crops.

Hard to Control Weed Recommendations in Citrus (Florida and Texas Only)

To control or suppress the perennial weeds listed in the following table, apply the recommended rate of Touchdown Total in 3 to 30 gals. of water per acre. Use 10 to 30 gals. per acre if weed foliage is dense. Apply when weeds are actively growing. Refer to the **PERENNIAL WEED CONTROL** section, Table 3, for application timing. If weeds have been mowed or grazed, allow new growth to reach recommended growth stage prior to application.

	Rate of Touchdown Total (Quarts per Acre)			
Weed Species	**0.7**	**1.4**	**2.2**	**3.6**
Bermudagrass	B	B	PC	C
Guineagrass				
Texas and Florida	B	C	C	C
Ridge	NR	B	C	C
Florida Flatwoods				
Paragrass	B	C	C	C
Torpedograss	NR	S	PC	C

B = Burndown
C = Control
NR = Not Recommended
PC = Partial Control
S = Suppression

For goatweed, apply 1.4 to 2.2 qts. of Touchdown Total per acre. Apply in 20 to 30 gals. of water per acre when plants are actively growing. Use the 1.4 qts. rate on plants less than 8 inches tall and 2.2 qts. on plants greater than 8 inches tall. When plants are greater than 8 inches tall, the addition of Krovar™ I or Karmex™ may improve control. If using a tank mix, refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Perennial Grass Suppression (Chemical Mowing) of Orchard Floors

For best results, mow to an even height and apply Touchdown Total 3 or 4 days later.

Do not add AMS to the spray solution. Application must be made 1-3 weeks ahead of seedhead emergence.

Bahiagrass

Touchdown Total can be used to inhibit seedhead emergence and suppress vegetative growth for approximately 40-50 days with a single application. By using a sequential application, suppression of vegetative growth and inhibition of seedhead emergence can be extended to 120 days. Apply Touchdown Total at 20-30 days after complete green-up or after mowing to 4 inches tall. When a single application is planned, use 3 to 6 fl. oz. of Touchdown Total per acre in 10 to 20 gals. of water. When a sequential application is planned, use 3 to 6 fl. oz./A for the first application followed by another application of 1.5 to 4 fl. oz./A 40 to 50 days later.

Bermudagrass

For Suppression Only:

East of the Rocky Mountains – Apply 4 to 12 fl. oz. of Touchdown Total in 3 to 20 gals. of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. Use 2 to 6 fl. oz./A if a lesser degree of suppression is desired. A sequential application can be used when regrowth occurs.

West of the Rocky Mountains – Apply 4 to 12 fl. oz. of Touchdown Total in 3 to 20 gallons of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. A sequential application of 4 to 7 fl. oz. can be used when regrowth occurs.

For Partial Control and Burndown:

Touchdown Total can be used for burndown and partial control of bermudagrass at 1.4 to 2.9 pts. in 3 to 20 gals. of water per acre. Use 1.4 pts. east of the Rocky Mountains and 2.9 pts. west of the Rocky Mountains.

Use this treatment only if reduction of the bermudagrass stand can be tolerated. Allow at least 14 to 21 days for complete burndown.

Cool Season Grass Covers (Fine Fescue, Kentucky Bluegrass, Orchardgrass, Quackgrass, Tall Fescue)

For suppression of orchardgrass, fine fescue, tall fescue, and quackgrass, apply 3 to 6 fl. oz. of Touchdown Total in 10 to 20 gals. of water per acre. See **SPRAY ADDITIVES** section for rates.

For suppression of Kentucky bluegrass, use 2 to 4 fl. oz. of Touchdown Total.

CHRISTMAS TREES

Method of Application: Postdirected spray; site preparation; and spot spray.

Touchdown Total may be used prior to planting Christmas trees; or as a postdirected spray and spot treatment around established Christmas trees.

Follow the directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

General Use Precautions for Christmas Trees

- Avoid contact of spray, drift, or mist with foliage or green bark of established Christmas trees.

- This product is not recommended for broadcast applications over the top of Christmas trees.

CONSERVATION COMPLIANCE/CONSERVATION RESERVE PROGRAM (CRP)

Method of Application: Rotating out of CRP, site preparation (sequential herbicide applications), dormant beneficial plant management; postemergence; and wiper/wick.

- Site Preparation: Prior to application, removal of excessive vegetation by grazing, mowing, burning, etc. may improve control. When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth before application. When perennial weeds have been mowed or grazed, allow regrowth to reach recommended stage (see **PERENNIAL WEED CONTROL** section, Table 3, for rates and timing).

  Sequential applications of Touchdown Total and Gramoxone® Max herbicides are effective in controlling established CRP grasses. Refer to the Gramoxone Max herbicide label for recommended rates and tank mixes.

Touchdown Total/Gramoxone Max Herbicide Sequential Program (Spring Application)

Weed Species	Program A	Program B
Fescue Orchardgrass Ryegrass	Gramoxone Max at 1.7 to 2.7 pts./A followed 7-10 days later with Gramoxone Max at 2.0 to 2.7 pts./A	Touchdown Total at 1.4 to 3.0 pts./A followed 10-14 days later with Gramoxone Max at 2 to 2.7 pts./A

- Dormant Beneficial Plant Applications: Apply 9 to 12 oz./A in early spring before

desirable species, such as crested and tall wheatgrass, break dormancy. Late fall applications can be made after desirable grasses have reached dormancy. If perennial grasses are not dormant at time of application, stunting can occur.

- Touchdown Total may be tank mixed with other herbicides registered for this use such as atrazine, dicamba, and 2,4-D.

- There are no rotational crop restrictions following application of Touchdown Total. Read and follow crop rotation label restrictions for all tank mix products.

CORN (FIELD CORN, POPCORN, SEED CORN, AND SWEET CORN – NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting but before crop emergence; hooded sprayers; spot spray; preharvest; and postharvest.

Follow the directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Corn

- Crop plants contacted by Touchdown Total will be injured or killed.

- Spot application must be made prior to corn silking.

- For hooded sprayer applications, do not exceed 24 fl. oz./A per application; nor 2.2 qts./A per year.

- Do not graze or feed corn forage or fodder following hooded sprayer applications.

- Preharvest application must be made at least 7 days before harvest.

- Apply no more than 24 fl. oz./A by air; and 2.2 qts./A by ground preharvest.

Tank Mixtures for Corn

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations

are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10 to 70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.
Touchdown Total can be tank mixed with the following products:

Aim™
Ambush®
Atrazine
Axiom™
Balance®
Basis®
Bicep Lite II MAGNUM®
Bicep MAGNUM®
Bicep II MAGNUM®
Broadstrike®
Bullet®
Callisto™
Clarity®
Degree™
Degree Xtra™
Distinct™
Dicamba
Dual MAGNUM®
Dual II MAGNUM®
Extrazine® II
Frontier®
Fultime™
Guardsman®
Harness®
Harness Xtra
Hornet™
Lariat®
Lasso®
Lightning™
Linex®
Lorox®
Lumax™
Marksman®
Micro-Tech®
Prowl
Simazine
Surpass® EC
Surpass 100
Topnotch®
Warrior®
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprayers

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Corn must be at least 12 inches tall, measured without extending leaves.

- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max herbicide may be considered for Hooded Sprayer applications in corn. Use Gramoxone Max at 0.75 to 1.3 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

Preharvest

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete. Do not apply a preharvest treatment on corn grown for seed as a reduction in germination or vigor may occur.

CORN, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY CORN)

Method of Application: Before, during, or after planting; and postemergence in corn varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Corn

- Applications of Touchdown Total to corn hybrids which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum preplant/preemergence rate is 3.6 qts./A .
- Make postemergence applications from emergence through the V12 stage of corn at a maximum of 48 fl. oz./season with no more than 24 fl. oz./A for any single application.
- Allow a minimum of 50 days between postemergence application and harvest of forage.

- Make preharvest applications at least 7 days before harvest with no more than 24 fl. oz./A.

Tank Mixtures

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10-70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.

Touchdown Total can be tank mixed with the following products:

Aim
Ambush
Atrazine
Axiom
Balance
Basis
Bicep Lite II MAGNUM
Bicep MAGNUM
Bicep II MAGNUM
Broadstrike
Bullet
Callisto
Clarity
Degree
Degree Xtra
Distinct
Dicamba
Dual Magnum
Dual II Magnum
Extrazine II
Frontier
Fultime
Guardsman
Harness
Harness Xtra
Lariat
Hornet
Karate
Lasso
Lightning
Linex
Lorox
Lumax
Marksman
Micro-Tech
Prowl
Simazine
Surpass EC
Surpass 100
Topnotch
Warrior
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Annual Weeds

Touchdown Total will control annual broadleaf weeds and grasses when applied as directed. Apply Touchdown Total at 24 to 48 fl. oz./A from emergence through the V8 to V12 stage (8 leaves) or until the corn height reaches 30 inches, whichever comes first. Refer to Table 1 for specific rate information. For any single in-crop application, use a minimum of 24 to 48 fl. oz./A of Touchdown Total. Touchdown Total alone will not provide residual control. To control new weed flushes, repeat applications may be required.

Perennial Weeds

Touchdown Total will control or suppress perennial weeds with one or more applications. Successful control of perennial weeds is affected by proper timing of application. Refer to Table 3 for specific rate and timing information.

Touchdown Total can be tank mixed with the following products:

Ambush
Atrazine
Bicep MAGNUM
Bicep Lite II MAGNUM
Bicep II MAGNUM
Clarity
Dicamba
Dual II MAGNUM
Fultime
Harness
Harness Xtra
Karate
Marksman
Surpass EC
Surpass 100
Topnotch
Warrior
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete.

COTTON (NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence; hooded sprayer; recirculating sprayer; spot spray; wiper/wick applicators; preharvest;

and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section, for application rates and timing.

General Use Precautions for Cotton

- Spot applications must be made prior to boll opening.
- Preharvest, hooded, and wiper/wick applications must be made at least 7 days before harvest.
- Do not apply more than 24 fl. oz./A by air; nor more than 48 fl. oz./A by ground for preharvest.
- Do not feed or graze treated cotton forage or hay following preharvest application.

Tank Mixtures for Cotton (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol®	Dual MAGNUM	Zorial®
Command®	Dual II MAGNUM	2-4,D
Cotoran®	Karmex	
Cotton-Pro®	Meturon®	
Cy-Pro®	Prowl	
Direx	Staple®	

Refer to individual product labels for precautionary statements, restrictions, rates and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Apply in 10-20 gals. of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles

Tank Mixtures (Hooded)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. Do not apply a preharvest treatment on cotton grown for seed as a reduction in germination or vigor may occur.

For **defoliation, desiccation, or regrowth control** of cotton, apply 24 fl. oz./A to 48 fl. oz./A. Apply in 3 to 30 gals. of water per acre by ground or in 3 to 15 gals. of water per acre by air.

Refer to the **WEEDS CONTROLLED** section for application rates and timing.

Touchdown Total can be tank mixed with the following products for improved defoliation or boll opening.

DEF®
Dropp®
Folex®
Prep™

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Cotton, Glyphosate-Tolerant (Including Roundup Ready Cotton)

Method of Application: Before, during, or after planting; postemergence; postdirected; hooded; and preharvest in cotton varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Cotton

- Applications of Touchdown Total to cotton varieties which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum preplant/preemergence rate is 3.6 qts./A.
- Make postemergence applications from ground cracking until the 4-leaf stage of cotton at a maximum of 48 fl. oz./A per season with no more than 24 fl. oz./A for any single application.
- Apply no more than 48 fl. oz./season by precision, postdirected, or hooded application methods between the 5-leaf stage and lay-by. Apply no more than 24 fl. oz./A for any single application by these methods.
- Apply a maximum of 2.9 qts./A by postemergence and directed/hooded applications from cracking to lay-by.
- Do not apply more than 24 fl. oz./A by air; nor more than 48 fl. oz./A by ground for preharvest.
- Preharvest applications must be made at least 7 days before harvest.
- Drift control agents may be used.

Tank Mixtures (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol	Dual MAGNUM	Zorial
Command	Dual II MAGNUM	2-4,D
Cotoran	Karmex	
Cotton-Pro	Meturon	
Cy-Pro	Prowl	
Direx	Staple	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Make postemergence applications from ground cracking until the 4-leaf (node) stage of development (until the fifth true leaf reaches the size of a quarter) at a maximum single application rate of 24 fl. oz./A with no more than 48 fl. oz./A per season. Sequential over the top applications of Touchdown Total must be at least 10 days apart and cotton must have at least two nodes of incremental growth between applications.

Postdirected or Hooded Applications

Touchdown Total may be used through precision postdirected or hooded sprayers through the lay-by stage of cotton. Applications that contact the cotton leaves may result in boll loss, delayed maturity, and/or loss of yield. Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Apply in 10 to 20 gallons of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Application Requirements:

- Postdirected applications should be used that directs the spray towards the base of the cotton plant. For best results, apply to weeds less than 3 inches tall being careful to minimize contact of the spray with cotton leaves.
- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Tank Mixtures (Postdirected or Hooded)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Tank Mixtures with Dual MAGNUM

Touchdown Total can be applied with Dual MAGNUM from cotton emergence through the 4-leaf (node) stage of development (until the 5th true leaf reaches the size of a quarter). Do not use additional AMS or adjutants. Do not use this mixture if cotton plants are under any type of stress including, but not limited to drought, insect, disease, or mechanicals. Occasionally following application, cotton leaves may exhibit necrotic spotting which will not affect normal plant development.

For use in the following states: AL, AR, AZ, CA, FL, GA, KS, KY, LA, MD, MO, MS, NC, NM, OK, SC, TN, TX, and VA.

Refer to the Dual MAGNUM label for precautions and restrictions.

Salvage Treatment

Touchdown Total may be used after the four leaf stage of development and should only be used where weeds threaten to cause a loss of crop. A rate of 24 fl. oz./A may be applied either as a postemergence spray to the crop or a postdirected spray.

SALVAGE TREATMENTS WILL RESULT IN SIGNIFICANT BOLL LOSS, DELAYED MATURITY, AND/OR YIELD LOSS.

Preharvest

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. No enhancement of harvest aids will occur on glyphosate tolerant cotton. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

FALLOWLAND AND POSTHARVEST USE

Method of Application: Chemical fallow; fallow beds; stale seedbeds; aid to tillage; and postharvest.

Touchdown Total may be applied by ground or air during the fallow period prior to planting or emergence of any crop listed on this label. There are no rotational crop restrictions following application of this product.

Chemical Fallow - Ecofallow

Touchdown Total may be used in place of tillage to control annual weeds or volunteer wheat in fallow fields. Repeat applications may be necessary to control weeds emerging after application. Refer to Table 1 for use rates and timing. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of annual weeds listed in Table 2. Tank mixing with atrazine may provide residual control.

Postharvest Chemical Fallow for Cereals

Touchdown Total may be applied after harvest to control newly emerged weeds, volunteer cereals, or weeds which were present at harvest. Allow sufficient time after harvest for weed regrowth to occur before making application. Refer to Table 1 for use rates and annual weeds controlled. Higher rates may be required for control of large weeds which were present at the time of harvest. Repeat applications may be necessary for fall germinating weeds. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of weeds listed in Table 2. A postharvest tank mix with atrazine may be used if the field will be planted to corn or sorghum or laid fallow the following season. A tank mix with atrazine may be applied for residual control of certain annual weeds such as common lambsquarters,

kochia, mustards, pigweeds, and volunteer wheat. Tank mixing with atrazine may result in reduced performance.

Aid to Tillage

Touchdown Total may be used in conjunction with tillage operations in fallow systems to control cheat, downy brome, foxtails, tansy mustard, and volunteer cereals. Apply 4 to 9 oz./A of Touchdown Total in 3 to 10 gals. of water/A. Apply before weeds exceed 6 inches in height. Application must be followed by tillage no later than 15 days after treatment or before weed regrowth. Allow at least one day after application before tillage. Tank mixes with residual herbicides may reduce performance. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Fallow Beds/Stale Seedbeds

Touchdown Total may be used to control weeds in fallow or stale seedbeds, including preplant/preemergence of any crop. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** section for application rates and timing. Touchdown Total can be tank mixed with 2,4-D, dicamba, or Goal herbicide for improved control of certain weeds.

Tank Mixture with Goal Herbicide

Apply Touchdown Total at 6 to 12 oz. with Goal herbicide at 2 to 3 oz./A for control of chickweed, common cheeseweed, and common groundsel that are less than 3 inches in height or diameter. Apply Touchdown Total at 12 to 17 fl. oz. with Goal at 2 to 3 oz./A for control of common cheeseweed, common groundsel, and horseweed/marestail that are a maximum of 6 inches in height and length; or chickweed, London rocket, and shepherdspurse that are a maximum of 12 inches in height or length.

Postharvest Use

Touchdown Total may be applied after harvest of any crop to control newly emerged weeds, volunteer crops, or weeds which were present at harvest. Refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for use rates. Repeat applications may be necessary to control weeds emerging after application. Use the higher rate on heavy or sodded infestations.

General Use Precautions for Fallowland and Postharvest Use

- Allow sufficient time for weed regrowth to occur after harvest before making applications.
- Avoid application after plants have been exposed to a severe frost.
- Refer to the individual labels of all products used in a tank mix for precautionary statements, recropping intervals, restrictions, and a list of weeds controlled.
- Touchdown Total will not control volunteer glyphosate-tolerant crops.
- There are no rotational crop restrictions following application of this product.

FARMSTEADS (NONCROP)

Method of Application: General nonselective weed control, trim-and-edge, chemical mowing, cut stumps, and habitat management.

Applications can be made in noncrop areas on the farm such as:

Barrier strips	Farmyards
Ditchbanks	Fence rows
Dry ditches and canals	Fuel storage areas
Equipment areas	Rights-of-way
Farm buildings	Shelterbelts
Farm roads	Soil bank land

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

Tank Mixtures for Farmsteads

Refer to the **ANNUAL WEEDS CONTROLLED** section, Table 1, for application rates and timing. For annual weeds, use 0.7 to 2.9 qts./A of this product when weeds are less than 6 inches tall and 1.1 to 2.9 qts./A when weeds are greater than 6 inches tall.

Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. For perennial weeds, apply 1.5 to 3.6 qts./A in these tank mixes. For tank mixtures with these products through backpack sprayers, handguns, or other high-volume spray-to-wet applications, see the **APPLICATION EQUIPMENT AND TECHNIQUES** section of this label for recommended rates.

Touchdown Total can be tank mixed with the following products:

Banvel®
Direx
Diuron
Princep Caliber 90
Simazine
Surflan
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Chemical Mowing

Touchdown Total will suppress perennial grasses listed in this section to serve as a substitute for mowing. Apply Touchdown Total at a rate of 3 to 6 fl. oz./A . Use 3 to 4 fl. oz. of this product per acre when treating Kentucky bluegrass. Apply treatments in 10 to 20 gals. of spray solution per acre. Chemical mowing applications may be made along farm ditches and other parts of farmsteads.

Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

Cut Stumps

Alder
Eucalyptus
Madrone
Oak
Reed, giant
Salt-cedar
Sweetgum
Tan oak
Willow

Touchdown Total will control regrowth of cut stumps and resprouts of many types of woody brush and tree species, some of which are listed. Apply Touchdown Total using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50 to 100% solution of Touchdown Total completely covering the freshly-cut surface immediately after cutting. Application delay may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

Habitat Management - Habitat Restoration and Maintenance

Touchdown Total may be used to control exotic and other undesirable vegetation in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broad spectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. Touchdown Total can be tank mixed with the following products:

Banvel
Direx
Diuron
Princep Caliber 90
Simazine
Surflan
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Wildlife Food Plots

Touchdown Total may be used for site preparation for control of annual and perennial weeds prior to planting wildlife food plots. Any wildlife food species may be planted or native species may be allowed to repopulate the area after applying Touchdown Total. If tillage is needed to prepare a seedbed, wait 7 days after application before tillage.

General Use Precautions for Farmsteads

- Avoid contact with the foliage of ornamentals or other desirable plants.
- Repeat applications may be necessary.
- Avoid making cut stump applications as injury to adjacent trees may occur from root grafting.

GRASS SEED PRODUCTION

Method of Application: Before, during, or after planting, but before crop emergence; renovation; site preparation; shielded/hooded sprayers; wiper/wick applicators; spot treatments; creating rows in annual ryegrass.

Apply to turf or forage grass areas grown for seed production. Applications MUST be made prior to the emergence of the crop to avoid crop injury. For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions

- Do not disturb soil or underground plant parts before treatment. Tillage or renovation techniques such as vertical mowing, coring, or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.
- Do not feed or graze treated areas for 8 weeks following application.
- Vegetation contacted by Touchdown Total will be injured or killed.
- For spot treatments, apply prior to heading of grasses.

Shielded/Hooded Sprayers

Use Instructions: Apply 0.7 to 2.2 qts. of Touchdown Total in 10 to 20 gals. of water per acre to control weeds in the rows. Uniform planting in straight rows aids in shielded/hooded applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields/hoods.

Wiper/Wick Applicators

Applicators should be adjusted so that the wiper contact point is at least 2 inches above the desirable vegetation. Weeds should be a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when height of weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. Better results may be obtained if 2 applications are made in opposite directions.

GRASSES

Touchdown Total can be used in the production of grasses listed below:

Bahiagrass
Bermudagrass
Bluegrass
Bromegrass
Fescue
Orchardgrass
Ryegrass
Timothy
Wheatgrass

Method of Application: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions for Grasses

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

Tank Mixtures for Grasses Preplant/Preemergence, Dormant, or Renovation

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

HERBS (PEPPERMINT, SPEARMINT)

Method of Application: Spot spray

Touchdown Total may be applied as a spot spray in peppermint and spearmint. Apply spray-to-wet with hand-held equipment, such as backpack and knapsack sprayers, pump-up pressure sprayers, handguns, handwands, or any other hand-held or motorized spray equipment used to direct the spray solution on to a limited area.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions

- Apply at least 7 days before harvest.
- Plants contacted by Touchdown Total will be injured or killed.

PASTURES

Touchdown Total can be used on pastures of the following types:

Alfalfa	Fescue
Bahiagrass	Orchardgrass
Bermudagrass	Ryegrass
Bluegrass	Timothy
Bromegrass	Wheatgrass
Clover	

Method of Application: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

For best results, remove domesticated livestock 14 days before treatment. Allow 2-6 inches of new growth prior to treatment.

To aid in renovation of pastures, Touchdown Total may be applied at 8 to 46 oz./A to dormant pastures. Applications of Touchdown Total to green, nondormant plant tissue of desirable species will cause stunting, plant injury, or plant death.

General Use Precautions for Pastures

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

Tank Mixtures for Pastures

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for

control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

PEANUTS

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

SMALL GRAINS

Touchdown Total may be used on the small grain crops listed below:

Barley	Rye
Buckwheat	Teosinte
Millet (pearl, proso)	Triticale
Oats	Wheat (all)
Rice	Wild rice

Method of Application: Before, during, or after planting, but before crop emergence; as a spot spray (except rice); preharvest (wheat, feed barley); postharvest; and wiper/wick (wheat only).

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Small Grains

- Apply at least 7 days before harvest at no more than 24 fl. oz./A preharvest in wheat and feed barley.
- For wiper/wick applications in wheat, allow at least 35 days between application and harvest.
- Crop plants contacted by Touchdown Total will be injured or killed.

- Avoid treating rice fields or levees when the field contains flood water.

Tank Mixtures for Preplant/Preemergence Use for Small Grains

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds. Under certain conditions, the mixture of Touchdown Total with one or more herbicide tank mix combinations may result in a reduction of activity.

Dicamba
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest (Wheat and Feed Barley Only)

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied after the hard dough stage of grain (30% or less grain moisture). Cool, wet, and/or cloudy weather conditions following application may slow down the activity of this product. Do not apply a preharvest treatment on grain grown for seed as a reduction in germination or vigor may occur.

Red Rice Control Prior to Planting Rice

Prior to application, flush fields to promote uniform germination of red rice. Apply Touchdown Total at 36 to 48 fl. oz./A on red rice with at least 2 leaves and which is no more than 4 inches tall. Red rice with less than 2 developed leaves at the time of application may be only partially controlled.

Do not reflood rice fields for 8 days following application.

SORGHUM (MILO)

Method of Application: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; hooded sprayers; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sorghum

- Contact with sorghum foliage may result in crop injury.
- Spot applications must be made before heading of milo.
- Wiper and wick applications must be made 40 days before harvest. Do not feed or graze wiper/wick treated milo fodder. Do not ensile wiper/wick treated foliage.
- Apply no more than 2.2 qts./A per season by hooded applications.
- Do not feed or graze sorghum forage and fodder after hooded applications.
- Preharvest applications must be made at least 7 days prior to harvest with a maximum of 1.4 qts./A.

Tank Mixtures for Sorghum (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Atrazine	Dicamba	Prowl
Bicep Lite II	Dual II MAGNUM	Warrior
Bicep Lite II MAGNUM	Frontier	
Bicep II MAGNUM	Guardsman	
	Karate	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the

spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground. Treat before tillers extend between the drill rows as spray contacting these tillers may kill the main plant.
- Sorghum must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max herbicide may be considered for hooded sprayer applications in sorghum. Use Gramoxone Max at 0.75 to 1.25 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

Preharvest (Except California)

For weed control and desiccation of sorghum, apply 24 to 48 fl. oz./A. Apply in 3 to 30 gallons of water per acre by ground or in 3 to 15 gallons of water per acre by air.

Apply after most of the heads have matured. Apply when grain moisture is 30% or less. Development of immature heads will be interrupted and yield potential will be affected when applications are made too early. Do not apply a preharvest treatment on sorghum grown for seed as a reduction in germination or vigor may occur.

SOYBEANS (NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; preharvest; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Soybeans

- Soybeans, except glyphosate-tolerant varieties, will be injured or killed when contacted with Touchdown Total.
- Spot application must be made prior to initial pod set.
- Wiper/wick application must be made at least 7 days before harvest.
- Make preharvest applications at least 7 days before harvest of soybeans with no more than 4.3 qts./A by ground; and no more than 24 fl. oz./A by air.
- Allow at least 25 days before grazing or harvesting for livestock feed following harvest aid application.

Tank Mixtures for Soybeans (Preplant/Preemergence

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

For use with 2,4-D on perennial weeds, consult Table 3.

Touchdown Total can be tank mixed with the following products:

Authority™	Dual II MAGNUM	Lexone	Reflex®
Authority Broadleaf	FirstRate™	Linex	Scepter®
Broadstrike	Flexstar®	Lorox	Sencor
Canopy®	Frontier	Lorox Plus	Squadron®
Canopy XL	Fusilade®	Partner®	Steel™
Command®	Fusion®	Preview®	Turbo®
Cover™	Gemini®	Prowl	Warrior
Dual MAGNUM	Karate	Pursuit	2,4-D
	Lasso	Pursuit Plus	2,4-DB

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans and may aid in crop dry down. Apply to mature soybeans when pods have lost their color. Do not apply a preharvest treatment to soybeans grown for seed as a reduction in germination or vigor may occur.

SOYBEANS, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY SOYBEANS)

Method of Application: Before, during, or after planting; postemergence; and preharvest in soybean varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Soybeans

- Applications of SYN–1219 prior to soybean emergence should not exceed a total of 3.6 qts./A.
- Make postemergence applications from cracking throughout flowering of soybeans at a maximum of 2.2 qts. per season with no more than 48 fl. oz./A for any single application.
- Make preharvest applications at least 14 days before harvest with no more than 24 fl. oz./A.
- All SYN–1219 applications for a soybean crop should not exceed a total of 5.8 qts./year.
- Do not graze or harvest for forage or hay.
- Drift control agents may be used.

Preplant/Preemergence

Touchdown Total may be used as a broadcast spray to control emerged annual and perennial weeds. Apply before, during, or after planting of soybeans. Touchdown Total can be tank mixed with the following products:

Authority	Dual II MAGNUM	Lexone	Reflex
Authority Broadleaf	FirstRate	Linex	Scepter
Boundary	Flexstar	Lorox	Sencor
Broadstrike	Frontier	Lorox Plus	Squadron
Canopy	Fusilade	Partner	Steel
Canopy XL	Fusion	Preview	Turbo
Command	Gemini	Prowl	Warrior
Cover	Karate	Pursuit	2,4-D
Dual MAGNUM	Lasso	Pursuit Plus	2,4-DB

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Annual Weeds

Apply Touchdown Total at 12 to 48 fl. oz./A from cracking through full flowering of soybean plants to control annual weeds. For best results, make the first application of Touchdown Total at 24 fl. oz./A within 30 days after planting on weeds up to 6 inches tall. Refer to Table 1 for specific rate information. Touchdown Total will not provide residual control. To control new weed flushes, repeat applications may be required.

Perennial Weeds

Apply Touchdown Total at 24 to 48 fl. oz./A to actively growing perennial grasses, sedges, and broadleaf weeds. Applications in crop on glyphosate-tolerant soybeans normally occur before perennial weeds reach the most desirable growth stage for control. Treatments made prior to the timing designated in Table 3 may require retreatment. Best control will be obtained when perennial broadleaf weeds are treated in the early bud to flowering stage and when perennial grasses are in the boot to seedhead stage. Refer to Table 3 for additional rate and timing information.

Tank Mixtures

Touchdown Total may be tank mixed with one or more of the following products:

Basagran®	Pursuit
Classic®	Raptor™
FirstRate	Reflex
Flexstar	Reliance™ STS®
Fusilade	Scepter
Fusion	Synchrony® STS®
Karate	Warrior
Pinnacle®	2,4-DB

Use a minimum of 12 to 17 fl. oz./A Touchdown Total in mixture with postemergent tank mix herbicides on 3 inch tall weeds. Use a minimum of 17 to 24 fl. oz./A Touchdown Total in mixture with postemergent tank mix herbicides on 3-6 inch tall weeds. Under certain conditions, the mixture of Touchdown Total with one or more of the above mentioned herbicides may result in a reduction of activity. Tank mixes can result in increased crop injury as compared to either product used alone. Refer to individual *product labels for precautionary statements, restrictions, rates, and list of weeds* controlled.

Preharvest

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans. Apply to mature soybeans when pods have lost their color.

SUGARCANE

Method of Application: Before, during, or after planting, but before emergence of plant cane; spot spray; hooded sprayers; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sugarcane

- Do not apply to vegetation in or around ditches, canals, or ponds containing water.
- Do not feed or graze treated sugarcane foliage following spot spray application.
- Avoid contact with sugarcane foliage, as severe damage or destruction may result.

Tank Mixtures for Preplant/Preemergence Use for Sugarcane

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Atrazine	Lexone/Sencor
Banvel	Prowl
Clarity	Trifluralin
Karmex	2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Sugarcane Ripening

To hasten ripening and extend the period of high sucrose levels in sugarcane see the following recommended use rates and application timing for each state listed.

LA – Apply 2, 3, 6–13 fl. oz./A 3–5 weeks before harvest of **ratoon cane only.**
TX – Apply 2, 3, 6–13 fl. oz./A 3–5 weeks before harvest of **ratoon cane only.**
FL – Apply 2, 3, 6–13 fl. oz./A 3–5 weeks before harvest of **last ratoon cane only.**
HI – Apply 2, 3, 6–13 fl. oz./A 4–10 weeks before harvest.
PR – Apply 2, 3–6 fl. oz./A 3–5 weeks before harvest of **ratoon cane only.**

Use of this product may not increase sucrose content control under conditions of good natural ripening.

Fallow Treatments

For removal of the last stubble of ratoon cane between sugarcane crops, apply 3.0 to 3.6 qts. in 10 to 40 gals. of water per acre to new growth having at least 7 new leaves. Allow 7 days between application and tillage.

SUNFLOWER

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sunflowers

- Make only one preplant or preemergence application with no more than 24 fl. oz./A.
- Do not graze or feed sunflower forage.
- Avoid contact with sunflower foliage.

Tank Mixtures for Preplant/Preeemrgence Use for Sunflower

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 1.5 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Eptam
Prowl
Trifluralin

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

VEGETABLE CROPS

Touchdown Total may be used on the vegetable crops listed below:

Amaranth
Arrugula
Artichoke (Jerusalem)
Asparagus
Beans (all)
Beet, garden
Beet, sugar
Broccoli (all)
Brussels Sprouts
Cabbage (all)
Cabbage (Chinese)
Cantaloupe
Cardoon
Carrot
Casaba
Cavalo Broccolo
Cauliflower
Celeriac
Celery
Celery (Chinese)
Celtuce
Chard (Swiss)
Chayote
Chervil
Chick peas
Chicory
Chrysanthemum
Collards
Corn salad
Cress
Cucumber
Dandelion
Dock (sorrel)
Eggplant
Endive
Fennel (Florence)
Garlic
Gherkin
Ginseng
Gourd, edible
Groundcherry
Guar
Horseradish
Kale
Kohlrabi
Leeks
Lentils
Lettuce
Melons (all including citron, crenshaw, honey balls,
honeydew, mango, musk, Persian)
Mizuna
Mustard greens
Okra
Onions (green, spring, Japanese bunching)
Parsley, turnip-rooted
Parsnip
Peas (all)
Pepinos
Pepper (all)
Potato (Irish)
Pumpkin
Purslane
Radish
Radish, oriental (daikon)
Rape greens
Rhubarb
Rutabaga
Salsify, black
Salsify (oyster plant)
Salsify (Spanish)
Shallots
Spinach (all)
Spinach, mustard
Squash (summer, winter)
Sweet potato
Tomatillo
Tomato
Turnip
Watercress
Watermelon
Yams

Method of Application: Broadcast application before transplanting or before, during, or after planting but prior to crop emergence if direct seeded; spot spray; wiper/wick (rutabaga only); postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** for application rates and timing.

General Use Precautions for Vegetable Crops

- For **Asparagus,** do not apply broadcast within one week of emergence of first spears. Spot applications can be made immediately after cutting, but before emergence. Spears can be harvested 5 days after spot application. Postharvest applications can be made as a directed or shielded spray avoiding contact of the spray with the ferns, stems, or spears.

- Wait 3 days after application before planting cantaloupe, casaba, chayote, Chinese okra, Chinese waxgourd, cucumber, cucuzza, edible gourd, eggplant, gherkin, gourds, groundcherry, melons (all), pepper (all), pumpkin, squash, tomatillo, watercress, and watermelon.

- If transplanting into plastic mulch, ensure residues of this product are removed from the plastic prior to transplanting. Residues can be removed by a minimum of ½ inch of sprinkler irrigation or rainfall.

- Wiper/wick applications to rutabagas must be made at least 14 days before harvest.

Tank Mixtures With Residual Herbicides for Preplant/Preemergence Use in Vegetables

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol	Lorox
Command	Matrix®
Dual MAGNUM	Prefar®
Dual II MAGNUM	Prowl
Fusilade DX	Sencor
Goal	Trifluralin
Kerb	Treflan®
Lexone	Turbo

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

WEEDS CONTROLLED

Water volumes of 3 to 40 gallons per acre by ground equipment and 3 to 15 gallons by air are recommended. Use the minimum spray volume that provides adequate coverage.

When tank mixing with residual herbicides, refer to the individual crop section for recommendations.

Apply to actively growing weeds.

Table 1: Annual Weed Control – Touchdown Total Rates

Use the higher end of the rate range when stressful growing conditions or dense plant populations exist.

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Anoda, spurred	*Anoda cristata*	17–24	24–30			
Barley	*Hordeum vulgare*				12–17	17–24
Barnyardgrass	*Echinochloa crus-galli*	24	17–24	24–35		
Bassia, fivehook	*Bassia hyssopifolia*		24			
Bittercress	*Cardamine* spp.			6–12	12–17	
Bluegrass, annual	*Poa annua*			6–12		
Bluegrass, bulbous	*Poa bulbosa*			6–12		
Bristly starbur	*Ancanthospornum hispidum*		12–17	17–24		
Brome, downy[1]	*Bromus tectorum*		9–12	12–17		
Brome, Japanese	*Bromus japonicus*		6–12	12–17		17–24
Browntop panicum	*Panicum fasciculatum*		6–12	17–24		26–35
Buckwheat, wild [2]	*Polygonum convolvulus*	24				
Buffalobur	*Solanum rostratum*	17–24	24–36	24–36		
Burcucumber	*Sicyos angulatus*		12–17	17–24		
Burgherkin	*Cucumis anguria*	17–24	24–36			

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Buttercup [3]	*Ranunculus* spp.			6–12	12–17	
Camphorweed	*Heterotheca subaxillaris*		24–36			
Canarygrass	*Phalaris canariensis*		17–24			
Carolina geranium[4]	*Geranium carolinianum*	17–24	24–36			
Carpetweed	*Mullugo verticillata*		12–17	17–24		
Cheat	*Bromus secalinus*		6–12		12–17	
Chervil	*Anthriscus cerefolium*				6–12	
Chickweed, common	*Stellaria media*			6–17	17–24	
Chickweed, mouseear	*Cerastium vulgatum*		6–12	6–17	17–24	
Citronmelon	*Citrullus lanatus*	17–24	24–35			
Cocklebur, common	*Xanthium strumarium*			6–12	12–17	17–24
Coffee senna	*Cassia occidentalis*	17–24	24–35			
Corn[5]	*Zea mays*		6–12	12–17		17–24
Corn speedwell	*Veronica arvensis*			6–12		
Cowpea	*Vigna unguiculata*	17–24	24–35			
Crabgrass[6]	*Digitaria* spp.	12	12–17	17–24		
Crotalaria, showy	*Crotalaria spectabilis*	12–17	17–24	24–35		
Croton, tropic	*Croton glandulosus*	17–24	24–35			
Crowfootgrass	*Dactyloctenium aegyptium*	6–12	12–24	24–48		
Cutleaf eveningprimrose[4]	*Oenothera laciniata*	17–24	26–35			
Devil's–claw (unicorn plant)	*Proboscidea louisianica*	17	24			
Dwarfdandelion	*Krigia cespitosa*				6–12	
Eastern mannagrass			6–12	12–17		
Eclipta	*Eclipta prostrata*	12–17	17–24	24–35		
Fall panicum	*Panicum dichotomiflorum*	6–12	17–24	24–35		26–35
Falsedandelion	*Pyrrhopappus carolinianus*				12–17	

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Falseflax, smallseed	*Camelina microcarpa*			6–12		
Fiddleneck	*Amsinckia* spp.		17	24–35		
Filaree	*Erodium* spp.		17–24	24–35		
Fleabane, annual	*Erigeron annus*		6–12		12–17	
Fleabane, hairy	*Conyza bonariensis*		17–24	24–35		
Fleabane, rough	*Erigeron strigosus*	6–12	12–17	17–24		
Florida beggarweed	*Desmodium tortuosum*		12–17	17–24		
Florida pusley	*Richardia scabra*	17–24	24–35			
Foxtails	*Setaria* spp.		6–12	12–17	17–24	
Goatgrass, jointed	*Aegilops cylindrica*		6–12	12–17		
Goosefoot, neetleleaf	*Chenopodium murale*		24–35			
Goosegrass	*Eleusine indica*	12–17	17–24	24–35		
Grain sorghum (milo)	*Sorghum bicolor*		6–12	12–17	17–24	
Groundcherry	*Physalis sp.*		24–35			
Groundsel, common	*Senecio vulgaris*		12–17			
Hemp sesbania	*Sesbania exaltata*	12–17	24–29	29–36		
Henbit	*Lamium amplexicaule*		17–24	26–35		
Hophornbeam copperleaf	*Acalypha ostryifolia*	17–23	26–35			
Horseweed/Marestail[8]	*Conyza canadensis*		12–17	17–24	24–35	
Itchgrass	*Rottboellia cochinchinensis*		6–12	17–24	24–35	
Jimsonweed	*Datura stramonium*			17–24	24–35	
Johnsongrass, seedling	*Sorghum halepense*		6–12	12–17	17–24	24–35
Junglerice	*Echinochloa colona*	12–17	17–24	24–35		
Knotweed	*Polygonum aviculare*		17–24	24–35		
Kochia[3]	*Kochia scoparia*		12–17	17–24		
Lambsquarters, common	*Chenopodium album*		12–17	17–24	24–35	
Lettuce, prickly	*Lactuca serriola*		12–17	17–24		
Little barley	*Hordeum pussillum*		6–12	12–17		

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
London rocket	*Sisymbrium irio*		6–12			17–24
Mayweed	*Anthemis cotula*	12–17	17–24		24–35	
Morningglory [4,7]	*Ipomoea* spp.	17–24	24–35			
Mustard, blue	*Chorispora tenella*		6–12	12–17	17–24	
Mustard, tansy	*Descurainia pinnata*		6–12	12–17	17–24	
Mustard, tumble	*Sisymbrium altissimum*		6–12	12–17	17–24	
Mustard, wild	*Brassica kaber*		6–12	12–17	17–24	
Nightshade, black	*Solanum nigrum*	17	17–24	24–35		
Nightshade, hairy	*Solanum sarrachoides Sendtner*	17	17–24	24–35		
Oats	*Avena sativa*	12	12–17		17–24	
Oats, wild	*Avena fatua*	12	12–17		17–24	
Panicum, Texas	*Panicum texanum*		6–12	17–23		24–35
Pennycress, field	*Thlaspi arvense*		6–12	12–17		
Pigweed	*Amaranthus* spp.			12–17	17–24	24–29
Poinsettia, wild	*Euphorbia heterophylla*	12–17	24–35			
Prickly sida (Teaweed) [4,7]	*Sida spinosa*	17–24	24–35			
Puncturevine	*Tribulus terrestris*	17–24	24–35			
Purslane, common	*Portulaca oleracea*	17–24	24–35			
Rabbitfootgrass	*Polypogon monspeliensis*		17–24			
Ragweed, common	*Ambrosia artemisiifolia*		12–17	17–24	24–35	
Ragweed, giant	*Ambrosia trifida*		12–17	17–24	24–35	
Red rice	*Oryza sativa*	17–24				
Redweed	*Melochia corchorifolia*	17–24	24–35			
Rockpurslane Redmaids	*Calandrinia sp.*		17–24			
Rye	*Secale cereale*		6–12		17–24	24–35
Ryegrass, Italian	*Lolium multiflorum*		17–24	24–35		
Sandbur, field	*Cenchrus incertus*		12	12–17		
Sandbur, southern	*Cenchrus echinatus*	6–12	12–17	17–24		
Shattercane	*Sorghum bicolor*		6–12	12–17	17–24	

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Shepherdspurse	*Capsella bursa-pastoris*		6–12	12–17		
Sicklepod	*Cassia obtusifolia*	17–24	24–35			
Signalgrass, broadleaf	*Brachiaria platyphylla*	12–17	17–24	24–35		
Smartweed (ladysthumb)	*Polygonum persicaria*		17–24	24–35		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		17–24	24–35		
Sowthistle, annual	*Sonchus oleraceus*		17–24	24–35		
Spanishneedles	*Bidens bipinnata*		17–24	24–35		
Speedwell, purslane	*Veronica peregrina*			6–12		
Sprangletop	*Leptochloa* spp.		6–12	12–17	17–24	
Spurge, prostrate	*Euphorbia* spp.		12–17	17–24		
Spurge, spotted	*Euphorbia maculata*		12–17	17–24		
Spurry, umbrella	*Holosteum umbellatum*		12–17			
Stinkgrass	*Eragrostis cilianensis*			12–17		
Sunflower, common	*Helianthus annuus*			6–12	12–17	
Thistle, Russian	*Salsola iberica*		17–24	24–35		
Velvetleaf[4]	*Abutilon theophrasti*		17–24	24–35		
Virginia copperleaf	*Acalypha virginica*	17–24	24–35			
Virginia pepperweed	*Lepidium virginicum*				12–17	
Waterhemp	*Amaranthus* spp.		17–24	24–35		
Wheat	*Triticum aestivum*		6–12	12–17	17–24	
Wild Buckwheat	*Polygonum convolvulus*		17–24	24–36		
Wild-proso millet	*Panicum miliaceum*		17	24	35	
Witchgrass	*Panicum capillare*			12–17		
Woolly cupgrass	*Eriochloa villosa*		12–17	17–24		
Yellow rocket	*Barbarea vulgaris*			12–17	17–24	

[1] In no-till systems, use 17 oz./A.
[2] Maximum runner length. For control of wild buckwheat >3" in runner length, use sequential applications of 24 oz./A.
[3] Control will be reduced at the button stage.
[4] When the predominant weed species include Carolina geranium, cutleaf eveningprimrose, and henbit

that are less than 6 inches tall, Gramoxone Max should be considered as an alternative.

[5] Will not control glyphosate-tolerant volunteer corn.

[6] Plant diameter.

[7] Multiple applications may be required.

[8] Will not control glyphosate–tolerant marestail/horseweed. Glyphosate–tolerant biotypes can be controlled by timely application of Gramoxone Max plus either 2,4-D and/or a PSI herbicide prior to planting.

Table 2: Annual Weed Control – Touchdown Total Rates in a Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	MAXIMUM HEIGHT/ LENGTH	Touchdown Total FLUID OUNCES PER ACRE
Kochia (dicamba only)	*Kochia scoparia*	6"	12–17
Lettuce, prickly	*Lactuca serriola*		
Morningglory	*Ipomoea* spp.		
Ragweed, common	*Ambrosia artemisiifolia*		
Ragweed, giant	*Ambrosia trifida*		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		
Velvetleaf	*Abutilon theophrasti*		
Cocklebur, common	*Xanthium strumarium*	12"	
Fleabane, rough	*Erigeron strigosus*		
Horseweed/Marestail*	*Conyza canadensis*		
Kochia	*Kochia scoparia*		
Lambsquarters, common	*Chenopodium album*		
Pigweed	*Amaranthus* spp.		
Sunflower, common	*Helianthus annuus*		
Thistle, Russian	*Salsola iberica*		

Read and follow dicamba and 2,4-D labels

*Glypyhosate–tolerant biotypes less than 3 inches tall can be controlled by Gramoxone Max plus either 2,4-D or a triazine-based herbicide.

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Alfalfa	*Medicago sativa*	1.5	1-1.5		At 6-8 inch stage or more after final cutting in fall. Deep till 7 days after treatment.
Artichoke, Jerusalem	*Helianthus tuberosus*	1.5	2.2-3.6		At or after flowering.
Balsam-apple [1]	*Momordica charantia*	1.5			Apply at or beyond bloom.
Bahiagrass	*Paspalum notatum*	1.5	2.2-3.6		Early seedhead stage.
Barley, foxtail	*Hordeum jubatum*	1.5	0.75-1.6		4-6 inch stage.
Bentgrass	*Agrostis* spp.	1.5	1.1		Should have at least 3 inches of growth. Ensure entire crown area has resumed growth prior to fall application. Till 7-10 days after application.
Bermudagrass	*Cynodon dactylon*	1.5	2.2-3.6		Seedheads present; may require retreatment.
Bermudagrass, water (knotgrass)		1.5	1.1		Apply when water bermudagrass is 12-18 inches in length. Allow 7 days before flushing or flooding the field. Not registered for use in California on this weed.
Bindweed, field	*Convolvulus arvensis*	1.5	2.7-3.6		At or after flowering, west of Mississippi River, in late summer for best results.
			2.2-2.7		At or after flowering, east of Mississippi River, in late summer for best results
			1.4	Yes	At or after flowering for control, multiple applications may be required. Do not apply by air.
			0.7-1.4	Yes	For suppression on irrigated agricultural land, by ground equipment only. Apply in fall or following harvest on runners 12 inches or more in length.
Bindweed, field (continued)	*Convolvulus arvensis*		0.4	Yes	For suppression by ground or aerial applications. Apply by air in fallow and reduced tillage systems only. Applications should be delayed until maximum emergence has occurred and when vines are between 6-18 inches in length.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
			0.7-3.6		**In California**: Apply at 12 inches or greater runner length. Use high end of rate range where dense populations exist. For suppression on land which is irrigated and tilled, use 0.7 qt./A.
Bluegrass, Kentucky	*Poa pratensis*	1.5	0.75-1.4		Apply at boot to early seedhead stage.
			0.75–1.1		For partial control in pasture or hay crop renovation, apply when plants are 4-12 inches.
Blueweed, Texas	*Helianthus ciliaris*	1.5	2.7-3.6		Apply at or beyond bloom west of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
			2.2-2.7		Apply at or beyond bloom east of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
Brackenfern	*Pteridium aquilinum*	0.7-1.1	2.2–3.3		Fronds fully expanded and at least 18 inches long.
Bromegrass, smooth	*Bromus inermis*	1.5	0.75-1.6		Apply when most plants are at the boot to early seedhead stage.
			0.75-1.1		For partial control in pasture or hay crop renovation, apply to actively growing plants 4-12 inches in height.
Bursage, woollyleaf	*Ambrosia grayi*	1.5	1.4	Yes	Apply to actively growing plants at or beyond flowering.
			0.75	Yes [1]	Apply to actively growing plants at or beyond flowering.
Canarygrass, reed	*Phalaris arundinacea*	1.5	1.6-2.2		Boot to head.
Cattail	*Typha* spp.	1.5	2.2-3.6		Early head to early bud.
Clover, red Clover, white	*Trifolium pratense* *Trifolium repens*	1.5	2.2-3.6		Early head to early bud. May require retreatment.
Cogongrass	*Imperata cylindrica*	1.5	2.2-3.6		Late summer/fall, greater than 18 inches in height. May require retreatment.
Dallisgrass	*Paspalum dilatatum*	1.5	2.2-3.6		Early head to early bud.
Dandelion	*Taraxacum officinale*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dayflower[1]	*Commelina* spp.	1.5	1.1-1.6		Less than 4 inches in height.
Dock, curly	*Rumex crispus*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dogbane, hemp	*Apocynum cannabinum*	1.5	3.3		Late bud to flower. May require retreatment.
			0.4	Yes	Actively growing at 6-12 inch stage for suppression.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Dogfennel	*Eupatorium capillifolium*	1.5	2.2-3.6		Actively growing, less than 12 inches in height.
Fescue	*Festuca* spp.	1.5	2.2-3.6		Apply when most plants have reached the early head stage.
Fescue, tall	*Festuca arundinacea*	1.5	0.75-2.2		Apply 2.2 qts./A when most plants have reached boot to early seedhead stage. Fall applications only: Apply 0.75 qt./A when plants are 6-12 inches in height. A spring applied sequential treatment of 0.75 pt./A will improve long term control.
Goatweed	*Scoparia dulcis*	1.5	1.4-2.2		Less than 8 inch stage.
Guineagrass	*Panicum maximum*	0.7	1.6-2.2		7-10 leaf stage.
Horsenettle	*Solanum carolinense*	1.5	2.2–3.6		Early bud stage
Horseradish	*Armoracia rusticana*	1.5	3.3		Apply when most plants have reached the late bud to early flower stage in late summer or fall.
Iceplant	*Mesembryanthemum crystallinum*	1.1–1.5	–		At or beyond the early bud stage.
Johnsongrass	*Sorghum halepense*	0.7	0.4-2.2		Apply at boot to head stage and in the fall prior to frost. Use 0.7 to 1.4 qts./A for annual tillage systems. Use 1.4 to 2.2 qts./A on no-till acres. Allow 3-7 days before tillage.
			0.4		For burndown, apply when plants are 12 inches in height and allow 3 days before tillage.
Kikuyugrass	*Pennisetum clandestinum*	1.5	1.6-2.2		Spray when most kikuyugrass is at least 8 inches in height. Allow 3 or more days after application before tillage.
Knapweed	*Centaurea* spp.	1.5	3.3		Apply in fall at late bud to flower stage.
Lantana, largeleaf[1]	*Lantana camara*	1.0	–		Apply at or beyond bloom stage.
Lespedeza	*Lespedeza spp.*	1.5	2.2-3.6		Apply when most plants have reached the early bud stage.
Milkweed, common	*Asclepias syriaca*	1.5	2.2	Yes	Apply when most plants have reached the early bud stage.
Milkweed, honeyvine	*Ampelamus albidus*	1.5	1.6-3.3	Yes	Late bud to early flower. May require retreatment.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Muhly, wirestem	*Muhlenbergia frondosa*	1.5	0.75-1.6		Use 0.75 to 1.6 qts./A in pasture, sod, or noncrop areas. Spray plants 8 inches or more in height. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage.
Mullein, common	*Verbascum thapsus*	1.5	2.2-3.6		Early bud.
Napiergrass	*Pennistum purpureum*	1.5	2.2-3.6		Early head stage.
Nightshade, silverleaf	*Solanum eleagnifolium*	1.5	1.6		Apply when 60% of plants have berries. Apply fall treatments before a killing frost.
Nutsedge, purple Nutsedge, yellow	*Cyperus rotundus* *Cyperus esculentus*	0.7-1.5	0.4-2.2		Apply 2.2 qts./A for control of nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Sequential applications: 0.7–1.4 qts./A applied to plants in the 3-5 leaf stage or less than 6 inches tall. Repeat treatments at this stage for long term control. For partial control: apply 0.4–1.4 qts. per acre. Treat when plants have 3-5 leaves or less than 6 inches tall. Repeat treatments at this stage for long term control.
Orchardgrass	*Dactylis glomerata*	1.5	0.75-1.6		Apply 1.4 qts./A on plants at early boot to seedhead stage. For partial control in pasture or hay crop renovation, apply 0.75–1.1 qts./A. Apply to actively growing plants 4-12 inches in height. In orchardgrass sods rotated to no-till corn: Apply 0.75–1.1 qts. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be required for optimum results.
Pampasgrass[1]	*Erianthus ravennae*	1.0-1.5			Apply at or beyond boot stage.
Paragrass	*Brachiaria mutica*	1.5	2.2-3.6		Early seedhead stage.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Phaseybean[1]	*Phaseolus lathyroides*	1.5	1.6-3.3		Less than 8 inches tall.
Phragmites[1]	*Phragmites* spp.	1.0-1.5	2.2-3.6		For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Repeat treatments may be necessary. Visual control symptoms will be slow to develop.
Poison hemlock	*Conium maculatum*	1.0-1.5			Apply as a spray to wet treatment. Optimum results are obtained when plants are treated at the bud to full-bloom stage of growth.
Pokeweed, common	*Phytolacca americana*	1.5	1.1		Apply to actively growing plants up to 24 inches in height.
Quackgrass	*Agropyron repens*	1.5	0.75-2.2		Apply 0.75–2.2 qts./A in annual cropping systems, or in pastures and sods where deep tillage is used. Do not tank mix with a residual herbicide at the 0.75 qt. rate. Spray when quackgrass is 6-8 inches in height. Do not till between harvest and fall applications or in the fall or spring prior to spring application. Allow 3 or more days after application before tillage.
			1.6-2.2		Apply in pastures, sod, or noncrop areas where deep tillage will not follow the application. Spray when quackgrass is at least 8 inches in height.
Redvine[1]	*Brunnichia ovata*	1.5	0.5-1.6		For suppression, apply 0.5 qt./A at each of two applications 7-14 days apart or a single application of 1.6 qts./A. Apply to plants greater than 18 inches tall in September/October to plants which have been growing 45-60 days since the last tillage. Make application at least 1 week prior to killing frost.
Ryegrass, perennial	*Lolium perenne*	1.0	0.75-2.2		Apply 0.7–2.2 qts./A when most plants are in the boot to head stage or prior to frost. In noncrop or areas where no tillage is practiced, use 1.6–2.2 qts./A. Do not tank mix with residual herbicides when using the 0.75 qt./A per acre rate.
Smallflowered Alexandergrass	*Brachiaria subquadripara*	1.5	1.6-3.3		Less than 4 inches in height, actively growing
Smartweed, swamp	*Polygonum coccineum*	1.5	2.2—.6		Early bud, 12 inch stage.
			0.4	Yes	Early bud, 12 inch stage.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Sowthistle, perennial	*Sonchus arvensis*	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage.
Spurge, leafy	*Euphorbia esula*	1.5	0.4	Yes	For suppression: greater than 12 inches tall in late summer.
Sweet potato, wild [1]	*Ipomea pandurata*	1.5			*Apply at or beyond flowering stage.*
Switchgrass	*Panicum virgatum*	1.5	1.1-2.2		Boot to head stage.
Thistle, artichoke [1]	*Cynara cardunculus*	1.5			Apply when plants are beyond the bloom stage.
Thistle, Canada	*Cirsium arvense*	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage. For fall applications or following mowing, allow a minimum of 6-8 inches rosette development.
			0.4-0.7	Yes	For suppression: Apply in late summer or fall after harvest, mowing, or tillage. Allow rosette regrowth to be a minimum of 6 inches in diameter before treating. Allow 3 or more days before tillage.
Timothy	*Phleum pratense*	1.5	1.6-2.2		Boot to head; wait 3 days before tillage
Torpedograss[1]	*Panicum repens*	1.5	2.7-3.6		At or beyond seedhead. Repeat applications will be required to maintain control. Fall treatments must be made prior to a killing frost.
Trumpetcreeper[1]	*Campsis radicans*	1.5	1.6		Late September/October applications on actively growing plants at least 18 inches in height; retreatment may be required. Make applications at least one week before killing frost.
Vaseygrass	*Paspalum urvillei*	1.5	2.2-3.6		Apply at early head stage.
Vetch	*Vicia* spp.	1.5	1.4-2.9		Boot to head.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Virginia creeper	*Parthenocissus quinquefolia*	1.5	3.3		Full leaf expansion.
Velvetgrass	*Holcus* spp.	1.5	2.2-3.6		Early head stage
Wheatgrass, western	*Agropyron smithii*	1.5	2.6-2.2		Boot to head.

[1] Partial control.

Table 4: Woody Brush and Trees Controlled

Apply Touchdown Total after full leaf expansion, unless otherwise directed. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. In most areas, best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring to early summer when brush species are at high moisture content and are flowering.

Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing, or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Reduced performance may result if fall treatments are made following a frost.

When plants are growing under stressed conditions, or where infestations are dense, Touchdown Total may be used at 3.6 to 7.6 quarts per acre or a 0.7 to 1.5% solution for spot spray clean-up.

The following are controlled with 1.6 to 2.2 qts.[1]	
Birch	Rose, multiflora
Cherry; bitter, black, pin	Salmonberry
Elderberry	Sweetgum
Hawthorn	Thimbleberry
Hazel	Trumpetcreeper
Oak, southern red	
The following are controlled with 2.2 to 3.3 qts.[1]	
Alder	Oak, post
Blackberry	Quaking Aspen
Honeysuckle	Willow
The following are controlled with 2.7 to 3.6 qts.[1]	
Kudzu	
Poison ivy/Poison oak	

The following are controlled with 1.6 to 3.6 qts.[1]	
Ash[2]	Oak; black, white[2]
Bearmat (Bearclover)[2]	Oak; northern, pin
Beech[2]	Oak, scrub[2]
Blackgum	Persimmon[2]
Bracken	Pine
Cascara[2]	Poplar, yellow[2]
Ceanothus[2]	Redbud, eastern
Chamise[2]	Russian olive[2]
Dogwood[2]	Sage, white[2]
Elm[2]	Saltcedar
Florida holly (Brazilian peppertree)[2]	Sassafras[2]
Gorse[2]	Sourwood[2]
Hickory[2]	Sumac; poison, smooth, winged[2]
Hornbeam, American[2]	Swordfern[2]
Locust, black[2]	Vine maple[2]
Manzanita[2]	Virginia creeper
Maple, red	Waxmyrtle, southern[2]
The following are controlled with 3.6 qts.[1]	
Broom; French, Scotch	Maple, sugar
Buckwheat, California[2]	Monkey flower[2]
Catsclaw[2]	Sage, black
Coyote brush	Sage brush, California
Eucalyptus	Tallowtree, Chinese
Hasardia[2]	Tan oak resprouts[2]
Madrone resprouts[2]	Tobacco, tree[2]

[1] Alternatively, use a 1.5% solution for spot spray clean-up.
[2] Provides partial control

This product is sold only for uses stated on its label. This formulation is covered by U.S. Patent No. 5,468,718.

Ambush®, Bicep®, Bicep MAGNUM®, Bicep II®, Bicep Lite II®, Bicep Lite II MAGNUM®, Bicep II MAGNUM®, Callisto™, Caparol®, Cotoran®, Devrinol®, Dual MAGNUM™, Dual II MAGNUM™, Eptam®, Flexstar®, Fusilade®, Fusion®, Gramoxone®, Karate®, Lumax™, Princep®, Princep® Caliber 90®, Reflex®, Solicam®, Touchdown Total, Warrior®, Zorial®, and the Syngenta logo registered trademarks of a Syngenta Group Company

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For non-emergency (e.g., current product information), call
Syngenta Crop Protection at 1-800-334-9481.

Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

Base Label
(2.5 gal.)

GROUP	9	HERBICIDE

Touchdown Total™
IQ® Technology

Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use in attached booklet

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-1169

EPA Est. 100-LA-001

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Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

SCP 1169A-L1 1003 [2.5 gal.]

2.5 gallons
Net Contents

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if inhaled. Avoid breathing spray mist. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**	

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, fiberglass, plastic, or plastic-lined steel containers.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage

Keep container closed to prevent spills and contamination.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

NOV - 1 2004

Mr. Jerry Wells
Syngenta Crop Protection, Inc
P. O. Box 11300
Greensboro, NC 27419-8300

Dear Mr. Wells:

Subject: Touchdown Total Herbicide (Supplemental for Aerial Application In Fresno County, CA)
EPA Registration No. 100-1169
Application Dated August 23, 2004

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. A stamped copy of labeling is enclosed for your records.

Supplemental labeling must be incorporated into a master label and copies of master labeling submitted for our files at your next printing or within two years from the date of acceptance of supplemental labeling, whichever comes first. The Agency will consider a convincing argument as to why a supplemental label should not appear on a master label on a case by case basis.

Sincerely,

Vickie K Walters for
James A. Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505C)

PRODUCT INFORMATION

syngenta

Syngenta Crop Protection, Inc.
Greensboro, NC 27409
www.syngenta-us.com

SUPPLEMENTAL LABEL FOR TOUCHDOWN TOTAL™ HERBICIDE FOR AERIAL APPLICATION IN FRESNO COUNTY, CALIFORNIA ONLY

FROM FEBRUARY 15 THROUGH MARCH 31 ONLY

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

ACCEPTED
NOV - 1 2004
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended for the pesticide registered under EPA Reg. No. 100-1169

EPA Reg. No. 100-1169

KEEP OUT OF REACH OF CHILDREN.

CAUTION

All applicable directions, restrictions and precautions on the EPA-registered label are to be followed.

Before using Touchdown Total Herbicide as permitted according to this supplemental label, read and follow all applicable directions, restrictions, and precautions on the EPA registered label on or attached to the pesticide product container. This Supplemental Labeling contains revised use instructions and or restrictions that may be different from those that appear on the container label. This Supplemental Labeling must be in the possession of the user at the time of pesticide application. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

[SCP 1169-S2 xxxx]

DIRECTIONS FOR USE

It is a violation of federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of the application.

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "DIRECTIONS FOR USE" sections of the label booklet for Touchdown Total Herbicide for essential product information.

APPLICABLE AREA

This supplement only applies to the area contained inside the following boundaries within Fresno County, California.

North: Fresno County line
South: Fresno County line
East: State Highway 99
West: Fresno County line

GENERAL INFORMATION

Always read and follow the label directions and precautionary statements for all products used in the aerial application. Observe the following directions to minimize off-site movement during aerial application of this product. Minimization of off-site movement is the responsibility of the grower, Pest Control Advisor and aerial applicator.

Written Recommendations

A written recommendation MUST be submitted by or on behalf of the applicator to the Fresno County Agricultural Commissioner 24 hours prior to the application. This written recommendation MUST state the proximity of surrounding crops, and that conditions of each manufacturer's product label and this label have been satisfied.

AERIAL APPLICATOR TRAINING AND EQUIPMENT

Aerial application of this product is limited to pilots who have successfully completed a Fresno County Agricultural Commissioner and California Department of Pesticide Regulation approved training program for aerial application of herbicides. All aircraft must be inspected, critiqued in flight and certified at a Fresno County Agricultural Commissioner approved fly-in. Test and calibrate spray equipment at intervals sufficient to insure that proper rates of herbicides and adjuvants are being applied during commercial use. Applicator must document such calibrations and testing. Demonstration of performance at Fresno County Agricultural Commissioner approved fly-ins constitutes such documentation, or other written records showing calculations and measurements of flight and spray parameters acceptable to the Fresno County Agricultural Commissioner.

Applications at Night – Do not apply this product by air earlier than 30 minutes prior to sunrise and/or later than 30 minutes after sunset without prior permission from the Fresno County Agricultural Commissioner.

Note: For aerial application from April 1 through February 14, refer to the "FOR AERIAL APPLICATION IN CALIFORNIA ONLY" supplemental label.

Read the "Conditions of Sale and Limitation of Warranty and Liability" in the label booklet for Touchdown Total Herbicide before using this product. These terms apply to this supplemental labeling, and if these terms are not acceptable, return the product unopened at once.

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Greensboro, North Carolina 27409
www.syngenta-us.com

[SCP 1169 S2 xxxx]

Touchdown Total 1169 S2 – pd – 08/16/04

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

NOV - 1 2004

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Mr. Jerry Wells
Syngenta Crop Protection, Inc
P. O. Box 11300
Greensboro, NC 27419-8300

Dear Mr. Wells:

Subject: Touchdown Total Herbicide (Supplemental for Aerial Application In CA)
EPA Registration No. 100-1169
Application Dated August 23, 2004

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. A stamped copy of labeling is enclosed for your records.

Supplemental labeling must be incorporated into a master label and copies of master labeling submitted for our files at your next printing or within two years from the date of acceptance of supplemental labeling, whichever comes first. The Agency will consider a convincing argument as to why a supplemental label should not appear on a master label on a case by case basis.

Sincerely,

Vickie Walters for
James A. Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505C)

PRODUCT INFORMATION

syngenta

Syngenta Crop Protection, Inc.
Greensboro, NC 27409
www.syngenta-us.com

SUPPLEMENTAL LABEL FOR TOUCHDOWN TOTAL™ HERBICIDE FOR AERIAL APPLICATION IN CALIFORNIA ONLY

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

ACCEPTED
NOV - 1 2004
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended for the pesticide registered under EPA Reg. No. 100-1169

EPA Reg. No. 100-1169

KEEP OUT OF REACH OF CHILDREN.

CAUTION

All applicable directions, restrictions and precautions on the EPA-registered label are to be followed.

Before using Touchdown Total Herbicide as permitted according to this supplemental label, read and follow all applicable directions, restrictions, and precautions on the EPA registered label on or attached to the pesticide product container. This Supplemental Labeling contains revised use instructions and or restrictions that may be different from those that appear on the container label. This Supplemental Labeling must be in the possession of the user at the time of pesticide application. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

[SCP 1169-S1 xxxx]

DIRECTIONS FOR USE

It is a violation of federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of herbicide application.

See "GENERAL INFORMATION" and "DIRECTIONS FOR USE" sections of the label booklet for essential product information.

See the "CROPS" section of the label booklet for specific recommendations on the use of this product.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF THE SPRAY WITH FOLIAGE, GREEN STEMS, OR FRUIT OF DESIRABLE CROPS (EXCEPT AS SPECIFIED FOR INDIVIDUAL GLYPHOSATE TOLERANT CROPS), PLANTS, TREES OR OTHER DESIRABLE VEGETATION, SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Aerial applications of this product are allowed in the following situations:

1. In fallow and reduced tillage systems prior to the emergence or of labeled crops.

2. Over-the-top applications in glyphosate tolerant corn and glyphosate tolerant cotton (including Roundup Ready® corn and cotton). Refer to the Touchdown Total Herbicide label for specific application instructions for over-the-top applications in these glyphosate tolerant crops.

Do not plant subsequent crops other than those listed in the label booklet for 30 days following application.

When applied as recommended under the conditions described, this product controls annual and perennial weeds listed in the label booklet.

When tank mixing this product with 2,4-D for aerial applications, only 2,4-D amine formulations may be used. This tank mixture may be used for fallow and reduced tillage systems applications only.

DO NOT EXCEED A MAXIMUM RATE OF 42.6 FLUID OUNCES PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR IN FALLOW AND REDUCED TILLAGE SYSTEMS AND ALFALFA AND PASTURE RENOVATION APPLICATIONS. THIS RESTRICTION ALSO APPLIES TO PREHARVEST COTTON AND PREHARVEST TO GLYPHOSATE TOLERANT COTTON APPLICATIONS.

DO NOT EXCEED A MAXIMUM RATE OF 21.3 FLUID OUNCES PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR IN ALFALFA, CORN, WHEAT AND GLYPHOSATE TOLERANT CORN PRIOR TO HARVEST. THIS RESTRICTION ALSO APPLIES TO OVER-THE-TOP APPLICATIONS IN GLYPHOSATE TOLERANT CORN AND GLYPHOSATE TOLERANT COTTON.

Aerial Equipment

Use the recommended rates of this product in 3 to 15 gallons of water per acre. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters.

AVOID DRIFT – DO NOT APPLY WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH FAVORS DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Use the following guidelines when aerial applications are made near crops or desirable perennial vegetation after bud break and before total leaf drop, and/or near other desirable vegetation or annual crops.

1. Do not apply within 100 feet of all desirable vegetation or crop(s).

2. If wind up to 5 miles per hour is blowing toward desirable vegetation or crop(s), do not apply within 500 feet of the desirable vegetation or crop(s).

3. Winds blowing from 5 to 10 miles per hour toward desirable vegetation or crop(s) may require buffer zones in excess of 500 feet.

4. Do not apply when winds are in excess of 10 miles per hour or when inversion conditions exist.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the air-stream and do not increase spray volume by increasing nozzle pressure. Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application – To avoid streaking, uneven, or overlapped application, use appropriate marking devices. Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO

UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion.

Read the "Conditions of Sale and Limitation of Warranty and Liability" in the label for Touchdown Total Herbicide before using this product. Those terms apply to this supplemental labeling and if those terms are not acceptable, return the product unopened at once.

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Greensboro, North Carolina 27409
www.syngenta-us.com

[SCP 1169-S1 xxxx]

TOUCHDOWN TOTAL 1169 S1 – pd – 08/20/04

Note For Records

Name of Product: Touchdown Total Herbicide

EPA Registration No./ File Symbol 100-1169

Submission Date: 8/23/04

Received Date: 8/24/04

Date Worked: 10/25/04
10/26/04 AWP

Description of Action: Review revised label, supplementals to add aerial appl in CA and Fresno Co, CA & add referral statement on master label to supplementals

Comments: Run label comparison (Tom Harris ran for me, mine does not work) on master label. All changes acceptable.
Supplemental labels for CA and Fresno Co, CA ok

acceptable master and supplementals

Signature and Date: Vickie K Walters
10/26/04

Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

syngenta

NOT FFS

FEDERAL EXPRESS

August 23, 2004

Document Processing Desk (AMEND/E-SUB)
Office of Pesticide Programs (H7504C)
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2
1801 Bell Street
Arlington, VA 22202

Attn: Mr. James A. Tompkins

Dear Mr. Tompkins:

SUBJECT: APPLICATION FOR AMENDED REGISTRATION
TOUCHDOWN TOTAL™ HERBICIDE – EPA REG. NO. 100-1169
SUBMISSION OF REVISED PROPOSED LABELING AND
SUPPLEMENTAL LABELING

Enclosed is an application to amend the registration of Touchdown Total Herbicide. A statement directing users to refer to the Federal supplemental label for specific instructions, restrictions, and requirements for aerial application in California has been added at the request of CDPR. This is the only change being made to this label. Five copies of the Touchdown Total label are enclosed; one copy is highlighted to show the changes made to the label. Also enclosed are a CD of the Touchdown Total label for electronic submission and review, the Certification with Respect to Label Integrity form, and EPA Form 8570-1 – Application for Pesticide Amendment.

In addition, a supplemental label for **Touchdown Total Herbicide for Aerial Application in California Only** and another supplemental label for **Touchdown Total Herbicide for Aerial Application in Fresno County, California Only** are attached. We are requesting that EPA approve these supplemental labels to allow aerial application in California.

Thank you for your consideration of this label amendment. This submission qualifies as a fast track amendment and no fee is required. If you have any questions, please contact me at 336-632-6324.

Sincerely,

Jerry Wells

Jerry Wells
Regulatory Product Manager

Enclosures

Please read instructions on reverse before completing form.

EPA	United States Environmental Protection Agency Washington, DC 20460	[ ] Registration [x] Amendment [ ] Other	OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 100-1169	2. EPA Product Manager James A. Tompkins	3. Proposed Classification [x] None [ ] Restricted
4. Company/Product (Name) Touchdown Total™ Herbicide	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Syngenta Crop Protection, Inc. P. O. Box 18300 Greensboro, NC 27419 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

[x] Amendment - Explain below.

[ ] Resubmission in response to Agency letter dated _____

[ ] Notification - Explain below.

[ ] Final printed labels in response to Agency letter dated _____

[ ] "Me Too" Application.

[ ] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.).

Enclosed is an application to amend the registration of Touchdown Total Herbicide. A statement directing users to refer to the Federal supplemental label for specific instructions, restrictions, and requirements for aerial application in California has been added at the request of CDPR. This is the only change being made to this label. Five copies of the Touchdown Total label are enclosed; one copy is highlighted to show the changes made to the label. Also enclosed are a CD of the Touchdown Total label for electronic submission and review, the Certification with Respect to Label Integrity form, and EPA Form 8570-1 – Application for Pesticide Amendment. In addition, a supplemental label for **Touchdown Total Herbicide for Aerial Application in California Only** and another supplemental label for **Touchdown Total Herbicide for Aerial Application in Fresno County, California Only** are attached. We are requesting that EPA approved these supplemental labels to allow aerial application in California. This submission qualifies as a fast track amendment and no fee is required.

Section – III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [x] No	[ ] Yes [x] No	[ ] Yes [x] No	[ ] Metal [x] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) _____
Certification must be submitted	If "Yes" Unit Packaging wgt. / No. per Container	If "Yes" Unit Packaging wgt. / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[x] Label [ ] Container	2.5, 30, 120 gallons and Bulk	[x] On Label [ ] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [x] Other Pressure Sensitive

Section – IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Jerry Wells	Regulatory Product Manager	336-632-632

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature *Jerry Wells pd*	3. Title Regulatory Product Manager	6. Date Application Received (Stamped)
4. Typed Name Jerry Wells	5. Date August 23, 2004	

Certification with Respect to Label Integrity

Version: 9/11/02

I certify that the information (including, but not limited to, text, tables, and graphics) contained in the electronic file identified below by file name and submitted with this certification is the same information as that on the paper copies of these documents included with this submission.

PROPOSED LABEL		
EPA Registration #	Date Submitted to EPA	Electronic file name
100-1169	08/23/04	000100-01169.20040823.TOUCHDOWN-TOTAL-AMEND-0804.pdf

I certify that the statements that I have made on this form are true, accurate, and complete. I acknowledge that any knowingly false or misleading statements may be punishable by fine or imprisonment or both under applicable law.

Pat Dinnen
Signature

August 23, 2004
Date

Pat Dinnen
Name (typed)

Regulatory Specialist, Herbicides
Title

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

MAY - 6 2004

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Mr. Jerry Wells
Syngenta Crop Protection, Inc.
P. O. Box 18300
Greensboro, NC 27419

Dear Mr. Wells:

Subject: Touchdown Total (2 Alternate CSFs)
EPA Registration No. 100-1169
Application Dated April 6, 2004

The scientific review and evaluation of the alternate confidential statements of formula submitted above, have been completed. The alternate CSFs dated January 16, 2004 are acceptable and our records have been modified accordingly.

Sincerely,

Vicki Crawford for
James A. Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505C)

G 1 1 1 0 0 - 1 1 1 6 9 1 | 04/09/04

3. SCIENCE PUBLICATION NECESSARY ☐ YES ☐ NO	4. PETITION NO.	5. RECEIVED ON TEAM MO DAY
6. METHOD OF SUPPORT ☐ SA ☐ SB ☐ SC	7. PRODUCT MANAGER	NO. 8. PROJECTED RETURN MO DAY
9. DATE PULLED 5/4/04	10. DATE PUBLISHED AWP	11. ACTION TYPE Zallenate CSFS 345 CODE 12. OUTGOING DATE MO DAY

REV SEQ	REVIEW TYPE CODE	REVIEW TYPE	REVIEWER CODE (Initials)	SIGNATURE OF REVIEWER	COMMENT CODE	DATE REVIEW COMPLETED MO DAY
	A	REVIEWABILITY TEAM				
	B	PRODUCT MANAGER TEAM EFFICACY REVIEW				
	C	PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW				
	D	PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW				
	E	PRODUCT MANAGER TEAM RESUBMISSION REVIEW				
	F	PRODUCT MANAGER		VKW	NAC	05/04/04
	G	INTERAGENCY REFERRAL		added inerts cleared		
	H	COST-BENEFIT REVIEW		under 100-RRFA(1186)		
	I	PUBLIC COMMENTS REVIEW				
	J	EEE BRANCH INSECTICIDE EFFICACY				
	K	EEE BRANCH HERBICIDE EFFICACY				
	L	EEE BRANCH FUNGICIDE EFFICACY				
	M	EEE BRANCH RODENTICIDE EFFICACY				
	N	EEE BRANCH DISINFECTANT EFFICACY				
	O	CHEMISTRY BRANCH RESIDUE CHEMISTRY				
	P	EEE BRANCH ENVIRONMENTAL CHEMISTRY				
	Q	TOXICOLOGY BRANCH HUMAN SAFETY				
	R	EEE BRANCH ENVIRONMENTAL SAFETY				
	S					
	T					

PRODUCT MANAGER SIGNATURE	TYPE OF RESPONSE	CODE

EPA Form 6570-13 (2-79)

Please read instructions on reverse before completing form.

United States Environmental Protection Agency Washington, DC 20460	[ ] Registration [ ] Amendment [x] Other	OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number	2. EPA Product Manager	3. Proposed Classification
100-1169	Jim Tompkins	[x] None [ ] Restricted
4. Company/Product (Name) Touchdown Total	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Syngenta Crop Protection, Inc. P. O. Box 18300 Greensboro, NC 27419 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

[ ] Amendment - Explain below.

[ ] Resubmission in response to Agency letter dated _____

[ ] Notification - Explain below.

[ ] Final printed labels in response to Agency letter dated _____

[ ] "Me Too" Application.

[x] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.).

Request for alternate formula.

Section – III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [ ] No	[ ] Yes [ ] No	[ ] Yes [ ] No	[ ] Metal [ ] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) _____
***Certification must be submitted**	If "Yes" Unit Packaging wgt. / No. per Container	If "Yes" Unit Packaging wgt. / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[ ] Label [ ] Container		[ ] On Label [ ] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [ ] Other

Section – IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Jerry Wells	Regulatory Product Manager	336-632-6324

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature	3. Title	6. Date Application Received **(Stamped)**
Jerry Wells	Regulatory Product Manager	
4. Typed Name Jerry Wells	5. Date April 6, 2004	

Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

syngenta

FEDERAL EXPRESS

April 6, 2004

Mr. Jim Tompkins, PM 25
Office of Pesticide Programs (H7504C)
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202-4501

SUBJECT: Request for New Alternate Formula for Touchdown Total, EPA Reg. No. 100-1169

Dear Mr. Tompkins:

Syngenta Crop Protection requests the Agency's approval of two alternate formulas for Touchdown Total, EPA Reg. No. 100-1169. A comparison of the new formulas and the basic (Syngenta source of glyphosate technical) and an alternate [redacted] source of glyphosate technical) are shown in the attached Confidential Attachment A. The two additional formulants are added to improve the [redacted] characteristics of the formulation.

Since this is an administrative "fast track" action a fee is not required per the Pesticide Registration Improvement Act of 2003.

Attachments:

- Application for Pesticide Registration, EPA Form 8570-1
- 3 copies of the 2 CSF's (2 sources of technical)
- Confidential Attachment A
- Confidential Attachment B

Please contact me at (336) 643-6324 if there are any questions regarding this submission.

Kind regards,

Jerry Wells
Regulatory Product Manager

Enclosures

Inert ingredient information may be entitled to confidential treatment
Product ingredient source information may be entitled to confidential treatment

Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com
Tel 336 632 6000

462521-00

syngenta

April 20, 2004

file

Jim Tompkins
Document Processing Desk
Office of Pesticide Programs (H7504C)
U.S. Environmental Protection Agency
Crystal Mall 2, Room 266A
1921 Jefferson Davis Highway
Arlington, VA 22202

SUBJECT: SUBMISSION OF STORAGE STABILITY AND CORROSION CHARACTERISTICS FOR TOUCHDOWN TOTAL HERBICIDE (EPA REG. NO. 100-1169) ADDENDUM TO MRID NO. 45830209

Dear Mr. Tompkins:

Syngenta Crop Protection, Inc. is herein submitting data that qualifies as both Storage Stability (Guideline Data Number 830.6317) and Corrosion Characteristics (Guideline Data Number 830.6320). This data is an addendum to MRID no. 45830209.

Enclosed are the following documents:

- Data Volume (3 copies)
- Transmittal Document (3 copies)

If there are any questions concerning matters contained in this letter, please do not hesitate to contact me at (336)632-6324 or my regulatory assistant Tiffanny Rudolph at (336) 632-2592.

Kind Regards

Jerry Wells

Jerry Wells
Regulatory Product Manager

VOLUME 1 OF 2 OF SUBMISSION
(TRANSMITTAL DOCUMENT)

1. Name and Address of Submitter

Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419

2. Regulatory Action in Support of which this Package is Submitted

Submission of Storage Stability and Corrosion Characteristics for Touchdown TOTAL Herbicide (EPA Reg. No. 100-1169)

3. Transmittal Date

4/20/2004

4. List of Submitted Studies

MRID NUMBER	VOLUME NUMBER	STUDY TITLE	EPA GUIDELINE NUMBER
	1 OF 2	Transmittal document	NA
46252101	2 OF 2	One Year Storage Stability at Ambient Temperature and Corrosion Characteristics of Glyphosate SL (500) (A13013M) (Addendum to MRID No.: 45830209);(PC-04-013), (09003aeb8013f9ad),(425656)	830.6317, 830.6320

COMPANY OFFICIAL: JERRY WELLS (NAME) — Jerry Wells (SIGNATURE)

COMPANY NAME: SYNGENTA CROP PROTECTION, INC.

COMPANY CONTACT: JERRY WELLS (NAME) — 336-632-6324 (PHONE)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

June 16, 2004

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SYNGENTA CROP PROTECTION, INC.
PO Box 18300
GREENSBORO, NC 27419-8300

Report of Analysis for Compliance with PR Notice 86-5

Thank you for your submittal of 21-APR-04. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your submittal was found to be in full compliance with the standards for submission of data contained in PR Notice 86-5. A copy of your bibliography is enclosed, annotated with Master Record ID's (MRIDs) assigned to each document submitted. Please use these numbers in all future references to these documents. Thank you for your cooperation. If you have any questions concerning this data submission, please raise them with the cognizant Product Manager, to whom the data have been released.

Syngenta Crop Protection, Inc. Tel 336 632 6000
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

462372-00

syngenta

FEDERAL EXPRESS

March 30, 2004

file

Mr. Jim Tompkins
Document Processing Desk (APPL)
Office of Pesticide Programs (7504C)
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202-4501

Dear Mr. Tompkins:

RE: **New Acute Inhalation Toxicity Study to Replace MRID 45830203 in Support of Subject Registration.**
Touchdown Total, EPA Reg. No. 100-1169.

EPA approved Touchdown Total, EPA Reg. No. 100-1169, on Nov. 3, 2003. The data supporting this glyphosate formulation included an acute inhalation study conducted with a formulation variant. The variant was similar and EPA accepted the study as supporting. After the submission, an acute inhalation study was conducted using the final formulation variant. The study is herein submitted. The initial study indicated a Toxicity Category IV for acute inhalation; the results of this study indicate an acute inhalation Toxicity Category of IV. Syngenta is submitting this study to be included in the supporting data and to replace the previous study (MRID 45830203).

Attached:

- Transmittal Document (Volume 1), 3 copies
- 1 Data Volume (Volume 2), 3 copies

Please contact Jerry Wells at (336) 643-6324 if there are any questions about the submission.

Kind regards,

Jerry Wells
Regulatory Product Manager

Enclosures

VOLUME 1 OF 2 OF SUBMISSION
(TRANSMITTAL DOCUMENT)

1. **NAME AND ADDRESS OF SUBMITTER**

SYNGENTA CROP PROTECTION, INC.
P.O. BOX 18300
GREENSBORO, NC 27419

2. **REGULATORY ACTION IN SUPPORT OF WHICH THIS PACKAGE IS SUBMITTED**

SUBMISSION OF NEW ACUTE INHALATION TOXICITY STUDY TO REPLACE MRID 45830203 IN SUPPORT OF REGISTRATION OF SYN 1219, EPA REG. NO. 100- 1169

3. **TRANSMITTAL DATE**

03/30/2004

4. **LIST OF SUBMITTED STUDIES**

MRID NUMBER	VOLUME NUMBER	STUDY TITLE	EPA GUIDELINE NUMBER
	1 OF 2	TRANSMITTAL DOCUMENT	NOT APPLICABLE
46237201	2 OF 2	ACUTE INHALATION TOXICITY STUDY IN RATS - LIMIT TEST (1523)(1042-03, 418757)	870.1300

COMPANY OFFICIAL: JERRY WELLS (NAME) Jerry Wells (SIGNATURE)

COMPANY NAME: SYNGENTA CROP PROTECTION, INC.

COMPANY CONTACT: JERRY WELLS (NAME) 336-632-6324 (PHONE)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

May 17, 2004

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SYNGENTA CROP PROTECTION, INC.
PO Box 18300
GREENSBORO, NC 27419-8300

Report of Analysis for Compliance with PR Notice 86-5

Thank you for your submittal of 31-MAR-04. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your submittal was found to be in full compliance with the standards for submission of data contained in PR Notice 86-5. A copy of your bibliography is enclosed, annotated with Master Record ID's (MRIDs) assigned to each document submitted. Please use these numbers in all future references to these documents. Thank you for your cooperation. If you have any questions concerning this data submission, please raise them with the cognizant Product Manager, to whom the data have been released.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

MAR - 4 2004

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Mr. Jerry Wells
Sygenta Crop Protection, Inc
P.O. Box 18300
Greensboro, NC27419-9300

Dear Mr. Wells:

Subject: Touchdown Total (Revise CSFs)
EPA Registration No. 100-1169
Letter Dated December 9, 2003

The scientific review and evaluation of the revised confidential statements of formula (CSFs) submitted above have been completed. The CSFs dated December 5, 2003 are acceptable and supercede all previously accepted ones. Our records have been modified accordingly.

Sincerely,

Vicki Walters for
James A. Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505C)

G | 1 | 1 | 0 | 0 | - | 1 | 1 | 6 | 9 | 1 | 1 | 2 | 1 | 0 | 0 | 3

3. 3C 3 PUBLICATION NECESSARY ☐ YES ☐ NO	4. PETITION NO.	5. RECEIVED ON TEAM MO DAY YR
6. METHOD OF SUPPORT ☐ 2A ☐ 2B ☐ 2C	7. PRODUCT MANAGER	NO. 8. PROJECTED RETURN MO DAY YR
9. DATE PULLED 2/26/04	10. DATE PUBLISHED	11. ACTION TYPE Revised CSFs. 345 CODE 12. OUTGOING DATE MO DAY YR

REV SEQ	REVIEW TYPE CODE	REVIEW TYPE	REVIEWER CODE (Initials)	SIGNATURE OF REVIEWER	COMMENT CODE	DATE REVIEW COMPLETED MO	DAY	YR
	A	REVIEWABILITY TEAM						
	B	PRODUCT MANAGER TEAM EFFICACY REVIEW						
	C	PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW						
	D	PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW						
	E	PRODUCT MANAGER TEAM RESUBMISSION REVIEW						
	F	PRODUCT MANAGER		UKW	NAC	0	2	2 6 0 4
	G	INTERAGENCY REFERRAL						
	H	COST-BENEFIT REVIEW						
	I	PUBLIC COMMENTS REVIEW						
	J	EEE BRANCH INSECTICIDE EFFICACY						
	K	EEE BRANCH HERBICIDE EFFICACY						
	L	EEE BRANCH FUNGICIDE EFFICACY						
	M	EEE BRANCH ROGENTICIDE EFFICACY						
	N	EEE BRANCH DISINFECTANT EFFICACY						
	O	CHEMISTRY BRANCH RESIDUE CHEMISTRY						
	P	EEE BRANCH ENVIRONMENTAL CHEMISTRY						
	Q	TOXICOLOGY BRANCH HUMAN SAFETY						
	R	EEE BRANCH ENVIRONMENTAL SAFETY						
	S							
	T							

PRODUCT MANAGER SIGNATURE	TYPE OF RESPONSE	CODE

EPA Form 6570-13 (3-75)

Syngenta Crop Protection, Inc.
P.O. Box
Greensboro, NC

syngenta

December 9, 2003

Ms. Vickie Walters
Product Management Team (23)
Registration Division (H7505C)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Crystal Mall 2, Room 266A
1921 Jefferson Davis Highway
Arlington, VA 22202

Dear Ms. Walters:

RE: Touchdown Total, EPA Reg. No. 100-1169

Enclosed are four revised CSF's for Touchdown Total. The only revision is the Product Name change from SYN 1219 to Touchdown Total. The original submission listed the name as SYN 1219. The label was resubmitted with the Product Name Touchdown Total before being approved on October 30, 2003. Please contact me at (336) 632-6324 if there are any questions about this submission.

Attached (2 copies of each):

CSF153/5, the basic (Syngenta source of glyphosate)
CSF154/6, an alternate
CSF273/2, an alternate
CSF274/2, an alternate

Sincerely,

Jerry Wells
Regulatory Product Manager

Enclosures

Syngenta Crop Protection, Inc. Tel 336 632 6000
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

syngenta

Bcc:

Corey Huck
Chuck Foresman
Chron
RA File

Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

syngenta

FEDERAL EXPRESS

December 11, 2003

Mr. James A. Tompkins, PM 25
Office of Pesticide Programs (H7504C)
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202-4501

Dear Mr. Tompkins:

SUBJECT: TOUCHDOWN TOTAL™ HERBICIDE
EPA REG. NO. 100-1169
SUBMISSION OF FINAL PRINTED LABELING

In accordance with the above subject letter, enclosed are three copies of final printed labeling for Touchdown Total Herbicide created for packaging that reflects the registration accepted on October 30, 2003. Changes to the **First Aid, Precautionary Statement, Personal Protective Equipment**, and **Storage and Disposal** have been incorporated into the labeling as requested in the Notice of Pesticide Registration. In the **Physical and Chemical Hazards** and **General Use Precautions** sections we deleted aluminum containers as an option for mixing or storing Touchdown Total; this was put on the label in error. We also deleted all references to metolachlor containing products (e.g., Bicep®, Bicep® II, Dual®, Dual® II) since these registrations have been cancelled.

Also enclosed is EPA Form 8570-1 indicating submission of final printed labeling.

If you have any questions, please contact me at 336-632-2494.

Sincerely,

Pat Dinnen

Pat Dinnen
Regulatory Specialist

Enclosures

cc: Jerry Wells

Please read instructions on reverse before completing form.

EPA	United States Environmental Protection Agency Washington, DC 20460	[ ] Registration [ ] Amendment [x] Other	OPP Identifier Number 300541

Application for Pesticide - Section I

1. Company/Product Number 100-1169	2. EPA Product Manager Mr. James A. Tompkins	3. Proposed Classification [x] None [ ] Restricted
4. Company/Product (Name) Touchdown Total™ Herbicide	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Syngenta Crop Protection, Inc. P. O. Box 18300 Greensboro, NC 27419 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. ____ Product Name ____	

Section - II

[ ] Amendment - Explain below.

[ ] Resubmission in response to Agency letter dated ____

[ ] Notification - Explain below.

[x] Final printed labels in response to Agency letter dated October 30, 2003

[ ] "Me Too" Application.

[ ] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.).

Enclosed are three copies of final printed labeling for Touchdown Total Herbicide created for packaging that reflects the registration accepted on October 30, 2003. Changes to the **First Aid, Precautionary Statement, Personal Protective Equipment**, and **Storage and Disposal** have been incorporated into the labeling as requested in the Notice of Pesticide Registration. In the **Physical and Chemical Hazards** and **General Use Precautions** sections we deleted aluminum containers as an option for mixing or storing Touchdown Total; this was put on the label in error. We also deleted all references to metolachlor containing products (e.g., Bicep®, Bicep® II, Dual®, Dual® II) since these registrations have been cancelled.

Section – III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [x] No	[ ] Yes [x] No	[ ] Yes [x] No	[ ] Metal [x] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) ____
***Certification must be submitted**	If "Yes" Unit Packaging wgt. / No. per Container	If "Yes" Unit Packaging wgt. / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[x] Label [ ] Container	2.5 gallons, 30 gallons, 120 gallons, Bulk	[x] On Label [ ] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product: [ ] Lithograph [ ] Paper glued [ ] Stenciled [x] Other Pressure Sensitive

Section – IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Pat Dinnen	Regulatory Specialist	336-632-2494

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature Pat Dinnen	3. Title Regulatory Specialist	6. Date Application Received (Stamped)
4. Typed Name Pat Dinnen	5. Date December 11, 2003	

Changes acceptable
by [illegible] 2/26/04

PULL HERE TO OPEN

Group 9 Herbicide

TOUCHDOWN TOTAL™

iQ TECHNOLOGY

Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine 36.5%

Other Ingredients: 63.5%

Total: 100.0%

**Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.*

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-1169
EPA Est. 100-LA-001

SCP 1169A-L1 1003
141420

2.5 gallons
Net Contents

syngenta

SCP 130-1169A-L1

FIRST AID	
If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if inhaled. Avoid breathing spray mist. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Long sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Socks and shoes

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, fiberglass, plastic, or plastic-lined steel containers.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and Buyer and User assume the risk of any such use. SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall SYNGENTA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitations of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are **NOT** within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage

Keep container closed to prevent spills and contamination.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Recyclable/Refillable Containers

Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

Container Disposal

Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

GENERAL INFORMATION

Touchdown Total is a nonselective foliar systemic herbicide used to control a broad spectrum of emerged grass and broadleaf weeds, both annual and perennial, in:

- alfalfa, clover, and other legumes
- berries, fruits, nuts, and vines
- Christmas trees
- conservation compliance/conservation reserve program (CRP)
- corn, including glyphosate tolerant
- cotton, including glyphosate tolerant
- fallowland and postharvest
- farmsteads
- grasses and grass seed production
- herbs
- pastures
- peanuts
- small grains
- sorghum
- soybeans, including glyphosate-tolerant
- sugarcane
- sunflower
- vegetables

Touchdown Total is formulated as a liquid concentrate which contains 4.17 pounds acid equivalent per gallon.

GENERAL USE PRECAUTIONS

- Touchdown Total requires actively growing green plant tissue to function. Application to drought-stressed weeds or weeds with little green foliage (i.e. mowed, cut, or hailed on weeds); weeds covered with dust; weeds damaged by insects or diseases may result in reduced weed control.
- Touchdown Total does not provide soil residual control of weeds. Weeds emerging after application will require retreatment.
- Heavy rainfall or irrigation shortly after application may require retreatment.
- Tillage or mowing within 3 days following application may reduce weed control.
- Do not apply this product through any type of irrigation system.
- DO NOT spray if conditions of thermal inversion exist, or if wind direction and speed may cause spray to drift onto adjacent nontarget areas. Drift minimization is the responsibility of the applicator. Consult with local and State agricultural authorities for information regarding avoiding or minimizing spray drift.
- Touchdown Total is not volatile and cannot move as a vapor after application onto nontarget vegetation.
- It is recommended that the spray system be thoroughly cleaned with water and a commercial tank cleaner after each use.

- Spray solutions of Touchdown Total should be mixed, stored, and applied using only plastic, plastic-lined steel, stainless steel, or fiberglass containers. Concentrate should not be stored in galvanized steel, carbon steel, or unlined steel containers.
- There are no rotational crop restrictions following application of this product.
- Severe damage or destruction may be caused by contact of Touchdown Total to any vegetation (including leaves, green stems, exposed non-woody roots, or fruit) of crops, trees, and other desirable plants to which treatment is not intended, except as specified for glyphosate-tolerant crops.
- In crop areas, do not exceed a total of 5.8 qts./A. In noncrop areas, do not exceed a total of 7.6 qts./A.
- Do not exceed 0.7 qt./A by air unless otherwise specified on this label.
- For broadcast postemergence treatments, do not harvest or feed treated vegetation for 8 weeks following application, unless otherwise specified.
- The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed maximum use rate.

GLYPHOSATE RESISTANT WEED MANAGEMENT

Some naturally occurring weed biotypes resistant to glyphosate may exist through normal genetic variability in any weed population. The repeated use of herbicides with the same mode of action is known to lead under certain conditions to a selection of resistant weeds. Certain agronomic practices reduce the likelihood that resistant weed populations will develop and integrated strategies are known to manage such problem weeds.

Glyphosate is the active ingredient in the herbicide Touchdown Total. The primary mode of action of glyphosate involves inactivation of the target enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS). This enzyme is involved in the synthesis of several essential amino acids that are the building blocks for proteins needed for plant growth and development. In susceptible weeds glyphosate binds tightly to EPSPS rendering the enzyme inactive. With the inactivation of EPSPS, the plant is unable to produce certain essential amino acids resulting in plant death. Initial studies on the mechanistic basis of resistance to glyphosate in various weed species have to date, revealed EPSPS target site resistance, and involvement of differences in translocation as important. Other mechanisms by which plants can become resistant to herbicides include differences in uptake, metabolism and sequestration. Within the USA specific biotypes of horseweed/marestail, *Conyza canadensis* and rigid ryegrass, *Lolium rigidum* have become resistant to glyphosate. The first incident reported to the Herbicide Resistance Action Committee (HRAC) of glyphosate resistance was in 1998 on rigid ryegrass. Horseweed resistance was subsequently confirmed in 2000.

Following is a list of Best Weed Management practices to be considered in glyphosate-based programs.

Diversify glyphosate-dependent weed control programs with alternative herbicides or cultural practices.

a. In Roundup Ready® (RR™) corn and RR soybean systems do not use more than two applications of a glyphosate based herbicide over a two year period. Diversify with alternative herbicides/cultural practices.
b. In RR cotton up to three glyphosate applications may be used in crop per year if employing in-crop cultivation/residual herbicide.
c. Use alternative burndown and/or residual herbicides for RR crops likely to require more than one application of glyphosate.
d. To manage RR resistant volunteers rotate RR crops with conventional crops.
e. Use full label rates of glyphosate and tank mix partners. Minimize weed escapes.
f. Monitor treated weed populations for any loss of field efficacy.
g. Contact your local extension specialist, certified crop advisor, and/or manufacturer for herbicide resistance management and/or integrated weed management recommendations for specific crops and resistant weed biotypes.

Since the occurrence of resistant weeds is difficult to detect prior to use, Syngenta Crop Protection accepts no liability for any losses that may result from the failure of Touchdown Total to control resistant weeds.

APPLICATION AND MIXING DIRECTIONS

TIMING

Touchdown Total should be applied to actively growing emerged weeds. Annual weeds of 6 inches or less in height are typically the easiest to control. Generally, more effective control of perennial weeds is achieved at the flowering or seedhead stage. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for specific application timing.

When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth to appear prior to application. When perennial weeds have been mowed or grazed, allow new growth to reach recommended stage prior to application.

Visible effects on annual weeds occur within 2-4 days after application; effects on perennial weeds may take 7 days or longer. Extremely cool or cloudy weather following treatment may slow activity.

RATES

Follow recommended rates for Touchdown Total listed in the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections. Use the higher label rates when weeds are dense or large. Also, use higher application volumes and pressures when weed vegetation is dense.

SPRAY ADDITIVES

Ammonium Sulfate (AMS) – Control of annual and perennial weeds with Touchdown Total may be improved by adding dry ammonium sulfate at 1 to 2% by weight or 8.5-17.0 lbs./100 gals. of water. Liquid formulations of AMS may be used at an equivalent rate. Do not reduce use rates of Touchdown Total when using AMS.

Drift Control Agents – Drift control agents may be used with Touchdown Total.

TANK MIXES WITH RESIDUAL HERBICIDES

Refer to crop sections for recommended tank mixes. Tank mixes of Touchdown Total with other pesticides, fertilizers, or any other additives except as specified on this label or other approved Syngenta supplemental labeling may result in tank mix incompatibility or unsatisfactory performance. It is recommended that the compatibility of any tank mix combination be tested on a small scale such as a jar test before actual tank mixing.

Always refer to labels of other pesticide products for mixing directions and precautions which may differ from those outlined here. Use in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

Tank Mixing Recommendations:

1. Fill spray tank 1/2 full with clean water.
2. Begin tank agitation and continue throughout mixing and spraying.
3. Add AMS (if used).
4. Add dry formulations (WP, DF, etc.) to tank.
5. Add liquid formulations (SC, EC, L, etc.) to tank.
6. Add Touchdown Total.
7. Fill remainder of spray tank.

APPLICATION EQUIPMENT AND TECHNIQUES

- Avoid drift. Applications should not be made in low level inversion conditions, when winds are gusty or under any other conditions which favor drift. Inversions are characterized by stable air and increasing temperatures with height above the ground. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer. Drift may cause damage to any vegetation contacted to which treatment is not intended.
- Compatibility with drift control additives may vary. It is recommended that the combination be tested on a small scale such as a jar test. Read and follow manufacturer's directions for use. A reduction in weed control may occur when drift control agents are used.
- All equipment must be properly maintained and washed to remove product residues after use.

BROADCAST APPLICATIONS

Ground

Applications should be made in 3-40 gals. of water per acre.

When foliage is dense, spray volume should be increased to ensure coverage of the target weeds. Flat-fan nozzles will result in the most effective application of Touchdown Total. Spray boom and nozzle heights must be adjusted to provide coverage of target weeds. Flood nozzles may result in reduced weed control due to inadequate coverage.

Air

Applications should be made in 3-15 gals. of water per acre.

Spray should be released at the lowest height consistent with effective weed control and flight safety. Applications more than 10 ft. above the canopy should be avoided.

Use the largest droplet size consistent with good weed control. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding inappropriate spray boom pressure. Solid stream or low shear nozzles may be utilized to reduce small droplet formation. These nozzles direct the fluid parallel to the existing airflow to reduce shear effects. Other techniques may include reducing the fan angle of flat fan nozzles if used, or reducing the deflector plate angle if deflector type nozzles are used. Ensure the spray is released at an appropriate distance below the airfoil.

For best results, each specific aerial application vehicle used should be quantifiably pattern tested for aerial application of Touchdown Total initially and every year thereafter. To minimize drift, it is suggested aerial application equipment produce the following minimum spray deposition characteristics:

Volume Median Diameter (VMD)	› 400 microns
Volume Diameter (VD) {0.9}	› 200 microns

Prolonged exposure of Touchdown Total to uncoated steel surfaces may result in corrosion and possible failure of the part. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion. To prevent corrosion of exposed parts, thoroughly wash aircraft after each day of spraying to remove residues of Touchdown Total accumulated during spraying or from spills. Landing gear are most susceptible.

SHIELDED/HOODED APPLICATION

Use shielded/hooded sprayers to control weeds between rows while protecting the crop from the herbicide. Keep shields/hoods as close to the ground as possible and avoid ground speed in excess of 5 mph. Use appropriate nozzles, spacing, and pressure to achieve coverage without allowing spray to touch or drift onto the crop. Maintain equipment in good operating condition to prevent leakage or dripping onto the crop. Refer to state extension service recommendations and equipment manufacturers' guidelines for more information on proper operation of shielded/hooded sprayers.

SPOT TREATMENTS

For annual weeds less than 6 inches, use a 0.4 to 0.7% v/v solution. For annual weeds over 6 inches, use a 0.7 to 1.1% v/v solution. Use a 0.7 to 1.5% v/v solution for most perennials (see Table 3 for specific rates and timing). When using motorized spot spray equipment (rider bar), use a 2.2% v/v solution. See **Spot Spray Dilution Table** below for rates of Touchdown Total/volume of finished spray solution. Spray the solution on actively growing weeds until uniformly wet but not to the point of runoff. Retreat 14-21 days later if regrowth occurs.

Touchdown Total Spot Spray Dilution Table

	To Make This Volume			
Solution Strength	1 gallon	10 gallons	25 gallons	100 gallons
0.4%	0.5 fl. oz.	5 fl. oz.	12 fl. oz.	3 pts.
0.7%	0.9 fl. oz.	9 fl. oz.	1.4 pts.	5.6 pts.
0.9%	1.2 fl. oz.	12 fl. oz.	1.9 pts.	3.8 qts.
1.1%	1.4 fl. oz.	14 fl. oz.	2.2 pts.	4.4 qts.
1.5%	1.9 fl. oz.	1.2 pts.	3 pts.	1.5 gals.
2.2%	2.8 fl. oz.	1.8 pts.	4.4 pts.	2.2 gals.

WIPER APPLICATION

Touchdown Total may be applied using a wiper or "wick" applicator (e.g. rope, sponge, or porous plastic applicators) for selective control or suppression of annual and perennial weeds which become taller than the crop or desirable vegetation. Mix 3 qts. of Touchdown Total in 2 gals. of water unless directed otherwise in this label (see **General Use Precautions for Berries, Fruits, Nuts, and Vines**). Precautions should be taken to avoid contact with crops or desirable vegetation. Equipment should be operated at speeds of 5 mph or less. Use slower speeds where weeds are dense. For improved control, make two applications in opposite directions.

CDA EQUIPMENT

For control of annual weeds with hand held equipment, apply a 20% solution of Touchdown Total at a flow rate of 2 fl. oz. per minute and a walking speed of 1.5 mph (1 qt./A). For perennial weeds, use a 20 to 30% solution of Touchdown Total at a flow rate of 2 oz. per minute and a walking speed of 0.75 mph (2 to 3 qts./A). For vehicle mounted equipment, apply in 3 to 15 gals. of water per acre. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Precautions should be taken to avoid contact with crops or desirable vegetation.

CROP USE DIRECTIONS

This section is organized alphabetically by crop categories. There may be several crops listed in a crop category.

ALFALFA, CLOVER, AND OTHER LEGUMES

Touchdown Total may be used on the legume crops listed below:

Alfalfa	Lespedeza	Trefoil
Clover	Lupine	Velvetbean
Kudzu	Sainfoin	Vetch

Method of Application: Before, during, or after planting but before crop emergence; renovation; spot spray (alfalfa and clover only); wiper/wick (alfalfa and clover only); preharvest (alfalfa only); and postharvest.

Preplant/Preemergence, Dormant, or Renovation

Deep tillage following treatment of weeds with Touchdown Total or a sequential application of Touchdown Total may be required to control well established perennials.

Preharvest (Alfalfa Only)

Use this treatment to eliminate or destroy declining alfalfa stands. Up to 3.0 pts. per acre of Touchdown Total may be applied as a broadcast spray with ground or aerial equipment at least 36 hours before harvest. Applications may be made any time of the year when the alfalfa crop is in the bud to flower stage of growth. Deep tillage following preharvest treatment or a postharvest application of Touchdown Total may be required to provide control of well established perennials.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions for Alfalfa, Clover, and Other Legumes

- Spot and wiper/wick application must be made at least 14 days before grazing or harvest of forage and hay.
- Preharvest and renovation applications can be made with no more than 1.5 pts./A at least 36 hours before grazing or harvest of forage or hay.
- Do not apply a preharvest treatment on alfalfa grown for seed as a reduction in germination or vigor may occur.

Tank Mixtures for Preplant/Preemergence, Dormant, or Renovation Use for Alfalfa, Clover, and Other Legumes

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Buctril®	Karmex®	Prowl®	Velpar®
Dual MAGNUM®	Kerb®	Pursuit®	
Eptam®	Lexone®/Sencor®	Trifluralin	

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

BERRIES, FRUITS, NUTS, AND VINES

Touchdown Total may be used on both bearing and nonbearing crops listed below.

Almond	Lemon
Apple	Lime
Apricot	Loganberry
Atemoya	Longan
Avocado	Loquat
Banana	Lychee
Barbados cherry (Acerola)	Macadamia
Beechnut	Mandarin
Blackberry	Mango
Blueberry	Mangosteen
Boysenberry	Marmaladebox (genip)
Breadfruit	Mayhaw
Brazil nut	Nectarine
Butternut	Olallieberry
Calamondin	Olive (postdirected only)
Canistel	Orange (all)
Carambola	Oriental pear
Cashew	Papaya
Cherimoya	Passion fruit
Cherry (sweet, sour, tart)	Peach
Chestnut	Pear
Chinquapin	Pecan
Chironja	Persimmon
Citron (postdirected only)	Pineapple
Citrus hybrids	Pistachio
Cocoa bean	Plantain
Coconut	Plum
Coffee	Plumcot
Crabapple	Pomegranate
Cranberry	Prune (all)
Currant	Pummelo
Date	Quince
Dewberry	Rambutan
Durian	Raspberry (black, red)
Elderberry	Sapodilla
Fig	Sapote (black, mamey, white)
Filbert (Hazelnut)	Satsuma mandarin
Gooseberry	Soursop
Grapefruit	Sugar apple
Grapes (all)	Tamarind
Guava	Tangelo
Hickory nut	Tangerine
Huckleberry	Tangor
Jaboticaba	Tea
Jackfruit	Walnut (black, English)
Kiwi fruit	Youngberry
Kumquat	

Method of Application: Preplant; preemergence; directed spray (except cranberry); middles (between rows of trees); strips (in rows of trees); perennial grass suppression (chemical mowing); post harvest (cranberry); and wiper/wick applicator equipment.

General Use

Applications may be made with boom equipment; shielded sprayers; CDA; hand-held and high-volume wands; lances; orchard guns; or wiper/wick application equipment, except as directed in the **GENERAL USE PRECAUTIONS FOR BERRIES, FRUITS, NUTS, AND VINES** section. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Multiple applications may be necessary to control certain perennial weeds. For residual weed control, tank mix Touchdown Total with residual herbicides as prescribed in the **TANK MIXTURES FOR BERRIES, FRUITS, NUTS, AND VINES** section, or make multiple applications.

General Use Precautions for Berries, Fruits, Nuts, and Vines

- Do not allow the spray, spray drift, or mist to contact foliage, fruit, shoots, branches, canes, suckers, open wounds, or green parts of crops. Contact with any crop part other than mature brown woody bark can result in severe crop injury.
- Avoid contact with stumps as injury to adjacent trees may occur from root grafting.
- Do not apply in a tank mix in Puerto Rico.
- For **peaches** grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, apply Touchdown Total with a shielded applicator which prevents contact with foliage, suckers, or bark of trees. Apply no later than 90 days after first bloom to avoid severe damage. Avoid application to peach trees with recent mechanical injury or pruning wounds. Apply only near trees which have been planted in the orchard for two or more years. SEVERE INJURY WILL OCCUR IF ANY PORTION OF THE PEACH TREE IS CONTACTED WITH SPRAY OR SPRAY DRIFT.
- For **apricots, nectarines, peaches, plums,** and **prunes** grown in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah, and Washington, any application equipment listed for these crops may be used.
- For **apricots, nectarines, peaches, plums, and prunes** grown in all other states not previously listed, use only wiper/wick application equipment.
- For **grapes** grown in the Great Lakes and Northeast regions, apply Touchdown Total prior to the end of bloom stage to avoid injury, or apply with shielded equipment.
- For **coffee and banana,** delay application 3 months after transplanting to allow the new plants to become established.
- For all other crops in this section, allow a minimum of 3 days between application and transplanting.
- For blackberry, **blueberry, boysenberry, cranberry, currant, dewberry, elderberry, gooseberry, huckleberry, loganberry, olallieberry, raspberry,** and **youngberry,** mix 3 qts. of Touchdown Total in 4 gals. of water for wiper/wick applications.
- Allow at least **17** days from the last application to harvest of **stone fruit or olives.** For olive groves, apply only as a directed spray.
- Allow at least **3** days from last application to harvest of **nuts.**
- Allow at least **30** days from last application to harvest of **cranberries.**
- Allow at least **28** days from last application to harvest of **coffee.**
- Allow at least **1** day from the last application to harvest of **banana, citrus, guava, papaya, plantain, or pome fruit (except mayhaw).**
- Allow at least **14** days from last application to harvest of **acerola, atemoya, avocado, breadfruit, canistel, carambola, cherimoya, cocoa beans, coconuts, dates, figs, genip, grapes, jaboticaba, jackfruit, longan, lychee, mango, mayhaw, passion fruit, persimmon, pomegranate, sapodilla, sapote, small berries, soursop, sugar apple, tamarind,** and **tea.**

Post-Harvest Cranberry

Application of Touchdown Total may be made following harvest of cranberries to control troublesome annual and perennial weeds. Do not apply directly to cranberry vines. Vines that are sprayed will be injured and may die. Apply Touchdown Total in a **0.4** to **0.7%** solution if using hand-held equipment after the vines are dormant. Use properly calibrated precision application equipment; wiper wisk, spot sprayer which protects the cranberry plant from Touchdown Total spray. Do not treat more than 10% of the bog.

Tank Mixtures With Residual Herbicides and 2,4-D for Berries, Fruits, Nuts, and Vines

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 3.6 qts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations or weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol®	Krovar®	Sim-Trol®
Direx®	Princep® 4L	Sinbar®
Goal®	Princep Caliber 90®	Solicam®
Karmex	Prowl	Surflan®
Kerb	Simazine	2,4-D

Refer to the individual product labels for precautionary statements, restrictions, recommended rates, approved crops, and a list of weeds controlled.

Tank Mixture With Goal Herbicide in Row Middles

Apply Touchdown Total at 12 to 24 fl. oz./A in a tank mix with 3 to 12 oz. of Goal 2XL herbicide for the control of annual weeds that are a maximum of 6 inches in height or diameter including annual sowthistle; crabgrass; common cheeseweed; common groundsel; common lambsquarters; common purslane (suppression); common ryegrass; filaree (suppression); hairy fleabane; horseweed/marestail; junglerice; London rocket; redroot pigweed; shepherdspurse; and stinging nettle. For control of common cheeseweed up to 3 inches in diameter, apply 12 to 24 fl. oz./A of Touchdown Total with 3 to 12 oz./A of Goal.

Refer to the Goal label for precautionary statements, restrictions, and approved crops.

Hard to Control Weed Recommendations in Citrus (Florida and Texas Only)

To control or suppress the perennial weeds listed in the following table, apply the recommended rate of Touchdown Total in 3 to 30 gals. of water per acre. Use 10 to 30 gals. per acre if weed foliage is dense. Apply when weeds are actively growing. Refer to the **PERENNIAL WEED CONTROL** section, Table 3, for application timing. If weeds have been mowed or grazed, allow new growth to reach recommended growth stage prior to application.

	Rate of Touchdown Total (Quarts per Acre)			
Weed Species	**0.7**	**1.4**	**2.2**	**3.6**
Bermudagrass	B	B	PC	C
Guineagrass Texas and Florida	B	C	C	C
Ridge Florida Flatwoods	NR	B	C	C
Paragrass	B	C	C	C
Torpedograss	NR	S	PC	C

B = Burndown
C = Control
NR = Not Recommended
PC = Partial Control
S = Suppression

For goatweed, apply 1.4 to 2.2 qts. of Touchdown Total per acre. Apply in 20 to 30 gals. of water per acre when plants are actively growing. Use the 1.4 qts. rate on plants less than 8 inches tall and 2.2 qts. on plants greater than 8 inches tall. When plants are greater than 8 inches tall, the addition of Krovar I or Karmex may improve control. If using a tank mix, refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Perennial Grass Suppression (Chemical Mowing) of Orchard Floors

For best results, mow to an even height and apply Touchdown Total 3 or 4 days later. Do not add AMS to the spray solution. Application must be made 1-3 weeks ahead of seedhead emergence.

Bahiagrass

Touchdown Total can be used to inhibit seedhead emergence and suppress vegetative growth for approximately 40-50 days with a single application. By using a sequential application, suppression of vegetative growth and inhibition of seedhead emergence can be extended to 120 days. Apply Touchdown Total at 20-30 days after complete green-up or after mowing to 4 inches tall. When a single application is planned, use 3 to 6 fl. oz. of Touchdown Total per acre in 10 to 20 gals. of water. When a sequential application is planned, use 3 to 6 fl. oz./A for the first application followed by another application of 1.5 to 4 fl. oz./A 40 to 50 days later.

Bermudagrass

For Suppression Only:

East of the Rocky Mountains – Apply 4 to 12 fl. oz. of Touchdown Total in 3 to 20 gals. of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. Use 2 to 6 fl. oz./A if a lesser degree of suppression is desired. A sequential application can be used when regrowth occurs.

West of the Rocky Mountains – Apply 4 to 12 fl. oz. of Touchdown Total in 3 to 20 gallons of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. A sequential application of 4 to 7 fl. oz. can be used when regrowth occurs.

For Partial Control and Burndown:

Touchdown Total can be used for burndown and partial control of bermudagrass at 1.4 to 2.9 pts. in 3 to 20 gals. of water per acre. Use 1.4 pts. east of the Rocky Mountains and 2.9 pts. west of the Rocky Mountains.

Use this treatment only if reduction of the bermudagrass stand can be tolerated. Allow at least 14 to 21 days for complete burndown.

Cool Season Grass Covers (Fine Fescue, Kentucky Bluegrass, Orchardgrass, Quackgrass, Tall Fescue)

For suppression of orchardgrass, fine fescue, tall fescue, and quackgrass, apply 3 to 6 fl. oz. of Touchdown Total in 10 to 20 gals. of water per acre. See **SPRAY ADDITIVES** section for rates.

For suppression of Kentucky bluegrass, use 2 to 4 fl. oz. of Touchdown Total.

CHRISTMAS TREES

Method of Application: Postdirected spray; site preparation; and spot spray.

Touchdown Total may be used prior to planting Christmas trees; or as a postdirected spray and spot treatment around established Christmas trees.

Follow the directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

General Use Precautions for Christmas Trees

- Avoid contact of spray, drift, or mist with foliage or green bark of established Christmas trees.
- This product is not recommended for broadcast applications over the top of Christmas trees.

CONSERVATION COMPLIANCE/CONSERVATION RESERVE PROGRAM (CRP)

Method of Application: Rotating out of CRP, site preparation (sequential herbicide applications), dormant beneficial plant management; postemergence; and wiper/wick.

- Site Preparation: Prior to application, removal of excessive vegetation by grazing, mowing, burning, etc. may improve control. When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth before application. When perennial weeds have been mowed or grazed, allow regrowth to reach recommended stage (see **PERENNIAL WEED CONTROL** section, Table 3, for rates and timing).

  Sequential applications of Touchdown Total and Gramoxone® Max herbicides are effective in controlling established CRP grasses. Refer to the Gramoxone Max herbicide label for recommended rates and tank mixes.

Touchdown Total/Gramoxone Max Herbicide Sequential Program (Spring Application)

Weed Species	Program A	Program B
Fescue Orchardgrass Ryegrass	Gramoxone Max at 1.7 to 2.7 pts./A followed 7-10 days later with Gramoxone Max at 2.0 to 2.7 pts./A	Touchdown Total at 1.4 to 3.0 pts./A followed 10-14 days later with Gramoxone Max at 2 to 2.7 pts./A

- Dormant Beneficial Plant Applications: Apply 9 to 12 oz./A in early spring before desirable species, such as crested and tall wheatgrass, break dormancy. Late fall applications can be made after desirable grasses have reached dormancy. If perennial grasses are not dormant at time of application, stunting can occur.
- Touchdown Total may be tank mixed with other herbicides registered for this use such as atrazine, dicamba, and 2,4-D.
- There are no rotational crop restrictions following application of Touchdown Total. Read and follow crop rotation label restrictions for all tank mix products.

CORN (FIELD CORN, POPCORN, SEED CORN, AND SWEET CORN – NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting but before crop emergence; hooded sprayers; spot spray; preharvest; and postharvest.

Follow the directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Corn

- Crop plants contacted by Touchdown Total will be injured or killed.
- Spot application must be made prior to corn silking.
- For hooded sprayer applications, do not exceed 24 fl. oz./A per application; nor 2.2 qts./A per year.
- Do not graze or feed corn forage or fodder following hooded sprayer applications.
- Preharvest application must be made at least 7 days before harvest.
- Apply no more than 24 fl. oz./A by air; and 2.2 qts./A by ground preharvest.

Tank Mixtures for Corn

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10 to 70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.

Touchdown Total can be tank mixed with the following products:

Aim™	Dicamba	Marksman®
Ambush®	Dual MAGNUM®	Micro-Tech®
Atrazine	Dual II MAGNUM®	Prowl
Axiom™	Extrazine® II	Simazine
Balance®	Frontier®	Surpass® EC
Basis®	Fultime™	Surpass 100
Bicep Lite II MAGNUM®	Guardsman®	Topnotch®
Bicep MAGNUM®	Harness®	Warrior®
Bicep II MAGNUM®	Harness Xtra	2,4-D
Broadstrike®	Hornet™	
Bullet®	Lariat®	
Callisto™	Lasso®	
Clarity®	Lightning™	
Degree™	Linex®	
Degree Xtra™	Lorox®	
Distinct™	Lumax™	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprayers

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Corn must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max herbicide may be considered for Hooded Sprayer applications in corn. Use Gramoxone Max at 0.75 to 1.3 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

Preharvest

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete. Do not apply a preharvest treatment on corn grown for seed as a reduction in germination or vigor may occur.

CORN, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY CORN)

Method of Application: Before, during, or after planting; and postemergence in corn varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Corn

- Applications of Touchdown Total to corn hybrids which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum preplant/preemergence rate is 3.6 qts./A.
- Make postemergence applications from emergence through the V8 stage of corn at a maximum of 48 fl. oz./season with no more than 24 fl. oz./A for any single application.
- Allow a minimum of 50 days between postemergence application and harvest of forage.
- Make preharvest applications at least 7 days before harvest with no more than 24 fl. oz./A.

Tank Mixtures

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10-70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.

Touchdown Total can be tank mixed with the following products:

Aim	Dicamba	Lumax
Ambush	Dual MAGNUM	Marksman
Atrazine	Dual II MAGNUM	Micro-Tech
Axiom	Extrazine II	Prowl
Balance	Frontier	Simazine
Basis	Fultime	Surpass EC
Bicep Lite II MAGNUM	Guardsman	Surpass 100
Bicep MAGNUM	Harness	Topnotch
Bicep II MAGNUM	Harness Xtra	Warrior
Broadstrike	Hornet	2,4-D
Bullet	Karate	
Callisto	Lariat	
Clarity	Lasso	
Degree	Lightning	
Degree Xtra	Linex	
Distinct	Lorox	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Annual Weeds

Touchdown Total will control annual broadleaf weeds and grasses when applied as directed. Apply Touchdown Total at 24 to 48 fl. oz./A from emergence through the V8 (8 leaves) or until the corn height reaches 30 inches, whichever comes first. Refer to Table 1 for specific rate information. For any single in-crop application, use a minimum of 24 to 48 fl. oz./A of Touchdown Total. Touchdown Total alone will not provide residual control. To control new weed flushes, repeat applications may be required.

Perennial Weeds

Touchdown Total will control or suppress perennial weeds with one or more applications. Successful control of perennial weeds is affected by proper timing of application. Refer to Table 3 for specific rate and timing information.

Touchdown Total can be tank mixed with the following products:

Ambush	Karate
Atrazine	Marksman
Bicep MAGNUM	Surpass EC
Bicep Lite II MAGNUM	Surpass 100
Bicep II MAGNUM	Topnotch
Clarity	Warrior
Dicamba	2,4-D
Dual II MAGNUM	
Fultime	
Harness	
Harness Xtra	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete.

COTTON (NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence; hooded sprayer; recirculating sprayer; spot spray; wiper/wick applicators; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section, for application rates and timing.

General Use Precautions for Cotton

- Spot applications must be made prior to boll opening.
- Preharvest, hooded, and wiper/wick applications must be made at least 7 days before harvest.
- Do not apply more than 24 fl. oz./A by air; nor more than 48 fl. oz./A by ground for preharvest.
- Do not feed or graze treated cotton forage or hay following preharvest application.

Tank Mixtures for Cotton (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol®	Dual MAGNUM	Zorial®
Command®	Dual II MAGNUM	2-4,D
Cotoran®	Karmex	
Cotton-Pro®	Meturon®	
Cy-Pro®	Prowl	
Direx	Staple®	

Refer to individual product labels for precautionary statements, restrictions, rates and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Apply in 10-20 gals. of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Tank Mixtures (Hooded)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. Do not apply a preharvest treatment on cotton grown for seed as a reduction in germination or vigor may occur.

For **defoliation, desiccation, or regrowth control** of cotton, apply 24 fl. oz./A to 48 fl. oz./A. Apply in 3 to 30 gals. of water per acre by ground or in 3 to 15 gals. of water per acre by air.

Refer to the **WEEDS CONTROLLED** section for application rates and timing.

Touchdown Total can be tank mixed with the following products for improved defoliation or boll opening.

DEF®
Dropp®
Folex®
Prep™

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Cotton, Glyphosate-Tolerant (Including Roundup Ready Cotton)

Method of Application: Before, during, or after planting; postemergence; postdirected; hooded; and preharvest in cotton varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Cotton

- Applications of Touchdown Total to cotton varieties which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum preplant/preemergence rate is 3.6 qts./A.
- Make postemergence applications from ground cracking until the 4-leaf stage of cotton at a maximum of 48 fl. oz./A per season with no more than 24 fl. oz./A for any single application.
- Apply no more than 48 fl. oz./season by precision, postdirected, or hooded application methods between the 5-leaf stage and lay-by. Apply no more than 24 fl. oz./A for any single application by these methods.
- Apply a maximum of 2.9 qts./A by postemergence and directed/hooded applications from cracking to lay-by.
- Do not apply more than 24 fl. oz./A by air; nor more than 48 fl. oz./A by ground for preharvest.
- Preharvest applications must be made at least 7 days before harvest.
- Drift control agents may be used.

Tank Mixtures (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol	Dual MAGNUM	Zorial
Command	Dual II MAGNUM	2-4,D
Cotoran	Karmex	
Cotton-Pro	Meturon	
Cy-Pro	Prowl	
Direx	Staple	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Make postemergence applications from ground cracking until the 4-leaf (node) stage of development (until the fifth true leaf reaches the size of a quarter) at a maximum single application rate of 24 fl. oz./A with no more than 48 fl. oz./A per season. Sequential over the top applications of Touchdown Total must be at least 10 days apart and cotton must have at least two nodes of incremental growth between applications.

Postdirected or Hooded Applications

Touchdown Total may be used through precision postdirected or hooded sprayers through the lay-by stage of cotton. Applications that contact the cotton leaves may result in boll loss, delayed maturity, and/or loss of yield. Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Apply in 10 to 20 gallons of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Application Requirements:

- Postdirected applications should be used that directs the spray towards the base of the cotton plant. For best results, apply to weeds less than 3 inches tall being careful to minimize contact of the spray with cotton leaves.
- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Tank Mixtures (Postdirected or Hooded)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Tank Mixtures with Dual MAGNUM

Touchdown Total can be applied with Dual MAGNUM from cotton emergence through the 4-leaf (node) stage of development (until the 5th true leaf reaches the size of a quarter). Do not use additional AMS or adjutants. Do not use this mixture if cotton plants are under any type of stress including, but not limited to drought, insect, disease, or mechanicals. Occasionally following application, cotton leaves may exhibit necrotic spotting which will not affect normal plant development.

For use in the following states: AL, AR, AZ, CA, FL, GA, KS, KY, LA, MD, MO, MS, NC, NM, OK, SC, TN, TX, and VA.

Refer to the Dual MAGNUM label for precautions and restrictions.

Salvage Treatment

Touchdown Total may be used after the four leaf stage of development and should only be used where weeds threaten to cause a loss of crop. A rate of 24 fl. oz./A may be applied either as a postemergence spray to the crop or a postdirected spray.

SALVAGE TREATMENTS WILL RESULT IN SIGNIFICANT BOLL LOSS, DELAYED MATURITY, AND/OR YIELD LOSS.

Preharvest

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. No enhancement of harvest aids will occur on glyphosate tolerant cotton. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

FALLOWLAND AND POSTHARVEST USE

Method of Application: Chemical fallow; fallow beds; stale seedbeds; aid to tillage; and postharvest.

Touchdown Total may be applied by ground or air during the fallow period prior to planting or emergence of any crop listed on this label. There are no rotational crop restrictions following application of this product.

Chemical Fallow – Ecofallow

Touchdown Total may be used in place of tillage to control annual weeds or volunteer wheat in fallow fields. Repeat applications may be necessary to control weeds emerging after application. Refer to Table 1 for use rates and timing. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of annual weeds listed in Table 2. Tank mixing with atrazine may provide residual control.

Postharvest Chemical Fallow for Cereals

Touchdown Total may be applied after harvest to control newly emerged weeds, volunteer cereals, or weeds which were present at harvest. Allow sufficient time after harvest for weed regrowth to occur before making application. Refer to Table 1 for use rates and annual weeds controlled. Higher rates may be required for control of large weeds which were present at the time of harvest. Repeat applications may be necessary for fall germinating weeds. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of weeds listed in Table 2. A postharvest tank mix with atrazine may be used if the field will be planted to corn or sorghum or laid fallow the following season. A tank mix with atrazine may be applied for residual control of certain annual weeds such as common lambsquarters, kochia, mustards, pigweeds, and volunteer wheat. Tank mixing with atrazine may result in reduced performance.

Aid to Tillage

Touchdown Total may be used in conjunction with tillage operations in fallow systems to control cheat, downy brome, foxtails, tansy mustard, and volunteer cereals. Apply 4 to 9 oz./A of Touchdown Total in 3 to 10 gals. of water/A. Apply before weeds exceed 6 inches in height. Application must be followed by tillage no later than 15 days after treatment or before weed regrowth. Allow at least one day after application before tillage. Tank mixes with residual herbicides may reduce performance. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Fallow Beds/Stale Seedbeds

Touchdown Total may be used to control weeds in fallow or stale seedbeds, including preplant/preemergence of any crop. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** section for application rates and timing. Touchdown Total can be tank mixed with 2,4-D, dicamba, or Goal herbicide for improved control of certain weeds.

Tank Mixture with Goal Herbicide

Apply Touchdown Total at 12 oz. with Goal herbicide at 2 to 3 oz./A for control of chickweed, common cheeseweed, and common groundsel that are less than 3 inches in height or diameter. Apply Touchdown Total at 17 fl. oz. with Goal at 2 to 3 oz./A for control of common cheeseweed, common groundsel, and horseweed/marestail that are a maximum of 6 inches in height and length; or chickweed, London rocket, and shepherdspurse that are a maximum of 12 inches in height or length.

Postharvest Use

Touchdown Total may be applied after harvest of any crop to control newly emerged weeds, volunteer crops, or weeds which were present at harvest. Refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for use rates. Repeat applications may be necessary to control weeds emerging after application. Use the higher rate on heavy or sodded infestations.

General Use Precautions for Fallowland and Postharvest Use

- Allow sufficient time for weed regrowth to occur after harvest before making applications.
- Avoid application after plants have been exposed to a severe frost.
- Refer to the individual labels of all products used in a tank mix for precautionary statements, recropping intervals, restrictions, and a list of weeds controlled.
- Touchdown Total will not control volunteer glyphosate-tolerant crops.
- There are no rotational crop restrictions following application of this product.

FARMSTEADS (NONCROP)

Method of Application: General nonselective weed control, trim-and-edge, chemical mowing, cut stumps, and habitat management.

Applications can be made in noncrop areas on the farm such as:

Barrier strips	Farmyards
Ditchbanks	Fence rows
Dry ditches and canals	Fuel storage areas
Equipment areas	Rights-of-way
Farm buildings	Shelterbelts
Farm roads	Soil bank land

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

Tank Mixtures for Farmsteads

Refer to the **ANNUAL WEEDS CONTROLLED** section, Table 1, for application rates and timing. For annual weeds, use 0.7 to 2.9 qts./A of this product when weeds are less than 6 inches tall and 1.1 to 2.9 qts./A when weeds are greater than 6 inches tall.

Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. For perennial weeds, apply 1.5 to 3.6 qts./A in these tank mixes. For tank mixtures with these products through backpack sprayers, handguns, or other high-volume spray-to-wet applications, see the **APPLICATION EQUIPMENT AND TECHNIQUES** section of this label for recommended rates.

Touchdown Total can be tank mixed with the following products:

Banvel®	Simazine
Direx	Surflan
Diuron	2,4-D
Princep Caliber 90	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Chemical Mowing

Touchdown Total will suppress perennial grasses listed in this section to serve as a substitute for mowing. Apply Touchdown Total at a rate of 3 to 6 fl. oz./A . Use 3 to 4 fl. oz. of this product per acre when treating Kentucky bluegrass. Apply treatments in 10 to 20 gals. of spray solution per acre. Chemical mowing applications may be made along farm ditches and other parts of farmsteads.

Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

Cut Stumps

Alder	Salt-cedar
Eucalyptus	Sweetgum
Madrone	Tan oak
Oak	Willow
Reed, giant	

Touchdown Total will control regrowth of cut stumps and resprouts of many types of woody brush and tree species, some of which are listed. Apply Touchdown Total using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50 to 100% solution of Touchdown Total completely covering the freshly-cut surface immediately after cutting. Application delay may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

Habitat Management – Habitat Restoration and Maintenance

Touchdown Total may be used to control exotic and other undesirable vegetation in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broad spectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. Touchdown Total can be tank mixed with the following products:

Banvel	Simazine
Direx	Surflan
Diuron	2,4-D
Princep Caliber 90	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Wildlife Food Plots

Touchdown Total may be used for site preparation for control of annual and perennial weeds prior to planting wildlife food plots. Any wildlife food species may be planted or native species may be allowed to repopulate the area after applying Touchdown Total. If tillage is needed to prepare a seedbed, wait 7 days after application before tillage.

General Use Precautions for Farmsteads

- Avoid contact with the foliage of ornamentals or other desirable plants.
- Repeat applications may be necessary.
- Avoid making cut stump applications as injury to adjacent trees may occur from root grafting.

GRASS SEED PRODUCTION

Method of Application: Before, during, or after planting, but before crop emergence; renovation; site preparation; shielded/hooded sprayers; wiper/wick applicators; spot treatments; creating rows in annual ryegrass.

Apply to turf or forage grass areas grown for seed production. Applications MUST be made prior to the emergence of the crop to avoid crop injury. For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions

- Do not disturb soil or underground plant parts before treatment. Tillage or renovation techniques such as vertical mowing, coring, or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.
- Do not feed or graze treated areas for 8 weeks following application.
- Vegetation contacted by Touchdown Total will be injured or killed.
- For spot treatments, apply prior to heading of grasses.

Shielded/Hooded Sprayers

Use Instructions: Apply 0.7 to 2.2 qts. of Touchdown Total in 10 to 20 gals. of water per acre to control weeds in the rows. Uniform planting in straight rows aids in shielded/hooded applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields/hoods.

Wiper/Wick Applicators

Applicators should be adjusted so that the wiper contact point is at least 2 inches above the desirable vegetation. Weeds should be a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when height of weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. Better results may be obtained if 2 applications are made in opposite directions.

GRASSES

Touchdown Total can be used in the production of grasses listed below:

Bahiagrass	Orchardgrass
Bermudagrass	Ryegrass
Bluegrass	Timothy
Bromegrass	Wheatgrass
Fescue	

Method of Application: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions for Grasses

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

Tank Mixtures for Grasses Preplant/Preemergence, Dormant, or Renovation

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

HERBS (PEPPERMINT, SPEARMINT)

Method of Application: Spot spray

Touchdown Total may be applied as a spot spray in peppermint and spearmint. Apply spray-to-wet with hand-held equipment, such as backpack and knapsack sprayers, pump-up pressure sprayers, handguns, handwands, or any other hand-held or motorized spray equipment used to direct the spray solution on to a limited area.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

General Use Precautions

- Apply at least 7 days before harvest.
- Plants contacted by Touchdown Total will be injured or killed.

PASTURES

Touchdown Total can be used on pastures of the following types:

Alfalfa	Fescue
Bahiagrass	Orchardgrass
Bermudagrass	Ryegrass
Bluegrass	Timothy
Bromegrass	Wheatgrass
Clover	

Method of Application: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

For best results, remove domesticated livestock 14 days before treatment. Allow 2-6 inches of new growth prior to treatment.

To aid in renovation of pastures, Touchdown Total may be applied at 8 to 46 oz./A to dormant pastures. Applications of Touchdown Total to green, nondormant plant tissue of desirable species will cause stunting, plant injury, or plant death.

General Use Precautions for Pastures

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

Tank Mixtures for Pastures

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

PEANUTS

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

SMALL GRAINS

Touchdown Total may be used on the small grain crops listed below:

Barley	Rye
Buckwheat	Teosinte
Millet (pearl, proso)	Triticale
Oats	Wheat (all)
Rice	Wild rice

Method of Application: Before, during, or after planting, but before crop emergence; as a spot spray (except rice); preharvest (wheat, feed barley); postharvest; and wiper/wick (wheat only).

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Small Grains

- Apply at least 7 days before harvest at no more than 24 fl. oz./A preharvest in wheat and feed barley.
- For wiper/wick applications in wheat, allow at least 35 days between application and harvest.
- Crop plants contacted by Touchdown Total will be injured or killed.
- Avoid treating rice fields or levees when the field contains flood water.

Tank Mixtures for Preplant/Preemergence Use for Small Grains

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds. Under certain conditions, the mixture of Touchdown Total with one or more herbicide tank mix combinations may result in a reduction of activity.

Dicamba
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest (Wheat and Feed Barley Only)

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied after the hard dough stage of grain (30% or less grain moisture). Cool, wet, and/or cloudy weather conditions following application may slow down the activity of this product. Do not apply a preharvest treatment on grain grown for seed as a reduction in germination or vigor may occur.

Red Rice Control Prior to Planting Rice

Prior to application, flush fields to promote uniform germination of red rice. Apply Touchdown Total at 36 to 48 fl. oz./A on red rice with at least 2 leaves and which is no more than 4 inches tall. Red rice with less than 2 developed leaves at the time of application may be only partially controlled.

Do not reflood rice fields for 8 days following application.

SORGHUM (MILO)

Method of Application: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; hooded sprayers; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sorghum

- Contact with sorghum foliage may result in crop injury.
- Spot applications must be made before heading of milo.
- Wiper and wick applications must be made 40 days before harvest. Do not feed or graze wiper/wick treated milo fodder. Do not ensile wiper/wick treated foliage.
- Apply no more than 2.2 qts./A per season by hooded applications.
- Do not feed or graze sorghum forage and fodder after hooded applications.
- Preharvest applications must be made at least 7 days prior to harvest with a maximum of 1.4 qts./A.

Tank Mixtures for Sorghum (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Atrazine	Dual II MAGNUM	Warrior
Bicep Lite II	Frontier	
Bicep Lite II MAGNUM	Guardsman	
Bicep II MAGNUM	Karate	
Dicamba	Prowl	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground. Treat before tillers extend between the drill rows as spray contacting these tillers may kill the main plant.
- Sorghum must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max herbicide may be considered for hooded sprayer applications in sorghum. Use Gramoxone Max at 0.75 to 1.25 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

Preharvest (Except California)

For weed control and desiccation of sorghum, apply 24 to 48 fl. oz./A. Apply in 3 to 30 gallons of water per acre by ground or in 3 to 15 gallons of water per acre by air.

Apply after most of the heads have matured. Apply when grain moisture is 30% or less. Development of immature heads will be interrupted and yield potential will be affected when applications are made too early. Do not apply a preharvest treatment on sorghum grown for seed as a reduction in germination or vigor may occur.

SOYBEANS (NOT GLYPHOSATE-TOLERANT)

Method of Application: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; preharvest; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Soybeans

- Soybeans, except glyphosate-tolerant varieties, will be injured or killed when contacted with Touchdown Total.
- Spot application must be made prior to initial pod set.
- Wiper/wick application must be made at least 7 days before harvest.
- Make preharvest applications at least 7 days before harvest of soybeans with no more than 4.3 qts./A by ground; and no more than 24 fl. oz./A by air.
- Allow at least 25 days before grazing or harvesting for livestock feed following harvest aid application.

Tank Mixtures for Soybeans (Preplant/Preemergence)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

For use with 2,4-D on perennial weeds, consult Table 3.

Touchdown Total can be tank mixed with the following products:

Authority™	FirstRate™	Linex	Scepter®
Authority Broadleaf	Flexstar®	Lorox	Sencor
Broadstrike	Frontier	Lorox Plus	Squadron®
Canopy®	Fusilade®	Partner®	Steel™
Canopy XL	Fusion®	Preview®	Turbo®
Command®	Gemini®	Prowl	Warrior
Cover™	Karate	Pursuit	2,4-D
Dual MAGNUM	Lasso	Pursuit Plus	2,4-DB
Dual II MAGNUM	Lexone	Reflex®	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Preharvest

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans and may aid in crop dry down. Apply to mature soybeans when pods have lost their color. Do not apply a preharvest treatment to soybeans grown for seed as a reduction in germination or vigor may occur.

SOYBEANS, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY SOYBEANS)

Method of Application: Before, during, or after planting; postemergence; and preharvest in soybean varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Glyphosate-Tolerant Soybeans

- Applications of Touchdown Total prior to soybean emergence should not exceed a total of 3.6 qts./A.
- Make postemergence applications from cracking throughout flowering of soybeans at a maximum of 2.2 qts. per season with no more than 48 fl. oz./A for any single application.
- Make preharvest applications at least 14 days before harvest with no more than 24 fl. oz./A.
- All Touchdown Total applications for a soybean crop should not exceed a total of 5.8 qts./year.
- Do not graze or harvest for forage or hay.
- Drift control agents may be used.

Preplant/Preemergence

Touchdown Total may be used as a broadcast spray to control emerged annual and perennial weeds. Apply before, during, or after planting of soybeans. Touchdown Total can be tank mixed with the following products:

Authority	Dual II MAGNUM	Lexone	Reflex
Authority Broadleaf	FirstRate	Linex	Scepter
Boundary	Flexstar	Lorox	Sencor
Broadstrike	Frontier	Lorox Plus	Squadron
Canopy	Fusilade	Partner	Steel
Canopy XL	Fusion	Preview	Turbo
Command	Gemini	Prowl	Warrior
Cover	Karate	Pursuit	2,4-D
Dual MAGNUM	Lasso	Pursuit Plus	2,4-DB

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Postemergence

Annual Weeds

Apply Touchdown Total at 12 to 48 fl. oz./A from cracking through full flowering of soybean plants to control annual weeds. For best results, make the first application of Touchdown Total at 24 fl. oz./A within 30 days after planting on weeds up to 6 inches tall. Refer to Table 1 for specific rate information. Touchdown Total will not provide residual control. To control new weed flushes, repeat applications may be required.

Perennial Weeds

Apply Touchdown Total at 24 to 48 fl. oz./A to actively growing perennial grasses, sedges, and broadleaf weeds. Applications in crop on glyphosate-tolerant soybeans normally occur before perennial weeds reach the most desirable growth stage for control. Treatments made prior to the timing designated in Table 3 may require retreatment. Best control will be obtained when perennial broadleaf weeds are treated in the early bud to flowering stage and when perennial grasses are in the boot to seedhead stage. Refer to Table 3 for additional rate and timing information.

Tank Mixtures

Touchdown Total may be tank mixed with one or more of the following products:

Basagran®	Pursuit
Classic®	Raptor™
FirstRate	Reflex
Flexstar	Reliance™ STS®
Fusilade	Scepter
Fusion	Synchrony® STS®
Karate	Warrior
Pinnacle®	2,4-DB

Use a minimum of 17 fl. oz./A Touchdown Total in mixture with postemergent tank mix herbicides on 3 inch tall weeds. Use a minimum of 24 fl. oz./A Touchdown Total in mixture with postemergent tank mix herbicides on 3-6 inch tall weeds. Under certain conditions, the mixture of Touchdown Total with one or more of the above mentioned herbicides may result in a reduction of activity. Tank mixes can result in increased crop injury as compared to either product used alone. Refer to individual product labels for precautionary statements, restrictions, rates, and list of weeds controlled.

Preharvest

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans. Apply to mature soybeans when pods have lost their color.

SUGARCANE

Method of Application: Before, during, or after planting, but before emergence of plant cane; spot spray; hooded sprayers; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sugarcane

- Do not apply to vegetation in or around ditches, canals, or ponds containing water.
- Do not feed or graze treated sugarcane foliage following spot spray application.
- Avoid contact with sugarcane foliage, as severe damage or destruction may result.

Tank Mixtures for Preplant/Preemergence Use for Sugarcane

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Atrazine	Lexone/Sencor
Banvel	Prowl
Clarity	Trifluralin
Karmex	2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Hooded Sprays

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Fallow Treatments

For removal of the last stubble of ratoon cane between sugarcane crops, apply 3.0 to 3.6 qts. in 10 to 40 gals. of water per acre to new growth having at least 7 new leaves. Allow 7 days between application and tillage.

SUNFLOWER

Method of Application: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

General Use Precautions for Sunflowers

- Make only one preplant or preemergence application with no more than 24 fl. oz./A.
- Do not graze or feed sunflower forage.
- Avoid contact with sunflower foliage.

Tank Mixtures for Preplant/Preemergence Use for Sunflower

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 1.5 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Eptam
Prowl
Trifluralin

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

VEGETABLE CROPS

Touchdown Total may be used on the vegetable crops listed below:

Amaranth
Arrugula
Artichoke (Jerusalem)
Asparagus
Beans (all)
Beet, garden
Beet, sugar
Broccoli (all)
Brussels Sprouts
Cabbage (all)
Cabbage (Chinese)
Cantaloupe
Cardoon
Carrot
Casaba
Cavalo Broccolo
Cauliflower
Celeriac
Celery
Celery (Chinese)
Celtuce
Chard (Swiss)
Chayote
Chervil
Chick peas
Chicory
Chrysanthemum
Collards
Corn salad
Cress
Cucumber
Dandelion
Dock (sorrel)
Eggplant
Endive
Fennel (Florence)
Garlic
Gherkin
Ginseng
Gourd, edible
Groundcherry
Guar
Horseradish
Kale
Kohlrabi
Leeks
Lentils
Lettuce
Melons (all including citron, crenshaw, honey balls, honeydew, mango, musk, Persian)
Mizuna
Mustard greens
Okra
Onions (green, spring, Japanese bunching)
Parsley, turnip-rooted
Parsnip
Peas (all)
Pepinos
Pepper (all)
Potato (Irish)
Pumpkin
Purslane
Radish
Radish, oriental (daikon)
Rape greens
Rhubarb
Rutabaga
Salsify, black
Salsify (oyster plant)
Salsify (Spanish)
Shallots
Spinach (all)
Spinach, mustard
Squash (summer, winter)
Sweet potato
Tomatillo
Tomato
Turnip
Watercress
Watermelon
Yams

Method of Application: Broadcast application before transplanting or before, during, or after planting but prior to crop emergence if direct seeded; spot spray; wiper/wick (rutabaga only); postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** for application rates and timing.

General Use Precautions for Vegetable Crops

- For **Asparagus,** do not apply broadcast within one week of emergence of first spears. Spot applications can be made immediately after cutting, but before emergence. Spears can be harvested 5 days after spot application. Postharvest applications can be made as a directed or shielded spray avoiding contact of the spray with the ferns, stems, or spears.
- Wait 3 days after application before planting cantaloupe, casaba, chayote, Chinese okra, Chinese waxgourd, cucumber, cucuzza, edible gourd, eggplant, gherkin, gourds, groundcherry, melons (all), pepper (all), pumpkin, squash, tomatillo, watercress, and watermelon.
- If transplanting into plastic mulch, ensure residues of this product are removed from the plastic prior to transplanting. Residues can be removed by a minimum of 1/2 inch of sprinkler irrigation or rainfall.
- Wiper/wick applications to rutabagas must be made at least 14 days before harvest.

Tank Mixtures With Residual Herbicides for Preplant/Preemergence Use in Vegetables

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol	Lorox
Command	Matrix®
Dual MAGNUM	Prefar®
Dual II MAGNUM	Prowl
Fusilade DX	Sencor
Goal	Trifluralin
Kerb	Treflan®
Lexone	Turbo

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

WEEDS CONTROLLED

Water volumes of 3 to 40 gallons per acre by ground equipment and 3 to 15 gallons by air are recommended. Use the minimum spray volume that provides adequate coverage.

When tank mixing with residual herbicides, refer to the individual crop section for recommendations.

Apply to actively growing weeds.

Table 1: Annual Weed Control – Touchdown Total Rates

		Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
WEED SPECIES	SCIENTIFIC NAME	3"	6"	12"	18"	24"
Anoda, spurred	*Anoda cristata*	24	30			
Barley	*Hordeum vulgare*				12	17
Barnyardgrass	*Echinochloa crus-galli*	24	24	35		
Bassia, fivehook	*Bassia hyssopifolia*		24			
Bittercress	*Cardamine* spp.			12	17	
Bluegrass, annual	*Poa annua*			12		
Bluegrass, bulbous	*Poa bulbosa*			12		
Bristly starbur	*Ancanthospornum hispidum*		17	24		
Brome, downy[1]	*Bromus tectorum*		12	17		
Brome, Japanese	*Bromus japonicus*		12	17		24
Browntop panicum	*Panicum fasciculatum*		12	24		35
Buckwheat, wild[2]	*Polygonum convolvulus*	24				
Buffalobur	*Solanum rostratum*	24	36	36		
Burcucumber	*Sicyos angulatus*		17	24		
Burgherkin	*Cucumis anguria*	17	24			
Buttercup[3]	*Ranunculus* spp.			12	17	
Camphorweed	*Heterotheca subaxillaris*		36			
Canarygrass	*Phalaris canariensis*		24			
Carolina geranium[4]	*Geranium carolinianum*	24	36			
Carpetweed	*Mullugo verticillata*		17	24		
Cheat	*Bromus secalinus*		12		17	
Chervil	*Anthriscus cerefolium*				12	
Chickweed, common	*Stellaria media*				17	
Chickweed, mouseear	*Cerastium vulgatum*		12		17	
Citronmelon	*Citrullus lanatus*	24	35			
Cocklebur, common	*Xanthium strumarium*			12	17	24
Coffee senna	*Cassia occidentalis*	24	35			
Corn[5]	*Zea mays*		12	17		24
Corn speedwell	*Veronica arvensis*			12		
Cowpea	*Vigna unguiculata*	24	35			
Crabgrass[6]	*Digitaria* spp.	12	17	24		
Crotalaria, showy	*Crotalaria spectabilis*	17	24	35		

continued...

Table 1: Annual Weed Control – Touchdown Total Rates *(continued)*

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Croton, tropic	*Croton glandulosus*	24	35			
Crowfootgrass	*Dactyloctenium aegyptium*	12	24	48		
Cutleaf eveningprimrose[4]	*Oenothera laciniata*	24	35			
Devil's-claw (unicorn plant)	*Proboscidea louisianica*	17	24			
Dwarfdandelion	*Krigia cespitosa*				12	
Eastern mannagrass			12	17		
Eclipta	*Eclipta prostrata*	17	24	35		
Fall panicum	*Panicum dichotomiflorum*	12	17	35		
Falsedandelion	*Pyrrhopappus carolinianus*				17	
Falseflax, smallseed	*Camelina microcarpa*			12		
Fiddleneck	*Amsinckia* spp.		17	35		
Filaree	*Erodium* spp.		24	35		
Fleabane, annual	*Erigeron annus*		12		17	
Fleabane, hairy	*Conyza bonariensis*		24	35		
Fleabane, rough	*Erigeron strigosus*	12	17	24		
Florida beggarweed	*Desmodium tortuosum*		17	24		
Florida pusley	*Richardia scabra*	24	35			
Foxtails	*Setaria* spp.		12	17	24	
Goatgrass, jointed	*Aegilops cylindrica*		12	17		
Goosefoot, neetleleaf	*Chenopodium murale*		35			
Goosegrass	*Eleusine indica*	17	24	35		
Grain sorghum (milo)	*Sorghum bicolor*		12	17	24	
Groundcherry	*Physalis* spp.		24			
Groundsel, common	*Senecio vulgaris*		17			
Hemp sesbania	*Sesbania exaltata*	17	29	36		
Henbit	*Lamium amplexicaule*		24	35		
Hophornbeam copperleaf	*Acalypha ostryifolia*	17	26			
Horseweed/Marestail[8]	*Conyza canadensis*		17	24	35	
Itchgrass	*Rottboellia cochinchinensis*		12	24	35	
Jimsonweed	*Datura stramonium*			24	35	
Johnsongrass, seedling	*Sorghum halepense*		12	17	24	35
Junglerice	*Echinochloa colona*	17	24	35		
Knotweed	*Polygonum aviculare*		24	35		
Kochia[3]	*Kochia scoparia*		17	24		
Lambsquarters, common	*Chenopodium album*		17	24	35	
Lettuce, prickly	*Lactuca serriola*		17	24		
Little barley	*Hordeum pussillum*		12	17		
London rocket	*Sisymbrium irio*		12			24
Mayweed	*Anthemis cotula*	17	24		35	
Morningglory[4,7]	*Ipomoea* spp.	24	35			
Mustard, blue	*Chorispora tenella*		12	17	24	
Mustard, tansy	*Descurainia pinnata*		12	17	24	
Mustard, tumble	*Sisymbrium altissimum*		12	17	24	
Mustard, wild	*Brassica kaber*		12	17	24	
Nightshade, black	*Solanum nigrum*	17	24	35		
Nightshade, hairy	*Solanum sarrachoides Sendtner*	17	24	35		
Oats	*Avena sativa*	12	17		24	
Oats, wild	*Avena fatua*	12	17		24	

continued...

Table 1: Annual Weed Control – Touchdown Total Rates *(continued)*

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Panicum, Texas	*Panicum texanum*		12	23		35
Pennycress, field	*Thlaspi arvense*		12	17		
Pigweed	*Amaranthus* spp.			17	24	29
Poinsettia, wild	*Euphorbia heterophylla*	17	35			
Prickly sida (Teaweed)[4,7]	*Sida spinosa*	24	35			
Puncturevine	*Tribulus terrestris*	24	35			
Purslane, common	*Portulaca oleracea*		35			
Rabbitfootgrass	*Polypogon monspeliensis*		24			
Ragweed, common	*Ambrosia artemisiifolia*		17	24	35	
Ragweed, giant	*Ambrosia trifida*		17	24	35	
Red rice	*Oryza sativa*	24				
Redweed	*Melochia corchorifolia*	24	35			
Rockpurslane Redmaids	*Calandrinia* spp.		24			
Rye	*Secale cereale*		12		24	35
Ryegrass, Italian	*Lolium multiflorum*		24	35		
Sandbur, field	*Cenchrus incertus*		12	17		
Sandbur, southern	*Cenchrus echinatus*		12	17		
Shattercane	*Sorghum bicolor*		12	17	24	
Shepherdspurse	*Capsella bursa-pastoris*		12	17		
Sicklepod	*Cassia obtusifolia*	24	35			
Signalgrass, broadleaf	*Brachiaria platyphylla*	17	24	35		
Smartweed (ladysthumb)	*Polygonum persicaria*		24	35		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		24	35		
Sowthistle, annual	*Sonchus oleraceus*		24	35		
Spanishneedles	*Bidens bipinnata*		24	35		
Speedwell, purslane	*Veronica peregrina*			12		
Sprangletop	*Leptochloa* spp.		12	17	24	
Spurge, prostrate	*Euphorbia* spp.		17	24		
Spurge, spotted	*Euphorbia maculata*		17	24		
Spurry, umbrella	*Holosteum umbellatum*		17			
Stinkgrass	*Eragrostis cilianensis*			17		
Sunflower, common	*Helianthus annuus*			12	17	
Thistle, Russian	*Salsola iberica*		24	35		
Velvetleaf[7]	*Abutilon theophrasti*		24	35		
Virginia copperleaf	*Acalypha virginica*	24	35			
Virginia pepperweed	*Lepidium virginicum*				17	
Waterhemp	*Amaranthus* spp.		24	35		
Wheat	*Triticum aestivum*		12	17	24	
Wild Buckwheat	*Polygonum convolvulus*		24	36		
Wild-proso millet	*Panicum miliaceum*		17	24	35	
Witchgrass	*Panicum capillare*			17		
Woolly cupgrass	*Eriochloa villosa*		17	24		
Yellow rocket	*Barbarea vulgaris*			17	24	

[1] In no-till systems, use 17 oz./A.

[2] Maximum runner length. For control of wild buckwheat >3" in runner length, use sequential applications of 24 oz./A.

[3] Control will be reduced at the button stage.

[4] When the predominant weed species include Carolina geranium, cutleaf eveningprimrose, and henbit that are less than 6 inches tall, Gramoxone Max should be considered as an alternative.

[5] Will not control glyphosate-tolerant volunteer corn.

[6] Plant diameter.

[7] Multiple applications may be required.

[8] Will not control glyphosate-tolerant marestail/horseweed. Glyphosate-tolerant biotypes can be controlled by timely application of Gramoxone Max plus either 2,4-D and/or *a* PSI herbicide prior to planting.

Table 2: Annual Weed Control – Touchdown Total Rates in a Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	MAXIMUM HEIGHT/LENGTH	Touchdown Total FLUID OUNCES PER ACRE
Kochia (dicamba only)	*Kochia scoparia*	6"	12-17
Lettuce, prickly	*Lactuca serriola*		
Morningglory	*Ipomoea* spp.		
Ragweed, common	*Ambrosia artemisiifolia*		
Ragweed, giant	*Ambrosia trifida*		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		
Velvetleaf	*Abutilon theophrasti*		
Cocklebur, common	*Xanthium strumarium*	12"	
Fleabane, rough	*Erigeron strigosus*		
Horseweed/Marestail*	*Conyza canadensis*		
Kochia	*Kochia scoparia*		
Lambsquarters, common	*Chenopodium album*		
Pigweed	*Amaranthus* spp.		
Sunflower, common	*Helianthus annuus*		
Thistle, Russian	*Salsola iberica*		

Read and follow dicamba and 2,4-D labels.

*Glyphosate-tolerant biotypes less than 3 inches tall can be controlled by Gramoxone Max plus either 2,4-D or a triazine-based herbicide.

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Alfalfa	*Medicago sativa*	1.5	1-1.5		At 6-8 inch stage or more after final cutting in fall. Deep till 7 days after treatment.
Artichoke, Jerusalem	*Helianthus tuberosus*	1.5	2.2-3.6		At or after flowering.
Balsam-apple[1]	*Momordica charantia*	1.5			Apply at or beyond bloom.
Bahiagrass	*Paspalum notatum*	1.5	2.2-3.6		Early seedhead stage.
Barley, foxtail	*Hordeum jubatum*	1.5	0.75-1.6		4-6 inch stage.
Bentgrass	*Agrostis* spp.	1.5	1.1		Should have at least 3 inches of growth. Ensure entire crown area has resumed growth prior to fall application. Till 7-10 days after application.
Bermudagrass	*Cynodon dactylon*	1.5	2.2-3.6		Seedheads present; may require retreatment.
Bermudagrass, water (knotgrass)		1.5	1.1		Apply when water bermudagrass is 12-18 inches in length. Allow 7 days before flushing or flooding the field. Not registered for use in California on this weed.
Bindweed, field	*Convolvulus arvensis*	1.5	2.7-3.6		At or after flowering, west of Mississippi River, in late summer for best results.
			2.2-2.7		At or after flowering, east of Mississippi River, in late summer for best results.
			1.4	Yes	At or after flowering for control, multiple applications may be required. Do not apply by air.
			0.7-1.4	Yes	For suppression on irrigated agricultural land, by ground equipment only. Apply in fall or following harvest on runners 12 inches or more in length.

continued...

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D *(continued)*

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Bindweed, field (continued)	*Convolvulus arvensis*		0.4	Yes	For suppression by ground or aerial applications. Apply by air in fallow and reduced tillage systems only. Applications should be delayed until maximum emergence has occurred and when vines are between 6-18 inches in length.
			0.7-3.6		**In California:** Apply at 12 inches or greater runner length. Use high end of rate range where dense populations exist. For suppression on land which is irrigated and tilled, use 0.7 qt./A.
Bluegrass, Kentucky	*Poa pratensis*	1.5	0.75-1.4		Apply at boot to early seedhead stage.
			0.75-1.1		For partial control in pasture or hay crop renovation, apply when plants are 4-12 inches.
Blueweed, Texas	*Helianthus ciliaris*	1.5	2.7-3.6		Apply at or beyond bloom west of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
			2.2-2.7		Apply at or beyond bloom east of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
Brackenfern	*Pteridium aquilinum*	0.7-1.1	2.2-3.3		Fronds fully expanded and at least 18 inches long.
Bromegrass, smooth	*Bromus inermis*	1.5	0.75-1.6		Apply when most plants are at the boot to early seedhead stage.
			0.75-1.1		For partial control in pasture or hay crop renovation, apply to actively growing plants 4-12 inches in height.
Bursage, woollyleaf	*Ambrosia grayi*	1.5	1.4	Yes	Apply to actively growing plants at or beyond flowering.
			0.75	Yes[1]	Apply to actively growing plants at or beyond flowering.
Canarygrass, reed	*Phalaris arundinacea*	1.5	1.6-2.2		Boot to head.
Cattail	*Typha* spp.	1.5	2.2-3.6		Early head to early bud.
Clover, red Clover, white	*Trifolium pratense* *Trifolium repens*	1.5	2.2-3.6		Early head to early bud. May require retreatment.
Cogongrass	*Imperata cylindrica*	1.5	2.2-3.6		Late summer/fall, greater than 18 inches in height. May require retreatment.
Dallisgrass	*Paspalum dilatatum*	1.5	2.2-3.6		Early head to early bud.
Dandelion	*Taraxacum officinale*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dayflower[1]	*Commelina* spp.	1.5	1.1-1.6		Less than 4 inches in height.
Dock, curly	*Rumex crispus*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dogbane, hemp	*Apocynum cannabinum*	1.5	3.3		Late bud to flower. May require retreatment.
			0.4	Yes	Actively growing at 6-12 inch stage for suppression.
Dogfennel	*Eupatorium capillifolium*	1.5	2.2-3.6		Actively growing, less than 12 inches in height.

continued...

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D *(continued)*

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Fescue	*Festuca* spp.	1.5	2.2-3.6		Apply when most plants have reached the early head stage.
Fescue, tall	*Festuca arundinacea*	1.5	0.75-2.2		Apply 2.2 qts./A when most plants have reached boot to early seedhead stage. Fall applications only: Apply 0.75 qt./A when plants are 6-12 inches in height. A spring applied sequential treatment of 0.75 pt./A will improve long term control.
Goatweed	*Scoparia dulcis*	1.5	1.4-2.2		Less than 8 inch stage.
Guineagrass	*Panicum maximum*	0.7	1.6-2.2		7-10 leaf stage.
Horsenettle	*Solanum carolinense*	1.5	2.2-3.6		Early bud stage.
Horseradish	*Armoracia rusticana*	1.5	3.3		Apply when most plants have reached the late bud to early flower stage in late summer or fall.
Iceplant	*Mesembryanthemum crystallinum*	1.1-1.5	–		At or beyond the early bud stage.
Johnsongrass	*Sorghum halepense*	0.7	0.4-2.2		Apply at boot to head stage and in the fall prior to frost. Use 0.7 to 1.4 qts./A for annual tillage systems. Use 1.4 to 2.2 qts./A on no-till acres. Allow 3-7 days before tillage.
			0.4		For burndown, apply when plants are 12 inches in height and allow 3 days before tillage.
Kikuyugrass	*Pennisetum clandestinum*	1.5	1.6-2.2		Spray when most kikuyugrass is at least 8 inches in height. Allow 3 or more days after application before tillage.
Knapweed	*Centaurea* spp.	1.5	3.3		Apply in fall at late bud to flower stage.
Lantana, largeleaf[1]	*Lantana camara*	1.0	–		Apply at or beyond bloom stage.
Lespedeza	*Lespedeza* spp.	1.5	2.2-3.6		Apply when most plants have reached the early bud stage.
Milkweed, common	*Asclepias syriaca*	1.5	2.2	Yes	Apply when most plants have reached the early bud stage.
Milkweed, honeyvine	*Ampelamus albidus*	1.5	1.6-3.3	Yes	Late bud to early flower. May require retreatment.
Muhly, wirestem	*Muhlenbergia frondosa*	1.5	0.75-1.6		Use 0.75 to 1.6 qts./A in pasture, sod, or noncrop areas. Spray plants 8 inches or more in height. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage.
Mullein, common	*Verbascum thapsus*	1.5	2.2-3.6		Early bud.
Napiergrass	*Pennistum purpureum*	1.5	2.2-3.6		Early head stage.
Nightshade, silverleaf	*Solanum eleagnifolium*	1.5	1.6		Apply when 60% of plants have berries. Apply fall treatments before a killing frost.

continued...

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D *(continued)*

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Nutsedge, purple Nutsedge, yellow	*Cyperus rotundus* *Cyperus esculentus*	0.7-1.5	0.4-2.2		Apply 2.2 qts./A for control of nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Sequential applications: 0.7-1.4 qts./A applied to plants in the 3-5 leaf stage or less than 6 inches tall. Repeat treatments at this stage for long term control. For partial control: apply 0.4-1.4 qts. per acre. Treat when plants have 3-5 leaves or less than 6 inches tall. Repeat treatments at this stage for long term control.
Orchardgrass	*Dactylis glomerata*	1.5	0.75-1.6		Apply 1.4 qts./A on plants at early boot to seedhead stage. For partial control in pasture or hay crop renovation, apply 0.75-1.1 qts./A. Apply to actively growing plants 4-12 inches in height. In orchardgrass sods rotated to no-till corn: Apply 0.75-1.1 qts. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be required for optimum results.
Pampasgrass[1]	*Erianthus ravennae*	1.0-1.5			Apply at or beyond boot stage.
Paragrass	*Brachiaria mutica*	1.5	2.2-3.6		Early seedhead stage.
Phaseybean[1]	*Phaseolus lathyroides*	1.5	1.6-3.3		Less than 8 inches tall.
Phragmites[1]	*Phragmites* spp.	1.0-1.5	2.2-3.6		For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Repeat treatments may be necessary. Visual control symptoms will be slow to develop.
Poison hemlock	*Conium maculatum*	1.0-1.5			Apply as a spray to wet treatment. Optimum results are obtained when plants are treated at the bud to full-bloom stage of growth.
Pokeweed, common	*Phytolacca americana*	1.5	1.1		Apply to actively growing plants up to 24 inches in height.
Quackgrass	*Agropyron repens*	1.5	0.75-2.2		Apply 0.75-2.2 qts./A in annual cropping systems, or in pastures and sods where deep tillage is used. Do not tank mix with a residual herbicide at the 0.75 qt. rate. Spray when quackgrass is 6-8 inches in height. Do not till between harvest and fall applications or in the fall or spring prior to spring application. Allow 3 or more days after application before tillage.
			1.6-2.2		Apply in pastures, sod, or non-crop areas where deep tillage will not follow the application. Spray when quackgrass is at least 8 inches in height.

continued...

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D *(continued)*

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Redvine[1]	*Brunnichia ovata*	1.5	0.5-1.6		For suppression, apply 0.5 qt./A at each of two applications 7-14 days apart or a single application of 1.6 qts./A. Apply to plants greater than 18 inches tall in September/October to plants which have been growing 45-60 days since the last tillage. Make application at least 1 week prior to killing frost.
Ryegrass, perennial	*Lolium perenne*	1.0	0.75-2.2		Apply 0.7-2.2 qts./A when most plants are in the boot to head stage or prior to frost. In noncrop or areas where no tillage is practiced, use 1.6-2.2 qts./A. Do not tank mix with residual herbicides when using the 0.75 qt./A per acre rate.
Smallflowered Alexandergrass	*Brachiaria subquadripara*	1.5	1.6-3.3		Less than 4 inches in height, actively growing.
Smartweed, swamp	*Polygonum coccineum*	1.5	2.2—.6		Early bud, 12 inch stage.
			0.4	Yes	Early bud, 12 inch stage.
Sowthistle, perennial	*Sonchus arvensis*	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage.
Spurge, leafy	*Euphorbia esula*	1.5	0.4	Yes	For suppression: greater than 12 inches tall in late summer.
Sweet potato, wild[1]	*Ipomea pandurata*	1.5			Apply at or beyond flowering stage.
Switchgrass	*Panicum virgatum*	1.5	1.1-2.2		Boot to head stage.
Thistle, artichoke[1]	*Cynara cardunculus*	1.5			Apply when plants are beyond the bloom stage.
Thistle, Canada	*Cirsium arvense*	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage. For fall applications or following mowing, allow a minimum of 6-8 inches rosette development.
			0.4-0.7	Yes	For suppression: Apply in late summer or fall after harvest, mowing, or tillage. Allow rosette regrowth to be a minimum of 6 inches in diameter before treating. Allow 3 or more days before tillage.
Timothy	*Phleum pratense*	1.5	1.6-2.2		Boot to head; wait 3 days before tillage.
Torpedograss[1]	*Panicum repens*	1.5	2.7-3.6		At or beyond seedhead. Repeat applications will be required to maintain control. Fall treatments must be made prior to a killing frost.

continued...

Table 3: Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D *(continued)*

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Trumpetcreeper[1]	*Campsis radicans*	1.5	1.6		Late September/October applications on actively growing plants at least 18 inches in height; retreatment may be required. Make applications at least one week before killing frost.
Vaseygrass	*Paspalum urvillei*	1.5	2.2-3.6		Apply at early head stage.
Vetch	*Vicia* spp.	1.5	1.4-2.9		Boot to head.
Virginia creeper	*Parthenocissus quinquefolia*	1.5	3.3		Full leaf expansion.
Velvetgrass	*Holcus* spp.	1.5	2.2-3.6		Early head stage.
Wheatgrass, western	*Agropyron smithii*	1.5	2.6-2.2		Boot to head.

[1] Partial control.

WOODY BRUSH AND TREES CONTROLLED

Table 4: Woody Brush and Trees Controlled

Apply Touchdown Total after full leaf expansion, unless otherwise directed. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. In most areas, best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring to early summer when brush species are at high moisture content and are flowering.

Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing, or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Reduced performance may result if fall treatments are made following a frost.

When plants are growing under stressed conditions, or where infestations are dense, Touchdown Total may be used at 3.6 to 7.6 quarts per acre or a 0.7 to 1.5% solution for spot spray clean-up.

The following are controlled with 1.6 to 2.2 qts.[1]	
Birch	Rose, multiflora
Cherry; bitter, black, pin	Salmonberry
Elderberry	Sweetgum
Hawthorn	Thimbleberry
Hazel	Trumpetcreeper
Oak, southern red	
The following are controlled with 2.2 to 3.3 qts.[1]	
Alder	Oak, post
Blackberry	Quaking Aspen
Honeysuckle	Willow
The following are controlled with 2.7 to 3.6 qts.[1]	
Kudzu	Poison Ivy/Poison oak
The following are controlled with 1.6 to 3.6 qts.[1]	
Ash[2]	Oak; black, white[2]
Bearmat (Bearclover)[2]	Oak; northern, pin
Beech[2]	Oak, scrub[2]
Blackgum	Persimmon[2]
Bracken	Pine
Cascara[2]	Poplar, yellow[2]
Ceanothus[2]	Redbud, eastern
Chamise[2]	Russian olive[2]
Dogwood[2]	Sage, white[2]
Elm[2]	Saltcedar
Florida holly (Brazilian peppertree)[2]	Sassafras[2]
Gorse[2]	Sourwood[2]
Hickory[2]	Sumac; poison, smooth, winged[2]
Hornbeam, American[2]	Swordfern[2]
Locust, black[2]	Vine maple[2]
Manzanita[2]	Virginia creeper
Maple, red	Waxmyrtle, southern[2]
The following are controlled with 3.6 qts.[1]	
Broom; French, Scotch	Maple, sugar
Buckwheat, California[2]	Monkey flower[2]
Catsclaw[2]	Sage, black
Coyote brush	Sage brush, California
Eucalyptus	Tallowtree, Chinese
Hasardia[2]	Tan oak resprouts[2]
Madrone resprouts[2]	Tobacco, tree[2]

[1] Alternatively, use a 1.5% solution for spot spray clean-up.
[2] Provides partial control

This product is sold only for uses stated on its label. This formulation is covered by U.S. Patent No. 5,468,718.

Ambush®, Bicep MAGNUM®, Bicep Lite II®, Bicep Lite II MAGNUM®, Bicep II MAGNUM®, Callisto™, Caparol®, Cotoran®, Devrinol®, Dual MAGNUM®, Dual II MAGNUM®, Eptam®, Flexstar®, Fusilade®, Fusion®, Gramoxone®, Karate®, Lumax™, Prefar®, Princep®, Princep® Caliber 90®, Reflex®, Solicam®, Touchdown Total™, Warrior®, Zorial®, and the Syngenta logo are trademarks of a Syngenta Group Company

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For non-emergency (e.g., current product information), call Syngenta Crop Protection at 1-800-334-9481.

Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

SCP 1169A-L1 1003
141420

Group	9	Herbicide

TOUCHDOWN TOTAL

Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:
*Glyphosate:
N-(phosphonomethyl) glycine 36.5%

Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

See additional precautionary statements and directions for use in attached booklet.

AGRICULTURAL USE REQUIREMENTS
Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-1169
EPA Est. 100-LA-001

Touchdown Total™ and the Syngenta logo are trademarks of a Syngenta Group Company

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Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

SCP 1169A-L1 1003
141420

KEEP OUT OF REACH OF CHILDREN.

CAUTION

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if inhaled. Avoid breathing spray mist. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

FIRST AID

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

HOT LINE NUMBER: For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372.**

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, fiberglass, plastic, or plastic-lined steel containers.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage

Keep container closed to prevent spills and contamination.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

2.5 gallons
Net Contents

syngenta

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OCT 30 2003

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Mr. Jerry Wells
Syngenta Crop Protection, Inc
P. O. Box 18300
Greensboro, NC 27419-8300

Dear Mr. Wells:

Subject: Touchdown Total (2 Alternate Formualtions)
EPA Registration No. 100-1169
Application Dated June 3, 2003

The scientific review and evaluation of the alternate formulations (CSFs) submitted above have been completed. The alternate CSFs dated May 13, 2003 are acceptable and our records have been modified accordingly.

Sincerely,

James A. Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505C)

Syngenta Crop Protection, Inc. Tel 336 632 6000
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

syngenta

HAND DELIVERED

June 3, 2003

Mr. Jim Tompkins
Document Processing Desk (AMEND)
Office of Pesticide Programs (7504C)
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202-4501

Dear Mr. Tompkins:

RE: **Request for Two Alternate Formulas For SYN 1219 (EPA Reg. No. 100-[redacted]1169)**

Attached are Confidential Statements of Formulas for two alternate formulas for Reg. No. SYN 1219 and Reg. No. 100-RRAO. They are identical to formulas submitted recently, CSF #153/4 (dated Feb. 3, 2003) and CSF 154/5, (dated Feb. 19, 2003) except that the [redacted]

New alternate CSF 273/1 corresponds to CSF 153/4 (basic), Syngenta source of glyphosate
New alternate CSF 274/1 corresponds to CSF 154/5, (alternate), [redacted] source of glyphosate

Attached:

- ★ Two CSF's for SYN 1219 (2 sources of MUP), 3 copies of each
- ★ Previously submitted CSF 153/4 and 154/5 for reference
- ★ Completed 8570-1 Form

Kind regards,

Jerry Wells

Jerry Wells
Regulatory Product Manager

Enclosures

cc: Vicky Walters

Inert ingredient information may be entitled to confidential treatment
Product ingredient source information may be entitled to confidential treatment

Please read instructions on reverse before completing form.

EPA	United States **Environmental Protection Agency** Washington, DC 20460	[x] Registration [ ] Amendment [ ] Other	OPP Identifier Number 282068

Application for Pesticide - Section I

1. Company/Product Number 100-RRAO	2. EPA Product Manager Jim Tompkins	3. Proposed Classification [x] None [ ] Restricted
4. Company/Product (Name) SYN 1219	PM# Team 25	
5. Name and Address of Applicant *(Include ZIP Code)* Syngenta Crop Protection, Inc. P. O. Box 18300 Greensboro, NC 27419 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

[ ] Amendment - Explain below.

[ ] Resubmission in response to Agency letter dated _____

[ ] Notification - Explain below.

[ ] Final printed labels in response to Agency letter dated _____

[ ] "Me Too" Application.

[x] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.).
Two new alternate formulas for SYN 1219 submission, EPA Reg. No. 100-RRAO.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [ ] No	[ ] Yes 4 x 1 gallon [ ] No	[ ] Yes [ ] No	[ ] Metal [ ] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) _____
***Certification must**	If "Yes" Unit Packaging wgt. / No. per Container	If "Yes" Unit Packaging wgt. / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[ ] Label [ ] Container		[ ] On Label [ ] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [ ] Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Jerry Wells	Regulatory Product Manager	336-632-6324

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature Jerry Wells	3. Title Regulatory Product Manager	6. Date Application Received **(Stamped)** RECEIVED 6/3/03
4. Typed Name Jerry Wells	5. Date June 3, 2003	

EPA Form 8570-1 (Rev. 8-94) Previous editions are obsolete.

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (H7505C)
401 "M" St., S.W.
Washington, D.C. 20460

EPA Reg. Number: 100-1169

Date of Issuance: OCT 30 2003

Term of Issuance: Conditional

Name of Pesticide Product: Touchdown Total

NOTICE OF PESTICIDE:
_x_ Registration
__ Reregistration

(under FIFRA, as amended)

Name and Address of Registrant (include ZIP Code):

Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with section 3(c)(7)(A) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) provided that you:

1. Submit/cite all data required for registration/reregistration of your product when the Agency requires all registrants of similar products to submit such data.

2. Make the labeling changes listed below before you release the product for shipment.

a. Add the phrase "EPA Registration No. 100-1169".

b. Incorporate the statements "Harmful if Inhaled. Avoid breathing spray mist" into your Precautionary Statements.

c. In your First Aid sections move the "If Inhaled" section to underneath the "IF in Eyes" section.

d. At the beginning of the list of Personal Protective Equipment (PPE) within the Precautionary Statements, add the statements "Some of the material that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart." In addition, revise the requirement for "waterproof gloves" to a requirement for "chemical resistant gloves made of any waterproof material such as polyethylene or polyvinylchloride.

Signature of Approving Official:

Date: OCT 30 2003

EPA Form 8570-6

e. Add a "Pesticide Storage" section to your "Storage and Disposal" section.

Submit three (3) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of labeling is enclosed for your records..

Touchdown Total
Herbicide

Group	9	Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-xxxx
EPA Est.

SCP xxxx

ACCEPTED
with COMMENTS
In EPA Letter Dated:
OCT 30 2003
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 100-1169

2.5 gallons
U.S. Standard Measure

30 gallons
U.S. Standard Measure

110 gallons
U.S. Standard Measure

_____ gallons [Bulk]
U.S. Standard Measure

RECEIVED
9/1/03

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long sleeved shirt and long pants

- Socks and shoes

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing-gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic, or plastic-lined steel containers.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and Buyer and User assume the risk of any such use. SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall SYNGENTA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitations of Warranty and of Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of
12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical resistant gloves Category A, such as butyl rubber, or natural rubber, or neoprene rubber
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are **NOT** within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Recyclable/Refillable Containers

Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

Container Disposal

Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

GENERAL INFORMATION

Touchdown Total is a nonselective foliar systemic herbicide used to control a broad spectrum of emerged grass and broadleaf weeds, both annual and perennial, in:

- alfalfa, clover, and other legumes
- berries, fruits, nuts, and vines
- Christmas trees
- conservation compliance/conservation reserve program (CRP)
- corn, including glyphosate tolerant
- cotton, including glyphosate tolerant
- fallowland and postharvest
- farmsteads
- grasses and grass seed production

- herbs
- pastures
- peanuts
- small grains
- sorghum
- soybeans, including glyphosate-tolerant
- sugarcane
- sunflower
- vegetables

Touchdown Total is formulated as a liquid concentrate which contains 4.17 pounds acid equivalent per gallon.

GENERAL USE PRECAUTIONS

- Touchdown Total requires actively growing green plant tissue to function. Application to drought-stressed weeds or weeds with little green foliage (i.e. mowed, cut, or hailed on weeds); weeds covered with dust; weeds damaged by insects or diseases may result in reduced weed control.

- Touchdown Total does not provide soil residual control of weeds. Weeds emerging after application will require retreatment.

- Heavy rainfall or irrigation shortly after application may require retreatment.

- Tillage or mowing within 3 days following application may reduce weed control.

- Do not apply this product through any type of irrigation system.

- DO NOT spray if conditions of thermal inversion exist, or if wind direction and speed may cause spray to drift onto adjacent nontarget areas. Drift minimization is the responsibility of the applicator. Consult with local and State agricultural authorities for information regarding avoiding or minimizing spray drift.

- Touchdown Total is not volatile and cannot move as a vapor after application onto nontarget vegetation.

- It is recommended that the spray system be thoroughly cleaned with water and a commercial tank cleaner after each use.

- Spray solutions of Touchdown Total should be mixed, stored, and applied using only plastic, plastic-lined steel, stainless steel, aluminum, or fiberglass containers. Concentrate should not be stored in galvanized steel, carbon steel, aluminum, or unlined steel containers.

- There are no rotational crop restrictions following application of this product.

- Severe damage or destruction may be caused by contact of Touchdown Total to any vegetation (including leaves, green stems, exposed non–woody roots, or fruit) of crops, trees, and other desirable plants to which treatment is not intended, except as specified for glyphosate–tolerant crops.

- In crop areas, do not exceed a total of 5.8 qts./A. In noncrop areas, do not exceed a total of 7.6 qts./A.

- Do not exceed 0.7 qt./A by air unless otherwise specified on this label.

- For broadcast postemergence treatments, do not harvest or feed treated vegetation for 8 weeks following application, unless otherwise specified.

- The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed maximum use rate.

GLYPHOSATE RESISTANT WEED MANAGEMENT

Some naturally occurring weed biotypes resistant to glyphosate may exist through normal genetic variability in any weed population. The repeated use of herbicides with the same mode of action is known to lead under certain conditions to a selection of resistant weeds. Certain agronomic practices reduce the likelihood that resistant weed populations will develop and integrated strategies are known to manage such problem weeds.

Glyphosate is the active ingredient in the herbicide -Touchdown Total. The primary mode of action of glyphosate involves inactivation of the target enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS). This enzyme is involved in the synthesis of several essential amino acids, that are the building blocks for proteins needed for plant growth and development. In susceptible weeds glyphosate binds tightly to EPSPS rendering the enzyme inactive. With the inactivation of EPSPS, the plant is unable to produce certain essential amino acids resulting in plant death. Initial studies on the mechanistic basis of resistance to glyphosate in various weed species have to date, revealed EPSPS target site resistance, and involvement of differences in translocation as important. Other mechanisms by which plants can become resistant to herbicides include differences in uptake, metabolism and sequestration. Within the USA specific biotypes of horseweed/marestail, *Conyza canadensis* and rigid ryegrass, *Lolium rigidum* have become resistant to glyphosate. The first incident reported to the Herbicide Resistance Action Committee (HRAC) of glyphosate resistance was in 1998 on rigid ryegrass. Horseweed resistance was subsequently confirmed in 2000.

Following is a list of Best Weed Management practices to be considered in glyphosate-based programs.

Diversify glyphosate-dependent weed control programs with alternative herbicides or cultural practices.

a. In Roundup Ready (RR) corn and RR soybean systems do not use more than two applications of a glyphosate based herbicide over a two year period. Diversify with alternative herbicides/cultural practices.
b. In RR cotton up to three glyphosate applications may be used in crop per year if employing in-crop cultivation/residual herbicide.
c. Use alternative burndown and/or residual herbicides for RR crops likely to require more than one application of glyphosate.
d. To manage RR resistant volunteers rotate RR crops with conventional crops.
e. Use full label rates of glyphosate and tank mix partners. Minimize weed escapes.
f. Monitor treated weed populations for any loss of field efficacy.
g. Contact your local extension specialist, certified crop advisor, and/or manufacturer for herbicide resistance management and/or integrated weed management recommendations for specific crops and resistant weed biotypes.

Since the occurrence of resistant weeds is difficult to detect prior to use, Syngenta Crop Protection accepts no liability for any losses that may result from the failure of Touchdown Total to control resistant weeds.

APPLICATION AND MIXING DIRECTIONS

TIMING

Touchdown Total should be applied to actively growing emerged weeds. Annual weeds of 6 inches or less in height are typically the easiest to control. Generally, more effective control of perennial weeds is achieved at the flowering or seedhead stage. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for specific application timing.

When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth to appear prior to application. When perennial weeds have been mowed or grazed, allow new growth to reach recommended stage prior to application.

Visible effects on annual weeds occurs within 2-4 days after application; effects on perennial weeds may take 7 days or longer. Extremely cool or cloudy weather following treatment may slow activity.

RATES

Follow recommended rates for Touchdown Total listed in the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections. Use the higher label rates when weeds are dense or large. Also, use higher application volumes and pressures when weed vegetation is dense.

SPRAY ADDITIVES

Ammonium Sulfate (AMS) – Control of annual and perennial weeds with Touchdown Total may be improved by adding dry ammonium sulfate at 1.0 to 2% by weight or 8.5-17.0 lbs./100 gals. of water. Liquid formulations of AMS may be used at an equivalent rate. Do not reduce use rates of Touchdown Total when using AMS.

Drift Control Agents – Drift control agents may be used with Touchdown Total.

TANK MIXES WITH RESIDUAL HERBICIDES

Refer to crop sections for recommended tank mixes. Tank mixes of Touchdown Total with other pesticides, fertilizers, or any other additives except as specified on this label or other approved Syngenta supplemental labeling may result in tank mix incompatibility or unsatisfactory performance. It is recommended that the compatibility of any tank mix combination be tested on a small scale such as a jar test before actual tank mixing.

Always refer to labels of other pesticide products for mixing directions and precautions which may differ from those outlined here. Use in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

Tank Mixing Recommendations:

1. Fill spray tank ½ full with clean water.
2. Begin tank agitation and continue throughout mixing and spraying.
3. Add AMS (if used).
4. Add dry formulations (WP, DF, etc.) to tank.
5. Add liquid formulations (SC, EC, L, etc.) to tank.
6. Add Touchdown Total.
7. Fill remainder of spray tank.

APPLICATION EQUIPMENT AND TECHNIQUES

- Avoid drift. Applications should not be made in low level inversion conditions, when winds are gusty or under any other conditions which favor drift. Inversions are characterized by stable air and increasing temperatures with height above the

ground. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer. Drift may cause damage to any vegetation contacted to which treatment is not intended.

- Compatibility with drift control additives may vary. It is recommended that the combination be tested on a small scale such as a jar test. Read and follow manufacturer's directions for use. A reduction in weed control may occur when drift control agents are used.

- All equipment must be properly maintained and washed to remove product residues after use.

Broadcast Applications

Ground

Applications should be made in 3-40 gals. of water per acre.

When foliage is dense, spray volume should be increased to ensure coverage of the target weeds. Flat-fan nozzles will result in the most effective application of Touchdown Total. Spray boom and nozzle heights must be adjusted to provide coverage of target weed. Flood nozzles may result in reduced weed control due to inadequate coverage.

Air

Applications should be made in 3-15 gals. of water per acre.

Spray should be released at the lowest height consistent with effective weed control and flight safety. Applications more than 10 ft. above the canopy should be avoided.

Use the largest droplet size consistent with good weed control. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding inappropriate spray boom pressure. Solid stream or low shear nozzles may be utilized to reduce small droplet formation. These nozzles direct the fluid parallel to the existing airflow to reduce shear effects. Other techniques may include reducing the fan angle of flat fan nozzles if used, or reducing the deflector plate angle if deflector type nozzles are used. Ensure the spray is released at an appropriate distance below the airfoil.

For best results, each specific aerial application vehicle used should be quantifiably pattern tested for aerial application of Touchdown Total initially and every year thereafter. To minimize drift, it is suggested aerial application equipment produce the following minimum spray deposition characteristics:

Volume Median Diameter (VMD)	› 400 microns
Volume Diameter (VD) {0.9}	› 200 microns

Prolonged exposure of Touchdown Total to uncoated steel surfaces may result in corrosion and possible failure of the part. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion. To prevent corrosion of exposed parts, thoroughly wash aircraft after each day of spraying to remove residues of Touchdown Total accumulated during spraying or from spills. Landing gear are most susceptible.

Shielded/Hooded Application

Use shielded/hooded sprayers to control weeds between rows while protecting the crop from the herbicide. Keep shields/hoods as close to the ground as possible and avoid ground speed in excess of 5 mph. Use appropriate nozzles, spacing, and pressure to achieve coverage without allowing spray to touch or drift onto the crop. Maintain equipment in good operating condition to prevent leakage or dripping onto the crop. Refer to state extension service recommendations and equipment manufacturers' guidelines for more information on proper operation of shielded/hooded sprayers.

Spot Treatments

For annual weeds less than 6 inches, use a 0.4 to 0.7% v/v solution. For annual weeds over 6 inches, use a 0.7 to 1.1% v/v solution. Use a 0.7 to 1.5% v/v solution for most perennials (see Table 3 for specific rates and timing). When using motorized spot spray equipment (rider bar), use a 2.2% v/v solution. See Spot Spray Dilution Table below for rates of Touchdown Total/volume of finished spray solution. Spray the solution on actively growing weeds until uniformly wet but not to the point of runoff. Retreat 14-21 days later if regrowth occurs.

Touchdown Total Spot Spray Dilution Table

Solution Strength	To Make This Volume			
	1 gallon	10 gallons	25 gallons	100 gallons
0.4%	0.5 fl. oz.	5 fl. oz.	12 fl. oz.	3 pts.
0.7%	0.9 fl. oz.	9 fl. oz.	1.4 pts.	5.6 pts.
0.9%	1.2 fl. oz.	12 fl. oz.	1.9 pts.	3.8 qts.
1.1%	1.4 fl. oz.	14 fl. oz.	2.2 pts.	4.4 qts.
1.5%	1.9 fl. oz.	1.2 pts.	3 pts.	1.5 gals.
2.2%	2.8 fl. oz.	1.8 pts.	4.4 pts.	2.2 gals.

Wiper Application

Touchdown Total may be applied using a wiper or "wick" applicator (e.g. rope, sponge, or porous plastic applicators) for selective control or suppression of annual and perennial weeds which become taller than the crop or desirable vegetation. Mix 3 quarts of Touchdown Total in 2 gals. of water unless directed otherwise in this label (See **General Use Precautions** for Berries, Fruits, Nuts, and Vines). Precautions should be taken to avoid contact with crops or desirable vegetation. Equipment should be operated at speeds of 5 mph or less. Use slower speeds where weeds are dense. For improved control, make two applications in opposite directions.

CDA Equipment

For control of annual weeds with hand held equipment, apply a 20% solution of Touchdown Total at a flow rate of 2 fl. oz. per minute and a walking speed of 1.5 mph (1 qt./A). For perennial weeds, use a 20 to 30% solution of Touchdown Total at a flow rate of 2 oz. per minute and a walking speed of 0.75 mph (2 to 3 qts./A). For vehicle mounted equipment, apply in 3 to 15 gals. of water per acre. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Precautions should be taken to avoid contact with crops or desirable vegetation.

CROPS

This section is organized alphabetically by crop categories. There may be several crops listed in a crop category.

ALFALFA, CLOVER, AND OTHER LEGUMES

Touchdown Total may be used on the legume crops listed below:

Alfalfa	Lespedeza	Trefoil
Clover	Lupine	Velvetbean
Kudzu	Sainfoin	Vetch

METHOD OF APPLICATION: Before, during, or after planting but before crop emergence; renovation; spot spray (alfalfa and clover only); wiper/wick (alfalfa and clover only); preharvest (alfalfa only); and postharvest.

PREPLANT/PREEMERGENCE, DORMANT, OR RENOVATION

Deep tillage following treatment of weeds with Touchdown Total or a sequential application of Touchdown Total may be required to control well established perennials.

PREHARVEST (ALFALFA ONLY)

Use this treatment to eliminate or destroy declining alfalfa stands. Up to 3.0 pts. per acre of Touchdown Total may be applied as a broadcast spray with ground or aerial equipment at least 36 hours before harvest. Applications may be made any time of the year when the alfalfa crop is in the bud to flower stage of growth. Deep tillage following preharvest treatment or a postharvest application of Touchdown Total may be required to provide control of well established perennials.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

GENERAL USE PRECAUTIONS FOR ALFALFA, CLOVER, AND OTHER LEGUMES

- Spot and wiper/wick application must be made at least 14 days before grazing or harvest of forage and hay.
- Preharvest and renovation applications can be made with no more than 1.5 pts./A at least 36 hours before grazing or harvest of forage or hay.
- Do not apply a preharvest treatment on alfalfa grown for seed as a reduction in germination or vigor may occur.

TANK MIXTURES FOR PREPLANT/PREEMERGENCE, DORMANT, OR RENOVATION USE FOR ALFALFA, CLOVER, AND OTHER LEGUMES

Touchdown Total can be tank mixed with the following herbicides for control or

suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Buctril®	Karmex®	Prowl®	Velpar®
Dual®	Kerb®	Pursuit®	
Eptam®	Lexone®/Sencor®	Trifluralin	

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

BERRIES, FRUITS, NUTS, AND VINES

Touchdown Total may be used on both bearing and nonbearing crops listed below.

Almond
Apple
Apricot
Atemoya
Avocado
Banana
Barbados cherry (Acerola)
Beechnut
Blackberry
Blueberry
Boysenberry
Breadfruit
Brazil nut
Butternut
Calamondin
Canistel
Carambola
Cashew
Cherimoya
Cherry (sweet, sour, tart)
Chestnut
Chinquapin
Chironja
Citron (postdirected only)
Citrus hybrids
Cocoa bean
Coconut
Coffee
Lemon
Lime
Loganberry
Longan
Loquat
Lychee
Macadamia
Mandarin
Mango
Mangosteen
Marmaladebox (genip)
Mayhaw
Nectarine
Olallieberry
Olive (postdirected only)
Orange (all)
Oriental pear
Papaya
Passion fruit
Peach
Pear
Pecan
Persimmon
Pineapple
Pistachio
Plantain
Plum
Plumcot

Crabapple
Cranberry
Currant
Date
Dewberry
Durian
Elderberry
Fig
Filbert (Hazelnut)
Gooseberry
Grapefruit
Grapes (all)
Guava
Hickory nut
Huckleberry
Jaboticaba
Jackfruit
Kiwi fruit
Kumquat
Pomegranate
Prune (all)
Pummelo
Quince
Rambutan
Raspberry (black, red)
Sapodilla
Sapote (black, mamey, white)
Satsuma mandarin
Soursop
Sugar apple
Tamarind
Tangelo
Tangerine
Tangor
Tea
Walnut (black, English)
Youngberry

METHOD OF APPLICATION: Preplant; preemergence; directed spray (except cranberry); middles (between rows of trees); strips (in rows of trees); perennial grass suppression (chemical mowing); post harvest (cranberry); and wiper/wick applicator equipment.

GENERAL USE

Applications may be made with boom equipment; shielded sprayers; CDA; hand-held and high-volume wands; lances; orchard guns; or wiper/wick application equipment, except as directed in the **GENERAL USE PRECAUTIONS FOR BERRIES, FRUITS, NUTS, AND VINES** section. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Multiple applications may be necessary to control certain perennial weeds. For residual weed control, tank mix Touchdown Total with residual herbicides as prescribed in the **TANK MIXTURES FOR BERRIES, FRUITS, NUTS, AND VINES** section, or make multiple applications.

GENERAL USE PRECAUTIONS FOR BERRIES, FRUITS, NUTS, AND VINES

- Do not allow the spray, spray drift, or mist to contact foliage, fruit, shoots, branches, canes, suckers, open wounds, or green parts of crops. Contact with any crop part other than mature brown woody bark can result in severe crop injury.

- Avoid contact with stumps as injury to adjacent trees may occur from root grafting.

- Do not apply in a tank mix in Puerto Rico.

- For **PEACHES** grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, apply Touchdown Total with a shielded applicator which prevents contact with foliage, suckers, or bark of trees. Apply no later than 90 days after first bloom to avoid severe damage. Avoid application to peach trees with recent mechanical injury or pruning wounds. Apply only near trees which have been planted in the orchard for two or more years. SEVERE INJURY WILL OCCUR IF ANY PORTION OF THE PEACH TREE IS CONTACTED WITH SPRAY OR SPRAY DRIFT.

- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah, and Washington, **any** application equipment listed for these crops may be used.

- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in all other states not previously listed, use only wiper/wick application equipment.

- For **GRAPES** grown in the Great Lakes and Northeast regions, apply Touchdown Total prior to the end of bloom stage to avoid injury, or apply with shielded equipment.

- For **COFFEE and BANANA**, delay application 3 months after transplanting to allow the new plants to become established.

- For all other crops in this section, allow a minimum of 3 days between application and transplanting.

- For **BLACKBERRY, BLUEBERRY, BOYSENBERRY, CRANBERRY, CURRANT, DEWBERRY, ELDERBERRY, GOOSEBERRY, HUCKLEBERRY, LOGANBERRY, OLALLIEBERRY, RASPBERRY, AND YOUNGBERRY,** mix 3 qts. of Touchdown Total in 4 gals. of water for wiper/wick applications.

- Allow at least **17** days from the last application to harvest of **stone fruit or olives.** For olive groves, apply only as a directed spray.

- Allow at least **3** days from last application to harvest of **nuts.**

- Allow at least **30** days from last application to harvest of **cranberries.**

- Allow at least **28** days from last application to harvest of **coffee.**

- Allow at least **1** day from the last application to harvest of **banana, citrus, guava, papaya, plantain, or pome fruit (except mayhaw).**

- Allow at least **14** days from last application to harvest of **acerola, atemoya, avocado, breadfruit, canistel, carambola, cherimoya, cocoa beans, coconuts, dates, figs, genip, grapes, jaboticaba, jackfruit, longan, lychee, mango, mayhaw, passion fruit, persimmon, pomegranate, sapodilla, sapote, small berries, soursop, sugar apple, tamarind, and tea.**

Post–Harvest Cranberry

Application of SYN–1219 may be made following harvest of cranberries to control troublesome annual and perennial weeds. Do not apply directly to cranberry vines. Vines that are sprayed will be injured and may die. Apply SYN–1219 in a 0.4 to 0.7% solution if using hand–held equipment after the vines are dormant. Use properly calibrated precision application equipment; wiper wisk, spot sprayer which protects the cranberry plant from SYN–1219 spray. Do not treat more than 10% of the bog.

TANK MIXTURES WITH RESIDUAL HERBICIDES AND 2,4-D FOR BERRIES, FRUITS, NUTS, AND VINES

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 3.6 qts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations or weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol®	Krovar®	Sim-Trol®
Direx®	Princep® 4L	Sinbar®
Goal®	Princep Caliber 90®	Solicam®
Karmex	Prowl	Surflan®
Kerb	Simazine	2,4-D

Refer to the individual product labels for precautionary statements, restrictions, recommended rates, approved crops, and a list of weeds controlled.

TANK MIX WITH GOAL HERBICIDE IN ROW MIDDLES

Apply Touchdown Total at 12 to 24 fl. ozs./A in a tank mix with 3 to 12 oz. of Goal 2XL herbicide for the control of annual weeds that are a maximum of 6 inches in height or diameter including annual sowthistle; crabgrass; common cheeseweed; common groundsel; common lambsquarters; common purslane (suppression); common

ryegrass; filaree (suppression); hairy fleabane; horseweed/marestail; junglerice; London rocket; redroot pigweed; shepherdspurse; and stinging nettle. For control of common cheeseweed up to 3 inches in diameter, apply 12 to 24 fl ozs./A of Touchdown Total with 3 to 12 ozs./A of Goal.

Refer to the Goal label for precautionary statements, restrictions, and approved crops.

HARD TO CONTROL WEED RECOMMENDATIONS IN CITRUS (FLORIDA AND TEXAS ONLY)

To control or suppress the perennial weeds listed in the following table, apply the recommended rate of Touchdown Total in 3 to 30 gals. of water per acre. Use 10 to 30 gals. per acre if weed foliage is dense. Apply when weeds are actively growing. Refer to the **PERENNIAL WEED CONTROL** section, Table 3, for application timing. If weeds have been mowed or grazed, allow new growth to reach recommended growth stage prior to application.

Weed Species	Rate of Touchdown Total (Quarts per Acre)			
	0.7	1.4	2.2	3.6
Bermudagrass	B	B	PC	C
Guineagrass				
Texas and Florida	B	C	C	C
Ridge	NR	B	C	C
Florida Flatwoods				
Paragrass	B	C	C	C
Torpedograss	NR	S	PC	C

B = Burndown
C = Control
NR = Not Recommended
PC = Partial Control
S = Suppression

For goatweed, apply 1.4 to 2.2 qts. of Touchdown Total per acre. Apply in 20 to 30 gals. of water per acre when plants are actively growing. Use the 1.4 qts. rate on plants less than 8 inches tall and 2.2 qts. on plants greater than 8 inches tall. When plants are greater than 8 inches tall, the addition of Krovar™ I or Karmex™ may improve control. If using a tank mix, refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PERENNIAL GRASS SUPPRESSION (CHEMICAL MOWING) OF ORCHARD FLOORS

For best results, mow to an even height and apply Touchdown Total 3 or 4 days later. Do not add AMS to the spray solution. Application must be made 1-3 weeks ahead of seedhead emergence.

BAHIAGRASS

Touchdown Total can be used to inhibit seedhead emergence and suppress vegetative growth for approximately 40-50 days with a single application. By using a sequential application, suppression of vegetative growth and inhibition of seedhead emergence can be extended to 120 days. Apply Touchdown Total at 20-30 days after complete green-up or after mowing to 4 inches tall. When a single application is planned, use 3 to 6 fl. ozs. of Touchdown Total per acre in 10 to 20 gals. of water. When a sequential application is planned, use 3 to 6 fl. ozs./A for the first application followed by another application of 1.5 to 4 fl. ozs./A 40 to 50 days later.

BERMUDAGRASS

For Suppression Only:

East of the Rocky Mountains – Apply 4 to 12 fl. ozs. of Touchdown Total in 3 to 20 gals. of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. Use 2 to 6 fl. ozs./A if a lesser degree of suppression is desired. A sequential application can be used when regrowth occurs.

West of the Rocky Mountains – Apply 4 to 12 fl. ozs. of Touchdown Total in 3 to 20 gallons of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. A sequential application of 4 to 7 fl. ozs. can be used when regrowth occurs.

For Partial Control and Burndown:

Touchdown Total can be used for burndown and partial control of bermudagrass at 1.4 to 2.9 pts. in 3 to 20 gals. of water per acre. Use 1.4 pts. east of the Rocky Mountains and 2.9 pts. west of the Rocky Mountains.

Use this treatment only if reduction of the bermudagrass stand can be tolerated. Allow at least 14 to 21 days for complete burndown.

COOL SEASON GRASS COVERS (Fine Fescue, Kentucky Bluegrass, Orchardgrass, Quackgrass, Tall Fescue)

For suppression of orchardgrass, fine fescue, tall fescue, and quackgrass, apply 3 to 6 fl. ozs. of Touchdown Total in 10 to 20 gals. of water per acre. See **SPRAY ADDITIVES** section for rates.

For suppression of Kentucky bluegrass, use 2 to 4 fl. ozs. of Touchdown Total.

CHRISTMAS TREES

METHOD OF APPLICATION: Postdirected spray; site preparation; and spot spray.

Touchdown Total may be used prior to planting Christmas trees; or as a postdirected spray and spot treatment around established Christmas trees.

Follow the directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

GENERAL USE PRECAUTIONS FOR CHRISTMAS TREES

- Avoid contact of spray, drift, or mist with foliage or green bark of established Christmas trees.

- This product is not recommended for broadcast applications over the top of Christmas trees.

CONSERVATION COMPLIANCE/CONSERVATION RESERVE PROGRAM (CRP)

METHOD OF APPLICATION: Rotating out of CRP, site preparation (sequential herbicide applications), dormant beneficial plant management; postemergence; and wiper/wick.

- Site Preparation: Prior to application, removal of excessive vegetation by grazing, mowing, burning, etc. may improve control. When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth before application. When perennial weeds have been mowed or grazed, allow regrowth to reach recommended stage (see **PERENNIAL WEED CONTROL** section, Table 3, for rates and timing).

  Sequential applications of Touchdown Total and Gramoxone® Max herbicides are effective in controlling established CRP grasses. Refer to the Gramoxone Max herbicide label for recommended rates and tank mixes.

Touchdown Total/Gramoxone Max Herbicide Sequential Program (Spring Application)

Weed Species	Program A	Program B
Fescue Orchardgrass Ryegrass	Gramoxone Max at 1.7 to 2.7 pts./A followed 7-10 days later with Gramoxone Max at 2.0 to 2.7 pts./A	Touchdown Total at 1.4 to 3.0 pts./A followed 10-14 days later with Gramoxone Max at 2 to 2.7 pts./A

- Dormant Beneficial Plant Applications: Apply 9 to 12 ozs./A in early spring before desirable species, such as crested and tall wheatgrass, break dormancy. Late fall applications can be made after desirable grasses have reached dormancy. If perennial grasses are not dormant at time of application, stunting can occur.

- Touchdown Total may be tank mixed with other herbicides registered for this use such as atrazine, dicamba, and 2,4-D.

- There are no rotational crop restrictions following application of Touchdown Total. Read and follow crop rotation label restrictions for all tank mix products.

CORN (FIELD CORN, POPCORN, SEED CORN, AND SWEET CORN – NOT GLYPHOSATE-TOLERANT)

METHOD OF APPLICATION: Before, during, or after planting but before crop emergence; hooded sprayers; spot spray; preharvest; and postharvest.

Follow the directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR CORN

- Crop plants contacted by Touchdown Total will be injured or killed.
- Spot application must be made prior to corn silking.
- For hooded sprayer applications, do not exceed 24 fl. ozs./A per application; nor 2.2 qts./A per year.
- Do not graze or feed corn forage or fodder following hooded sprayer applications.
- Preharvest application must be made at least 7 days before harvest.
- Apply no more than 24 fl. ozs./A by air; and 2.2 qts./A by ground preharvest.

TANK MIXTURES FOR CORN

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10 to 70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.

Touchdown Total can be tank mixed with the following products:

Aim™	Degree Xtra™	
Ambush®	Distinct™	Lasso®
Atrazine	Dicamba	Lightning™
Axiom™	Dual®	Linex®
Balance®	Dual MAGNUM®	Lorox®
Basis®	Dual II®	Lumax™
Bicep®	Dual II MAGNUM®	Marksman®
Bicep Lite II MAGNUM®	Extrazine® II	Micro-Tech®
Bicep MAGNUM®	Frontier®	Prowl
Bicep® II	Fultime™	Simazine
Bicep II MAGNUM®	Guardsman®	Surpass® EC
Broadstrike®	Harness®	Surpass 100
Bullet®	Harness Xtra	Topnotch®
Callisto™	Hornet™	Warrior®
Clarity®	Lariat®	2,4-D
Degree™		

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

HOODED SPRAYERS

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Corn must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.

- Use low drift nozzles.

Gramoxone Max herbicide may be considered for Hooded Sprayer applications in corn. Use Gramoxone Max at 0.75 to 1.3 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

PREHARVEST

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete. Do not apply a preharvest treatment on corn grown for seed as a reduction in germination or vigor may occur.

CORN, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY® CORN)

METHOD OF APPLICATION: Before, during, or after planting; and postemergence in corn varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR GLYPHOSATE-TOLERANT CORN

- Applications of Touchdown Total to corn hybrids which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum preplant/preemergence rate is 3.6 qts./A .
- Make postemergence applications from emergence through the V12 stage of corn at a maximum of 48 fl. ozs./season with no more than 24 fl. ozs./A for any single application.
- Allow a minimum of 50 days between postemergence application and harvest of forage.
- Make preharvest applications at least 7 days before harvest with no more than 24 fl. ozs./A.

TANK MIXTURES

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and

timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10-70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of Touchdown Total when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of Touchdown Total.

Touchdown Total can be tank mixed with the following products:

Aim	Degree Xtra	Karate
Ambush	Distinct	Lasso
Atrazine	Dicamba	Lightning
Axiom	Dual	Linex
Balance	Dual Magnum	Lorox
Basis	Dual II	Lumax
Bicep	Dual II Magnum	Marksman
Bicep Lite II MAGNUM	Extrazine II	Micro-Tech
Bicep MAGNUM	Frontier	Prowl
Bicep II	Fultime	Simazine
Bicep II MAGNUM	Guardsman	Surpass EC
Broadstrike	Harness	Surpass 100
Bullet	Harness Xtra	Topnotch
Callisto	Lariat	Warrior
Clarity	Hornet	2,4-D
Degree		

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

POSTEMERGENCE

ANNUAL WEEDS

Touchdown Total will control annual broadleaf weeds and grasses when applied as directed. Apply Touchdown Total at 24 to 48 fl. ozs./A from emergence through the V8 to V12 stage (8 leaves) or until the corn height reaches 30 inches, whichever comes first. Refer to Table 1 for specific rate information. For any single in-crop application,

use a minimum of 24 to 48 fl. ozs./A of Touchdown Total. Touchdown Total alone will not provide residual control. To control new weed flushes, repeat applications may be required.

PERENNIAL WEEDS

Touchdown Total will control or suppress perennial weeds with one or more applications. Successful control of perennial weeds is affected by proper timing of application. Refer to Table 3 for specific rate and timing information.

Touchdown Total can be tank mixed with the following products:

Ambush	Dual II MAGNUM
Atrazine	Fultime
Bicep	Harness
Bicep MAGNUM	Harness Xtra
Bicep II	Karate
Bicep Lite II MAGNUM	Marksman
Bicep II MAGNUM	Surpass EC
Clarity	Surpass 100
Dicamba	Topnotch
Dual	Warrior
Dual II	2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PREHARVEST

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete.

COTTON (NOT GLYPHOSATE-TOLERANT)

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; hooded sprayer; recirculating sprayer; spot spray; wiper/wick applicators; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section, for application rates and timing.

GENERAL USE PRECAUTIONS FOR COTTON

- Spot applications must be made prior to boll opening.
- Preharvest, hooded, and wiper/wick applications must be made at least 7 days before harvest.
- Do not apply more than 24 fl. ozs./A by air; nor more than 48 fl. ozs./A by ground for preharvest.
- Do not feed or graze treated cotton forage or hay following preharvest application.

TANK MIXTURES FOR COTTON (PREPLANT/PREEMERGENCE)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol®	Dual	Meturon®
Command®	Dual MAGNUM	Prowl
Cotoran®	Dual II	Staple®
Cotton-Pro®	Dual II MAGNUM	Zorial®
Cy-Pro®	Karmex	2-4,D
Direx		

Refer to individual product labels for precautionary statements, restrictions, rates and a list of weeds controlled.

HOODED SPRAYS

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Apply in 10-20 gals. of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles

TANK MIXTURES (HOODED)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PREHARVEST

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. Do not apply a preharvest treatment on cotton grown for seed as a reduction in germination or vigor may occur.

For **defoliation, desiccation, or regrowth control** of cotton, apply 24 fl. ozs./A to 48 fl. ozs./A. Apply in 3 to 30 gals. of water per acre by ground or in 3 to 15 gals. of water per acre by air.

Refer to the **WEEDS CONTROLLED** section for application rates and timing.

Touchdown Total can be tank mixed with the following products for improved defoliation or boll opening.

DEF®
Dropp®
Folex®
Prep™

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

COTTON, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY® COTTON)

METHOD OF APPLICATION: Before, during, or after planting; postemergence; postdirected; hooded; and preharvest in cotton varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR GLYPHOSATE-TOLERANT COTTON

- Applications of Touchdown Total to cotton varieties which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum preplant/preemergence rate is 3.6 qts./A.
- Make postemergence applications from ground cracking until the 4-leaf stage of cotton at a maximum of 48 fl. ozs./A per season with no more than 24 fl. ozs./A for any single application.
- Apply no more than 48 fl. ozs./season by precision, postdirected, or hooded application methods between the 5-leaf stage and lay-by. Apply no more than 24 fl. ozs./A for any single application by these methods.
- Apply a maximum of 2.9 qts./A by postemergence and directed/hooded applications from cracking to lay-by.
- Do not apply more than 24 fl. ozs./A by air; nor more than 48 fl. ozs./A by ground for preharvest.
- Preharvest applications must be made at least 7 days before harvest.
- Drift control agents may be used.

TANK MIXTURES (PREPLANT/PREEMERGENCE)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Caparol	Dual	Meturon
Command	Dual MAGNUM	Prowl
Cotoran	Dual II	Staple
Cotton-Pro	Dual II MAGNUM	Zorial
Cy-Pro	Karmex	2-4,D
Direx		

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

POSTEMERGENCE

Make postemergence applications from ground cracking until the 4-leaf (node) stage of development (until the fifth true leaf reaches the size of a quarter) at a maximum single application rate of 24 fl. ozs./A with no more than 48 fl. ozs./A per season. Sequential over the top applications of Touchdown Total must be at least 10 days apart and cotton must have at least two nodes of incremental growth between applications.

POSTDIRECTED OR HOODED APPLICATIONS

Touchdown Total may be used through precision postdirected or hooded sprayers through the lay-by stage of cotton. Applications that contact the cotton leaves may result in boll loss, delayed maturity, and/or loss of yield. Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Apply in 10 to 20 gallons of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Application Requirements:

- Postdirected applications should be used that directs the spray towards the base of the cotton plant. For best results, apply to weeds less than 3 inches tall being careful to minimize contact of the spray with cotton leaves.
- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

TANK MIXTURES (POSTDIRECTED OR HOODED)

Touchdown Total can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Tank Mixtures with Dual MAGNUM

Touchdown Total can be applied with Dual MAGNUM from cotton emergence through the 4-leaf (node) stage of development (until the 5th true leaf reaches the size of a quarter). Do not use additional AMS or adjutants. Do not use this mixture if cotton plants are under any type of stress including, but not limited to drought, insect, disease, or mechanicals. Occasionally following application, cotton leaves may exhibit necrotic spotting which will not affect normal plant development.

For use in the following states: AL, AR, AZ, CA, FL, GA, KS, KY, LA, MD, MO, MS, NC, NM, OK, SC, TN, TX, and VA.

Refer to the Dual MAGNUM label for precautions and restrictions.

SALVAGE TREATMENT

Touchdown Total may be used after the four leaf stage of development and should only be used where weeds threaten to cause a loss of crop. A rate of 24 fl. ozs./A may be applied either as a postemergence spray to the crop or a postdirected spray.

SALVAGE TREATMENTS WILL RESULT IN SIGNIFICANT BOLL LOSS, DELAYED MATURITY, AND/OR YIELD LOSS.

PREHARVEST

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. No enhancement of harvest aids will occur on glyphosate tolerant cotton. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

FALLOWLAND AND POSTHARVEST USE

METHOD OF APPLICATION: Chemical fallow; fallow beds; stale seedbeds; aid to tillage; and postharvest.

Touchdown Total may be applied by ground or air during the fallow period prior to planting or emergence of any crop listed on this label. There are no rotational crop restrictions following application of this product.

Chemical Fallow - Ecofallow

Touchdown Total may be used in place of tillage to control annual weeds or volunteer wheat in fallow fields. Repeat applications may be necessary to control weeds emerging after application. Refer to Table 1 for use rates and timing. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of annual weeds listed in Table 2. Tank mixing with atrazine may provide residual control.

Postharvest Chemical Fallow for Cereals

Touchdown Total may be applied after harvest to control newly emerged weeds, volunteer cereals, or weeds which were present at harvest. Allow sufficient time after harvest for weed regrowth to occur before making application. Refer to Table 1 for use rates and annual weeds controlled. Higher rates may be required for control of large weeds which were present at the time of harvest. Repeat applications may be necessary for fall germinating weeds. Broadcast or spot treatments of Touchdown Total will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of weeds listed in Table 2. A postharvest tank mix with atrazine may be used if the field will be planted to corn or sorghum or laid fallow the following season. A tank mix with atrazine may be

applied for residual control of certain annual weeds such as common lambsquarters, kochia, mustards, pigweeds, and volunteer wheat. Tank mixing with atrazine may result in reduced performance.

Aid to Tillage

Touchdown Total may be used in conjunction with tillage operations in fallow systems to control cheat, downy brome, foxtails, tansy mustard, and volunteer cereals. Apply 4 to 9 ozs./A of Touchdown Total in 3 to 10 gals. of water/A. Apply before weeds exceed 6 inches in height. Application must be followed by tillage no later than 15 days after treatment or before weed regrowth. Allow at least one day after application before tillage. Tank mixes with residual herbicides may reduce performance. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Fallow Beds/Stale Seedbeds

Touchdown Total may be used to control weeds in fallow or stale seedbeds, including preplant/preemergence of any crop. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** section for application rates and timing. Touchdown Total can be tank mixed with 2,4-D, dicamba, or Goal herbicide for improved control of certain weeds.

Tank Mixture with Goal Herbicide

Apply Touchdown Total at 6 to 12 ozs. with Goal herbicide at 2 to 3 ozs./A for control of chickweed, common cheeseweed, and common groundsel that are less than 3 inches in height or diameter. Apply Touchdown Total at 12 to 17 fl. ozs. with Goal at 2 to 3 ozs./A for control of common cheeseweed, common groundsel, and horseweed/marestail that are a maximum of 6 inches in height and length; or chickweed, London rocket, and shepherdspurse that are a maximum of 12 inches in height or length.

Postharvest Use

Touchdown Total may be applied after harvest of any crop to control newly emerged weeds, volunteer crops, or weeds which were present at harvest. Refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for use rates. Repeat applications may be necessary to control weeds emerging after application. Use the higher rate on heavy or sodded infestations.

GENERAL USE PRECAUTIONS FOR FALLOWLAND AND POSTHARVEST USE

- Allow sufficient time for weed regrowth to occur after harvest before making applications.
- Avoid application after plants have been exposed to a severe frost.
- Refer to the individual labels of all products used in a tank mix for precautionary statements, recropping intervals, restrictions, and a list of weeds controlled.
- Touchdown Total will not control volunteer glyphosate-tolerant crops.
- There are no rotational crop restrictions following application of this product.

FARMSTEADS (NONCROP)

METHOD OF APPLICATION: General nonselective weed control, trim-and-edge, chemical mowing, cut stumps, and habitat management.

Applications can be made in noncrop areas on the farm such as:

Barrier strips	Farmyards
Ditchbanks	Fence rows
Dry ditches and canals	Fuel storage areas
Equipment areas	Rights-of-way
Farm buildings	Shelterbelts
Farm roads	Soil bank land

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

TANK MIXTURES FOR FARMSTEADS

Refer to the **ANNUAL WEEDS CONTROLLED** section, Table 1, for application rates and timing. For annual weeds, use 0.7 to 2.9 qts./A of this product when weeds are less than 6 inches tall and 1.1 to 2.9 qts./A when weeds are greater than 6 inches tall.

Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. For perennial weeds, apply 1.5 to 3.6 qts./A in these tank mixes. For tank mixtures with these products through backpack sprayers, handguns, or other high-volume spray-to-wet applications, see the **APPLICATION EQUIPMENT AND TECHNIQUES** section of this label for recommended rates.

Touchdown Total can be tank mixed with the following products:

Banvel®	Simazine
Direx	Surflan
Diuron	2,4-D
Princep Caliber 90	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

CHEMICAL MOWING

Touchdown Total will suppress perennial grasses listed in this section to serve as a substitute for mowing. Apply Touchdown Total at a rate of 3 to 6 fl. ozs./A . Use 3 to 4 fl. ozs. of this product per acre when treating Kentucky bluegrass. Apply treatments in 10 to 20 gals. of spray solution per acre. Chemical mowing applications may be made along farm ditches and other parts of farmsteads.

Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

Cut Stumps

Alder	Salt-cedar
Eucalyptus	Sweetgum
Madrone	Tan oak
Oak	Willow
Reed, giant	

Touchdown Total will control regrowth of cut stumps and resprouts of many types of woody brush and tree species, some of which are listed. Apply Touchdown Total using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50 to 100% solution of Touchdown Total completely covering the freshly-cut surface immediately after cutting. Application delay may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

HABITAT MANAGEMENT

Habitat Restoration and Maintenance

Touchdown Total may be used to control exotic and other undesirable vegetation in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broad spectrum vegetation control requirements in habitat management areas. Spot treatments can be

made to selectively remove unwanted plants for habitat maintenance and enhancement. Touchdown Total can be tank mixed with the following products:

Banvel	Simazine
Direx	Surflan
Diuron	2,4-D
Princep Caliber 90	

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Wildlife Food Plots

Touchdown Total may be used for site preparation for control of annual and perennial weeds prior to planting wildlife food plots. Any wildlife food species may be planted or native species may be allowed to repopulate the area after applying Touchdown Total. If tillage is needed to prepare a seedbed, wait 7 days after application before tillage.

GENERAL USE PRECAUTIONS FOR FARMSTEADS

- Avoid contact with the foliage of ornamentals or other desirable plants.
- Repeat applications may be necessary.
- Avoid making cut stump applications as injury to adjacent trees may occur from root grafting.

GRASS SEED PRODUCTION

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; renovation; site preparation; shielded/hooded sprayers; wiper/wick applicators; spot treatments; creating rows in annual ryegrass.

Apply to turf or forage grass areas grown for seed production. Applications MUST be made prior to the emergence of the crop to avoid crop injury. For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

GENERAL USE PRECAUTIONS

- Do not disturb soil or underground plant parts before treatment. Tillage or renovation techniques such as vertical mowing, coring, or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.
- Do not feed or graze treated areas for 8 weeks following application.
- Vegetation contacted by Touchdown Total will be injured or killed.
- For spot treatments, apply prior to heading of grasses.

SHIELDED/HOODED SPRAYERS

Use Instructions: Apply 0.7 to 2.2 qts. of Touchdown Total in 10 to 20 gals. of water per acre to control weeds in the rows. Uniform planting in straight rows aids in shielded/hooded applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields/hoods.

WIPER/WICK APPLICATORS

Applicators should be adjusted so that the wiper contact point is at least 2 inches above the desirable vegetation. Weeds should be a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when height of weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. Better results may be obtained if 2 applications are made in opposite directions.

GRASSES

Touchdown Total can be used in the production of grasses listed below:

Bahiagrass
Bermudagrass
Bluegrass
Bromegrass
Fescue
Orchardgrass
Ryegrass
Timothy
Wheatgrass

METHOD OF APPLICATION: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

GENERAL USE PRECAUTIONS FOR GRASSES

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

TANK MIXTURES FOR GRASSES PREPLANT/PREEMERGENCE, DORMANT, OR RENOVATION

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

HERBS (PEPPERMINT, SPEARMINT)

Method of Application: Spot spray

Touchdown Total may be applied as a spot spray in peppermint and spearmint. Apply spray-to-wet with hand-held equipment, such as backpack and knapsack sprayers, pump-up pressure sprayers, handguns, handwands, or any other hand-held or motorized spray equipment used to direct the spray solution on to a limited area.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

GENERAL USE PRECAUTIONS

- Apply at least 7 days before harvest.
- Plants contacted by Touchdown Total will be injured or killed.

PASTURES

Touchdown Total can be used on pastures of the following types:

Alfalfa	Fescue
Bahiagrass	Orchardgrass
Bermudagrass	Ryegrass
Bluegrass	Timothy
Bromegrass	Wheatgrass
Clover	

METHOD OF APPLICATION: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

For best results, remove domesticated livestock 14 days before treatment. Allow 2-6 inches of new growth prior to treatment.

To aid in renovation of pastures, Touchdown Total may be applied at 8 to 46 ozs./A to dormant pastures. Applications of Touchdown Total to green, nondormant plant tissue of desirable species will cause stunting, plant injury, or plant death.

GENERAL USE PRECAUTIONS FOR PASTURES

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

TANK MIXTURES FOR PASTURES

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application

rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

PEANUTS

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

SMALL GRAINS

Touchdown Total may be used on the small grain crops listed below:

Barley	Rye
Buckwheat	Teosinte
Millet (pearl, proso)	Triticale
Oats	Wheat (all)
Rice	Wild rice

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; as a spot spray (except rice); preharvest (wheat only); postharvest; and wiper/wick (wheat only).

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SMALL GRAINS

- Apply at least 7 days before harvest at no more than 24 fl. ozs./A preharvest in wheat and feed barley.
- For wiper/wick applications in wheat, allow at least 35 days between application and harvest.

- Crop plants contacted by Touchdown Total will be injured or killed.
- Avoid treating rice fields or levees when the field contains flood water.

TANK MIXTURES FOR PREPLANT/PREEMERGENCE USE FOR SMALL GRAINS

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds. Under certain conditions, the mixture of Touchdown Total with one or more herbicide tank mix combinations may result in a reduction of activity.

Dicamba
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PREHARVEST (Wheat and Feed Barley Only)

Touchdown Total may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total should be applied after the hard dough stage of grain (30% or less grain moisture). Cool, wet, and/or cloudy weather conditions following application may slow down the activity of this product. Do not apply a preharvest treatment on grain grown for seed as a reduction in germination or vigor may occur.

RED RICE CONTROL PRIOR TO PLANTING RICE

Prior to application, flush fields to promote uniform germination of red rice. Apply Touchdown Total at 36 to 48 fl. ozs./A on red rice with at least 2 leaves and which is no more than 4 inches tall. Red rice with less than 2 developed leaves at the time of application may be only partially controlled.

Do not reflood rice fields for 8 days following application.

SORGHUM (Milo)

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; hooded sprayers; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SORGHUM

- Contact with sorghum foliage may result in crop injury.
- Spot applications must be made before heading of milo.
- Wiper and wick applications must be made 40 days before harvest. Do not feed or graze wiper/wick treated milo fodder. Do not ensile wiper/wick treated foliage.
- Apply no more than 2.2 qts./A per season by hooded applications.
- Do not feed or graze sorghum forage and fodder after hooded applications.
- Preharvest applications must be made at least 7 days prior to harvest with a maximum of 1.4 qts./A.

TANK MIXTURES FOR SORGHUM (PREPLANT/PREEMERGENCE)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

Touchdown Total can be tank mixed with the following products:

Atrazine	Dicamba	Guardsman
Bicep Lite II	Dual II	Karate
Bicep Lite II MAGNUM	Dual II MAGNUM	Prowl
Bicep II	Frontier	Warrior
Bicep II MAGNUM		

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

HOODED SPRAYS

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised

seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply Touchdown Total when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground. Treat before tillers extend between the drill rows as spray contacting these tillers may kill the main plant.
- Sorghum must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max herbicide may be considered for hooded sprayer applications in sorghum. Use Gramoxone Max at 0.75 to 1.25 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

PREHARVEST (EXCEPT CALIFORNIA)

For weed control and desiccation of sorghum, apply 24 to 48 fl. ozs./A. Apply in 3 to 30 gallons of water per acre by ground or in 3 to 15 gallons of water per acre by air.

Apply after most of the heads have matured. Apply when grain moisture is 30% or less. Development of immature heads will be interrupted and yield potential will be affected when applications are made too early. Do not apply a preharvest treatment on sorghum grown for seed as a reduction in germination or vigor may occur.

SOYBEANS (NOT GLYPHOSATE-TOLERANT)

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; preharvest; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SOYBEANS

- Soybeans, except glyphosate-tolerant varieties, will be injured or killed when contacted with Touchdown Total.
- Spot application must be made prior to initial pod set.
- Wiper/wick application must be made at least 7 days before harvest.
- Make preharvest applications at least 7 days before harvest of soybeans with no more than 4.3 qts./A by ground; and no more than 24 fl. ozs./A by air.
- Allow at least 25 days before grazing or harvesting for livestock feed following harvest aid application.

TANK MIXTURES FOR SOYBEANS (PREPLANT/PREEMERGENCE)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply Touchdown Total at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of Touchdown Total.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

For use with 2,4-D on perennial weeds, consult Table 3.

Touchdown Total can be tank mixed with the following products:

Authority™	Dual II MAGNUM	Lexone	Reflex®
Authority Broadleaf	FirstRate™	Linex	Scepter®
Broadstrike	Flexstar®	Lorox	Sencor
Canopy®	Frontier	Lorox Plus	Squadron®
Canopy XL	Fusilade®	Partner®	Steel™
Command®	Fusion®	Preview®	Turbo®
Cover™	Gemini®	Prowl	Warrior
Dual	Karate	Pursuit	2,4-D
Dual MAGNUM	Lasso	Pursuit Plus	2,4-DB
Dual II			

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PREHARVEST

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans and may aid in crop dry down. Apply to mature soybeans when pods have lost their color. Do not apply a preharvest treatment to soybeans grown for seed as a reduction in germination or vigor may occur.

SOYBEANS, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY SOYBEANS)

METHOD OF APPLICATION: Before, during, or after planting; postemergence; and preharvest in soybean varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR GLYPHOSATE-TOLERANCE SOYBEANS

- Applications of SYN–1219 prior to soybean emergence should not exceed a total of 3.6 qts./A.
- Make postemergence applications from cracking throughout flowering of soybeans at a maximum of 2.2 qts. per season with no more than 48 fl. ozs./A for any single application.
- Make preharvest applications at least 14 days before harvest with no more than 24 fl. ozs./A.
- All SYN–1219 applications for a soybean crop should not exceed a total of 5.8 qts./year.
- Do not graze or harvest for forage or hay.
- Drift control agents may be used.

PREPLANT/PREEMERGENCE

Touchdown Total may be used as a broadcast spray to control emerged annual and perennial weeds. Apply before, during, or after planting of soybeans. Touchdown Total

can be tank mixed with the following products:

Authority	Dual II	Lexone	Reflex
Authority Broadleaf	Dual II MAGNUM	Linex	Scepter
Boundary	FirstRate	Lorox	Sencor
Broadstrike	Flexstar	Lorox Plus	Squadron
Canopy	Frontier	Partner	Steel
Canopy XL	Fusilade	Preview	Turbo
Command	Fusion	Prowl	Warrior
Cover	Gemini	Pursuit	2,4-D
Dual	Karate	Pursuit Plus	2,4-DB
Dual MAGNUM	Lasso		

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

POSTEMERGENCE

ANNUAL WEEDS

Apply Touchdown Total at 12 to 48 fl. ozs./A from cracking through full flowering of soybean plants to control annual weeds. For best results, make the first application of Touchdown Total at 24 fl. ozs./A within 30 days after planting on weeds up to 6 inches tall. Refer to Table 1 for specific rate information. Touchdown Total will not provide residual control. To control new weed flushes, repeat applications may be required.

PERENNIAL WEEDS

Apply Touchdown Total at 24 to 48 fl. ozs./A to actively growing perennial grasses, sedges, and broadleaf weeds. Applications in crop on glyphosate-tolerant soybeans normally occur before perennial weeds reach the most desirable growth stage for control. Treatments made prior to the timing designated in Table 3 may require retreatment. Best control will be obtained when perennial broadleaf weeds are treated in the early bud to flowering stage and when perennial grasses are in the boot to seedhead stage. Refer to Table 3 for additional rate and timing information.

TANK MIXTURES

Touchdown Total may be tank mixed with one or more of the following products:

Basagran®	Pursuit
Classic®	Raptor™
FirstRate	Reflex
Flexstar	Reliance™ STS®
Fusilade	Scepter
Fusion	Synchrony® STS®

Karate	Warrior
Pinnacle®	2,4-DB

Use a minimum of 12 to 17 fl. ozs./A Touchdown Total in mixture with postemergent tank mix herbicides on 3 inch tall weeds. Use a minimum of 17 to 24 fl. ozs./A Touchdown Total in mixture with postemergent tank mix herbicides on 3-6 inch tall weeds. Under certain conditions, the mixture of Touchdown Total with one or more of the above mentioned herbicides may result in a reduction of activity. Tank mixes can result in increased crop injury as compared to either product used alone. Refer to individual product labels for precautionary statements, restrictions, rates, and list of weeds controlled.

PREHARVEST

Touchdown Total may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. Touchdown Total provides weed control when applied preharvest to soybeans. Apply to mature soybeans when pods have lost their color.

SUGARCANE

METHOD OF APPLICATION: Before, during, or after planting, but before emergence of plant cane; spot spray; hooded sprayers; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SUGARCANE

- Do not apply to vegetation in or around ditches, canals, or ponds containing water.
- Do not feed or graze treated sugarcane foliage following spot spray application.
- Avoid contact with sugarcane foliage, as severe damage or destruction may result.

TANK MIXTURES FOR PREPLANT/PREEMERGENCE USE FOR SUGARCANE

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Atrazine	Lexone/Sencor
Banvel	Prowl
Clarity	Trifluralin
Karmex	2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

HOODED SPRAYS

Touchdown Total may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

SUGARCANE RIPENING

To hasten ripening and extend the period of high sucrose levels in sugarcane see the following recommended use rates and application timing for each state listed.

LA – Apply 2, 3, 6–13 fl. ozs./A 3–5 weeks before harvest of **ratoon cane only.**
TX – Apply 2, 3, 6–13 fl. ozs./A 3–5 weeks before harvest of **ratoon cane only.**
FL – Apply 2, 3, 6–13 fl. ozs./A 3–5 weeks before harvest of **last ratoon cane only.**
HI – Apply 2, 3, 6–13 fl. ozs./A 4–10 weeks before harvest.
PR –Apply 2, 3–6 fl. ozs./A 3–5 weeks before harvest of **ratoon cane only.**

Use of this product may not increase sucrose content control under conditions of good natural ripening.

FALLOW TREATMENTS

For removal of the last stubble of ratoon cane between sugarcane crops, apply 3.0 to 3.6 qts. in 10 to 40 gals. of water per acre to new growth having at least 7 new leaves. Allow 7 days between application and tillage.

SUNFLOWER

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SUNFLOWER

- Make only one preplant or preemergence application with no more than 24 fl. ozs./A.
- Do not graze or feed sunflower forage.
- Avoid contact with sunflower foliage.

TANK MIXTURES FOR PREPLANT/PREEMERGENCE USE FOR SUNFLOWER

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 1.5 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Eptam
Prowl
Trifluralin

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

VEGETABLE CROPS

Touchdown Total may be used on the vegetable crops listed below:

Amaranth
Arrugula
Artichoke (Jerusalem)
Asparagus
Beans (all)
Beet, garden
Beet, sugar
Broccoli (all)
Brussels Sprouts
Cabbage (all)
Cabbage (Chinese)
Cantaloupe
Cardoon
Carrot
Casaba
Cavalo Broccolo
Cauliflower
Celeriac
Celery
Celery (Chinese)
Celtuce
Chard (Swiss)
Chayote
Chervil
Chick peas
Chicory
Chrysanthemum
Collards
Corn salad
Cress
Cucumber
Dandelion
Dock (sorrel)
Eggplant
Endive
Fennel (Florence)
Garlic
Gherkin
Ginseng
Gourd, edible
Groundcherry
Guar
Horseradish
Kale
Kohlrabi
Leeks
Lentils
Lettuce
Melons (all including citron, crenshaw, honey balls,
honeydew, mango, musk, Persian)
Mizuna
Mustard greens
Okra
Onions (green, spring, Japanese bunching)
Parsley, turnip-rooted
Parsnip
Peas (all)
Pepinos
Pepper (all)
Potato (Irish)
Pumpkin
Purslane
Radish
Radish, oriental (daikon)
Rape greens
Rhubarb
Rutabaga
Salsify, black
Salsify (oyster plant)
Salsify (Spanish)
Shallots
Spinach (all)
Spinach, mustard
Squash (summer, winter)
Sweet potato
Tomatillo
Tomato
Turnip
Watercress
Watermelon
Yams

METHOD OF APPLICATION: Broadcast application before transplanting or before, during, or after planting but prior to crop emergence if direct seeded; spot spray; wiper/wick (rutabaga only); postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** for application rates and timing.

GENERAL USE PRECAUTIONS FOR VEGETABLE CROPS

- For **Asparagus,** do not apply broadcast within one week of emergence of first spears. Spot applications can be made immediately after cutting, but before emergence. Spears can be harvested 5 days after spot application. Postharvest applications can be made as a directed or shielded spray avoiding contact of the spray with the ferns, stems, or spears.

- Wait 3 days after application before planting cantaloupe, casaba, chayote, Chinese okra, Chinese waxgourd, cucumber, cucuzza, edible gourd, eggplant, gherkin, gourds, groundcherry, melons (all), pepper (all), pumpkin, squash, tomatillo, watercress, and watermelon.

- If transplanting into plastic mulch, ensure residues of this product are removed from the plastic prior to transplanting. Residues can be removed by a minimum of ½ inch of sprinkler irrigation or rainfall.

- Wiper/wick applications to rutabagas must be made at least 14 days before harvest.

TANK MIXTURES WITH RESIDUAL HERBICIDES FOR PREPLANT/PREEMERGENCE USE IN VEGETABLES

Touchdown Total can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply Touchdown Total at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol	Lorox
Command	Matrix®
Dual MAGNUM	Prefar®
Dual II MAGNUM	Prowl
Fusilade DX	Sencor
Goal	Trifluralin

Kerb
Lexone
Treflan®
Turbo

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

WEEDS CONTROLLED

Water volumes of 3 to 40 gallons per acre by ground equipment and 3 to 15 gallons by air are recommended. Use the minimum spray volume that provides adequate coverage.

When tank mixing with residual herbicides, refer to the individual crop section for recommendations.

Apply to actively growing weeds.

Table 1. Annual Weed Control – Touchdown Total Rates

Use the higher end of the rate range when stressful growing conditions or dense plant populations exist.

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Anoda, spurred	*Anoda cristata*	17–24	24–30			
Barley	*Hordeum vulgare*				12–17	17–24
Barnyardgrass	*Echinochloa crus-galli*	24	17–24	24–35		
Bassia, fivehook	*Bassia hyssopifolia*		24			
Bittercress	*Cardamine* spp.			6–12	12–17	
Bluegrass, annual	*Poa annua*			6–12		
Bluegrass, bulbous	*Poa bulbosa*			6–12		
Bristly starbur	*Ancanthospornum hispidum*		12–17	17–24		
Brome, downy[1]	*Bromus tectorum*		9–12	12–17		
Brome, Japanese	*Bromus japonicus*		6–12	12–17		17–24
Browntop panicum	*Panicum fasciculatum*		6–12	17–24		26–35
Buckwheat, wild[2]	*Polygonum convolvulus*	24				
Buffalobur	*Solanum rostratum*	17–24	24–36	24–36		

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Burcucumber	*Sicyos angulatus*		12–17	17–24		
Burgherkin	*Cucumis anguria*	17–24	24–36			
Buttercup [3]	*Ranunculus* spp.			6–12	12–17	
Camphorweed	*Heterotheca subaxillaris*		24–36			
Canarygrass	*Phalaris canariensis*		17–24			
Carolina geranium[4]	*Geranium carolinianum*	17–24	24–36			
Carpetweed	*Mullugo verticillata*		12–17	17–24		
Cheat	*Bromus secalinus*		6–12		12–17	
Chervil	*Anthriscus cerefolium*				6–12	
Chickweed, common	*Stellaria media*			6–17	17–24	
Chickweed, mouseear	*Cerastium vulgatum*		6–12	6–17	17–24	
Citronmelon	*Citrullus lanatus*	17–24	24–35			
Cocklebur, common	*Xanthium strumarium*			6–12	12–17	17–24
Coffee senna	*Cassia occidentalis*	17–24	24–35			
Corn[5]	*Zea mays*		6–12	12–17		17–24
Corn speedwell	*Veronica arvensis*			6–12		
Cowpea	*Vigna unguiculata*	17–24	24–35			
Crabgrass[6]	*Digitaria* spp.	12	12–17	17–24		
Crotalaria, showy	*Crotalaria spectabilis*	12–17	17–24	24–35		
Croton, tropic	*Croton glandulosus*	17–24	24–35			
Crowfootgrass	*Dactyloctenium aegyptium*	6–12	12–24	24–48		
Cutleaf eveningprimrose[4]	*Oenothera laciniata*	17–24	26–35			
Devil's–claw (unicorn plant)	*Proboscidea louisianica*	17	24			
Dwarfdandelion	*Krigia cespitosa*				6–12	
Eastern mannagrass			6–12	12–17		
Eclipta	*Eclipta prostrata*	12–17	17–24	24–35		

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Fall panicum	*Panicum dichotomiflorum*	6–12	17–24	24–35		26–35
Falsedandelion	*Pyrrhopappus carolinianus*				12–17	
Falseflax, smallseed	*Camelina microcarpa*			6–12		
Fiddleneck	*Amsinckia* spp.		17	24–35		
Filaree	*Erodium* spp.		17–24	24–35		
Fleabane, annual	*Erigeron annus*		6–12		12–17	
Fleabane, hairy	*Conyza bonariensis*		17–24	24–35		
Fleabane, rough	*Erigeron strigosus*	6–12	12–17	17–24		
Florida beggarweed	*Desmodium tortuosum*		12–17	17–24		
Florida pusley	*Richardia scabra*	17–24	24–35			
Foxtails	*Setaria* spp.		6–12	12–17	17–24	
Goatgrass, jointed	*Aegilops cylindrica*		6–12	12–17		
Goosefoot, neetleleaf	*Chenopodium murale*		24–35			
Goosegrass	*Eleusine indica*	12–17	17–24	24–35		
Grain sorghum (milo)	*Sorghum bicolor*		6–12	12–17	17–24	
Groundcherry	*Physalis sp.*		24–35			
Groundsel, common	*Senecio vulgaris*		12–17			
Hemp sesbania	*Sesbania exaltata*	12–17	24–29	29–36		
Henbit	*Lamium amplexicaule*		17–24	26–35		
Hophornbeam copperleaf	*Acalypha ostryifolia*	17–23	26–35			
Horseweed/Marestail[8]	*Conyza canadensis*		12–17	17–24	24–35	
Itchgrass	*Rottboellia cochinchinensis*		6–12	17–24	24–35	
Jimsonweed	*Datura stramonium*			17–24	24–35	
Johnsongrass, seedling	*Sorghum halepense*		6–12	12–17	17–24	24–35
Junglerice	*Echinochloa colona*	12–17	17–24	24–35		
Knotweed	*Polygonum aviculare*		17–24	24–35		
Kochia[3]	*Kochia scoparia*		12–17	17–24		

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Lambsquarters, common	*Chenopodium album*		12–17	17–24	24–35	
Lettuce, prickly	*Lactuca serriola*		12–17	17–24		
Little barley	*Hordeum pussillum*		6–12	12–17		
London rocket	*Sisymbrium irio*		6–12			17–24
Mayweed	*Anthemis cotula*	12–17	17–24		24–35	
Morningglory [4, 7]	*Ipomoea* spp.	17–24	24–35			
Mustard, blue	*Chorispora tenella*		6–12	12–17	17–24	
Mustard, tansy	*Descurainia pinnata*		6–12	12–17	17–24	
Mustard, tumble	*Sisymbrium altissimum*		6–12	12–17	17–24	
Mustard, wild	*Brassica kaber*		6–12	12–17	17–24	
Nightshade, black	*Solanum nigrum*	17	17–24	24–35		
Nightshade, hairy	*Solanum sarrachoides Sendtner*	17	17–24	24–35		
Oats	*Avena sativa*	12	12–17		17–24	
Oats, wild	*Avena fatua*	12	12–17		17–24	
Panicum, Texas	*Panicum texanum*		6–12	17–23		24–35
Pennycress, field	*Thlaspi arvense*		6–12	12–17		
Pigweed	*Amaranthus* spp.			12–17	17–24	24–29
Poinsettia, wild	*Euphorbia heterophylla*	12–17	24–35			
Prickly sida (Teaweed) [4, 7]	*Sida spinosa*	17–24	24–35			
Puncturevine	*Tribulus terrestris*	17–24	24–35			
Purslane, common	*Portulaca oleracea*	17–24	24–35			
Rabbitfootgrass	*Polypogon monspeliensis*		17–24			
Ragweed, common	*Ambrosia artemisiifolia*		12–17	17–24	24–35	
Ragweed, giant	*Ambrosia trifida*		12–17	17–24	24–35	
Red rice	*Oryza sativa*	17–24				
Redweed	*Melochia corchorifolia*	17–24	24–35			
Rockpurslane Redmaids	*Calandrinia sp.*		17–24			
Rye	*Secale cereale*		6–12		17–24	24–35

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Ryegrass, Italian	*Lolium multiflorum*		17–24	24–35		
Sandbur, field	*Cenchrus incertus*		12	12–17		
Sandbur, southern	*Cenchrus echinatus*	6–12	12–17	17–24		
Shattercane	*Sorghum bicolor*		6–12	12–17	17–24	
Shepherdspurse	*Capsella bursa-pastoris*		6–12	12–17		
Sicklepod	*Cassia obtusifolia*	17–24	24–35			
Signalgrass, broadleaf	*Brachiaria platyphylla*	12–17	17–24	24–35		
Smartweed (ladysthumb)	*Polygonum persicaria*		17–24	24–35		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		17–24	24–35		
Sowthistle, annual	*Sonchus oleraceus*		17–24	24–35		
Spanishneedles	*Bidens bipinnata*		17–24	24–35		
Speedwell, purslane	*Veronica peregrina*			6–12		
Sprangletop	*Leptochloa* spp.		6–12	12–17	17–24	
Spurge, prostrate	*Euphorbia* spp.		12–17	17–24		
Spurge, spotted	*Euphorbia maculata*		12–17	17–24		
Spurry, umbrella	*Holosteum umbellatum*		12–17			
Stinkgrass	*Eragrostis cilianensis*			12–17		
Sunflower, common	*Helianthus annuus*			6–12	12–17	
Thistle, Russian	*Salsola iberica*		17–24	24–35		
Velvetleaf	*Abutilon theophrasti*		17–24	24–35		
Virginia copperleaf	*Acalypha virginica*	17–24	24–35			
Virginia pepperweed	*Lepidium virginicum*				12–17	
Waterhemp	*Amaranthus* spp.		17–24	24–35		
Wheat	*Triticum aestivum*		6–12	12–17	17–24	
Wild Buckwheat	*Polygonum convolvulus*		17–24	24–36		
Wild-proso millet	*Panicum miliaceum*		17	24	35	
Witchgrass	*Panicum capillare*			12–17		
Woolly cupgrass	*Eriochloa villosa*		12–17	17–24		

WEED SPECIES	SCIENTIFIC NAME	Touchdown Total FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Yellow rocket	*Barbarea vulgaris*			12–17	17–24	

1 In no-till systems, use 17 oz./A.
2 Maximum runner length. For control of wild buckwheat >3" in runner length, use sequential applications of 24 ozs./A.
3 Control will be reduced at the button stage.
4 When the predominant weed species include Carolina geranium, cutleaf eveningprimrose, and henbit that are less than 6 inches tall, Gramoxone Max should be considered as an alternative.
5 Will not control glyphosate-tolerant volunteer corn.
6 Plant diameter.
7 Multiple applications may be required.
8 Will not control glyphosate–tolerant marestail/horseweed. Glyphosate–tolerant biotypes can be controlled by timely application of Gramoxone Max plus either 2,4-D and/or a PSI herbicide prior to planting.

Table 2. Annual Weed Control – Touchdown Total Rates in a Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	MAXIMUM HEIGHT/ LENGTH	Touchdown Total FLUID OUNCES PER ACRE
Kochia (dicamba only)	*Kochia scoparia*	6"	12–17
Lettuce, prickly	*Lactuca serriola*		
Morningglory	*Ipomoea* spp.		
Ragweed, common	*Ambrosia artemisiifolia*		
Ragweed, giant	*Ambrosia trifida*		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		
Velvetleaf	*Abutilon theophrasti*		
Cocklebur, common	*Xanthium strumarium*	12"	
Fleabane, rough	*Erigeron strigosus*		
Horseweed/Marestail*	*Conyza canadensis*		
Kochia	*Kochia scoparia*		
Lambsquarters, common	*Chenopodium album*		
Pigweed	*Amaranthus* spp.		
Sunflower, common	*Helianthus annuus*		
Thistle, Russian	*Salsola iberica*		

Read and follow dicamba and 2,4-D labels

*Glypyhosate–tolerant biotypes less than 3 inches tall can be controlled by Gramoxone Max plus either 2,4-D or a triazine-based herbicide.

Table 3. Perennial Weed Control and Weed Management – Touchdown Total Rates Used Alone or in Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Alfalfa	*Medicago sativa*	1.5	1-1.5		At 6-8 inch stage or more after final cutting in fall. Deep till 7 days after treatment.
Artichoke, Jerusalem	*Helianthus tuberosus*	1.5	2.2-3.6		At or after flowering.
Balsam-apple [1]	*Momordica charantia*	1.5			Apply at or beyond bloom.
Bahiagrass	*Paspalum notatum*	1.5	2.2-3.6		Early seedhead stage.
Barley, foxtail	*Hordeum jubatum*	1.5	0.75-1.6		4-6 inch stage.
Bentgrass	*Agrostis* spp.	1.5	1.1		Should have at least 3 inches of growth. Ensure entire crown area has resumed growth prior to fall application. Till 7-10 days after application.
Bermudagrass	*Cynodon dactylon*	1.5	2.2-3.6		Seedheads present; may require retreatment.
Bermudagrass, water (knotgrass)		1.5	1.1		Apply when water bermudagrass is 12-18 inches in length. Allow 7 days before flushing or flooding the field. Not registered for use in California on this weed.
Bindweed, field	*Convolvulus arvensis*	1.5	2.7-3.6		At or after flowering, west of Mississippi River, in late summer for best results.
			2.2-2.7		At or after flowering, east of Mississippi River, in late summer for best results
			1.4	Yes	At or after flowering for control, multiple applications may be required. Do not apply by air.
			0.7-1.4	Yes	For suppression on irrigated agricultural land, by ground equipment only. Apply in fall or following harvest on runners 12 inches or more in length.
Bindweed, field (continued)	*Convolvulus arvensis*		0.4	Yes	For suppression by ground or aerial applications. Apply by air in fallow and reduced tillage systems only. Applications should be delayed until maximum emergence has occurred and when vines are between 6-18 inches in length.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
			0.7-3.6		**In California**: Apply at 12 inches or greater runner length. Use high end of rate range where dense populations exist. For suppression on land which is irrigated and tilled, use 0.7 qt./A.
Bluegrass, Kentucky	*Poa pratensis*	1.5	0.75-1.4		Apply at boot to early seedhead stage.
			0.75–1.1		For partial control in pasture or hay crop renovation, apply when plants are 4-12 inches.
Blueweed, Texas	*Helianthus ciliaris*	1.5	2.7-3.6		Apply at or beyond bloom west of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
			2.2-2.7		Apply at or beyond bloom east of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
Brackenfern	*Pteridium aquilinum*	0.7-1.1	2.2–3.3		Fronds fully expanded and at least 18 inches long.
Bromegrass, smooth	*Bromus inermis*	1.5	0.75-1.6		Apply when most plants are at the boot to early seedhead stage.
			0.75-1.1		For partial control in pasture or hay crop renovation, apply to actively growing plants 4-12 inches in height.
Bursage, woollyleaf	*Ambrosia grayi*	1.5	1.4	Yes	Apply to actively growing plants at or beyond flowering.
			0.75	Yes [1]	Apply to actively growing plants at or beyond flowering.
Canarygrass, reed	*Phalaris arundinacea*	1.5	1.6-2.2		Boot to head.
Cattail	*Typha* spp.	1.5	2.2-3.6		Early head to early bud.
Clover, red Clover, white	*Trifolium pratense* *Trifolium repens*	1.5	2.2-3.6		Early head to early bud. May require retreatment.
Cogongrass	*Imperata cylindrica*	1.5	2.2-3.6		Late summer/fall, greater than 18 inches in height. May require retreatment.
Dallisgrass	*Paspalum dilatatum*	1.5	2.2-3.6		Early head to early bud.
Dandelion	*Taraxacum officinale*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dayflower[1]	*Commelina* spp.	1.5	1.1-1.6		Less than 4 inches in height.
Dock, curly	*Rumex crispus*	1.5	2.2-3.6		Early bud.
			0.4	Yes	Early bud.
Dogbane, hemp	*Apocynum cannabinum*	1.5	3.3		Late bud to flower. May require retreatment.
			0.4	Yes	Actively growing at 6-12 inch stage for suppression.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Dogfennel	*Eupatorium capillifolium*	1.5	2.2-3.6		Actively growing, less than 12 inches in height.
Fescue	*Festuca* spp.	1.5	2.2-3.6		Apply when most plants have reached the early head stage.
Fescue, tall	*Festuca arundinacea*	1.5	0.75-2.2		Apply 2.2 qts./A when most plants have reached boot to early seedhead stage. Fall applications only: Apply 0.75 qt./A when plants are 6-12 inches in height. A spring applied sequential treatment of 0.75 pt./A will improve long term control.
Goatweed	*Scoparia dulcis*	1.5	1.4-2.2		Less than 8 inch stage.
Guineagrass	*Panicum maximum*	0.7	1.6-2.2		7-10 leaf stage.
Horsenettle	*Solanum carolinense*	1.5	2.2–3.6		Early bud stage
Horseradish	*Armoracia rusticana*	1.5	3.3		Apply when most plants have reached the late bud to early flower stage in late summer or fall.
Iceplant	*Mesembryanthemum crystallinum*	1.1–1.5	–		At or beyond the early bud stage.
Johnsongrass	*Sorghum halepense*	0.7	0.4-2.2		Apply at boot to head stage and in the fall prior to frost. Use 0.7 to 1.4 qts./A for annual tillage systems. Use 1.4 to 2.2 qts./A on no-till acres. Allow 3-7 days before tillage.
			0.4		For burndown, apply when plants are 12 inches in height and allow 3 days before tillage.
Kikuyugrass	*Pennisetum clandestinum*	1.5	1.6-2.2		Spray when most kikuyugrass is at least 8 inches in height. Allow 3 or more days after application before tillage.
Knapweed	*Centaurea* spp.	1.5	3.3		Apply in fall at late bud to flower stage.
Lantana, largeleaf[1]	*Lantana camara*	1.0	–		Apply at or beyond bloom stage.
Lespedeza	*Lespedeza spp.*	1.5	2.2-3.6		Apply when most plants have reached the early bud stage.
Milkweed, common	*Asclepias syriaca*	1.5	2.2	Yes	Apply when most plants have reached the early bud stage.
Milkweed, honeyvine	*Ampelamus albidus*	1.5	1.6-3.3	Yes	Late bud to early flower. May require retreatment.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Muhly, wirestem	*Muhlenbergia frondosa*	1.5	0.75-1.6		Use 0.75 to 1.6 qts./A in pasture, sod, or noncrop areas. Spray plants 8 inches or more in height. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage.
Mullein, common	*Verbascum thapsus*	1.5	2.2-3.6		Early bud.
Napiergrass	*Pennistum purpureum*	1.5	2.2-3.6		Early head stage.
Nightshade, silverleaf	*Solanum eleagnifolium*	1.5	1.6		Apply when 60% of plants have berries. Apply fall treatments before a killing frost.
Nutsedge, purple Nutsedge, yellow	*Cyperus rotundus* *Cyperus esculentus*	0.7-1.5	0.4-2.2		Apply 2.2 qts./A for control of nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Sequential applications: 0.7–1.4 qts./A applied to plants in the 3-5 leaf stage or less than 6 inches tall. Repeat treatments at this stage for long term control. For partial control: apply 0.4–1.4 qts. per acre. Treat when plants have 3-5 leaves or less than 6 inches tall. Repeat treatments at this stage for long term control.
Orchardgrass	*Dactylis glomerata*	1.5	0.75-1.6		Apply 1.4 qts./A on plants at early boot to seedhead stage. For partial control in pasture or hay crop renovation, apply 0.75–1.1 qts./A. Apply to actively growing plants 4-12 inches in height. In orchardgrass sods rotated to no-till corn: Apply 0.75–1.1 qts. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be required for optimum results.
Pampasgrass[1]	*Erianthus ravennae*	1.0-1.5			Apply at or beyond boot stage.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Paragrass	*Brachiaria mutica*	1.5	2.2-3.6		Early seedhead stage.
Phaseybean[1]	*Phaseolus lathyroides*	1.5	1.6-3.3		Less than 8 inches tall.
Phragmites[1]	*Phragmites* spp.	1.0-1.5	2.2-3.6		For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Repeat treatments may be necessary. Visual control symptoms will be slow to develop.
Poison hemlock	*Conium maculatum*	1.0-1.5			Apply as a spray to wet treatment. Optimum results are obtained when plants are treated at the bud to full-bloom stage of growth.
Pokeweed, common	*Phytolacca americana*	1.5	1.1		Apply to actively growing plants up to 24 inches in height.
Quackgrass	*Agropyron repens*	1.5	0.75-2.2		Apply 0.75–2.2 qts./A in annual cropping systems, or in pastures and sods where deep tillage is used. Do not tank mix with a residual herbicide at the 0.75 qt. rate. Spray when quackgrass is 6-8 inches in height. Do not till between harvest and fall applications or in the fall or spring prior to spring application. Allow 3 or more days after application before tillage.
			1.6-2.2		Apply in pastures, sod, or noncrop areas where deep tillage will not follow the application. Spray when quackgrass is at least 8 inches in height.
Redvine[1]	*Brunnichia ovata*	1.5	0.5-1.6		For suppression, apply 0.5 qt./A at each of two applications 7-14 days apart or a single application of 1.6 qts./A. Apply to plants greater than 18 inches tall in September/October to plants which have been growing 45-60 days since the last tillage. Make application at least 1 week prior to killing frost.
Ryegrass, perennial	*Lolium perenne*	1.0	0.75-2.2		Apply 0.7–2.2 qts./A when most plants are in the boot to head stage or prior to frost. In noncrop or areas where no tillage is practiced, use 1.6–2.2 qts./A. Do not tank mix with residual herbicides when using the 0.75 qt./A per acre rate.
Smallflowered Alexandergrass	*Brachiaria subquadripara*	1.5	1.6-3.3		Less than 4 inches in height, actively growing

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Smartweed, swamp	*Polygonum coccineum*	1.5	2.2—.6		Early bud, 12 inch stage.
			0.4	Yes	Early bud, 12 inch stage.
Sowthistle, perennial	*Sonchus arvensis*	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage.
Spurge, leafy	*Euphorbia esula*	1.5	0.4	Yes	For suppression: greater than 12 inches tall in late summer.
Sweet potato, wild [1]	*Ipomea pandurata*	1.5			*Apply at or beyond flowering stage.*
Switchgrass	*Panicum virgatum*	1.5	1.1-2.2		Boot to head stage.
Thistle, artichoke [1]	*Cynara cardunculus*	1.5			Apply when plants are beyond the bloom stage.
Thistle, Canada	*Cirsium arvense*	1.5	1.6-2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage. For fall applications or following mowing, allow a minimum of 6-8 inches rosette development.
			0.4-0.7	Yes	For suppression: Apply in late summer or fall after harvest, mowing, or tillage. Allow rosette regrowth to be a minimum of 6 inches in diameter before treating. Allow 3 or more days before tillage.
Timothy	*Phleum pratense*	1.5	1.6-2.2		Boot to head; wait 3 days before tillage
Torpedograss[1]	*Panicum repens*	1.5	2.7-3.6		At or beyond seedhead. Repeat applications will be required to maintain control. Fall treatments must be made prior to a killing frost.
Trumpetcreeper[1]	*Campsis radicans*	1.5	1.6		Late September/October applications on actively growing plants at least 18 inches in height; retreatment may be required. Make applications at least one week before killing frost.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Vaseygrass	*Paspalum urvillei*	1.5	2.2-3.6		Apply at early head stage.
Vetch	*Vicia* spp.	1.5	1.4-2.9		Boot to head.
Virginia creeper	*Parthenocissus quinquefolia*	1.5	3.3		Full leaf expansion.
Velvetgrass	*Holcus* spp.	1.5	2.2-3.6		Early head stage
Wheatgrass, western	*Agropyron smithii*	1.5	2.6-2.2		Boot to head.

[1] Partial control.

Table 4. Woody Brush and Trees Controlled

Apply Touchdown Total after full leaf expansion, unless otherwise directed. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. In most areas, best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring to early summer when brush species are at high moisture content and are flowering.

Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing, or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Reduced performance may result if fall treatments are made following a frost.

When plants are growing under stressed conditions, or where infestations are dense, Touchdown Total may be used at 3.6 to 7.6 quarts per acre or a 0.7 to 1.5% solution for spot spray clean-up.

The following are controlled with 1.6 to 2.2 qts.[1]	
Birch	Rose, multiflora
Cherry; bitter, black, pin	Salmonberry
Elderberry	Sweetgum
Hawthorn	Thimbleberry
Hazel	Trumpetcreeper
Oak, southern red	
The following are controlled with 2.2 to 3.3 qts.[1]	
Alder	Oak, post
Blackberry	Quaking Aspen
Honeysuckle	Willow
The following are controlled with 2.7 to 3.6 qts.[1]	
Kudzu	
Poison ivy/Poison oak	
The following are controlled with 1.6 to 3.6 qts.[1]	
Ash[2]	Oak; black, white[2]
Bearmat (Bearclover)[2]	Oak; northern, pin
Beech[2]	Oak, scrub[2]
Blackgum	Persimmon[2]
Bracken	Pine
Cascara[2]	Poplar, yellow[2]
Ceanothus[2]	Redbud, eastern
Chamise[2]	Russian olive[2]

Dogwood[2]	Sage, white[2]
Elm[2]	Saltcedar
Florida holly (Brazilian peppertree)[2]	Sassafras[2]
Gorse[2]	Sourwood[2]
Hickory[2]	Sumac; poison, smooth, winged[2]
Hornbeam, American[2]	Swordfern[2]
Locust, black[2]	Vine maple[2]
Manzanita[2]	Virginia creeper
Maple, red	Waxmyrtle, southern[2]
The following are controlled with 3.6 qts.[1]	
Broom; French, Scotch	Maple, sugar
Buckwheat, California[2]	Monkey flower[2]
Catsclaw[2]	Sage, black
Coyote brush	Sage brush, California
Eucalyptus	Tallowtree, Chinese
Hasardia[2]	Tan oak resprouts[2]
Madrone resprouts[2]	Tobacco, tree[2]

[1] Alternatively, use a 1.5% solution for spot spray clean-up.
[2] Provides partial control

This product is sold only for uses stated on its label. This formulation is covered by U.S. Patent No. 5,468,718.

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SCP XXXX

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Base Label

(2.5 gal.)

Touchdown Total Herbicide

Group	9	Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	36.5%
Other Ingredients:	63.5%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use in attached booklet

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-xxxx
EPA Est.

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Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

SCP XXXX

2.5 gallons
U.S. Standard Measure

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**	

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic, or plastic-lined steel containers.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

TOU TOTAL CLEAN – pd – 09-09-03
000100-XXXXX.20030909.TOUCHDOWN.TOTAL.pdf

Note For Records

Name of Product: SYN 1219 Herbicide
Touchdown Total

EPA Registration No./ File Symbol 100-RRAO (1169)

Submission Date: 12/19/02; 6/3/03; 9/9/03

Received Date: 12/27/02; 6/3/03; 9/17/03

Date Worked: 10/17/03 AWP

Description of Action: Review Alternate CSFs submitted 6/3/03.
Review revised label submitted 9/9/03 with name Touchdown Total

~~TRB has accepted~~
TRB/CHEM accepted CSF with correction to label. Label submitted 9/9/03 made required correction therefore Basic CSF & Alternate A (154/5), are acceptable without comment.

~~Acute~~ Toxicology studies acceptable category III for primary eye & acute inhalation and category IV for acute oral, acute dermal and primary skin irritation. Product not a dermal sensitizer

Comments: alternate CSFs B ~~and~~ (273/1) and C (274/1) are acceptable
PL and PPE on label need revised based on toxicology profile.

Discussed with PM Jim Tompkins ~~whether~~ a not product should be "potassium salt of glyphosate" or "glyphosate". Decided to allow active ingredient to remain as "glyphosate" (10/23/03)

~~Remainder~~ Remainder of label acceptable. Verified tank-mixes were registered for recommended crops.
Registered Product with comments

Signature and Date: Vicki Walters 10/23/03

Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

syngenta

FEDERAL EXPRESS

September 9, 2003

Document Processing Desk (E-SUB)
Office of Pesticide Programs (H7504C)
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202-4501

Attention: Mr. Jim Tompkins, PM 25

SUBJECT: APPLICATION FOR REGISTRATION
EPA REG. NO. 100-RRAO
REVISED LABELING FOR TOUCHDOWN® TOTAL HERBICIDE
ORIGINALLY SUBMITTED AS SYN-1219 ON DECEMBER 19, 2002

Dear Mr. Tompkins:

Enclosed is revised labeling for Touchdown Total Herbicide. We originally submitted as SYN-1219 and have since come up with a brand name for this product. Also we have revised the Resistance Management section of the label.

Five copies of the label are enclosed, one highlighted to show changes. Also enclosed is a CD for "Electronic Label Submission and Review," the "Certification with Respect to Label Integrity" form, and EPA 8570-1 Form.

Please contact me at (336) 643-6324 if there are any questions regarding this submission.

Kind regards,

Jerry Wells

Jerry Wells
Regulatory Product Manager

Enclosures

RECEIVED 9/17/03

Please read instructions on reverse before completing form.

United States Environmental Protection Agency Washington, DC 20460	[x] Registration [ ] Amendment [ ] Other	OPP Identifier Number 275607

Application for Pesticide - Section I

1. Company/Product Number	2. EPA Product Manager	3. Proposed Classification
100-	Jim Tompkins	[x] None [ ] Restricted
4. Company/Product (Name) Touchdown® Total	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Syngenta Crop Protection, Inc. P. O. Box 18300 Greensboro, NC 27419 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. ____ Product Name ____	

Section - II

[ ] Amendment - Explain below.

[ ] Resubmission in response to Agency letter dated ____

[ ] Notification - Explain below.

[ ] Final printed labels in response to Agency letter dated ____

[ ] "Me Too" Application.

[x] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.).

Enclosed is revised labeling for Touchdown Total Herbicide. We originally submitted as SYN-1219 and have since come up with a brand name for this product. Also we have revised the Resistance Management section of the label.

Section – III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [x] No	[ ] Yes [x] No	[ ] Yes [x] No	[ ] Metal [x] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) ____
***Certification must be submitted**	If "Yes" Unit Packaging wgt. / No. per Container	If "Yes" Unit Packaging wgt. / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[x] Label [ ] Container	2.5, 30, 120 Gallons and Bulk	[x] On Label [ ] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [x] Other Pressure Sensitive

Section – IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Jerry Wells	Regulatory Product Manager	336-632-6324

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature	3. Title	6. Date Application Received (Stamped)
Jerry Wells	Regulatory Product Manager	RECEIVED
4. Typed Name Jerry Wells	5. Date 09/09/03	

Certification with Respect to Label Integrity

Version: 9/11/02

I certify that the information (including, but not limited to, text, tables, and graphics) contained in the electronic file identified below by file name and submitted with this certification is the same information as that on the paper copies of these documents included with this submission.

PROPOSED LABEL		
EPA Registration #	Date Submitted to EPA	Electronic file name
100-xxxxx	09/09/03	000100-xxxxx.20030909.TOUCHDOWN.TOTAL.pdf

I certify that the statements that I have made on this form are true, accurate, and complete. I acknowledge that any knowingly false or misleading statements may be punishable by fine or imprisonment or both under applicable law.

Pat Dinnen
Signature

September 9, 2003
Date

Pat Dinnen
Name (typed)

Regulatory Specialist, Herbicides
Title

DATE OUT: June 19, 2003

SUBJECT: PRODUCT CHEMISTRY REVIEW OF SYN 1219 Herbicide
DP BARCODE No.: D288453
REG./File Symbol No.: 100-RRAO
DECISION: 211713

FROM: Linda L. Kutney, Chemist
Product Chemistry Team
Technical Review Branch/RD (7505C)

Linda L. Kutney 6/19/03 SBm 6/25/03

TO: Jim Tompkins, Vicky Walters, PM-25
Herbicide Branch/ RD (7505C)

PC CODE: 417300

USE: Herbicide with many uses, including Food Uses

INTRODUCTION:

Syngenta Crop Protection, Inc., has submitted product chemistry data to support a new basic CSF (2/3/03) and an alternate CSF (2/19/03) for SYN 1219 Herbicide, with a label claim of 36.5% glyphosate acid. SYN 1219 herbicide has many food uses. Data were submitted under MRIDs 45850701, and 45830208.

SUMMARY OF FINDINGS:

1. The storage and disposal statements on the label are acceptable.

CONCLUSION:

TRB notes that the CSF includes additional names that are not on the proposed label for SYN 1219 Herbicide, Glyphosate SL (500) and (A13013M). Except for the extraneous names in boxes 3, the proposed basic (2/3/02) and alternate (2/19/03) CSFs are acceptable.

We conclude that Subgroup A and B data requirements are acceptable, however, the following studies, already in progress, must be submitted upon their completion:

1. Storage Stability - 830.6317

2. Corrosion Characteristics - 830.6320

The label must be corrected to agree with the nominal concentration given on the CSFs. The CSFs are acceptable with the comment that the label must agree with the nominal concentration given. Addressed in label submitted 9/9/03 correction made

PRODUCT CHEMISTRY DATA (SERIES 830 Subgroup A & Subgroup B)

Subgroup A, Data Guideline Requirement 830.--	Data Satisfied?	MRID No.
1550.Chemical Identity(CSF)	Yes	CSF
1600. Beginning Materials 1650. Formulation Process	Yes Yes	45850701 45850701
1670. Discussion of Impurities	Yes	45850701
1700. Preliminary Analysis	Not required	
1750. Certified Limits(CSF)	Yes	CSF

1800 Enforcement Analytical Method	Yes Determination of Glyphosate Anion in Formulated Materials by High Performance Liquid Chromatography, Method AMP 10064-03A HP 1100 HPLC 250 mm x 4.6 mm ID stainless steel column with a 20 mm x 4.0 nm ID stainless steel guard column packed with SAX1 (ex Supelco Ltd) column temp 15-25C Mobil Phase potassium dihydrogen orthophosphate in de-ionised water, methanol and orthophos-phoric acid Flow rate 1.0 ml/min Detector 205 nm Injection load 20 ul Run time 12 min Confirm using Liquid Chrom (Method AMP 10064-03A) Detector 204 nm Column Partisil SAX 10 u, length 250 mm, ID 4.6 mm Injection vol 50 ul flow rate 2.0 ml/min mobile phase 0.84 g KH2PO4 in water methanol (960 + 50) adjusted to pH 2.0 with phosphoric acid (85%)	45850701

Physical/Chemical Properties Subgroup B, Guideline 830.- Data Requirement:	Data Satisfied ?	Description	MRID No.
6302 Color	Yes	brown	45830208
6303 Physical State	Yes	Liquid	45830208
6304 Odor	Yes	Sweetish	45830208
6314 Oxidation/Reduction	Yes	No oxidizing properties.	45830208
6315 Flammability/Flame Extension	Yes	>200 F (< 110 C)	45830208
6316 Explodability	Yes	Not reported to contain explosive components.	45830208
6317 Storage Stability	NO	Study in progress. Stable over 14 days at 54 C.	45830208
6319 Miscibility	Yes	NA. Not mixed with petroleum solvents.	45830208
6320 Corrosion Characteristics	Yes	Study in progress. No corrosion following 1 month of storage.	45830208
6321 Dielectric Breakdown Voltage	Yes	Not used around electrical equipment.	45830208
7000 pH	Yes	3-7 (1% in water)	45830208
7100 Viscosity	Yes	128 mPa-s @ 20C	45830208
7300. Density/Bulk Density	Yes	11.3 lb/gal or 1.35 g/ml	45830208
7840. Solubility	-	Not Required	-
7950. Vapor Pressure	-	Not Required	-

Explanations: NA = Not Applicable

SYN–1219
Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

36.5%

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	45.2%
Other Ingredients:	54.8%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-xxxx
EPA Est.

SCP xxxx

2.5 gallons
U.S. Standard Measure

30 gallons
U.S. Standard Measure

110 gallons
U.S. Standard Measure

_____ gallons [Bulk]
U.S. Standard Measure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND
TOXIC SUBSTANCES

02/APR/2003

MEMORANDUM

Subject:	Name of Pesticide Product:	SYN 1219 Herbicide
	EPA Reg. No. /File Symbol:	100-RRAO
	DP Barcode:	D288454
	Case No:	065275
	PC Code:	417300
From:	Eugenia McAndrew, Biologist EM Technical Review Branch Registration Division (7505C)	
To:	Vickie Walters, PM Team 25 Herbicide Branch Registration Division (7505C)	
Applicant:	Syngenta Crop Protection, Inc. P.O. Box 18300 Greensboro, NC 27419	

FORMULATION FROM LABEL:

	Active Ingredient(s):	% by wt.
417300	*Glyphosate: N-(phosphonomethyl) glycine	45.2
	Inert Ingredient(s):	54.8
	Total	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphsate acid

ACTION REQUESTED: PM requests review of acute toxicity data for SYN 1219 Herbicide, EPA File Symbol 100-RRAO.

BACKGROUND: Syngenta Crop Protection, Inc. has submitted a six pack of acute toxicity studies in support of registration of SYN 1219 Herbicide, EPA File Symbol 100-RRAO, with assigned MRID numbers 458302-01 to -06. The acute oral toxicity study was conducted at Product Safety Labs, Dayton, New Jersey. The other five studies were conducted at Central Toxicology Laboratory, Cheshire, UK.

RECOMMENDATIONS: The six studies have been reviewed and are classified as acceptable.

The acute toxicity profile for SYN 1219 Herbicide, EPA File Symbol 100-RRAO, is as follows:

acute oral toxicity	IV	Acceptable	MRID 45830201
acute dermal toxicity	IV	Acceptable	MRID 45830202
acute inhalation toxicity	III	Acceptable	MRID 45830203
primary eye irritation	III	Acceptable	MRID 45830204
primary skin irritation	IV	Acceptable	MRID 45830205
dermal sensitization	Negative	Acceptable	MRID 45830206

LABELING: Based on the toxicity profile above, the following are the precautionary and first aid statements for this product as obtained from the Label Review System.

PRODUCT ID #: 000100-01169

PRODUCT NAME: SYN 1219 Herbicide

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals:

SIGNAL WORD: CAUTION

Harmful if inhaled. Causes moderate eye irritation. Avoid breathing spray mist. Wear: Long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves (such as Natural Rubber, Selection Category A).

First Aid:

If inhaled:
-Move the person to fresh air.
-If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
-Call a poison control center or doctor for further treatment advice.

If in eyes:
-Hold eye open and rinse slowly and gently with water for 15-20 minutes.
-Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
-Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-800-xxx-xxxx for emergency medical treatment information.

User Safety Recommendations:

Remove and wash contaminated clothing before reuse. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

DATA EVALUATION RECORD

STUDY TYPE: ACUTE ORAL TOXICITY TESTING (870.1100 formerly §81-1)

Product Manager: 25 **Reviewer:** Eugenia McAndrew

TEST MATERIAL PURITY: Glyphosate 500 SL-M (A13013M); 36.7% Glyphosate Potassium

CITATION: Merkel, D. Glyphosate 500 SL-M (A13013M); acute oral toxicity in rats. Product Safety Labs, Dayton, New Jersey. Laboratory Report Number 12555. September 30, 2002. MRID 45830201. Unpublished.

SPONSOR: Syngenta Crop Protection, Inc., P.O. Box 18300, Greensboro, NC 27419

EXECUTIVE SUMMARY: In an acute oral toxicity study, three young adult female Sprague-Dawley derived albino rats (Weight: 173 - 190 g; Source: Ace Animals, Inc., Boyertown, PA) were given a single oral dose of Glyphosate 500 SL-M A13013M (36.7% Glyphosate Potassium; clear brown liquid) using the Up and Down Procedure. "An initial limit dose of five thousand milligrams of the test substance per kilogram of bodyweight was administered to one healthy female rate by oral gavage. Due to the absence of mortality in this animal, two additional females received the same dose level. Since all three animals survived, no additional animals were tested. Females were selected for the test because they are frequently more sensitive to the toxicity of test compounds than males." Individual body weights were recorded just prior to dosing and on days 7 and 14, or at the time of death. Animals were observed for clinical signs of toxicity and mortality for 14 days post dosing. Gross necropsies were performed on all animals.

Oral LD_{50} Females = > 5000 mg/kg

Glyphosate 500 SL-M (A13013M) is classified as Toxicity Category IV based on the LD_{50} value in female rats.

All animals survived and gained weight during the study. "There were no signs of gross toxicity, adverse pharmacologic effects or abnormal behavior." Gross necropsy findings for two animals included discolored intestines and mottled discolored lungs.

This study is classified as Acceptable (870.1100) and satisfies the guideline requirement for an acute oral study in the rat.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

DOSING: From Page 8 of the study report:

Dosing Sequence	Animal No.	Dose level (mg/kg)	24 hour Outcome	14 Day Outcome
1	3061	5000	S	S
2	3135	5000	S	S
3	3136	5000	S	S

S = survival D = death

The test substance was administered to each animal as described above. The decision to simultaneously dose the second and third animal at the 5000 mg/kg level was made based on the survival of the first animal in the 24-48 hour period following dosing.

AOT425statpgm (Version: 1.0) Test Results and Recommendations
Acute Oral Toxicity (OECD Test Guideline 425) Statistical Program

Date/Time: Tuesday, April 01, 2003, 9:00:07 AM
Data file name: Glyphosate 500.dat
Last modified: 4/1/03 9:00:06 AM

Test/Substance: Enter test description.
Test type: Limit Test
Limit dose (mg/kg): 5000
Assumed LD50 (mg/kg): Default
Assumed sigma (mg/kg): 0.5

DATA:

Test Seq.	Animal ID	Dose (mg/kg)	Short-term Result	Long-term Result
1	3061	5000	O	O
2	3135	5000	O	O
3	3136	5000	O	O

(X = Died, O = Survived)

Dose Recommendation: The limit test is complete.

SUMMARY OF LONG-TERM RESULTS:

Dose	0	X	Total
5000	3	0	3
All Doses	3	0	3

Statistical Estimates:

The LD50 is greater than 5000 mg/kg.

OBSERVATIONS: All animals survived and gained weight during the study. "There were no signs of gross toxicity, adverse pharmacologic effects or abnormal behavior."

GROSS NECROPSY: Gross necropsy findings for two animals included discolored intestines and mottled discolored lungs.

DATA EVALUATION RECORD

STUDY TYPE: ACUTE DERMAL TOXICITY TESTING (870.1200 formerly §81-2)

Product Manager: 25 **Reviewer:** Eugenia McAndrew

TEST MATERIAL PURITY: Glyphosate 500 SL-M (A13013M); 36.7% Glyphosate Potassium

CITATION: Johnson, I.R. Glyphosate 500 G/L- SL Formulation (A13013M); acute dermal toxicity in rats. Central Toxicology Laboratory, Cheshire, UK. Laboratory Report Number CR3591. December 3, 2002. MRID 45830202. Unpublished.

SPONSOR: Syngenta Crop Protection, Inc., P.O. Box 18300, Greensboro, NC 27419

EXECUTIVE SUMMARY: In an acute dermal toxicity study, five Alpk: AP,SD (Wistar-derived) rats/sex (Age: 8-12 weeks; Weight: 367-400 g males; 221-251 g females; Source: Rodent Breeding Unit, Alderley Park, Macclesfield, Cheshire, UK) received a single dermal application of Glyphosate 500 g/l SL Formulation (formulation reference number A13013M; Batch reference number J6296/65/A; 36.7% w/w a.i.; brown liquid) at 5000 mg/kg (limit dose) for a 24 hour period. The test substance was applied to a shorn area of 7 cm x 7cm on the back of each animal and covered with an occlusive dressing. Individual body weights were recorded just prior to dosing and on days 8 and 15. Animals were observed for clinical signs of toxicity and mortality twice on the day of application and once daily for 14 days. Gross necropsies were performed on all animals.

Dermal LD_{50} Males = > 5000 mg/kg (observed)
Dermal LD_{50} Females = > 5000 mg/kg (observed)

Glyphosate 500 G/L SL Formulation is classified as Toxicity Category IV based on the observed LD_{50} values in both sexes.

All animals survived and gained weight during the study. There were no signs of systemic toxicity. Dermal irritation (erythema, edema and desquamation) was noted at all test sites resolving by day 11. No macroscopic abnormalities were noted at necropsy.

This study is classified as Acceptable (870.1200) and satisfies the guideline requirement for an acute dermal study in the rat.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

RESULTS:

Dosage (mg/kg)	Number of Deaths/Number Tested		
	Males	Females	Combined
5000	0/5	0/5	0/10

OBSERVATIONS: All animals survived and gained weight during the study. There were no signs of systemic toxicity. Dermal irritation (erythema, edema and desquamation) was noted at all test sites resolving by day 11.

GROSS NECROPSY: No macroscopic abnormalities were noted at necropsy.

DATA EVALUATION RECORD

STUDY TYPE: ACUTE INHALATION TOXICITY TESTING (870.1300 formerly §81-3)

Product Manager: 25 **Reviewer:** Eugenia McAndrew

TEST MATERIAL PURITY: Glyphosate 500 g/l SL formulation; 500 mg/l glyphosate (acid equivalent)

CITATION: Kilgour, J.D. Glyphosate Formulation: 4-hour acute inhalation toxicity in rats. Central Toxicology Laboratory, Cheshire, UK. Laboratory Report Number HR2338. July 30, 1999. MRID 45830202. Unpublished.

SPONSOR: Syngenta Crop Protection, Inc., P.O. Box 18300, Greensboro, NC 27419

EXECUTIVE SUMMARY: In an acute inhalation toxicity study, five Alpk:AP$_f$SD (Wistar-derived) rats/sex (Age: 8-12 weeks; Weight: 212-248 g males; 191-227 g females; Source: Rodent Breeding Unit, Alderley Park, Macclesfield, Cheshire, UK) were exposed by nose only inhalation to Glyphosate 500 g/l SL Formulation (formulation reference number YF11087; Batch reference number J5376/10; 500 mg/L glyphosate (acid equivalent); clear brown liquid) at 1.90 mg/L for a period of 4 hours. Individual body weights were recorded just prior to dosing and on days 8 and 15. All animals were observed for clinical signs of toxicity and mortality during the exposure and for 14 days post exposure. Gross necropsies were performed on all animals.

Inhalation LC_{50} Males = > 1.90 mg/L (observed)
Inhalation LC_{50} Females = > 1.90 mg/L (observed)

Glyphosate 500 g/l SL Formulation is classified as Toxicity Category III based on the observed LC_{50} values in both sexes.

All animals survived and gained weight during the study. Clinical signs during the exposure included wet fur, moderate salivation, test substance around the snout, reduced response to sound and changing in breathing patterns. Following removal from the exposure chamber, clinical signs observed were chromodacryorrhea, stains around the snout, wet fur, piloerection, hunched posture, abnormal respiratory noise and reduced breathing rate and depth. The animals recovered from these symptoms by day 13. At necropsy, one female had a herniated liver lobe; no other gross abnormalities were noted at necropsy. The analyzed concentration of glyphosate 500 g/L SL was 1.90 mg/L active ingredient. The measured particulate concentration was 3.70 mg/L. The mass median aerodynamic diameter was estimated to be 3.47-3.97 µm with a geometric standard deviation of 2.28-2.32.

This study is classified as Acceptable (870.1300) and satisfies the guideline requirement for an acute inhalation study in the rat.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

RESULTS:

Analyzed Exposure Concentration mg/L active ingredient	Number of Deaths/Number Tested		
	Males	Females	Combined
1.90	0/5	0/5	0/10

Target Total concentration formulation concentration (mg/l	Measured particulate concentration (mg/l)	Analyzed concentration of glyphosate 500 g/l SL formulation (mg/l acitve ingredient	Actual total formulation concentration (mg/l)
5.0	3.70 ± 0.34	1.90 ± 0.16	5.08 ± 0.43

Chamber Atmosphere		
Analyzed Concentration	MMAD	GSD
1.90 mg/L	3.97 µm	2.32
1.90 mg/L	3.47 µm	2.28

Chamber Environment[a]	
Chamber Volume	27.6 L
Airflow	18 LPM
Temperature	21-22 °C
Relative Humidity	57-63 %

[a] nose only

OBSERVATIONS: All animals survived and gained weight during the study. Clinical signs during the exposure included wet fur, moderate salivation, test substance around the snout, reduced response to sound and changing in breathing patterns. Following removal from the exposure chamber, clinical signs observed were chromodacryorrhea, stains around the snout, wet fur, piloerection, hunched posture, abnormal respiratory noise and reduced breathing rate and depth. The animals recovered from these symptoms by day 13.

GROSS NECROPSY: At necropsy, one female had a herniated liver lobe; no other gross abnormalities were noted at necropsy.

DATA EVALUATION RECORD

STUDY TYPE: PRIMARY EYE IRRITATION TESTING (870.2400 formerly §81-4)

Product Manager: 25 **Reviewer:** Eugenia McAndrew

TEST MATERIAL PURITY: Glyphosate 500 SL-M (A13013M); 36.7% Glyphosate Potassium

CITATION: Johnson, I.R. Glyphosate 500 G/L SL Formulation: eye irritation in rabbits. Central Toxicology Laboratory, Cheshire, UK. Laboratory Report Number FB5947. June 26, 2002. MRID 45830204. Unpublished.

SPONSOR: Syngenta Crop Protection, Inc., P.O. Box 18300, Greensboro, NC 27419

EXECUTIVE SUMMARY: In a primary eye irritation study, 0.1 mL of undiluted Glyphosate 500 g/l SL Formulation (formulation reference number A13013M; Batch reference number J6127/145; 36.7% w/w a.i.; clear dark brown liquid) was placed into the conjunctival sac of the left eye of three young adult New Zealand White albino male rabbits (Source: Charles River, UK Limited, Margate, Kent, UK). All animals were observed for ocular irritation at 1, 24, 48 and 72 hours and 4 days post-instillation.

Glyphosate 500 g/l SL Formulation is classified as Toxicity Category III based on the ocular irritation observed in this study.

No corneal opacity or iritis were observed. Positive scores for conjunctivitis were noted in 2/3 eyes resolving by 48 hours. The study report states: "Additional signs of irritation consisted of Harderian or lachrymatory discharge in all animals, one animal also showed hemorrhage of the nictating membrane (until day 2) and dried secretion around the periorbital skin (day 4 only) of one animal. With the exception of dried secretion around the periorbital skin of one animal, all signs of irritation had completely resolved within 4 days of instillation."

This study is classified as Acceptable (870.2400) and satisfies the guideline requirement for a primary eye irritation study in the rabbit.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

RESULTS:

Observations	Number "positive"/number tested				
	Hours				Days
	1	24	48	72	4
Corneal Opacity	0/3	0/3	0/3	0/3	0/3
Iritis	0/3	0/3	0/3	0/3	0/3
Conjunctivae:					
Redness*	0/3	0/3	0/3	0/3	0/3
Chemosis*	2/3	2/3	0/3	0/3	0/3
Discharge*	0/3	0/3	0/3	0/3	0/3

*Score of 2 or more required to be considered "positive."

OBSERVATIONS: No corneal opacity or iritis were observed. Positive scores for conjunctivitis were noted in 2/3 eyes resolving by 48 hours. The study report states: "Additional signs of irritation consisted of Harderian or lachrymatory discharge in all animals, one animal also showed hemorrhage of the nictating membrane (until day 2) and dried secretion around the periorbital skin (day 4 only) of one animal. With the exception of dried secretion around the periorbital skin of one animal, all signs of irritation had completely resolved within 4 days of instillation."

DATA EVALUATION RECORD

STUDY TYPE: PRIMARY DERMAL IRRITATION TESTING (870.2500 formerly §81-5)

Product Manager: 25 **Reviewer:** Eugenia McAndrew

TEST MATERIAL PURITY: Glyphosate 500 SL-M (A13013M); 36.7% Glyphosate Potassium

CITATION: Johnson, I.R. Glyphosate 500 G/L SL Formulation: skin irritation in rabbits. Central Toxicology Laboratory, Cheshire, UK. Laboratory Report Number EB4970. June 27, 2002. MRID 45830205. Unpublished.

SPONSOR: Syngenta Crop Protection, Inc., P.O. Box 18300, Greensboro, NC 27419

EXECUTIVE SUMMARY: In a primary skin irritation study, three young adult New Zealand White albino male rabbits (Source: Charles River, UK Limited, Margate, Kent, UK) received a single dermal application of 0.5 mL of Glyphosate 500 g/l SL Formulation (formulation reference number A13013M; Batch reference number J6127/145; 36.7% w/w a.i.; clear dark brown liquid) for a 4 hour exposure. The test substance was applied to one 6 cm^2 intact dose site on each animal and covered with a 4-ply gauze patch secured by surgical tape. Animals were observed 1, 24, 48 and 72 hours after patch removal.

Glyphosate 500 g/l SL Formulation is classified as Toxicity Category IV based on the observations in this study.

Primary Dermal Irritation Index (PDII) = 0.08 Very slight erythema was noted at one test site one hour after patch removal. By 24 hours, all treated sites were free of dermal irritation.

This study is classified as Acceptable (870.2500) and satisfies the guideline requirement for a primary skin irritation study in the rabbit.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

RESULTS: Primary Dermal Irritation Index (PDII) = 0.08

OBSERVATIONS: Very slight erythema was noted at one test site one hour after patch removal. By 24 hours, all treated sites were free of dermal irritation.

DATA EVALUATION RECORD

STUDY TYPE: DERMAL SENSITIZATION TESTING (870.2600 formerly §81-6)

Product Manager: 25 **Reviewer:** Eugenia McAndrew

TEST MATERIAL PURITY: Glyphosate 500 SL-M (A13013M); 36.7% Glyphosate Potassium

CITATION: Johnson, I.R. Glyphosate 500 G/L Formulation: skin sensitization in guinea pigs. Central Toxicology Laboratory, Cheshire, UK. Laboratory Report Number GG7632. October 15, 2002. MRID 45830206. Unpublished.

SPONSOR: Syngenta Crop Protection, Inc., P.O. Box 18300, Greensboro, NC 27419

EXECUTIVE SUMMARY: In a dermal sensitization study conducted with Glyphosate 500 g/l SL Formulation (formulation reference number A13013M; Batch reference number J6296/65/A; 36.7% w/w a.i; clear dark brown liquid), 30 young adult female Albino Dunkin Hartley guinea pigs (Source: David Hall, Newchurch, Burton on Trent, Staffs, UK) were tested using the Buehler method. A sighting study was conducted with two animals to determine the correct concentrations for induction and challenge. For the main study, twenty test animals were induced with a total of nine applications (six hours/exposure, three times per week for three weeks) of 0.4 mL of undiluted test substance. A control group received a gauze patch only. Twenty-seven days after the first induction dose, 0.1-0.2 mL of a 75% w/v preparation of the test substance in deionized water was applied to one patch and 0.1-0.2 mL of undiluted test substance was applied to a second patch. Both patches were then applied to two different shorn sites on the twenty test guinea pigs and on sites of ten naive control guinea pigs for a six-hour challenge exposure. Reactions were scored 24 after each induction and 24 and 48 hours after the challenge. A positive control study using 1-chloro-2,4-dinitrobenzene (DNCB) was conducted within six months of the main study to validate the test system.

Glyphosate 500 g/l SL Formulation is classified as a non-sensitizer based on the results of this study.

Signs of dermal irritation such as skin stained, slight erythema, slight desquamation, slight thickening, slight scabbing, scab at edge of application site and hair loss due to bandaging were noted at all test animal sites during the induction phase. Following the challenge with the undiluted test substance, no dermal irritation was noted at any test site. One control animal site showed scattered mild redness (1). Following the challenge with the 75% w/v preparation of the test substance in deionized water, no dermal irritation was noted in either the test animals or the naive control animals. Based on these results, the test substance is not considered to be a contact sensitizer. The positive response observed in the DNCB study validates the test system used in this study.

This study is classified as Acceptable (870.2600) and satisfies the guideline requirement for a dermal sensitization study in the guinea pig.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

PROCEDURE: In a dermal sensitization study conducted with Glyphosate 500 g/l SL Formulation (formulation reference number A13013M; Batch reference number J6296/65/A; 36.7% w/w a.i; clear dark brown liquid), 30 young adult female Albino Dunkin Hartley guinea pigs (Source: David Hall, Newchurch, Burton on Trent, Staffs, UK) were tested using the Buehler method. A sighting study was conducted with two animals to determine the correct concentrations for induction and challenge. For the main study, twenty test animals were induced with a total of nine applications (six hours/exposure, three times per week for three weeks) of 0.4 mL of undiluted test substance. A control group received a gauze patch only. Twenty-seven days after the first induction dose, 0.1-0.2 mL of a 75% w/v preparation of the test substance in deionized water was applied to one patch and 0.1-0.2 mL of undiluted test substance was applied to a second patch. Both patches were then applied to two different shorn sites on the twenty test guinea pigs and on sites of ten naive control guinea pigs for a six-hour challenge exposure. Reactions were scored 24 after each induction and 24 and 48 hours after the challenge. A positive control study using 1-chloro-2,4-dinitrobenzene (DNCB) was conducted within six months of the main study to validate the test system.

RESULTS: Signs of dermal irritation such as skin stained, slight erythema, slight desquamation, slight thickening, slight scabbing, scab at edge of application site and hair loss due to bandaging were noted at all test animal sites during the induction phase. Following the challenge with the undiluted test substance, no dermal irritation was noted at any test site. One control animal site showed scattered mild redness (1). Following the challenge with the 75% w/v preparation of the test substance in deionized water, no dermal irritation was noted in either the test animals or the naive control animals. Based on these results, the test substance is not considered to be a contact sensitizer. The positive response observed in the DNCB study validates the test system used in this study.

ACUTE TOX ONE-LINERS

1. **DP BARCODE:** D288454
2. **PC CODE:** 417300
3. **CURRENT DATE:** 02/APR/2003

Study/Species/Lab Study # /Date	MRID	Results	Tox. Cat.	Core Grade
[a]Acute oral toxicity/rat Product Safety Labs 12555/9-30-02	45830201	LD_{50} > 5000 mg/kg (females)	IV	A
[b]Acute dermal toxicity/rat Central Toxicology Laboratory CR3591/12-03-02	45830202	LD_{50} > 5000 mg/kg (males females combined)	IV	A
[c]Acute inhalation toxicity/rat Central Toxicology Laboratory HR2338/07-30-99	45830203	LC_{50} > 1.90 mg/L (males females combined)	III	A
[d]Primary eye irritation/rabbit Central Toxicology Laboratory FB5947/06-26-02	45830204	Conjunctivitis in 2/3 eyes. No positive scores at 48 hours.	III	A
[d]Primary dermal irritation/rabbit Central Toxicology Laboratory EB4970/06-27-02	45830205	PDII = 0.08 Slight irritant	IV	A
[b]Dermal sensitization/guinea pig Central Toxicology Laboratory GG7632/10-15-02	45830206	Not a sensitizer	–	A

Core Grade Key: **A =Acceptable, S = Supplementary, U = Unacceptable, W= Waived**

4. TEST MATERIAL:

[a]Glyphosate 500 SL-M A13013M (36.7% Glyphosate Potassium; clear brown liquid)

[b]Glyphosate 500 g/l SL Formulation (formulation reference number A13013M; Batch reference number J6296/65/A; 36.7% w/w a.i.; clear dark brown liquid)

[c]Glyphosate 500 g/l SL Formulation (formulation reference number YF11087; Batch reference number J5376/10; 500 mg/L glyphosate (acid equivalent); clear brown liquid)

[d]Glyphosate 500 g/l SL Formulation (formulation reference number A13013M; Batch reference number J6127/145; 36.7% w/w a.i.; clear dark brown liquid)

Syngenta Crop Protection, Inc. Tel 336 632 6000
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

syngenta

458507-00

February 2, 2003

Mr. Jim Tompkins, Team 25
Document Processing Desk (AMEND)
Registration Division (H7504C)
Office of Pesticide Programs
U.S. Environmental Protection Agency
1921 Jefferson Davis Highway
Cyrstal Mall 2, Room 266A
Arlington, VA 22202

Re: Submission of a *Corrected* Product Chemistry Volume to Replace One (MRID 45830207) Sent in Support of Registration of SYN 1219 Herbicide, EPA File Symbol No. 100-RRAO

Dear Mr. Tompkins:

Syngenta Crop Protection, Inc. is submitting a Product Chemistry volume (New Group A Data Volume) to support a request for a new product registration, SYN 1219 Herbicide, EPA File Symbol No. 100-RRAO (cover letter dated Dec. 19, 2002). This new volume includes corrections in the CAS no. and tradename for one of the inert ingredients and should replace the volume (MRID 45830207) sent in December.

In addition, Syngenta is submitting two CSF's (CSF 153/4 and CSF 154/4). They replace those (CSF 153/2 and 54/2) earlier and contain the same correction to a CAS No.

Attachments:

- ★ Completed 8570-1 Form
- ★ Transmittal Document
- ★ 1 volume of data (listed in transmittal document), 3 copies of each
- ★ Proposed Alternate CSF (Syngenta source of glyphosate) CSF No. 153/4, 3 copies
  To replace CSF 153/2
- ★ Proposed Alternate CSF ([redacted] source of glyphosate) CSF No. 154/4, 3 copies
  To replace CSF 154/2
- ★ Attachment A

If you have any questions regarding this submission please contact me at 336-632-6324.

Kind regards,

Jerry Wells

Jerry Wells
Regulatory Product Manager

cc: Vicky Walters

Product ingredient source information may be entitled to confidential treatment

FEB 06 2003

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs

SYNGENTA CROP PROTECTION, INC.
P.O. BOX 18300
GREENSBORO, NC 274198300

Report of Analysis for Compliance with PR Notice 86-5

Thank you for your transmittal of 02/04/03. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your submittal was found to be in full compliance with the standards for submission of data contained in PR Notice 86-5. A copy of your bibliography is enclosed, annotated with Master Record ID's (MRIDs) assigned to each document submitted. Please use these numbers in all future references to these documents. Thank you for your cooperation. If you have any questions concerning this data submission, please raise them with the cognizant Product Manager, to whom the data have been released.

VOLUME 1 OF 2 OF SUBMISSION
(TRANSMITTAL DOCUMENT)

1. **NAME AND ADDRESS OF SUBMITTER**

SYGENTA CROP PROTECTION, INC.
P.O. BOX 18300
GREENSBORO, NC 27419

2. **REGULATORY ACTION IN SUPPORT OF WHICH THIS PACKAGE IS SUBMITTED**

SUBMISSION OF A CORRECTED PRODUCT CHEMISTRY VOLUME TO REPLACE ONE
(MRID 45830207) SENT IN SUPPORT OF REGISTRATION OF SYN 1219 HERBICIDE,
EPA FILE SYMBOL NO. 100-RRAO

3. **TRANSMITTAL DATE**

02/03/2003

4. **LIST OF SUBMITTED STUDIES**

MRID NUMBER	VOLUME NUMBER	STUDY TITLE	EPA GUIDELINE NUMBER
	1 OF 2	TRANSMITTAL DOCUMENT	NOT APPLICABLE
45850701	2 OF 2	MANUFACTURING PROCESS DESCRIPTION AN SUPPORTING DATA FOR GLYPHOSATE SL (500) (A13013M)(1457)(PC-03-013, 416862)	830.1550, 830.1600, 830.1650, 830.1670, 830.1750, 830.1800

COMPANY OFFICIAL: JERRY WELLS (NAME) Jerry Wells (SIGNATURE)

COMPANY NAME: SYNGENTA CROP PROTECTION , INC.

COMPANY CONTACT: JERRY WELLS (NAME) (336) 632-2993 (PHONE)

Please read instructions on reverse before completing form.

EPA	United States Environmental Protection Agency Washington, DC 20460	[ ] Registration [x] Amendment [ ] Other	OPP Identifier Number 282112

Application for Pesticide - Section I

1. Company/Product Number 100-RRAO	2. EPA Product Manager Mr. Jim Tompkins	3. Proposed Classification [x] None [ ] Restricted
4. Company/Product (Name) SYN 1219 Herbicide	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Syngenta Crop Protection, Inc. P. O. Box 18300 Greensboro, NC 27419 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

[x] Amendment - Explain below.

[ ] Resubmission in response to Agency letter dated _____

[ ] Notification - Explain below.

[ ] Final printed labels in response to Agency letter dated _____

[ ] "Me Too" Application.

[ ] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.).

Submitting corrected Product Chemistry Volume and Corrected CSF's for subject.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [ ] No	[ ] Yes [ ] No	[ ] Yes [ ] No	[ ] Metal [ ] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) _____
Certification must be submitted	If "Yes" Unit Packaging wgt. / No. per Container 2X2.5 gal.	If "Yes" Unit Packaging wgt. / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[ ] Label [ ] Container	2.5 gal., 1 gal., 30 gal. and bulk	[ ] On Label [ ] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [ ] Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Jerry Wells	Regulatory Product Manager	336-632-6324

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature Jerry Wells	3. Title Regulatory Product Manager	6. Date Application Received **(Stamped)**
4. Typed Name Jerry Wells	5. Date February 2, 2003	

EPA Form 8570-1 (Rev. 8-94) Previous editions are obsolete.

jerry.wells@syngenta.com

01/10/2003 12:03 PM

To: Jim Tompkins/DC/USEPA/US@EPA
cc: Vickie Walters/DC/USEPA/US@EPA
Subject: Submission of SYN 1219 (Glyphosate - Potassium)

file

Jim,
I just noticed that on the cover letter for the SYN 1219 submission (dated 12-19-02) the Subject Line reads:
"Request for New Registration (SYN 1219 Herbicide, 100-) that meets requirements of PR Notice 98-10".

The bit "that meets requirements of PR Notice 98-10" should have been deleted, I used an old letter as a template. Please disregard this.

Sorry,
Jerry

Syngenta Crop Protection, Inc. Tel 336 632 6000
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

458302-00

syngenta

FEDERAL EXPRESS

December 19, 2002

Mr. Jim Tompkins
Document Processing Desk (APPL)
Office of Pesticide Programs (7504C)
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202-4501

Dear Mr. Tompkins: 100-RRAO

RE: **Request for New Registration (SYN 1219 Herbicide, 100-) that meets requirements of PR Notice 98-10**

Syngenta Crop Protection requests review of the enclosed application for pesticide registration of **SYN 1219 Herbicide** in accordance with Section 3 of the FIFRA as amended. All data required for this end-use product is being submitted in Volumes 1 through 10. For purposes of review, **SYN 1219 Herbicide** and **Glyphosate 500G/L SL Formulation (A13013M)** are one and the same.

Attached:

- ★ Application for Pesticide Registration, EPA Form 8570-1
- ★ Certification with Respect to Citation of Data form
- ★ 2 copies of the 2 CSF's for the proposed SYN 1219 Herbicide (2 sources of MUP)
- ★ 5 copies of the proposed SYN 1219 Herbicide label
- ★ Data Transmittal Document (Volume 1)
- ★ 8 Data Volumes (Volumes 2 through 9)
- ★ A Summary of Toxicology Data (Volume 10)
- ★ Confidential Attachment A: Inert Exemption Status and Information Concerning the Inhalation Study
- ★ One copy of data matrix (all product specific data is included in this submission and will be added to the data matrix for SYN 1219 once MRID #'s are assigned)

Please contact Jerry Wells at (336) 643-6324 if there are any questions about the submission.

Kind regards,

Jerry Wells
Regulatory Product Manager

Enclosures

Bcc:
Chuck Foresman (cover letter only)
Bill Beutke (cover letter only)
Pat Dinnen
D. King
Reg File (new for SYN 1219, glyphosate)
G. Watson
D. Fairbairn (Canada)
J. Costello (Basel)

VOLUME 1 OF 10 OF SUBMISSION
(TRANSMITTAL DOCUMENT)

1. NAME AND ADDRESS OF SUBMITTER

SYNGENTA CROP PROTECTION, INC.
P.O. BOX 18300
GREENSBORO, NC 27419

2. REGULATORY ACTION IN SUPPORT OF WHICH THIS PACKAGE IS SUBMITTED

REQUEST FOR NEW REGISTRATION (SYN 1219 HERBICIDE, 100-) THAT MEETS REQUIREMENTS OF PR NOTICE 98-10

3. TRANSMITTAL DATE

12/19/2002

4. LIST OF SUBMITTED STUDIES

MRID NUMBER	VOLUME NUMBER	STUDY TITLE	EPA GUIDELINE NUMBER
	1 OF 10	TRANSMITTAL DOCUMENT	NOT APPLICABLE
45830201	2 OF 10	ACUTE ORAL TOXICITY STUDY IN RATS (1439)(1826-02, 415791)	870.1100
45830202	3 OF 10	GLYPHOSATE 500G/L SL FORMULATION (A13013M): ACUTE DERMAL TOXICITY STUDY IN THE RAT (1439)(2206-02,415794)	870.1200
45830203	4 OF 10	GLYPHOSATE FORMULATION: 4-HOUR ACUTE INHALATION TOXICITY STUDY IN RATS (1439)(1303-99, 413388)	870.1300
45830204	5 OF 10	GLYPHOSATE 500G/L SL FORMULATION: EYE IRRITATION STUDY IN THE RABBIT (1439)(1888-02,413357)	870.2400
45830205	6 OF 10	GLYPHOSATE 500G/L SL FORMULATION: SKIN IRRITATION STUDY IN THE RABBIT (1439)(1889-02, 413358)	870.2500
45830206	7 OF 10	GLYPHOSATE 500G/L SL FORMULATION: SKIN SENSITISATION STUDY IN THE GUINEA PIG (1439)(2199-02, 415793)	870.2600
45830207	8 OF 10	MANUFACTURING PROCESS DESCRIPTION AND SUPPORTING DATA FOR GLYPHOSATE SL (500) (A13013M) (1439)(PC-02-086, 415905)	830.1550, 830.1600, 830.1650, 830.1670, 830.1750, 830.1800

MRID NUMBER	VOLUME NUMBER	STUDY TITLE	EPA GUIDELINE NUMBER
45830208	9 OF 10	PHYSICAL AND CHEMICAL PROPERTIES OF GLYPHOSATE SL (500) (A13013M) (1439)(PC-02-087, 415912)	830.6302, 830.6303, 830.6304, 830.6314, 830.6315, 830.6316, 830.6317, 830.6319, 830.6320, 830.6321, 830.7000, 830.7100, 830.7300
45830209	10 OF 10	SUMMARY OF ACUTE TOXICOLOGY STUDIES WITH A 500G/L FORMULATION OF GLYPHOSATE (1439)(1850-02, 415897)	NOT APPLICABLE

COMPANY OFFICIAL: JERRY WELLS
(NAME)

Jerry Wells
(SIGNATURE)

COMPANY NAME: SYNGENTA CROP PROTECTION , INC.

COMPANY CONTACT: JERRY WELLS
(NAME)

(336)632-6324
(PHONE)

JAN 09 2003

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs

SYNGENTA CROP PROTECTION, INC.
P.O. BOX 18300
GREENSBORO, NC 274198300

Report of Analysis for Compliance with PR Notice 86-5

Thank you for your transmittal of 12/27/02. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your submittal was found to be in full compliance with the standards for submission of data contained in PR Notice 86-5. A copy of your bibliography is enclosed, annotated with Master Record ID's (MRIDs) assigned to each document submitted. Please use these numbers in all future references to these documents. Thank you for your cooperation. If you have any questions concerning this data submission, please raise them with the cognizant Product Manager, to whom the data have been released.

Syngenta Crop Protection, Inc. Tel 336 632 6000
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com

syngenta

February 2, 2003

Mr. Jim Tompkins, Team 25
Document Processing Desk (AMEND)
Registration Division (H7504C)
Office of Pesticide Programs
U.S. Environmental Protection Agency
1921 Jefferson Davis Highway
Cyrstal Mall 2, Room 266A
Arlington, VA 22202

Re: Submission of a *Corrected* Product Chemistry Volume to Replace One (MRID 45830207) Sent in Support of Registration of SYN 1219 Herbicide, EPA File Symbol No. 100-RRAO

Dear Mr. Tompkins:

Syngenta Crop Protection, Inc. is submitting a Product Chemistry volume (New Group A Data Volume) to support a request for a new product registration, SYN 1219 Herbicide, EPA File Symbol No. 100-RRAO (cover letter dated Dec. 19, 2002). This new volume includes corrections in the CAS no. and tradename for one of the inert ingredients and should replace the volume (MRID 45830207) sent in December.

In addition, Syngenta is submitting two CSF's (CSF 153/4 and CSF 154/4). They replace those (CSF 153/2 and 54/2) earlier and contain the same correction to a CAS No.

Attachments:

- ★ Completed 8570-1 Form
- ★ Transmittal Document
- ★ 1 volume of data (listed in transmittal document), 3 copies of each
- ★ Proposed Alternate CSF (Syngenta source of glyphosate) CSF No. 153/4, 3 copies
  To replace CSF 153/2
- ★ Proposed Alternate CSF [redacted] source of glyphosate) CSF No. 154/4, 3 copies
  To replace CSF 154/2
- ★ Attachment A

If you have any questions regarding this submission please contact me at 336-632-6324.

Kind regards,

Jerry Wells

Jerry Wells
Regulatory Product Manager

cc: Vicky Walters

Product ingredient source information may be entitled to confidential treatment

Attachment A – CONFIDENTIAL BUSINESS INFORMATION

The enclosed volume is sent to replace a product chemistry volume (New Group A Data Volume) sent in December to support a request for a new product registration, SYN 1219 Herbicide, EPA File Symbol No. 100-RRAO. It corrects the CAS No. for [redacted]

Corrected CSF's for SYN 1219 Herbicide are also attached.

Inert ingredient information may be entitled to confidential treatment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

January 3, 2003

OFFICE OF PESTIDE
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

KAREN V. TRIPP
SYNGENTA CROP PROTECTION, INC.
TEST, PO Box 18300
GREENSBORO, NC 274198300

PRODUCT NAME: SYN 1219 HERBICIDE
COMPANY NAME: SYNGENTA CROP PROTECTION, INC.
OPP IDENTIFICATION NUMBER: 302281
EPA FILE SYMBOL: 100-RRAO
EPA RECEIPT DATE: 12/27/02

SUBJECT: RECEIPT OF APPLICATION FOR A NEW REGISTRATION

DEAR REGISTRANT:

The Office of Pesticide Programs has received your application for a new registration and it has passed an administrative screen for completeness.

Please note that this is only a notification of receipt of your application. This is only the first step in the application process and does NOT constitute approval.

If you have any questions, please contact Registration Division, Risk Management Team 25, at (703) 305-5697.

Sincerely,

Patricia G. Moore

Front End Processing Staff
Information Services Branch
Information Resources and Services Division

N/F

Please read instructions on reverse before completing form.

2B

United States Environmental Protection Agency Washington, DC 20460	[x] Registration [ ] Amendment [ ] Other	OPP Identifier Number ~~282113~~ 302281

Application for Pesticide - Section I

1. Company/Product Number 100- RRAO	2. EPA Product Manager Mr. Jim Tompkins	3. Proposed Classification [x] None [ ] Restricted
4. Company/Product (Name) SYN 1219 Herbicide	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Syngenta Crop Protection, Inc. P. O. Box 18300 Greensboro, NC 27419 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

[ ] Amendment - Explain below.

[ ] Resubmission in response to Agency letter dated _____

[ ] Notification - Explain below.

[ ] Final printed labels in response to Agency letter dated _____

[ ] "Me Too" Application.

[ ] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.).

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [x] No	[ ] Yes [x] No	[ ] Yes [x] No	[ ] Metal [x] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) _____
Certification must be submitted	If "Yes" Unit Packaging wgt. / No. per Container	If "Yes" Unit Packaging wgt. / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[x] Label [ ] Container	1 gal., 2.5 gal., 30 gal., 110 gal. and bulk	[x] On Label [ ] On Labeling accompanying product

Manner in Which Label is Affixed to Product: [ ] Lithograph [x] Paper glued [ ] Stenciled [ ] Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Jerry Wells	Regulatory Product Manager	336-632-6324

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature Jerry Wells	3. Title Regulatory Product Manager	6. Date Application Received **(Stamped)**
4. Typed Name Jerry Wells	5. Date December 19, 2002	

EPA Form 8570-1 (Rev. 8-94) Previous editions are obsolete.

Form Approved OMB No. 2070-0060

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
401 M STREET, S.W.
WASHINGTON, D.C. 20460

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Certification with Respect to Citation of Data

Applicant's/Registrant's Name, Address, and Telephone Number Syngenta Crop Protection, Inc., P.O. Box 18300, Greensboro, NC 27419 336-632-6000	EPA Registration Number/File Symbol 100- 1169
Active Ingredient(s) and/or representative test compound(s) glyphosate	Date 12-20-02
General Use Pattern(s) (list all those claimed for this product using 40 CFR Part 158) terrestrial food crop and noncrop	Product Name SYN 1219 Herbicide

NOTE: If your product is a 100% repackaging of another purchased EPA-registered product labeled for all the same uses on your label, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

☐ I am responding to a Data-Call-in Notice, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).

SECTION I: METHOD OF DATA SUPPORT (Check one method only)

☐ I am using the cite-all method of support, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).

☒ I am using the selective method of support (or cite-all option under the selective method), and have included with this form a completed list of data requirements (the Data Matrix form must be used).

SECTION II: GENERAL OFFER TO PAY

[Required if using the cite-all method or when using the cite-all option under the selective method to satisfy one or more data requirements]

☐ I hereby offer and agree to pay compensation, to other persons, with regard to the approval of this application to the extent required by FIFRA.

SECTION III: CERTIFICATION

I certify that this application for registration, this form for reregistration, or this Data-Call-In response is supported by all data submitted or cited in the application for registration, the form for reregistration, or the Data-Call-In response. In addition, if the cite-all option or cite-all option under the selective method is indicated in Section I, this application is supported by all data in the Agency's files that (1) concern the properties or effects of this product or an identical or substantially similar product, or one or more of the ingredients in this product; and (2) is a type of data that would be required to be submitted under the data requirements in effect on the date of approval of this application if the application sought the initial registration of a product of identical or similar composition and uses.

I certify that for each exclusive use study cited in support of this registration or reregistration, that I am the original data submitter or that I have obtained the written permission of the original data submitter to cite that study.

I certify that for each study cited in support of this registration or reregistration that is not an exclusive use study, either: (a) I am the original data submitter; (b) I have obtained the permission of the original data submitter to use the study in support of this application; (c) all periods of eligibility for compensation have expired for the study; (d) the study is in the public literature; or (e) I have notified in writing the company that submitted the study and have offered (i) to pay compensation to the extent required by sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA; and (ii) to commence negotiations to determine the amount and terms of compensation, if any, to be paid for the use of the study.

I certify that in all instances where an offer of compensation is required, copies of all offers to pay compensation and evidence of their delivery in accordance with sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA are available and will be submitted to the Agency upon request. Should I fail to produce such evidence to the Agency upon request, I understand that the Agency may initiate action to deny, cancel or suspend the registration of my product in conformity with FIFRA.

I certify that the statements I have made on this form and all attachments to it are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature	Date	Typed or Printed Name and Title
Jerry Wells	12-19-02	Jerry Wells, Regulatory Product Manager

EPA Form 8570-34 (9-97) Electronic and Paper versions available. Submit only Paper version.

0060

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 1 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
61-1, 61-2, 61-3	Product Identification, Description of Beg. materials and Manufacturing Process., Discussion of formation of Impurities	44320601	Syngenta Crop Protection	OWN	
62-1, 62-2, 62-3	Preliminary Analysis, Certification of Limits, Analytical Methods to Certify Limits	44320602	Syngenta Crop Protection	OWN	
63-2, 63-3,63-4, 63-5, 63-6, 63-7, 63-8, 63-9, 63-10, 63-11, 63-12 63-13, 63-14, 63-17, 63-20	Color: Physical State, Odor, Melting Point; Density/Relative Density/Bulk Den. Solubility Vapor Pressure; Dissociation constants /water	44320603	Syngenta Crop Protection	OWN	

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 2 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
63-2, 63-4, 63-5, 63-7, 63-8, 63-9, 63-10, 63-11, 63-12, 63-13, 63-14, 63-17, 63-20	Octanal/Water partition coefficient; pH, Stability; Oxidizing/ Reducing agent; Storage stability, Corrosion characteristics	44320603	Syngenta Crop Protection	OWN	
71-1	Acute Avian Oral-Quail/Duck	108204,43334709	Monsanto Company 700 Chesterfield St. Louis, MO 61398	PER	
71-2	Avian Dietary-Quail	108107/ 4333710	Monsanto Company	PER	
71-2	Avian Dietary-Duck	76492,4334711	Monsanto Company	PER	
71-3	Wild Mammal Toxicity	76492	Monsanto Company	PER	

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 3 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
71-4	Avian Reproduction-Quail	108207	Monsanto Company	PER	
71-4	Avian Reproduction-Duck	36328,111953	Monsanto Company	PER	
72-1	Fish Toxicity Bluegill	136339 S-0178025	Monsanto Company "Published in Arch. Environm. Contam. Toxico"	PER PL	
72-1	Fish Toxicity Rainbow Trout	108112,108205 43334713,4334714	Monsanto Company	PER	
72-2	Invertebrate Toxicity	108172, 43334715 43334716	Monsanto Company	PER	
72-3	Estuarine/Marine Toxicity—Mollusk	108110	Monsanto Company	PER	
72-3	Estuarine/Marine Toxicity- Shrimp	108111	Monsanto Company	PER	
72-4	Life Cycle Invertebrate	124763	Monsanto Company	PER	
72-5	Life Cylcle Fish	108171	Monsanto Company	PER	
72-6	Aquatic organism accumulation	41228301,41228302	Monsanto Company	PER	

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DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 4 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
81-1	Acute Oral Toxicity in the Rat	44320604	Syngenta Crop Protection	OWN	
81-2	Acute Dermal Toxicity	44320605	Syngenta Crop Protection	OWN	
81-3	Acute Inhalation-Rat	44320606	Syngenta Crop Protection	OWN	
81-4	Primary Eye Irritation to the Rabbit	44320607	Syngenta Crop Protection	OWN	
81-5	Primary Dermal Irritation to the Rabbit	44320608	Syngenta Crop Protection	OWN	
81-6	Dermal Sensitization	44320609	Syngenta Crop Protection	OWN	
82-1	90- Day Feeding Rodent	36803,40559401	Monsanto Company	PER	
82-2	21- Day Dermal Rabbit/Rat	98460	Monsanto Company	PER	
83-1	Chronic Feeding Toxicity--Rodent	98460,93879, 150564,153376, 41643801,41728701	Monsanto Company	PER	

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Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
83-1	Chronic Feeding Toxicity—Non Rodent	162912,41728701, 153374	Monsanto Company	PER	
83-2	Oncogenicity—Rat	4164380,41728701, 93879	Monsanto Company	PER	
83-2	Oncogenicity—Mouse	130406, 150564, 153376	Monsanto Company	PER	
83-3	Developmental Toxicity-Rat	46362	Monsanto Company	PER	
83-3	Developmental Toxicity-Rabbit	46363,43334704, 43334705	Monsanto Company	PER	
83-4	2-Generation Reproduction--Rat	81674,105995, 41621501	Monsanto Company	PER	
83-5	Chronic&Long Term Combined Toxicity /Oncogenicity	41643801,417228701	Monsanto Company	PER	
84-2	Gene Mutation (Ames Test)	78620,132683, 43334707	Monsanto Company	PER	
84-2	Structural Chromosomal Aberration	46364,132681, 132685,43334708 43355801	Monsanto Company	PER	
84-4	Other Genotoxic Effects	78619,132686 132685	Monsanto Company	PER	

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DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 6 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
85-1	General Metabolism	40767101,40767102	Monsanto Company	PER	
122-1	Seed Germination/ Seedling Emergence	40159301,44125712	Monsanto Company	PER	
122-2	Aquatic Plant Growth	40236901,40236902, 40236903,40236904, 40236905,44125713, 44125714	Monsanto Company	PER	
123-1	Tier II Germination/ SeedingEmergence/ Vegetative Vigor	43088701,44125715 44320635,45045101	Monsanto Company	PER	
123-2	Aquatic Plant Growth	40236901,40236902 40236903,40236904 40236905	Monsanto Company	PER	
133-3	Dermal Exposure	41554901,41554902	Monsanto Company	PER	
133-4	Inhalation Exposure	41554902	Monsanto Company	PER	
141-1	Honey Bee Acute Contact	26489	Monsanto Company	PER	
161-1	Hydrolysis	108192,44715408	Monsanto Company	PER	

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Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
161-2	Photodegradation-Water	41096102,41689101 44125716	Monsanto Company	PER	
161-3	Photodegradation-Soil	41335101	Monsanto Company	PER	
162-1	Aerobic Soil Metabolism	41742901,42372501 44125717	Monsanto Company	PER	
162-3	Anaerobic Aquatic Metabolim	108192,41723701, 42372502,44125718 44621801	Monsanto Company	PER	
162-4	Anaerobic Aquatic Metabolism	41723601,42372503,	Monsanto Company	PER	
163-1	Leaching/ Absorption/ Desorption	108192	Monsanto Company	PER	
164-1	Terrestrial Field Dissipation	162910,162922, 162923,42607501 41096103,42765001 42963401,44125719 44422201	Monsanto Company	PER	
164-2	Aquatic Field Dissipation	40881601,42383201	Monsanto Company	PER	
164-3	Forest Field Dissipation	41552801	Monsanto Company	PER	
164-5	Soil, Long-Term Dissipation	162922	Monsanto Company	PER	

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 8 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
165-1	Confined Rotational Crop	42372504,41543201, 41543202	Monsanto Company	PER	
165-3	Accumulation-Irrigated Crops	42372505,40541305	Monsanto Company	PER	
165-4	Biaccumlation in Fish	41228301	Monsanto Company	PER	
171-4 (a)	Plant Metabolism	38771,39141,51983, 65753,108097, 108129,108133, 108140,108151, 111945,43330601, 43712701,4429301	Monsanto Company	PER	
171-4 (b)	Animal Metabolism	94971,108098, 10899,108100, 108101,108116, 108200,40541301, 40541302,40541303, 4051304	Monsanto Company	PER	
171-4 (c) &(d)	Residue Analytical Methods	28853,36222,36223, 36231,37688,38770, 38979,44423,51982, 53002,53005,60108, 61559,63714,65751, 65752,67425,76805, 78823,78824,	Monsanto Company	PER	

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 9 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4 (c) &(d) (cont.)		108133,108144, 108149,108151, 108175,108176, 108186,108231, 111945,111949, 122715,159419, 164729, 40502601, 40541304,4051305, 42312803,108149, 108151,108175, 108176,108186, 108231, 111945, 111949,122715, 159419,164729, 40502601,40541304, 40541305,42312803,			
171-4 (c) &(d)	Residue Analytical Methods (cont.)	40502605,40541303, 40541304,40541305, 42312804,43260401, 43260402,43260403, 43315701,43315702, 43315703,43342001, 43342002,43571801, 43655701,43655702,	Monsanto Company	PER	

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DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 10 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4 (c) &(d) (cont.)		43712702,43807201, 43807202,43807203, 43824301,43824302, 43827801,43827802, 43845401,43870201, 43870202,43845401, 43870203,43870204, 43906101,44279301, 44331601,44331602, 44331603,44407501, 44528801,44528802, 44528803,44528804, 44531301,44541201, 44646601,44837501, 44837502,45066901, 45077401,45077402,			
		156793,40159401, 40532001,40532003, 40532004,41472001, 41472002,41478101, 41573501,41940701, 41947002,41947003, 41947004,41947005, 41947006,40502602, 40502603,40502604,			

350

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 11 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4 (c) &(d) (cont.)		40785301,40785302, 40785303,41484301, 42155301,42155302, 42765002,43077001, 43927401,43927402			
171-4 (e)	Storage Stability	39142,40083,51980, 53002,61553 615555,108129, 108132,40502605, 40532004,41940701, 41472002,41573501, 41940701	Monsanto Company	PER	
171-4(k) & (l)	Magnitude of the Residue in Plants, **Root and Tuber Vegetables Groups**		Monsanto Company	PER	
	Beets, garden/ Carrots	108519	Monsanto Company	PER	
	Potatoes	39381,108151, 40785302,41947002,	Monsanto Company	PER	

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 12 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4(k) & (l) (cont.)		43906101,41947001, 108159,108519, 39381,108151, 40785302,41947002, 43906101,41947001			
	Radish	108159	Monsanto Company	PER	
	Sugar beets	40785304,43315703, 39381,108151	Monsanto Company	PER	
	Sweet Potatoes	108151,	Monsanto Company	PER	
	Turnips	40835201	Interregional Res.Project No.4	PL	
	Magnitude of the Residue in Plants **Leaves of Root and Tuber Vegetables Group**				
	Sugar beet tops	39381,108151, 108159	Monsanto Company	PER	
	Turnip tops	40835201	Interregional Res.Project No.4	PL	

0060

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DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 13 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4(k) & (l) (cont.)	**Bulb Vegetables Group**				
	-Onions (green and dry bulb)	40783101,49783101	Interregional Res.Project No.4	PL	
	-Leafy Vegetables (except Brassica) Group				
	Lettuce(head and leaf)	108159	Monsanto Company	PER	
	Brassica leafy Vegetables Group				
	Broccoli	40820801	Interregional Res.Project No.4	PL	
	Cabbage	108159	Monsanto Company	PER	
	Mustard Greens	40820801,40820802	Interregional Res.Project No.4	PL	
	Legume Vegetables (Succulent/Dried) Group				
	-Beans(succulent/ dried)	108159,44837501, 44837502,108159	Monsanto Company	PER	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Form Approved OMB No. 2070-0060

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 14 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
	Lentils	108159	Monsanto Company	PER	
171-4(k) & (l) (cont.)	Peas (Succulent/Dried)	108159,43807201, 42312804	Monsanto Company	PER	
	Soybeans	123953,84936, 25403,33954, 38908,40084, 61555,108153, 108203,43260401, 43260402,43260403	Monsanto Company	PER	
	(Processed Commodities)	61555, 108153, 156793			
	Foliage of Legume Vegetables (Succulent/Dried) Group				
	Beans vines/hay	108159	Monsanto Company	PER	
	Lentil forage/hay	108159	Monsanto Company	PER	
	Soybean forage/hay	123593,84936, 156793,33954, 38908,40084, 61555,108153	Monsanto Company	PER	

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 15 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
		108203			
171-4 (k) & (l)	**Citrus Fruits Group**	39142	Monsanto Company	PER	
	processed commodities	4059401,44496	Monsanto Company	PER	
	Pome Fruits	108129,108186	Monsanto Company	PER	
	Stone Fruits Group	111949	Monsanto Company	PER	
	-Plums (fresh prunes)	111949,40785301, 43315701	Monsanto Company	PER	
	Small Fruits and Berries Group				
	Cranberries	40799101,53002	Monsanto Company	PER	
	Grapes	38770,108132	Monsanto Company	PER	
	(processed commodities)	40785303, 43315702	Monsanto Company	PER	
	Tree Nuts Group	111945	Monsanto Company	PER	
	Almond Hulls	111945,42153301, 42155302	Monsanto Company	PER	
	Cereal Grains Group				
	Barley	38908,40087,44422, 108203,42312801, 42312802,43807202,	Monsanto Company	PER	

0060

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 16 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4(k) & (l) (cont.)		43827802,43845401			
	Corn (field and fresh)	23268,23336,37687, 38908,40085,48284, 49054,108203, 123953,130807, 40502602,43655701, 43712702,44531301, 45066901	Monsanto Company	PER	
	(Processed Commodities)	40502604,41478101 43655702	Monsanto Company	PER	
	Oats	38908,40087,44422, 108203,43870201, 43870203,43870204, 43870202,43870203, 43870204,43927401, 43297402	Monsanto Company	PER	
	Rice	38908,40087,44422	Monsanto Company	PER	
	Sorghum	38908,40087,44422, 108203,109271,	Monsanto Company	PER	

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 17 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4(k) & (l) (cont.)		40502601,103375, 130807,144722, 43342001,44646601			
	(Processed Commodities)	4052603,41472001, 43342002	Monsanto Company	PER	
	Wheat	38908,40086,44426, 108203,122715,	Monsanto Company	PER	
	Wheat (cont.)	41484301,123953, 150835	Monsanto Company	PER	
	Forage, Fodder and Straw of Cereal Grains Group				
	Barley Forage, Hay, and Straw	38908,40087,44422, 108203	Monsanto Company	PER	
	Corn Forage and fodder	23336,37687,8908, 40085,48284, 108203,40502602, 43712702,123953, 49054,23268, 130807,45066901, 43655701	Monsanto Company	PER	

0060

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 18 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4 (k) & (l) (cont.)	Oat forage, hay and straw	38908,40087, 44422,108203	Monsanto Company	PER	
	Rice Straw	38908,40087,44422	Monsanto Company	PER	
	Sorghum forage and fodder	38908,40087,44422, 108203,109271, 40502601,103375, 1308707,144722	Monsanto Company	PER	
	Wheat forage and straw	38908,40086,44426, 108203,122715, 123953,150835, 41484301	Monsanto Company	PER	
	Grass forage and hay	76805,108147,53004	Monsanto Company	PER	
	Non-grass Animal Feeds(forage, fodder, straw and hay) Group Alfalfa seed	76805,108147 40541304,108133, 53004,43077001	Monsanto Company	PER	

0060

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 19 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4 (k)& (l) (cont.)	**Miscellaneous Commodities**				
	Asparagus	108144 40642401	Monsanto Company Inter.Res.Proj.4	PER PL	
	Avocados	108149,1108164	Monsanto Company	PER	
	Bananas	108175	Monsanto Company	PER	
	Breadfruit Canistel	4019401,41049401 4019401,41049401	Monsanto Company	PER	
	Canola	42312803,43807203, 44528801,44528802, 44528803,44528804, 43827801	Monsanto Company	PER	
	Coffee Beans	51980,51981	Monsanto Company	PER	
	Cotton	60103,61553, 108176,108153, 108203,4351801,	Monsanto Company	PER	
	(Processed Commodites)	61555,108176, 108153,123953, 108163	Monsanto Company	PER	

0060

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 20 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4 (k)& (l) (cont.)	Dates	40149401,41049401	Interregional Res. ProjectNo.4	PL	
	Guavas	59050	Monsanto Company	PER	
	Jaboticaba	4014901,4104901	Interregional Res.Project No.4	PL	
	Jackfruit	4014901,4104901	Monsanto Company	PER	
	Mangoes	40580401	Intreg.Res.Proj4	PL	
	Olives	108175,42398401	Monsanto Company	PER	
	(Processed Commodities)	108175,42398401	Monsanto Company	PER	
	Papayas	63713	Monsanto Company	PER	
	Peanuts	144341,28852	Monsanto Company	PER	
	(Proceesed Commodities)	144341,28856, 40750702	Monsanto Company	PER	
	Persimmons	40149401	Monsanto Company	PER	
	Pineapple	43824301,43824302	Monsanto Company	PER	
	Pistachio	111945	Monsanto Company	PER	
	Sapote(black and white)	4019401,4109401	Interregional Res. Project No4	PL	

360

0060

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 21 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4 (k)& (l) (cont.)	Soursop	4019401,4109401	Interregional Res. Project No4	PL	
	Sugarcane	108140	Monsanto Company	PER	
	(Processed Commodities)	108168,61558, 136876,78823	Monsanto Company	PER	
	Tamarind	4019401	Monsanto Company	PER	
	Tea	78823,78824	Monsanto Company	PER	
171-4 (h)	Magnitude of the Residue in Plants Resulting from the Use of Irrigation Water	39381,40541305	Monsanto Company	PER	
171-4 (j)	Magnitude of Residue in Meat, Milk, Poultry and Eggs	108115,40532001, 40532002,4053203, 40532004	Monsanto Company	PER	

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DATA MATRIX

DATE 12/19/02	EPA Reg. NO./File Symbol 100-	PAGE 22 of 22
Applicant's/ Registrant's Name & Address Syngenta Crop Protection P.O. Box 18300 Greensboro, NC 27419-8300	Product: SYN 1219 Herbicide	

Ingredient Glyphosate, N-(phosphonemethyl)glycine

Guildeline Reference number	Guideline Study Name	MRID Number	Submitter	Status	Note
171-4 (g)	Magnitude of Residue in Fish	36229,76491, 154311,155120, 108173,94971, 41228301,41228302, 132170,128690	Monsanto Company	PER	
171-4 (f)	Nature and Magnitude of the Residue in Drinking and Irrigation Water	39377,39381, 36224,77238, 77301,108173 39381	Monsanto Company Public Document 1	PER PL	

Signature	Name and Title	Date
Jerry Wells	Jerry Wells, Regulatory Product Manager	012/19/2002

EPA Form 8570-35 (9-97) Electronic and Paper versions available. Submit only Paper version.

Agency Internal Use Copy

SYN–1219
Herbicide

Label superseded
by label submitted
9/9/03

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	45.2%
Other Ingredients:	54.8%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-xxxx
EPA Est.

SCP xxxx

2.5 gallons
U.S. Standard Measure

30 gallons
U.S. Standard Measure

110 gallons
U.S. Standard Measure

_____ gallons [Bulk]
U.S. Standard Measure

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long sleeved shirt and long pants
- Socks and shoes

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic, or plastic-lined steel containers.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and Buyer and User assume the risk of any such use. SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall SYNGENTA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitations of Warranty and of Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical resistant gloves Category A, such as butyl rubber, or natural rubber, or neoprene rubber
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are **NOT** within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Recyclable/Refillable Containers

Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

Container Disposal

Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

GENERAL INFORMATION

SYN-1219 is a nonselective foliar systemic herbicide used to control a broad spectrum of emerged grass and broadleaf weeds, both annual and perennial, in:

- alfalfa, clover, and other legumes
- berries, fruits, nuts, and vines
- Christmas trees
- conservation compliance/conservation reserve program (CRP)
- corn, including glyphosate tolerant
- cotton, including glyphosate tolerant
- fallowland and postharvest
- farmsteads
- grasses and grass seed production
- herbs
- pastures
- peanuts
- small grains
- sorghum
- soybeans, including glyphosate-tolerant
- sugarcane
- sunflower
- vegetables

SYN-1219 is formulated as a liquid concentrate which contains 4.17 pounds acid equivalent per gallon.

GENERAL USE PRECAUTIONS

- SYN-1219 requires actively growing green plant tissue to function. Application to drought-stressed weeds or weeds with little green foliage (i.e. mowed, cut, or hailed on weeds); weeds covered with dust; weeds damaged by insects or diseases may result in reduced weed control.

- SYN-1219 does not provide soil residual control of weeds. Weeds emerging after application will require retreatment.

- Heavy rainfall or irrigation shortly after application may require retreatment.

- Tillage or mowing within 3 days following application may reduce weed control.

- Do not apply this product through any type of irrigation system.

- DO NOT spray if conditions of thermal inversion exist, or if wind direction and speed may cause spray to drift onto adjacent nontarget areas. Drift minimization is the responsibility of the applicator. Consult with local and State agricultural authorities for information regarding avoiding or minimizing spray drift.

- SYN-1219 is not volatile and cannot move as a vapor after application onto nontarget vegetation.

- It is recommended that the spray system be thoroughly cleaned with water and a commercial tank cleaner after each use.

- Spray solutions of SYN-1219 should be mixed, stored, and applied using only plastic, plastic-lined steel, stainless steel, aluminum, or fiberglass containers. Concentrate should not be stored in galvanized steel, carbon steel, aluminum, or unlined steel containers.

- There are no rotational crop restrictions following application of this product.

- Severe damage or destruction may be caused by contact of SYN-1219 to any vegetation (including leaves, green stems, exposed non–woody roots, or fruit) of crops, trees, and other desirable plants to which treatment is not intended, except as specified for glyphosate–tolerant crops.

- In crop areas, do not exceed a total of 5.8 qts./A. In noncrop areas, do not exceed a total of 7.6 qts./A.

- Do not exceed 0.7 qt./A by air unless otherwise specified on this label.

- For broadcast postemergence treatments, do not harvest or feed treated vegetation for 8 weeks following application, unless otherwise specified.

- The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed maximum use rate.

GLYPHOSATE RESISTANT WEED MANAGEMENT

Some naturally occurring weed biotypes resistant to glyphosate may exist through normal genetic variability in any weed population. The repeated use of herbicides with the same mode of action is known to lead under certain conditions to a selection of resistant weeds. Certain agronomic practices reduce the likelihood that resistant weed populations will develop and integrated strategies are known to manage such problem weeds.

Glyphosate is the active ingredient in the herbicide SYN–1219. The primary mode of action of glyphosate involves inactivation of the target enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS). This enzyme is involved in the synthesis of several essential amino acids, that are the building blocks for proteins needed for plant growth and development. In susceptible weeds glyphosate binds tightly to EPSPS rendering the enzyme inactive. With the inactivation of EPSPS, the plant is unable to produce certain essential amino acids resulting in plant death. Initial studies on the mechanistic basis of resistance to glyphosate in various weed species have to date, revealed EPSPS target site resistance, and involvement of differences in translocation as important. Other mechanisms by which plants can become resistant to herbicides include differences in uptake, metabolism and sequestration. Within the USA specific biotypes of horseweed/marestail, *Conyza canadensis* and rigid ryegrass, *Lolium rigidum* have become resistant to glyphosate. The first incident reported to the Herbicide Resistance Action Committee (HRAC) of glyphosate resistance was in 1998 on rigid ryegrass. Horseweed resistance was subsequently confirmed in 2000.

Following is a list of Best Weed Management practices to be considered in glyphosate-based programs.

a. Rotate glyphosate with herbicides with different modes of action
b. Rotate RR crops with conventional crops to reduce resistant volunteers

c. Use alternative burndown chemistry for RR crops likely to require more than one application of glyphosate
d. Do not use more than two applications of a glyphosate based herbicide over a two year period in RR corn and RR soybeans production. Up to three in crop applications may be used in RR cotton per year if glyphosate application is rotated with in-crop cultivation.
e. Use full labeled rates of glyphosate and/or tank mix partners to minimize tolerant escapes and do not allow weed escapes to produce seeds or vegetative propagules.

Since the occurrence of resistant weeds is difficult to detect prior to use, Syngenta Crop Protection accepts no liability for any losses that may result from the failure of SYN-1219 to control resistant weeds.

APPLICATION AND MIXING DIRECTIONS

TIMING

SYN-1219 should be applied to actively growing emerged weeds. Annual weeds of 6 inches or less in height are typically the easiest to control. Generally, more effective control of perennial weeds is achieved at the flowering or seedhead stage. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for specific application timing.

When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth to appear prior to application. When perennial weeds have been mowed or grazed, allow new growth to reach recommended stage prior to application.

Visible effects on annual weeds occurs within 2-4 days after application; effects on perennial weeds may take 7 days or longer. Extremely cool or cloudy weather following treatment may slow activity.

RATES

Follow recommended rates for SYN-1219 listed in the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections. Use the higher label rates when weeds are dense or large. Also, use higher application volumes and pressures when weed vegetation is dense.

SPRAY ADDITIVES

Ammonium Sulfate (AMS) – Control of annual and perennial weeds with SYN-1219 may be improved by adding dry ammonium sulfate at 1.0 to 2% by weight or 8.5-17.0 lbs./100 gals. of water. Liquid formulations of AMS may be used at an equivalent rate. Do not reduce use rates of SYN-1219 when using AMS.

Drift Control Agents – Drift control agents may be used with SYN-1219.

TANK MIXES WITH RESIDUAL HERBICIDES

Refer to crop sections for recommended tank mixes. Tank mixes of SYN-1219 with other pesticides, fertilizers, or any other additives except as specified on this label or other approved Syngenta supplemental labeling may result in tank mix incompatibility or unsatisfactory performance. It is recommended that the compatibility of any tank mix combination be tested on a small scale such as a jar test before actual tank mixing.

Always refer to labels of other pesticide products for mixing directions and precautions which may differ from those outlined here. Use in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

Tank Mixing Recommendations:

1. Fill spray tank ½ full with clean water.

2. Begin tank agitation and continue throughout mixing and spraying.
3. Add AMS (if used).
4. Add dry formulations (WP, DF, etc.) to tank.
5. Add liquid formulations (SC, EC, L, etc.) to tank.
6. Add SYN-1219.
7. Fill remainder of spray tank.

APPLICATION EQUIPMENT AND TECHNIQUES

- Avoid drift. Applications should not be made in low level inversion conditions, when winds are gusty or under any other conditions which favor drift. Inversions are characterized by stable air and increasing temperatures with height above the ground. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer. Drift may cause damage to any vegetation contacted to which treatment is not intended.

- Compatibility with drift control additives may vary. It is recommended that the combination be tested on a small scale such as a jar test. Read and follow manufacturer's directions for use. A reduction in weed control may occur when drift control agents are used.

- All equipment must be properly maintained and washed to remove product residues after use.

Broadcast Applications

Ground

Applications should be made in 3-40 gals. of water per acre.

When foliage is dense, spray volume should be increased to ensure coverage of the target weeds. Flat-fan nozzles will result in the most effective application of SYN-1219. Spray boom and nozzle heights must be adjusted to provide coverage of target weed. Flood nozzles may result in reduced weed control due to inadequate coverage.

Air

Applications should be made in 3-15 gals. of water per acre.

Spray should be released at the lowest height consistent with effective weed control and flight safety. Applications more than 10 ft. above the canopy should be avoided.

Use the largest droplet size consistent with good weed control. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding inappropriate spray boom pressure. Solid stream or low shear nozzles may be utilized to reduce small droplet formation. These nozzles direct the fluid parallel to the existing airflow to reduce shear effects. Other techniques may include reducing the fan angle of flat fan nozzles if used, or reducing the deflector plate angle if deflector type nozzles are used. Ensure the spray is released at an appropriate distance below the airfoil.

For best results, each specific aerial application vehicle used should be quantifiably pattern tested for aerial application of SYN-1219 initially and every year thereafter. To minimize drift, it is suggested aerial application equipment produce the following minimum spray deposition characteristics:

Volume Median Diameter (VMD)	› 400 microns
Volume Diameter (VD) {0.9}	› 200 microns

Prolonged exposure of SYN-1219 to uncoated steel surfaces may result in corrosion and possible failure of the part. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion. To prevent corrosion of exposed parts, thoroughly wash aircraft after each day of spraying to remove residues of SYN-1219 accumulated during spraying or from spills.

Landing gear are most susceptible.

Shielded/Hooded Application

Use shielded/hooded sprayers to control weeds between rows while protecting the crop from the herbicide. Keep shields/hoods as close to the ground as possible and avoid ground speed in excess of 5 mph. Use appropriate nozzles, spacing, and pressure to achieve coverage without allowing spray to touch or drift onto the crop. Maintain equipment in good operating condition to prevent leakage or dripping onto the crop. Refer to state extension service recommendations and equipment manufacturers' guidelines for more information on proper operation of shielded/hooded sprayers.

Spot Treatments

For annual weeds less than 6 inches, use a 0.4 to 0.7% v/v solution. For annual weeds over 6 inches, use a 0.7 to 1.1% v/v solution. Use a 0.7 to 1.5% v/v solution for most perennials (see Table 3 for specific rates and timing). When using motorized spot spray equipment (rider bar), use a 2.2% v/v solution. See Spot Spray Dilution Table below for rates of SYN-1219/volume of finished spray solution. Spray the solution on actively growing weeds until uniformly wet but not to the point of runoff. Retreat 14-21 days later if regrowth occurs.

SYN-1219 Spot Spray Dilution Table

Solution Strength	To Make This Volume			
	1 gallon	10 gallons	25 gallons	100 gallons
0.4%	0.5 fl. oz.	5 fl. oz.	12 fl. oz.	3 pts.
0.7%	0.9 fl. oz.	9 fl. oz.	1.4 pts.	5.6 pts.
0.9%	1.2 fl. oz.	12 fl. oz.	1.9 pts.	3.8 qts.
1.1%	1.4 fl. oz.	14 fl. oz.	2.2 pts.	4.4 qts.
1.5%	1.9 fl. oz.	1.2 pts.	3 pts.	1.5 gals.
2.2%	2.8 fl. oz.	1.8 pts.	4.4 pts.	2.2 gals.

Wiper Application

SYN-1219 may be applied using a wiper or "wick" applicator (e.g. rope, sponge, or porous plastic applicators) for selective control or suppression of annual and perennial weeds which become taller than the crop or desirable vegetation. Mix 3 quarts of SYN-1219 in 2 gals. of water unless directed otherwise in this label (See **General Use Precautions** for Berries, Fruits, Nuts, and Vines). Precautions should be taken to avoid contact with crops or desirable vegetation. Equipment should be operated at speeds of 5 mph or less. Use slower speeds where weeds are dense. For improved control, make two applications in opposite directions.

CDA Equipment

For control of annual weeds with hand held equipment, apply a 20% solution of SYN-1219 at a flow rate of 2 fl. oz. per minute and a walking speed of 1.5 mph (1 qt./A). For perennial weeds, use a 20 to 30% solution of SYN-1219 at a flow rate of 2 oz. per minute and a walking speed of 0.75 mph (2 to 3 qts./A). For vehicle mounted equipment, apply in 3 to 15 gals. of water per acre. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Precautions should be taken to avoid contact with crops or desirable vegetation.

CROPS

This section is organized alphabetically by crop categories. There may be several crops listed in a crop category.

ALFALFA, CLOVER, AND OTHER LEGUMES

SYN-1219 may be used on the legume crops listed below:

Alfalfa	Lespedeza	Trefoil
Clover	Lupine	Velvetbean
Kudzu	Sainfoin	Vetch

METHOD OF APPLICATION: Before, during, or after planting but before crop emergence; renovation; spot spray (alfalfa and clover only); wiper/wick (alfalfa and clover only); preharvest (alfalfa only); and postharvest.

PREPLANT/PREEMERGENCE, DORMANT, OR RENOVATION

Deep tillage following treatment of weeds with SYN-1219 or a sequential application of SYN-1219 may be required to control well established perennials.

PREHARVEST (ALFALFA ONLY)

Use this treatment to eliminate or destroy declining alfalfa stands. Up to 3.0 pts. per acre of SYN-1219 may be applied as a broadcast spray with ground or aerial equipment at least 36 hours before harvest. Applications may be made any time of the year when the alfalfa crop is in the bud to flower stage of growth. Deep tillage following preharvest treatment or a postharvest application of SYN-1219 may be required to provide control of well established perennials.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

GENERAL USE PRECAUTIONS FOR ALFALFA, CLOVER, AND OTHER LEGUMES

- Spot and wiper/wick application must be made at least 14 days before grazing or harvest of forage and hay.
- Preharvest and renovation applications can be made with no more than 1.5 pts./A at least 36 hours before grazing or harvest of forage or hay.
- Do not apply a preharvest treatment on alfalfa grown for seed as a reduction in germination or vigor may occur.

TANK MIXTURES FOR PREPLANT/PREEMERGENCE, DORMANT, OR RENOVATION USE FOR ALFALFA, CLOVER, AND OTHER LEGUMES

SYN-1219 can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply SYN-1219 at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Buctril®	Karmex®	Prowl®	Velpar®
Dual®	Kerb®	Pursuit®	
Eptam®	Lexone®/Sencor®	Trifluralin	

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

BERRIES, FRUITS, NUTS, AND VINES

SYN-1219 may be used on both bearing and nonbearing crops listed below.

Almond
Apple
Apricot
Atemoya
Avocado
Banana
Barbados cherry (Acerola)
Beechnut
Blackberry
Blueberry
Boysenberry
Breadfruit
Brazil nut
Butternut
Calamondin
Canistel
Carambola
Cashew
Cherimoya
Cherry (sweet, sour, tart)
Chestnut
Chinquapin
Chironja
Citron (postdirected only)
Citrus hybrids
Cocoa bean
Coconut
Coffee
Crabapple
Cranberry
Currant
Date
Dewberry
Durian
Elderberry
Fig
Filbert (Hazelnut)
Gooseberry
Grapefruit
Grapes (all)
Guava
Hickory nut
Huckleberry
Jaboticaba
Jackfruit
Kiwi fruit
Kumquat
Lemon
Lime
Loganberry
Longan
Loquat
Lychee
Macadamia
Mandarin
Mango
Mangosteen
Marmaladebox (genip)
Mayhaw
Nectarine
Olallieberry
Olive (postdirected only)
Orange (all)
Oriental pear
Papaya
Passion fruit
Peach
Pear
Pecan
Persimmon
Pineapple
Pistachio
Plantain
Plum
Plumcot
Pomegranate
Prune (all)
Pummelo
Quince
Rambutan
Raspberry (black, red)
Sapodilla
Sapote (black, mamey, white)
Satsuma mandarin
Soursop
Sugar apple
Tamarind
Tangelo
Tangerine
Tangor
Tea
Walnut (black, English)
Youngberry

METHOD OF APPLICATION: Preplant; preemergence; directed spray (except cranberry); middles (between rows of trees); strips (in rows of trees); perennial grass suppression (chemical mowing); post harvest (cranberry); and wiper/wick applicator equipment.

GENERAL USE

Applications may be made with boom equipment; shielded sprayers; CDA; hand-held and high-volume wands; lances; orchard guns; or wiper/wick application equipment, except as directed in the **GENERAL USE PRECAUTIONS FOR BERRIES, FRUITS, NUTS, AND VINES** section. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

Multiple applications may be necessary to control certain perennial weeds. For residual weed control, tank mix SYN-1219 with residual herbicides as prescribed in the **TANK MIXTURES FOR BERRIES, FRUITS, NUTS, AND VINES** section, or make multiple applications.

GENERAL USE PRECAUTIONS FOR BERRIES, FRUITS, NUTS, AND VINES

- Do not allow the spray, spray drift, or mist to contact foliage, fruit, shoots, branches, canes, suckers, open wounds, or green parts of crops. Contact with any crop part other than mature brown woody bark can result in severe crop injury.
- Avoid contact with stumps as injury to adjacent trees may occur from root grafting.
- Do not apply in a tank mix in Puerto Rico.
- For **PEACHES** grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, apply SYN-1219 with a shielded applicator which prevents contact with foliage, suckers, or bark of trees. Apply no later than 90 days after first bloom to avoid severe damage. Avoid application to peach trees with recent mechanical injury or pruning wounds. Apply only near trees which have been planted in the orchard for two or more years. SEVERE INJURY WILL OCCUR IF ANY PORTION OF THE PEACH TREE IS CONTACTED WITH SPRAY OR SPRAY DRIFT.
- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah, and Washington, **any** application equipment listed for these crops may be used.
- For **APRICOTS, NECTARINES, PEACHES, PLUMS, and PRUNES** grown in all other states not previously listed, use only wiper/wick application equipment.
- For **GRAPES** grown in the Great Lakes and Northeast regions, apply SYN-1219 prior to the end of bloom stage to avoid injury, or apply with shielded equipment.
- For **COFFEE and BANANA**, delay application 3 months after transplanting to allow the new plants to become established.
- For all other crops in this section, allow a minimum of 3 days between application and transplanting.
- For **BLACKBERRY, BLUEBERRY, BOYSENBERRY, CRANBERRY, CURRANT, DEWBERRY, ELDERBERRY, GOOSEBERRY, HUCKLEBERRY, LOGANBERRY, OLALLIEBERRY, RASPBERRY, AND YOUNGBERRY,** mix 3 qts. of SYN-1219 in 4 gals. of water for wiper/wick applications.
- Allow at least **17** days from the last application to harvest of **stone fruit or olives.** For olive groves, apply only as a directed spray.
- Allow at least **3** days from last application to harvest of **nuts.**
- Allow at least **30** days from last application to harvest of **cranberries.**

- Allow at least **28** days from last application to harvest of **coffee.**
- Allow at least **1** day from the last application to harvest of **banana, citrus, guava, papaya, plantain, or pome fruit (except mayhaw).**
- Allow at least **14** days from last application to harvest of **acerola, atemoya, avocado, breadfruit, canistel, carambola, cherimoya, cocoa beans, coconuts, dates, figs, genip, grapes, jaboticaba, jackfruit, longan, lychee, mango, mayhaw, passion fruit, persimmon, pomegranate, sapodilla, sapote, small berries, soursop, sugar apple, tamarind, and tea.**

Post–Harvest Cranberry

Application of SYN–1219 may be made following harvest of cranberries to control troublesome annual and perennial weeds. Do not apply directly to cranberry vines. Vines that are sprayed will be injured and may die. Apply SYN–1219 in a 0.4 to 0.7% solution if using hand–held equipment after the vines are dormant. Use properly calibrated precision application equipment; wiper wisk, spot sprayer which protects the cranberry plant from SYN–1219 spray. Do not treat more than 10% of the bog.

TANK MIXTURES WITH RESIDUAL HERBICIDES AND 2,4-D FOR BERRIES, FRUITS, NUTS, AND VINES

SYN-1219 can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply SYN-1219 at 0.7 to 3.6 qts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations or weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol®	Krovar®	Sim-Trol®
Direx®	Princep® 4L	Sinbar®
Goal®	Princep Caliber 90®	Solicam®
Karmex	Prowl	Surflan®
Kerb	Simazine	2,4-D

Refer to the individual product labels for precautionary statements, restrictions, recommended rates, approved crops, and a list of weeds controlled.

TANK MIX WITH GOAL HERBICIDE IN ROW MIDDLES

Apply SYN-1219 at 12 to 24 fl. ozs./A in a tank mix with 3 to 12 oz. of Goal 2XL herbicide for the control of annual weeds that are a maximum of 6 inches in height or diameter including annual sowthistle; crabgrass; common cheeseweed; common groundsel; common lambsquarters; common purslane (suppression); common ryegrass; filaree (suppression); hairy fleabane; horseweed/marestail; junglerice; London rocket; redroot pigweed; shepherdspurse; and stinging nettle. For control of common cheeseweed up to 3 inches in diameter, apply 12 to 24 fl ozs./A of SYN-1219 with 3 to 12 ozs./A of Goal.

Refer to the Goal label for precautionary statements, restrictions, and approved crops.

HARD TO CONTROL WEED RECOMMENDATIONS IN CITRUS (FLORIDA AND TEXAS ONLY)

To control or suppress the perennial weeds listed in the following table, apply the recommended rate of SYN-1219 in 3 to 30 gals. of water per acre. Use 10 to 30 gals. per acre if weed foliage is dense. Apply when weeds are actively growing. Refer to the **PERENNIAL WEED CONTROL** section, Table 3, for application timing. If weeds have been mowed or grazed, allow new growth to reach recommended growth stage prior to application.

Weed Species	Rate of SYN-1219 (Quarts per Acre)			
	0.7	1.4	2.2	3.6
Bermudagrass	B	B	PC	C
Guineagrass				
Texas and Florida Ridge	B	C	C	C
Florida Flatwoods	NR	B	C	C
Paragrass	B	C	C	C
Torpedograss	NR	S	PC	C

B = Burndown
C = Control
NR = Not Recommended
PC = Partial Control
S = Suppression

For goatweed, apply 1.4 to 2.2 qts. of SYN-1219 per acre. Apply in 20 to 30 gals. of water per acre when plants are actively growing. Use the 1.4 qts. rate on plants less than 8 inches tall and 2.2 qts. on plants greater than 8 inches tall. When plants are greater than 8 inches tall, the addition of Krovar™ I or Karmex™ may improve control. If using a tank mix, refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PERENNIAL GRASS SUPPRESSION (CHEMICAL MOWING) OF ORCHARD FLOORS

For best results, mow to an even height and apply SYN-1219 3 or 4 days later. Do not add AMS to the spray solution. Application must be made 1-3 weeks ahead of seedhead emergence.

BAHIAGRASS

SYN-1219 can be used to inhibit seedhead emergence and suppress vegetative growth for approximately 40-50 days with a single application. By using a sequential application, suppression of vegetative growth and inhibition of seedhead emergence can be extended to 120 days. Apply SYN-1219 at 20-30 days after complete green-up or after mowing to 4 inches tall. When a single application is planned, use 3 to 6 fl. ozs. of SYN-1219 per acre in 10 to 20 gals. of water. When a sequential application is planned, use 3 to 6 fl. ozs./A for the first application followed by another application of 1.5 to 4 fl. ozs./A 40 to 50 days later.

BERMUDAGRASS

For Suppression Only:

East of the Rocky Mountains – Apply 4 to 12 fl. ozs. of SYN-1219 in 3 to 20 gals. of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. Use 2 to 6 fl. ozs./A if a lesser degree of suppression is desired. A sequential application can be used when regrowth occurs.

West of the Rocky Mountains – Apply 4 to 12 fl. ozs. of SYN-1219 in 3 to 20 gallons of water per acre. Make the application 2 weeks after complete green-up or after 3 to 4 inches of regrowth following mowing. A sequential application of 4 to 7 fl. ozs. can be used when regrowth occurs.

For Partial Control and Burndown:

SYN-1219 can be used for burndown and partial control of bermudagrass at 1.4 to 2.9 pts. in 3 to 20 gals. of water per acre. Use 1.4 pts. east of the Rocky Mountains and 2.9 pts. west of the Rocky Mountains.

Use this treatment only if reduction of the bermudagrass stand can be tolerated. Allow at least 14 to 21 days for complete burndown.

COOL SEASON GRASS COVERS (Fine Fescue, Kentucky Bluegrass, Orchardgrass, Quackgrass, Tall Fescue)

For suppression of orchardgrass, fine fescue, tall fescue, and quackgrass, apply 3 to 6 fl. ozs. of SYN-1219 in 10 to 20 gals. of water per acre. See **SPRAY ADDITIVES** section for rates.

For suppression of Kentucky bluegrass, use 2 to 4 fl. ozs. of SYN-1219.

CHRISTMAS TREES

METHOD OF APPLICATION: Postdirected spray; site preparation; and spot spray.

SYN-1219 may be used prior to planting Christmas trees; or as a postdirected spray and spot treatment around established Christmas trees.

Follow the directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for application rates and timing.

GENERAL USE PRECAUTIONS FOR CHRISTMAS TREES

- Avoid contact of spray, drift, or mist with foliage or green bark of established Christmas trees.
- This product is not recommended for broadcast applications over the top of Christmas trees.

CONSERVATION COMPLIANCE/CONSERVATION RESERVE PROGRAM (CRP)

METHOD OF APPLICATION: Rotating out of CRP, site preparation (sequential herbicide applications), dormant beneficial plant management; postemergence; and wiper/wick.

- Site Preparation: Prior to application, removal of excessive vegetation by grazing, mowing, burning, etc. may improve control. When annual weeds have been mowed or grazed, wait for 3-4 inches of new growth before application. When perennial weeds have been mowed or grazed, allow regrowth to reach recommended stage (see **PERENNIAL WEED CONTROL** section, Table 3, for rates and timing).

  Sequential applications of SYN-1219 and Gramoxone® Max herbicides are effective in controlling established CRP grasses. Refer to the Gramoxone Max herbicide label for recommended rates and tank mixes.

SYN-1219/Gramoxone Max Herbicide Sequential Program (Spring Application)

Weed Species	Program A	Program B
Fescue Orchardgrass Ryegrass	Gramoxone Max at 1.7 to 2.7 pts./A followed 7-10 days later with Gramoxone Max at 2.0 to 2.7 pts./A	SYN-1219 at 1.4 to 3.0 pts./A followed 10-14 days later with Gramoxone Max at 2 to 2.7 pts./A

- Dormant Beneficial Plant Applications: Apply 9 to 12 ozs./A in early spring before desirable species, such as crested and tall wheatgrass, break dormancy. Late fall applications can be made after desirable grasses have reached dormancy. If perennial grasses are not dormant at time of application, stunting can occur.
- SYN-1219 may be tank mixed with other herbicides registered for this use such as atrazine, dicamba, and 2,4-D.

- There are no rotational crop restrictions following application of SYN-1219. Read and follow crop rotation label restrictions for all tank mix products.

CORN (FIELD CORN, POPCORN, SEED CORN, AND SWEET CORN – NOT GLYPHOSATE-TOLERANT)

METHOD OF APPLICATION: Before, during, or after planting but before crop emergence; hooded sprayers; spot spray; preharvest; and postharvest.

Follow the directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR CORN

- Crop plants contacted by SYN-1219 will be injured or killed.
- Spot application must be made prior to corn silking.
- For hooded sprayer applications, do not exceed 24 fl. ozs./A per application; nor 2.2 qts./A per year.
- Do not graze or feed corn forage or fodder following hooded sprayer applications.
- Preharvest application must be made at least 7 days before harvest.
- Apply no more than 24 fl. ozs./A by air; and 2.2 qts./A by ground preharvest.

TANK MIXTURES FOR CORN

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply SYN-1219 at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of SYN-1219.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10 to 70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of SYN-1219 when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of SYN-1219.

SYN-1219 can be tank mixed with the following products:

Aim™
Ambush®
Atrazine
Axiom™
Balance®
Basis®
Bicep®
Bicep Lite II MAGNUM®
Bicep MAGNUM®
Bicep® II
Bicep II MAGNUM®
Broadstrike®
Bullet®
Callisto™
Clarity®
Degree™
Degree Xtra™
Distinct™
Dicamba
Dual®
Dual MAGNUM®
Dual II®
Dual II MAGNUM®
Extrazine® II
Frontier®
Fultime™
Guardsman®
Harness®
Harness Xtra
Hornet™
Lariat®
Lasso®
Lightning™
Linex®
Lorox®
Lumax™
Marksman®
Micro-Tech®
Prowl
Simazine
Surpass® EC
Surpass 100
Topnotch®
Warrior®
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

HOODED SPRAYERS

SYN-1219 may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply SYN-1219 when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Corn must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max herbicide may be considered for Hooded Sprayer applications in corn. Use Gramoxone Max at 0.75 to 1.3 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

PREHARVEST

SYN-1219 may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. SYN-1219 should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete. Do not apply a preharvest treatment on corn grown for seed as a reduction in germination or vigor may occur.

CORN, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY® CORN)

METHOD OF APPLICATION: Before, during, or after planting; and postemergence in corn varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR GLYPHOSATE-TOLERANT CORN

- Applications of SYN-1219 to corn hybrids which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum preplant/preemergence rate is 3.6 qts./A .
- Make postemergence applications from emergence through the V12 stage of corn at a maximum of 48 fl. ozs./season with no more than 24 fl. ozs./A for any single application.
- Allow a minimum of 50 days between postemergence application and harvest of forage.
- Make preharvest applications at least 7 days before harvest with no more than 24 fl. ozs./A.

TANK MIXTURES

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply SYN-1219 at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of SYN-1219.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

UAN may be used as a carrier at 10-70 gals./A with 2,4-D, dicamba, or any residual herbicides on the following list. Use 1.5 to 3.0 pts./A of SYN-1219 when UAN is used as a carrier. For use with 2,4-D and dicamba on annual and perennial weeds, consult Tables 3 and 4. Reduced weed control may occur on certain weeds as a result of UAN foliar burn which can reduce uptake of SYN-1219.

SYN-1219 can be tank mixed with the following products:

Aim
Ambush
Atrazine
Axiom
Balance
Basis
Bicep
Bicep Lite II MAGNUM
Bicep MAGNUM
Bicep II
Bicep II MAGNUM
Broadstrike
Bullet
Callisto
Clarity
Degree
Degree Xtra
Distinct
Dicamba
Dual
Dual Magnum
Dual II
Dual II Magnum
Extrazine II
Frontier
Fultime
Guardsman
Harness
Harness Xtra
Lariat
Hornet
Karate
Lasso
Lightning
Linex
Lorox
Lumax
Marksman
Micro-Tech
Prowl
Simazine
Surpass EC
Surpass 100
Topnotch
Warrior
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

POSTEMERGENCE

ANNUAL WEEDS

SYN-1219 will control annual broadleaf weeds and grasses when applied as directed. Apply SYN-1219 at 24 to 48 fl. ozs./A from emergence through the V8 to V12 stage (8 leaves) or until the corn height reaches 30 inches, whichever comes first. Refer to Table 1 for specific rate information. For any single in-crop application, use a minimum of 24 to 48 fl. ozs./A of SYN-1219. SYN-1219 alone will not provide residual control. To control new weed flushes, repeat applications may be required.

PERENNIAL WEEDS

SYN-1219 will control or suppress perennial weeds with one or more applications. Successful control of perennial weeds is affected by proper timing of application. Refer to Table 3 for specific rate and timing information.

SYN-1219 can be tank mixed with the following products:

Ambush
Atrazine
Bicep
Bicep MAGNUM
Bicep II
Bicep Lite II MAGNUM
Bicep II MAGNUM
Clarity
Dicamba
Dual
Dual II
Dual II MAGNUM
Fultime
Harness
Harness Xtra
Karate
Marksman
Surpass EC
Surpass 100
Topnotch
Warrior
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PREHARVEST

SYN-1219 may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. SYN-1219 should be applied at 35% grain moisture or less. Ensure corn has reached physiological maturity (black layer formed) and that maximum kernel fill is complete.

COTTON (NOT GLYPHOSATE-TOLERANT)

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; hooded sprayer; recirculating sprayer; spot spray; wiper/wick applicators; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section, for application rates and timing.

GENERAL USE PRECAUTIONS FOR COTTON

- Spot applications must be made prior to boll opening.
- Preharvest, hooded, and wiper/wick applications must be made at least 7 days before harvest.

- Do not apply more than 24 fl. ozs./A by air; nor more than 48 fl. ozs./A by ground for preharvest.
- Do not feed or graze treated cotton forage or hay following preharvest application.

TANK MIXTURES FOR COTTON (PREPLANT/PREEMERGENCE)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply SYN-1219 at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of SYN-1219.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

SYN-1219 can be tank mixed with the following products:

Caparol®	Dual	Meturon®
Command®	Dual MAGNUM	Prowl
Cotoran®	Dual II	Staple®
Cotton-Pro®	Dual II MAGNUM	Zorial®
Cy-Pro®	Karmex	2-4,D
Direx		

Refer to individual product labels for precautionary statements, restrictions, rates and a list of weeds controlled.

HOODED SPRAYS

SYN-1219 may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Apply in 10-20 gals. of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles

TANK MIXTURES (HOODED)

SYN-1219 can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PREHARVEST

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. Do not apply a preharvest treatment on cotton grown for seed as a reduction in germination or vigor may occur.

For **defoliation, desiccation, or regrowth control** of cotton, apply 24 fl. ozs./A to 48 fl. ozs./A. Apply in 3 to 30 gals. of water per acre by ground or in 3 to 15 gals. of water per acre by air.

Refer to the **WEEDS CONTROLLED** section for application rates and timing.

SYN-1219 can be tank mixed with the following products for improved defoliation or boll opening.

DEF®
Dropp®
Folex®
Prep™

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

COTTON, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY® COTTON)

METHOD OF APPLICATION: Before, during, or after planting; postemergence; postdirected; hooded; and preharvest in cotton varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR GLYPHOSATE-TOLERANT COTTON

- Applications of SYN-1219 to cotton varieties which are not glyphosate tolerant will result in severe crop injury and reduced yields.
- Maximum preplant/preemergence rate is 3.6 qts./A.
- Make postemergence applications from ground cracking until the 4-leaf stage of cotton at a maximum of 48 fl. ozs./A per season with no more than 24 fl. ozs./A for any single application.
- Apply no more than 48 fl. ozs./season by precision, postdirected, or hooded application methods between the 5-leaf stage and lay-by. Apply no more than 24 fl. ozs./A for any single application by these methods.
- Apply a maximum of 2.9 qts./A by postemergence and directed/hooded applications from cracking to lay-by.
- Do not apply more than 24 fl. ozs./A by air; nor more than 48 fl. ozs./A by ground for preharvest.
- Preharvest applications must be made at least 7 days before harvest.
- Drift control agents may be used.

TANK MIXTURES (PREPLANT/PREEMERGENCE)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply SYN-1219 at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of SYN-1219.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

SYN-1219 can be tank mixed with the following products:

Caparol	Dual	Meturon
Command	Dual MAGNUM	Prowl
Cotoran	Dual II	Staple
Cotton-Pro	Dual II MAGNUM	Zorial
Cy-Pro	Karmex	2-4,D
Direx		

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

POSTEMERGENCE

Make postemergence applications from ground cracking until the 4-leaf (node) stage of development (until the fifth true leaf reaches the size of a quarter) at a maximum single application rate of 24 fl. ozs./A with no more than 48 fl. ozs./A per season. Sequential over the top applications of SYN-1219 must be at least 10 days apart and cotton must have at least two nodes of incremental growth between applications.

POSTDIRECTED OR HOODED APPLICATIONS

SYN-1219 may be used through precision postdirected or hooded sprayers through the lay-by stage of cotton. Applications that contact the cotton leaves may result in boll loss, delayed maturity, and/or loss of yield. Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Apply in 10 to 20 gallons of water per acre and do not exceed 30 psi spray pressure. Refer to **WEEDS CONTROLLED** section for application rates and timing.

Application Requirements:

- Postdirected applications should be used that directs the spray towards the base of the cotton plant. For best results, apply to weeds less than 3 inches tall being careful to minimize contact of the spray with cotton leaves.
- Spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

TANK MIXTURES (POSTDIRECTED OR HOODED)

SYN-1219 can be applied in a tank mix with most cotton herbicides which are labeled for hooded, shielded, or postdirected applications. Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Tank Mixtures with Dual MAGNUM

SYN-1219 can be applied with Dual MAGNUM from cotton emergence through the 4-leaf (node) stage of development (until the 5th true leaf reaches the size of a quarter). Do not use additional AMS or adjutants. Do not use this mixture if cotton plants are under any type of stress including, but not limited to drought, insect, disease, or mechanicals. Occasionally following application, cotton leaves may exhibit necrotic spotting which will not affect normal plant development.

For use in the following states: AL, AR, AZ, CA, FL, GA, KS, KY, LA, MD, MO, MS, NC, NM, OK, SC, TN, TX, and VA.

Refer to the Dual MAGNUM label for precautions and restrictions.

SALVAGE TREATMENT

SYN-1219 may be used after the four leaf stage of development and should only be used where weeds threaten to cause a loss of crop. A rate of 24 fl. ozs./A may be applied either as a postemergence spray to the crop or a postdirected spray.

SALVAGE TREATMENTS WILL RESULT IN SIGNIFICANT BOLL LOSS, DELAYED MATURITY, AND/OR YIELD LOSS.

PREHARVEST

Development of immature bolls will be inhibited and yield potential will be affected when applications are made too early. Apply after bolls to be harvested are mature. No enhancement of harvest aids will occur on glyphosate tolerant cotton. Refer to the **WEEDS CONTROLLED** section for application rates and timing.

FALLOWLAND AND POSTHARVEST USE

METHOD OF APPLICATION: Chemical fallow; fallow beds; stale seedbeds; aid to tillage; and postharvest.

SYN-1219 may be applied by ground or air during the fallow period prior to planting or emergence of any crop listed on this label. There are no rotational crop restrictions following application of this product.

Chemical Fallow - Ecofallow

SYN-1219 may be used in place of tillage to control annual weeds or volunteer wheat in fallow fields. Repeat applications may be necessary to control weeds emerging after application. Refer to Table 1 for use rates and timing. Broadcast or spot treatments of SYN-1219 will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of annual weeds listed in Table 2. Tank mixing with atrazine may provide residual control.

Postharvest Chemical Fallow for Cereals

SYN-1219 may be applied after harvest to control newly emerged weeds, volunteer cereals, or weeds which were present at harvest. Allow sufficient time after harvest for weed regrowth to occur before making application. Refer to Table 1 for use rates and annual weeds controlled. Higher rates may be required for control of large weeds which were present at the time of harvest. Repeat applications may be necessary for fall germinating weeds. Broadcast or spot treatments of SYN-1219 will control or suppress perennial weeds. Refer to Table 3 for use rates and timing. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Tank mixes with 2,4-D or dicamba may be used for additional control of weeds listed in Table 2. A postharvest tank mix with atrazine may be used if the field will be planted to corn or sorghum or laid fallow the following season. A tank mix with atrazine may be applied for residual control of certain annual weeds such as common lambsquarters, kochia, mustards, pigweeds, and volunteer wheat. Tank mixing with atrazine may result in reduced performance.

Aid to Tillage

SYN-1219 may be used in conjunction with tillage operations in fallow systems to control cheat, downy brome, foxtails, tansy mustard, and volunteer cereals. Apply 4 to 9 ozs./A of SYN-1219 in 3 to 10 gals. of water/A. Apply before weeds exceed 6 inches in height. Application must be followed by tillage no later than 15 days after treatment or before weed regrowth. Allow at least one day after application before tillage. Tank mixes with residual herbicides may reduce performance. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label.

Fallow Beds/Stale Seedbeds

SYN-1219 may be used to control weeds in fallow or stale seedbeds, including preplant/preemergence of any crop. Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** section for application rates and timing. SYN-1219 can be tank mixed with 2,4-D, dicamba, or Goal herbicide for improved control of certain weeds.

Tank Mixture with Goal Herbicide

Apply SYN-1219 at 6 to 12 ozs. with Goal herbicide at 2 to 3 ozs./A for control of chickweed, common cheeseweed, and common groundsel that are less than 3 inches in height or diameter. Apply SYN-1219 at 12 to 17 fl. ozs. with Goal at 2 to 3 ozs./A for control of common cheeseweed, common groundsel, and horseweed/marestail that are a maximum of 6 inches in height and length; or chickweed, London rocket, and shepherdspurse that are a maximum of 12 inches in height or length.

Postharvest Use

SYN-1219 may be applied after harvest of any crop to control newly emerged weeds, volunteer crops, or weeds which were present at harvest. Refer to **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections, for use rates. Repeat applications may be necessary to control weeds emerging after application. Use the higher rate on heavy or sodded infestations.

GENERAL USE PRECAUTIONS FOR FALLOWLAND AND POSTHARVEST USE

- Allow sufficient time for weed regrowth to occur after harvest before making applications.
- Avoid application after plants have been exposed to a severe frost.
- Refer to the individual labels of all products used in a tank mix for precautionary statements, recropping intervals, restrictions, and a list of weeds controlled.

- SYN-1219 will not control volunteer glyphosate-tolerant crops.
- There are no rotational crop restrictions following application of this product.

FARMSTEADS (NONCROP)

METHOD OF APPLICATION: General nonselective weed control, trim-and-edge, chemical mowing, cut stumps, and habitat management.

Applications can be made in noncrop areas on the farm such as:

Barrier strips
Ditchbanks
Dry ditches and canals
Equipment areas
Farm buildings
Farm roads
Farmyards
Fence rows
Fuel storage areas
Rights-of-way
Shelterbelts
Soil bank land

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

TANK MIXTURES FOR FARMSTEADS

Refer to the **ANNUAL WEEDS CONTROLLED** section, Table 1, for application rates and timing. For annual weeds, use 0.7 to 2.9 qts./A of this product when weeds are less than 6 inches tall and 1.1 to 2.9 qts./A when weeds are greater than 6 inches tall.

Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. For perennial weeds, apply 1.5 to 3.6 qts./A in these tank mixes. For tank mixtures with these products through backpack sprayers, handguns, or other high-volume spray-to-wet applications, see the **APPLICATION EQUIPMENT AND TECHNIQUES** section of this label for recommended rates.

SYN-1219 can be tank mixed with the following products:

Banvel®
Direx
Diuron
Princep Caliber 90
Simazine
Surflan
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

CHEMICAL MOWING

SYN-1219 will suppress perennial grasses listed in this section to serve as a substitute for mowing. Apply SYN-1219 at a rate of 3 to 6 fl. ozs./A . Use 3 to 4 fl. ozs. of this product per acre when treating Kentucky bluegrass. Apply treatments in 10 to 20 gals. of spray solution per acre. Chemical mowing applications may be made along farm ditches and other parts of farmsteads.

Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

Cut Stumps

Alder
Eucalyptus
Madrone
Oak
Reed, giant
Salt-cedar
Sweetgum
Tan oak
Willow

SYN-1219 will control regrowth of cut stumps and resprouts of many types of woody brush and tree species, some of which are listed. Apply SYN-1219 using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50 to 100% solution of SYN-1219 completely covering the freshly-cut surface immediately after cutting. Application delay may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

HABITAT MANAGEMENT

Habitat Restoration and Maintenance

SYN-1219 may be used to control exotic and other undesirable vegetation in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broad spectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. SYN-1219 can be tank mixed with the following products:

Banvel
Direx
Diuron
Princep Caliber 90
Simazine
Surflan
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

Wildlife Food Plots

SYN-1219 may be used for site preparation for control of annual and perennial weeds prior to planting wildlife food plots. Any wildlife food species may be planted or native species may be allowed to repopulate the area after applying SYN-1219. If tillage is needed to prepare a seedbed, wait 7 days after application before tillage.

GENERAL USE PRECAUTIONS FOR FARMSTEADS

- Avoid contact with the foliage of ornamentals or other desirable plants.
- Repeat applications may be necessary.
- Avoid making cut stump applications as injury to adjacent trees may occur from root grafting.

GRASS SEED PRODUCTION

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; renovation; site preparation; shielded/hooded sprayers; wiper/wick applicators; spot treatments; creating rows in annual ryegrass.

Apply to turf or forage grass areas grown for seed production. Applications MUST be made prior to the emergence of the crop to avoid crop injury. For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

GENERAL USE PRECAUTIONS

- Do not disturb soil or underground plant parts before treatment. Tillage or renovation techniques such as vertical mowing, coring, or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.
- Do not feed or graze treated areas for 8 weeks following application.
- Vegetation contacted by SYN-1219 will be injured or killed.
- For spot treatments, apply prior to heading of grasses.

SHIELDED/HOODED SPRAYERS

Use Instructions: Apply 0.7 to 2.2 qts. of SYN-1219 in 10 to 20 gals. of water per acre to control weeds in the rows. Uniform planting in straight rows aids in shielded/hooded applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields/hoods.

WIPER/WICK APPLICATORS

Applicators should be adjusted so that the wiper contact point is at least 2 inches above the desirable vegetation. Weeds should be a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when height of weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. Better results may be obtained if 2 applications are made in opposite directions.

GRASSES

SYN-1219 can be used in the production of grasses listed below:

Bahiagrass
Bermudagrass
Bluegrass
Bromegrass
Fescue
Orchardgrass
Ryegrass
Timothy
Wheatgrass

METHOD OF APPLICATION: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

GENERAL USE PRECAUTIONS FOR GRASSES

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.

- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

TANK MIXTURES FOR GRASSES PREPLANT/PREEMERGENCE, DORMANT, OR RENOVATION

SYN-1219 can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply SYN-1219 at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

HERBS (PEPPERMINT, SPEARMINT)

Method of Application: Spot spray

SYN-1219 may be applied as a spot spray in peppermint and spearmint. Apply spray-to-wet with hand-held equipment, such as backpack and knapsack sprayers, pump-up pressure sprayers, handguns, handwands, or any other hand-held or motorized spray equipment used to direct the spray solution on to a limited area.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

GENERAL USE PRECAUTIONS

- Apply at least 7 days before harvest.

- Plants contacted by SYN-1219 will be injured or killed.

PASTURES

SYN-1219 can be used on pastures of the following types:

Alfalfa
Bahiagrass
Bermudagrass
Bluegrass
Bromegrass
Clover
Fescue
Orchardgrass
Ryegrass
Timothy
Wheatgrass

METHOD OF APPLICATION: Before, during, or after planting but before emergence; renovation; spot spray; and wiper/wick.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED, WOODY BRUSH AND TREES CONTROLLED** sections for rates and timing.

For best results, remove domesticated livestock 14 days before treatment. Allow 2-6 inches of new growth prior to treatment.

To aid in renovation of pastures, SYN-1219 may be applied at 8 to 46 ozs./A to dormant pastures. Applications of SYN-1219 to green, nondormant plant tissue of desirable species will cause stunting, plant injury, or plant death.

GENERAL USE PRECAUTIONS FOR PASTURES

- Remove domestic livestock and wait 8 weeks before grazing or harvesting for forage and hay following preplant, preemergence, or pasture renovation applications.
- If using spot or wiper/wick application, remove domestic livestock before application and wait 14 days before grazing or harvesting for forage or hay.

TANK MIXTURES FOR PASTURES

SYN-1219 can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply SYN-1219 at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

2,4-D
Dicamba

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

PEANUTS

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS**, **SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to the **WEEDS CONTROLLED** section for rates and timing.

SMALL GRAINS

SYN-1219 may be used on the small grain crops listed below:

Barley	Rye
Buckwheat	Teosinte
Millet (pearl, proso)	Triticale
Oats	Wheat (all)
Rice	Wild rice

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; as a spot spray (except rice); preharvest (wheat only); postharvest; and wiper/wick (wheat only).

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SMALL GRAINS

- Apply at least 7 days before harvest at no more than 24 fl. ozs./A preharvest in wheat and feed barley.
- For wiper/wick applications in wheat, allow at least 35 days between application and harvest.
- Crop plants contacted by SYN-1219 will be injured or killed.
- Avoid treating rice fields or levees when the field contains flood water.

TANK MIXTURES FOR PREPLANT/PREEMERGENCE USE FOR SMALL GRAINS

SYN-1219 can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds. Under certain conditions, the mixture of SYN-1219 with one or more herbicide tank mix combinations may result in a reduction of activity.

Dicamba
2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PREHARVEST (Wheat and Feed Barley Only)

SYN-1219 may be applied as a broadcast spray with ground or aerial equipment as a harvest aid. SYN-1219 should be applied after the hard dough stage of grain (30% or less grain moisture). Cool, wet, and/or cloudy weather conditions following application may slow down the activity of this product. Do not apply a preharvest treatment on grain grown for seed as a reduction in germination or vigor may occur.

RED RICE CONTROL PRIOR TO PLANTING RICE

Prior to application, flush fields to promote uniform germination of red rice. Apply SYN-1219 at 36 to 48 fl. ozs./A on red rice with at least 2 leaves and which is no more than 4 inches tall. Red rice with less than 2 developed leaves at the time of application may be only partially controlled.

Do not reflood rice fields for 8 days following application.

SORGHUM (Milo)

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; hooded sprayers; preharvest; and postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SORGHUM

- Contact with sorghum foliage may result in crop injury.
- Spot applications must be made before heading of milo.
- Wiper and wick applications must be made 40 days before harvest. Do not feed or graze wiper/wick treated milo fodder. Do not ensile wiper/wick treated foliage.
- Apply no more than 2.2 qts./A per season by hooded applications.

- Do not feed or graze sorghum forage and fodder after hooded applications.
- Preharvest applications must be made at least 7 days prior to harvest with a maximum of 1.4 qts./A.

TANK MIXTURES FOR SORGHUM (PREPLANT/PREEMERGENCE)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply SYN-1219 at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of SYN-1219.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

SYN-1219 can be tank mixed with the following products:

Atrazine	Dicamba	Guardsman
Bicep Lite II	Dual II	Karate
Bicep Lite II MAGNUM	Dual II MAGNUM	Prowl
Bicep II	Frontier	Warrior
Bicep II MAGNUM		

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

HOODED SPRAYS

SYN-1219 may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop. Do not apply SYN-1219 when the leaves of the crop are growing in direct contact with weeds to be treated.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground. Treat before tillers extend between the drill rows as spray contacting these tillers may kill the main plant.
- Sorghum must be at least 12 inches tall, measured without extending leaves.
- Leave at least an 8 inch untreated strip over the drill row.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

Gramoxone Max herbicide may be considered for hooded sprayer applications in sorghum. Use Gramoxone Max at 0.75 to 1.25 pts./A for control of actively growing weeds. Read and follow directions for this use on the Gramoxone Max herbicide label.

PREHARVEST (EXCEPT CALIFORNIA)

For weed control and desiccation of sorghum, apply 24 to 48 fl. ozs./A. Apply in 3 to 30 gallons of water per acre by ground or in 3 to 15 gallons of water per acre by air.

Apply after most of the heads have matured. Apply when grain moisture is 30% or less. Development of immature heads will be interrupted and yield potential will be affected when applications are made too early. Do not apply a preharvest treatment on sorghum grown for seed as a reduction in germination or vigor may occur.

SOYBEANS (NOT GLYPHOSATE-TOLERANT)

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence; spot spray; wiper/wick; preharvest; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SOYBEANS

- Soybeans, except glyphosate-tolerant varieties, will be injured or killed when contacted with SYN-1219.
- Spot application must be made prior to initial pod set.
- Wiper/wick application must be made at least 7 days before harvest.
- Make preharvest applications at least 7 days before harvest of soybeans with no more than 4.3 qts./A by ground; and no more than 24 fl. ozs./A by air.
- Allow at least 25 days before grazing or harvesting for livestock feed following harvest aid application.

TANK MIXTURES FOR SOYBEANS (PREPLANT/PREEMERGENCE)

For Control of Annual Weeds in a Residual Herbicide Tank Mix: Refer to the **ANNUAL WEEDS CONTROLLED** section, Tables 1 and 2, for application rates and timing. Apply SYN-1219 at 0.7 to 4.3 pts./A for the control of annual weeds that are less than 6 inches tall and actively growing. When annual weeds are taller than 6 inches or under stress, use 1.5 to 5.8 pts./A of SYN-1219.

For Control or Suppression of Perennial Weeds in a Residual Herbicide Tank Mix: Refer to the **PERENNIAL WEEDS CONTROLLED** section, Table 3, for application rates and timing. Use rates at the higher end of the rate range when weed populations are dense or plants are under stress. Perennial weeds may require multiple applications for control.

For use with 2,4-D on perennial weeds, consult Table 3.

SYN-1219 can be tank mixed with the following products:

Authority™	Dual II MAGNUM	Lexone	Reflex®
Authority Broadleaf	FirstRate™	Linex	Scepter®
Broadstrike	Flexstar®	Lorox	Sencor
Canopy®	Frontier	Lorox Plus	Squadron®
Canopy XL	Fusilade®	Partner®	Steel™
Command®	Fusion®	Preview®	Turbo®
Cover™	Gemini®	Prowl	Warrior
Dual	Karate	Pursuit	2,4-D
Dual MAGNUM	Lasso	Pursuit Plus	2,4-DB
Dual II			

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

PREHARVEST

SYN-1219 may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. SYN-1219 provides weed control when applied preharvest to soybeans and may aid in crop dry down. Apply to mature soybeans when pods have lost their color. Do not apply a preharvest treatment to soybeans grown for seed as a reduction in germination or vigor may occur.

SOYBEANS, GLYPHOSATE-TOLERANT (INCLUDING ROUNDUP READY SOYBEANS)

METHOD OF APPLICATION: Before, during, or after planting; postemergence; and preharvest in soybean varieties which have been genetically modified to be tolerant to glyphosate based herbicides.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES,** and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR GLYPHOSATE-TOLERANCE SOYBEANS

- Applications of SYN–1219 prior to soybean emergence should not exceed a total of 3.6 qts./A.
- Make postemergence applications from cracking throughout flowering of soybeans at a maximum of 2.2 qts. per season with no more than 48 fl. ozs./A for any single application.
- Make preharvest applications at least 14 days before harvest with no more than 24 fl. ozs./A.
- All SYN–1219 applications for a soybean crop should not exceed a total of 5.8 qts./year.
- Do not graze or harvest for forage or hay.
- Drift control agents may be used.

PREPLANT/PREEMERGENCE

SYN-1219 may be used as a broadcast spray to control emerged annual and perennial weeds. Apply before, during, or after planting of soybeans. SYN-1219 can be tank mixed with the following products:

Authority	Dual II	Lexone	Reflex
Authority Broadleaf	Dual II MAGNUM	Linex	Scepter
Boundary	FirstRate	Lorox	Sencor
Broadstrike	Flexstar	Lorox Plus	Squadron
Canopy	Frontier	Partner	Steel
Canopy XL	Fusilade	Preview	Turbo
Command	Fusion	Prowl	Warrior
Cover	Gemini	Pursuit	2,4-D
Dual	Karate	Pursuit Plus	2,4-DB
Dual MAGNUM	Lasso		

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

POSTEMERGENCE

ANNUAL WEEDS

Apply SYN-1219 at 12 to 48 fl. ozs./A from cracking through full flowering of soybean plants to control annual weeds. For best results, make the first application of SYN-1219 at 24 fl. ozs./A within 30 days after planting on weeds up to 6 inches tall. Refer to Table 1 for specific rate information. SYN-1219 will not provide residual control. To control new weed flushes, repeat applications may be required.

PERENNIAL WEEDS

Apply SYN-1219 at 24 to 48 fl. ozs./A to actively growing perennial grasses, sedges, and broadleaf weeds. Applications in crop on glyphosate-tolerant soybeans normally occur before perennial weeds reach the most desirable growth stage for control. Treatments made prior to the timing designated in Table 3 may require retreatment. Best control will be obtained when perennial broadleaf weeds are treated in the early bud to flowering stage and when perennial grasses are in the boot to seedhead stage. Refer to Table 3 for additional rate and timing information.

TANK MIXTURES

SYN-1219 may be tank mixed with one or more of the following products:

Basagran®	Pursuit
Classic®	Raptor™
FirstRate	Reflex
Flexstar	Reliance™ STS®
Fusilade	Scepter
Fusion	Synchrony® STS®
Karate	Warrior
Pinnacle®	2,4-DB

Use a minimum of 12 to 17 fl. ozs./A SYN-1219 in mixture with postemergent tank mix herbicides on 3 inch tall weeds. Use a minimum of 17 to 24 fl. ozs./A SYN-1219 in mixture with postemergent tank mix herbicides on 3-6 inch tall weeds. Under certain conditions, the mixture of SYN-1219 with one or more of the above mentioned herbicides may result in a reduction of activity. Tank mixes can result in increased crop injury as compared to either product used alone. Refer to individual product labels for precautionary statements, restrictions, rates, and list of weeds controlled.

PREHARVEST

SYN-1219 may be applied preharvest as a broadcast spray with ground or aerial equipment as a harvest aid. SYN-1219 provides weed control when applied preharvest to soybeans. Apply to mature soybeans when pods have lost their color.

SUGARCANE

METHOD OF APPLICATION: Before, during, or after planting, but before emergence of plant cane; spot spray; hooded sprayers; postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SUGARCANE

- Do not apply to vegetation in or around ditches, canals, or ponds containing water.
- Do not feed or graze treated sugarcane foliage following spot spray application.
- Avoid contact with sugarcane foliage, as severe damage or destruction may result.

TANK MIXTURES FOR PREPLANT/PREEMERGENCE USE FOR SUGARCANE

SYN-1219 can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply SYN-1219 at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Atrazine	Lexone/Sencor
Banvel	Prowl
Clarity	Trifluralin
Karmex	2,4-D

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

HOODED SPRAYS

SYN-1219 may be used through hooded sprayers that completely enclose the spray pattern for weed control between the rows. Adjust the hooded sprayer in raised seedbeds to ensure the front and rear flaps touch the ground to completely enclose the spray solution.

Crop injury may occur when the foliage of treated weeds comes in direct contact with the leaves of the crop.

Application Requirements:

- The spray hoods must be operated on the ground or skimming across the ground.
- Maximum allowable application speed is 5 mph.
- Maximum allowable wind speed at application is 10 mph.
- Use low drift nozzles.

SUGARCANE RIPENING

To hasten ripening and extend the period of high sucrose levels in sugarcane see the following recommended use rates and application timing for each state listed.

LA – Apply 2, 3, 6–13 fl. ozs./A 3–5 weeks before harvest of **ratoon cane only.**
TX – Apply 2, 3, 6–13 fl. ozs./A 3–5 weeks before harvest of **ratoon cane only.**
FL – Apply 2, 3, 6–13 fl. ozs./A 3–5 weeks before harvest of **last ratoon cane only.**
HI – Apply 2, 3, 6–13 fl. ozs./A 4–10 weeks before harvest.
PR – Apply 2, 3–6 fl. ozs./A 3–5 weeks before harvest of **ratoon cane only.**

Use of this product may not increase sucrose content control under conditions of good natural ripening.

FALLOW TREATMENTS

For removal of the last stubble of ratoon cane between sugarcane crops, apply 3.0 to 3.6 qts. in 10 to 40 gals. of water per acre to new growth having at least 7 new leaves. Allow 7 days between application and tillage.

SUNFLOWER

METHOD OF APPLICATION: Before, during, or after planting, but before crop emergence.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections. Refer to **WEEDS CONTROLLED** section for application rates and timing.

GENERAL USE PRECAUTIONS FOR SUNFLOWER

- Make only one preplant or preemergence application with no more than 24 fl. ozs./A.
- Do not graze or feed sunflower forage.
- Avoid contact with sunflower foliage.

TANK MIXTURES FOR PREPLANT/PREEMERGENCE USE FOR SUNFLOWER

SYN-1219 can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply SYN-1219 at 1.5 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Eptam
Prowl
Trifluralin

Refer to individual product labels for precautionary statements, restrictions, rates, and a list of weeds controlled.

VEGETABLE CROPS

SYN-1219 may be used on the vegetable crops listed below:

Amaranth
Arrugula
Artichoke (Jerusalem)
Asparagus
Beans (all)
Beet, garden
Beet, sugar
Broccoli (all)
Brussels Sprouts
Cabbage (all)
Cabbage (Chinese)
Cantaloupe
Cardoon
Carrot
Casaba
Cavalo Broccolo
Cauliflower
Celeriac
Celery
Celery (Chinese)
Celtuce
Chard (Swiss)
Chayote
Chervil
Chick peas
Chicory
Chrysanthemum
Collards
Corn salad
Cress
Cucumber
Dandelion
Dock (sorrel)
Eggplant
Endive
Fennel (Florence)
Garlic
Gherkin
Ginseng
Gourd, edible
Groundcherry
Guar
Horseradish
Kale
Kohlrabi
Leeks
Lentils
Lettuce
Melons (all including citron, crenshaw, honey balls, honeydew, mango, musk, Persian)
Mizuna
Mustard greens
Okra
Onions (green, spring, Japanese bunching)
Parsley, turnip-rooted
Parsnip
Peas (all)
Pepinos
Pepper (all)
Potato (Irish)
Pumpkin
Purslane
Radish
Radish, oriental (daikon)
Rape greens
Rhubarb
Rutabaga
Salsify, black
Salsify (oyster plant)
Salsify (Spanish)
Shallots
Spinach (all)
Spinach, mustard
Squash (summer, winter)
Sweet potato
Tomatillo
Tomato
Turnip
Watercress
Watermelon
Yams

METHOD OF APPLICATION: Broadcast application before transplanting or before, during, or after planting but prior to crop emergence if direct seeded; spot spray; wiper/wick (rutabaga only); postharvest.

Follow directions listed in the **APPLICATION DIRECTIONS, SPRAY ADDITIVES**, and **APPLICATION EQUIPMENT AND TECHNIQUES** sections of this label. Refer to **WEEDS CONTROLLED** for application rates and timing.

GENERAL USE PRECAUTIONS FOR VEGETABLE CROPS

- For **Asparagus,** do not apply broadcast within one week of emergence of first spears. Spot applications can be made immediately after cutting, but before emergence. Spears can be harvested 5 days after spot application. Postharvest applications can be made as a directed or shielded spray avoiding contact of the spray with the ferns, stems, or spears.

- Wait 3 days after application before planting cantaloupe, casaba, chayote, Chinese okra, Chinese waxgourd, cucumber, cucuzza, edible gourd, eggplant, gherkin, gourds, groundcherry, melons (all), pepper (all), pumpkin, squash, tomatillo, watercress, and watermelon.

- If transplanting into plastic mulch, ensure residues of this product are removed from the plastic prior to transplanting. Residues can be removed by a minimum of ½ inch of sprinkler irrigation or rainfall.

- Wiper/wick applications to rutabagas must be made at least 14 days before harvest.

TANK MIXTURES WITH RESIDUAL HERBICIDES FOR PREPLANT/PREEMERGENCE USE IN VEGETABLES

SYN-1219 can be tank mixed with the following herbicides for control or suppression of annual and perennial weeds provided that the tank mix product label allows use of the product. Refer to the **WEEDS CONTROLLED** section for application rates and timing. Apply SYN-1219 at 0.7 to 5.8 pts./A in these tank mixes for control or suppression of annual and perennial weeds. For control or suppression of dense populations of weeds greater than 12 inches in height or weeds under stress, consider use rates at the higher end of the rate range.

Devrinol	Lorox
Command	Matrix®
Dual MAGNUM	Prefar®
Dual II MAGNUM	Prowl
Fusilade DX	Sencor
Goal	Trifluralin
Kerb	Treflan®
Lexone	Turbo

Refer to individual product labels for precautionary statements, restrictions, rates, approved uses, and a list of weeds controlled.

WEEDS CONTROLLED

Water volumes of 3 to 40 gallons per acre by ground equipment and 3 to 15 gallons by air are recommended. Use the minimum spray volume that provides adequate coverage.

When tank mixing with residual herbicides, refer to the individual crop section for recommendations.

Apply to actively growing weeds.

Table 1. Annual Weed Control – SYN-1219 Rates

Use the higher end of the rate range when stressful growing conditions or dense plant populations exist.

WEED SPECIES	SCIENTIFIC NAME	SYN-1219 FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Anoda, spurred	*Anoda cristata*	17–24	24–30			
Barley	*Hordeum vulgare*				12–17	17–24
Barnyardgrass	*Echinochloa crus-galli*	24	17–24	24–35		
Bassia, fivehook	*Bassia hyssopifolia*		24			
Bittercress	*Cardamine* spp.			6–12	12–17	
Bluegrass, annual	*Poa annua*			6–12		
Bluegrass, bulbous	*Poa bulbosa*			6–12		
Bristly starbur	*Ancanthospornum hispidum*		12–17	17–24		
Brome, downy[1]	*Bromus tectorum*		9–12	12–17		
Brome, Japanese	*Bromus japonicus*		6–12	12–17		17–24
Browntop panicum	*Panicum fasciculatum*		6–12	17–24		26–35
Buckwheat, wild[2]	*Polygonum convolvulus*	24				
Buffalobur	*Solanum rostratum*	17–24	24–36	24–36		
Burcucumber	*Sicyos angulatus*		12–17	17–24		
Burgherkin	*Cucumis anguria*	17–24	24–36			
Buttercup[3]	*Ranunculus* spp.			6–12	12–17	
Camphorweed	*Heterotheca subaxillaris*		24–36			
Canarygrass	*Phalaris canariensis*		17–24			
Carolina geranium[4]	*Geranium carolinianum*	17–24	24–36			
Carpetweed	*Mullugo verticillata*		12–17	17–24		
Cheat	*Bromus secalinus*		6–12		12–17	
Chervil	*Anthriscus cerefolium*				6–12	

WEED SPECIES	SCIENTIFIC NAME	SYN-1219 FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Chickweed, common	*Stellaria media*			6–17	17–24	
Chickweed, mouseear	*Cerastium vulgatum*		6–12	6–17	17–24	
Citronmelon	*Citrullus lanatus*	17–24	24–35			
Cocklebur, common	*Xanthium strumarium*			6–12	12–17	17–24
Coffee senna	*Cassia occidentalis*	17–24	24–35			
Corn[5]	*Zea mays*		6–12	12–17		17–24
Corn speedwell	*Veronica arvensis*			6–12		
Cowpea	*Vigna unguiculata*	17–24	24–35			
Crabgrass[6]	*Digitaria* spp.	12	12–17	17–24		
Crotalaria, showy	*Crotalaria spectabilis*	12–17	17–24	24–35		
Croton, tropic	*Croton glandulosus*	17–24	24–35			
Crowfootgrass	*Dactyloctenium aegyptium*	6–12	12–24	24–48		
Cutleaf eveningprimrose[4]	*Oenothera laciniata*	17–24	26–35			
Devil's–claw (unicorn plant)	*Proboscidea louisianica*	17	24			
Dwarfdandelion	*Krigia cespitosa*				6–12	
Eastern mannagrass			6–12	12–17		
Eclipta	*Eclipta prostrata*	12–17	17–24	24–35		
Fall panicum	*Panicum dichotomiflorum*	6–12	17–24	24–35		26–35
Falsedandelion	*Pyrrhopappus carolinianus*				12–17	
Falseflax, smallseed	*Camelina microcarpa*			6–12		
Fiddleneck	*Amsinckia* spp.		17	24–35		
Filaree	*Erodium* spp.		17–24	24–35		
Fleabane, annual	*Erigeron annus*		6–12		12–17	
Fleabane, hairy	*Conyza bonariensis*		17–24	24–35		
Fleabane, rough	*Erigeron strigosus*	6–12	12–17	17–24		
Florida beggarweed	*Desmodium tortuosum*		12–17	17–24		

WEED SPECIES	SCIENTIFIC NAME	SYN-1219 FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Florida pusley	*Richardia scabra*	17–24	24–35			
Foxtails	*Setaria* spp.		6–12	12–17	17–24	
Goatgrass, jointed	*Aegilops cylindrica*		6–12	12–17		
Goosefoot, neetleleaf	*Chenopodium murale*		24–35			
Goosegrass	*Eleusine indica*	12–17	17–24	24–35		
Grain sorghum (milo)	*Sorghum bicolor*		6–12	12–17	17–24	
Groundcherry	*Physalis sp.*		24–35			
Groundsel, common	*Senecio vulgaris*		12–17			
Hemp sesbania	*Sesbania exaltata*	12–17	24–29	29–36		
Henbit	*Lamium amplexicaule*		17–24	26–35		
Hophornbeam copperleaf	*Acalypha ostryifolia*	17–23	26–35			
Horseweed/Marestail[8]	*Conyza canadensis*		12–17	17–24	24–35	
Itchgrass	*Rottboellia cochinchinensis*		6–12	17–24	24–35	
Jimsonweed	*Datura stramonium*			17–24	24–35	
Johnsongrass, seedling	*Sorghum halepense*		6–12	12–17	17–24	24–35
Junglerice	*Echinochloa colona*	12–17	17–24	24–35		
Knotweed	*Polygonum aviculare*		17–24	24–35		
Kochia[3]	*Kochia scoparia*		12–17	17–24		
Lambsquarters, common	*Chenopodium album*		12–17	17–24	24–35	
Lettuce, prickly	*Lactuca serriola*		12–17	17–24		
Little barley	*Hordeum pussillum*		6–12	12–17		
London rocket	*Sisymbrium irio*		6–12			17–24
Mayweed	*Anthemis cotula*	12–17	17–24		24–35	
Morningglory [4, 7]	*Ipomoea* spp.	17–24	24–35			
Mustard, blue	*Chorispora tenella*		6–12	12–17	17–24	
Mustard, tansy	*Descurainia pinnata*		6–12	12–17	17–24	

WEED SPECIES	SCIENTIFIC NAME	SYN-1219 FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Mustard, tumble	*Sisymbrium altissimum*		6–12	12–17	17–24	
Mustard, wild	*Brassica kaber*		6–12	12–17	17–24	
Nightshade, black	*Solanum nigrum*	17	17–24	24–35		
Nightshade, hairy	*Solanum sarrachoides Sendtner*	17	17–24	24–35		
Oats	*Avena sativa*	12	12–17		17–24	
Oats, wild	*Avena fatua*	12	12–17		17–24	
Panicum, Texas	*Panicum texanum*		6–12	17–23		24–35
Pennycress, field	*Thlaspi arvense*		6–12	12–17		
Pigweed	*Amaranthus* spp.			12–17	17–24	24–29
Poinsettia, wild	*Euphorbia heterophylla*	12–17	24–35			
Prickly sida (Teaweed) [4,7]	*Sida spinosa*	17–24	24–35			
Puncturevine	*Tribulus terrestris*	17–24	24–35			
Purslane, common	*Portulaca oleracea*	17–24	24–35			
Rabbitfootgrass	*Polypogon monspeliensis*		17–24			
Ragweed, common	*Ambrosia artemisiifolia*		12–17	17–24	24–35	
Ragweed, giant	*Ambrosia trifida*		12–17	17–24	24–35	
Red rice	*Oryza sativa*	17–24				
Redweed	*Melochia corchorifolia*	17–24	24–35			
Rockpurslane Redmaids	*Calandrinia sp.*		17–24			
Rye	*Secale cereale*		6–12		17–24	24–35
Ryegrass, Italian	*Lolium multiflorum*		17–24	24–35		
Sandbur, field	*Cenchrus incertus*		12	12–17		
Sandbur, southern	*Cenchrus echinatus*	6–12	12–17	17–24		
Shattercane	*Sorghum bicolor*		6–12	12–17	17–24	
Shepherdspurse	*Capsella bursa-pastoris*		6–12	12–17		
Sicklepod	*Cassia obtusifolia*	17–24	24–35			
Signalgrass, broadleaf	*Brachiaria platyphylla*	12–17	17–24	24–35		
Smartweed (ladysthumb)	*Polygonum persicaria*		17–24	24–35		

WEED SPECIES	SCIENTIFIC NAME	SYN-1219 FLUID OUNCES PER ACRE				
		MAXIMUM WEED (HEIGHT/LENGTH)				
		3"	6"	12"	18"	24"
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		17–24	24–35		
Sowthistle, annual	*Sonchus oleraceus*		17–24	24–35		
Spanishneedles	*Bidens bipinnata*		17–24	24–35		
Speedwell, purslane	*Veronica peregrina*			6–12		
Sprangletop	*Leptochloa* spp.		6–12	12–17	17–24	
Spurge, prostrate	*Euphorbia* spp.		12–17	17–24		
Spurge, spotted	*Euphorbia maculata*		12–17	17–24		
Spurry, umbrella	*Holosteum umbellatum*		12–17			
Stinkgrass	*Eragrostis cilianensis*			12–17		
Sunflower, common	*Helianthus annuus*			6–12	12–17	
Thistle, Russian	*Salsola iberica*		17–24	24–35		
Velvetleaf[7]	*Abutilon theophrasti*		17–24	24–35		
Virginia copperleaf	*Acalypha virginica*	17–24	24–35			
Virginia pepperweed	*Lepidium virginicum*				12–17	
Waterhemp	*Amaranthus* spp.		17–24	24–35		
Wheat	*Triticum aestivum*		6–12	12–17	17–24	
Wild Buckwheat	*Polygonum convolvulus*		17–24	24–36		
Wild-proso millet	*Panicum miliaceum*		17	24	35	
Witchgrass	*Panicum capillare*			12–17		
Woolly cupgrass	*Eriochloa villosa*		12–17	17–24		
Yellow rocket	*Barbarea vulgaris*			12–17	17–24	

1 In no-till systems, use 17 oz./A.
2 Maximum runner length. For control of wild buckwheat >3" in runner length, use sequential applications of 24 ozs./A.
3 Control will be reduced at the button stage.
4 When the predominant weed species include Carolina geranium, cutleaf eveningprimrose, and henbit that are less than 6 inches tall, Gramoxone Max should be considered as an alternative.
5 Will not control glyphosate-tolerant volunteer corn.
6 Plant diameter.
7 Multiple applications may be required.
8 Will not control glyphosate–tolerant marestail/horseweed. Glyphosate–tolerant biotypes can be controlled by timely application of Gramoxone Max plus either 2,4-D and/or a PSI herbicide prior to planting.

Table 2. Annual Weed Control – SYN-1219 Rates in a Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	MAXIMUM HEIGHT/ LENGTH	SYN-1219 FLUID OUNCES PER ACRE
Kochia (dicamba only)	*Kochia scoparia*	6"	12–17
Lettuce, prickly	*Lactuca serriola*		
Morningglory	*Ipomoea* spp.		
Ragweed, common	*Ambrosia artemisiifolia*		
Ragweed, giant	*Ambrosia trifida*		
Smartweed, Pennsylvania	*Polygonum pensylvanicum*		
Velvetleaf	*Abutilon theophrasti*		
Cocklebur, common	*Xanthium strumarium*	12"	
Fleabane, rough	*Erigeron strigosus*		
Horseweed/Marestail*	*Conyza canadensis*		
Kochia	*Kochia scoparia*		
Lambsquarters, common	*Chenopodium album*		
Pigweed	*Amaranthus* spp.		
Sunflower, common	*Helianthus annuus*		
Thistle, Russian	*Salsola iberica*		

Read and follow dicamba and 2,4-D labels

*Glypyhosate–tolerant biotypes less than 3 inches tall can be controlled by Gramoxone Max plus either 2,4-D or a triazine-based herbicide.

Table 3. Perennial Weed Control and Weed Management – SYN-1219 Rates Used Alone or in Tank Mix with 0.25 lbs. a.i./A of Dicamba or 0.5 lbs. a.i./A of 2,4-D

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Alfalfa	*Medicago sativa*	1.5	1–1.5		At 6-8 inch stage or more after final cutting in fall. Deep till 7 days after treatment.
Artichoke, Jerusalem	*Helianthus tuberosus*	1.5	2.2–3.6		At or after flowering.
Balsam-apple [1]	*Momordica charantia*	1.5			Apply at or beyond bloom.
Bahiagrass	*Paspalum notatum*	1.5	2.2–3.6		Early seedhead stage.
Barley, foxtail	*Hordeum jubatum*	1.5	0.75–1.6		4-6 inch stage.
Bentgrass	*Agrostis* spp.	1.5	1.1		Should have at least 3 inches of growth. Ensure entire crown area has resumed growth prior to fall application. Till 7-10 days after application.
Bermudagrass	*Cynodon dactylon*	1.5	2.2–3.6		Seedheads present; may require retreatment.
Bermudagrass, water (knotgrass)		1.5	1.1		Apply when water bermudagrass is 12-18 inches in length. Allow 7 days before flushing or flooding the field. Not registered for use in California on this weed.
Bindweed, field	*Convolvulus arvensis*	1.5	2.7–3.6		At or after flowering, west of Mississippi River, in late summer for best results.
			2.2–2.7		At or after flowering, east of Mississippi River, in late summer for best results
			1.4	Yes	At or after flowering for control, multiple applications may be required. Do not apply by air.
			0.7–1.4	Yes	For suppression on irrigated agricultural land, by ground equipment only. Apply in fall or following harvest on runners 12 inches or more in length.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Bindweed, field (continued)	*Convolvulus arvensis*		0.4	Yes	For suppression by ground or aerial applications. Apply by air in fallow and reduced tillage systems only. Applications should be delayed until maximum emergence has occurred and when vines are between 6-18 inches in length.
			0.7–3.6		**In California**: Apply at 12 inches or greater runner length. Use high end of rate range where dense populations exist. For suppression on land which is irrigated and tilled, use 0.7 qt./A.
Bluegrass, Kentucky	*Poa pratensis*	1.5	0.75–1.4		Apply at boot to early seedhead stage.
			0.75–1.1		For partial control in pasture or hay crop renovation, apply when plants are 4-12 inches.
Blueweed, Texas	*Helianthus ciliaris*	1.5	2.7–3.6		Apply at or beyond bloom west of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
			2.2–2.7		Apply at or beyond bloom east of the Mississippi River. For best results, apply in late summer or fall, but before a killing frost.
Brackenfern	*Pteridium aquilinum*	0.7–1.1	2.2–3.3		Fronds fully expanded and at least 18 inches long.
Bromegrass, smooth	*Bromus inermis*	1.5	0.75–1.6		Apply when most plants are at the boot to early seedhead stage.
			0.75–1.1		For partial control in pasture or hay crop renovation, apply to actively growing plants 4-12 inches in height.
Bursage, woollyleaf	*Ambrosia grayi*	1.5	1.4	Yes	Apply to actively growing plants at or beyond flowering.
			0.75	Yes [1]	Apply to actively growing plants at or beyond flowering.
Canarygrass, reed	*Phalaris arundinacea*	1.5	1.6–2.2		Boot to head.
Cattail	*Typha* spp.	1.5	2.2–3.6		Early head to early bud.
Clover, red Clover, white	*Trifolium pratense* *Trifolium repens*	1.5	2.2–3.6		Early head to early bud. May require retreatment.
Cogongrass	*Imperata cylindrica*	1.5	2.2–3.6		Late summer/fall, greater than 18 inches in height. May require retreatment.
Dallisgrass	*Paspalum dilatatum*	1.5	2.2–3.6		Early head to early bud.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Dandelion	*Taraxacum officinale*	1.5	2.2–3.6		Early bud.
			0.4	Yes	Early bud.
Dayflower[1]	*Commelina* spp.	1.5	1.1–1.6		Less than 4 inches in height.
Dock, curly	*Rumex crispus*	1.5	2.2–3.6		Early bud.
			0.4	Yes	Early bud.
Dogbane, hemp	*Apocynum cannabinum*	1.5	3.3		Late bud to flower. May require retreatment.
			0.4	Yes	Actively growing at 6-12 inch stage for suppression.
Dogfennel	*Eupatorium capillifolium*	1.5	2.2–3.6		Actively growing, less than 12 inches in height.
Fescue	*Festuca* spp.	1.5	2.2–3.6		Apply when most plants have reached the early head stage.
Fescue, tall	*Festuca arundinacea*	1.5	0.75–2.2		Apply 2.2 qts./A when most plants have reached boot to early seedhead stage. Fall applications only: Apply 0.75 qt./A when plants are 6-12 inches in height. A spring applied sequential treatment of 0.75 pt./A will improve long term control.
Goatweed	*Scoparia dulcis*	1.5	1.4–2.2		Less than 8 inch stage.
Guineagrass	*Panicum maximum*	0.7	1.6–2.2		7-10 leaf stage.
Horsenettle	*Solanum carolinense*	1.5	2.2–3.6		Early bud stage
Horseradish	*Armoracia rusticana*	1.5	3.3		Apply when most plants have reached the late bud to early flower stage in late summer or fall.
Iceplant	*Mesembryanthemum crystallinum*	1.1–1.5	–		At or beyond the early bud stage.
Johnsongrass	*Sorghum halepense*	0.7	0.4–2.2		Apply at boot to head stage and in the fall prior to frost. Use 0.7 to 1.4 qts./A for annual tillage systems. Use 1.4 to 2.2 qts./A on no-till acres. Allow 3-7 days before tillage.
			0.4		For burndown, apply when plants are 12 inches in height and allow 3 days before tillage.
Kikuyugrass	*Pennisetum clandestinum*	1.5	1.6–2.2		Spray when most kikuyugrass is at least 8 inches in height. Allow 3 or more days after application before tillage.
Knapweed	*Centaurea* spp.	1.5	3.3		Apply in fall at late bud to flower stage.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Lantana, largeleaf[1]	*Lantana camara*	1.0	–		Apply at or beyond bloom stage.
Lespedeza	*Lespedeza spp.*	1.5	2.2–3.6		Apply when most plants have reached the early bud stage.
Milkweed, common	*Asclepias syriaca*	1.5	2.2	Yes	Apply when most plants have reached the early bud stage.
Milkweed, honeyvine	*Ampelamus albidus*	1.5	1.6–3.3	Yes	Late bud to early flower. May require retreatment.
Muhly, wirestem	*Muhlenbergia frondosa*	1.5	0.75–1.6		Use 0.75 to 1.6 qts./A in pasture, sod, or noncrop areas. Spray plants 8 inches or more in height. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage.
Mullein, common	*Verbascum thapsus*	1.5	2.2–3.6		Early bud.
Napiergrass	*Pennistum purpureum*	1.5	2.2–3.6		Early head stage.
Nightshade, silverleaf	*Solanum eleagnifolium*	1.5	1.6		Apply when 60% of plants have berries. Apply fall treatments before a killing frost.
Nutsedge, purple Nutsedge, yellow	*Cyperus rotundus* *Cyperus esculentus*	0.7–1.5	0.4–2.2		Apply 2.2 qts./A for control of nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Sequential applications: 0.7–1.4 qts./A applied to plants in the 3-5 leaf stage or less than 6 inches tall. Repeat treatments at this stage for long term control. For partial control: apply 0.4–1.4 qts. per acre. Treat when plants have 3-5 leaves or less than 6 inches tall. Repeat treatments at this stage for long term control.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Orchardgrass	*Dactylis glomerata*	1.5	0.75–1.6		Apply 1.4 qts./A on plants at early boot to seedhead stage. For partial control in pasture or hay crop renovation, apply 0.75–1.1 qts./A. Apply to actively growing plants 4-12 inches in height. In orchardgrass sods rotated to no-till corn: Apply 0.75–1.1 qts. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be required for optimum results.
Pampasgrass[1]	*Erianthus ravennae*	1.0–1.5			Apply at or beyond boot stage.
Paragrass	*Brachiaria mutica*	1.5	2.2–3.6		Early seedhead stage.
Phaseybean[1]	*Phaseolus lathyroides*	1.5	1.6–3.3		Less than 8 inches tall.
Phragmites[1]	*Phragmites* spp.	1.0–1.5	2.2–3.6		For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Repeat treatments may be necessary. Visual control symptoms will be slow to develop.
Poison hemlock	*Conium maculatum*	1.0–1.5			Apply as a spray to wet treatment. Optimum results are obtained when plants are treated at the bud to full-bloom stage of growth.
Pokeweed, common	*Phytolacca americana*	1.5	1.1		Apply to actively growing plants up to 24 inches in height.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Quackgrass	*Agropyron repens*	1.5	0.75–2.2		Apply 0.75–2.2 qts./A in annual cropping systems, or in pastures and sods where deep tillage is used. Do not tank mix with a residual herbicide at the 0.75 qt. rate. Spray when quackgrass is 6-8 inches in height. Do not till between harvest and fall applications or in the fall or spring prior to spring application. Allow 3 or more days after application before tillage.
			1.6–2.2		Apply in pastures, sod, or noncrop areas where deep tillage will not follow the application. Spray when quackgrass is at least 8 inches in height.
Redvine[1]	*Brunnichia ovata*	1.5	0.5–1.6		For suppression, apply 0.5 qt./A at each of two applications 7-14 days apart or a single application of 1.6 qts./A. Apply to plants greater than 18 inches tall in September/October to plants which have been growing 45-60 days since the last tillage. Make application at least 1 week prior to killing frost.
Ryegrass, perennial	*Lolium perenne*	1.0	0.75–2.2		Apply 0.7–2.2 qts./A when most plants are in the boot to head stage or prior to frost. In noncrop or areas where no tillage is practiced, use 1.6–2.2 qts./A. Do not tank mix with residual herbicides when using the 0.75 qt./A per acre rate.
Smallflowered Alexandergrass	*Brachiaria subquadripara*	1.5	1.6–3.3		Less than 4 inches in height, actively growing.
Smartweed, swamp	*Polygonum coccineum*	1.5	2.2–3.6		Early bud, 12 inch stage.
			0.4	Yes	Early bud, 12 inch stage.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Sowthistle, perennial	*Sonchus arvensis*	1.5	1.6–2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage.
Spurge, leafy	*Euphorbia esula*	1.5	0.4	Yes	For suppression: greater than 12 inches tall in late summer.
Sweet potato, wild [1]	*Ipomea pandurata*	1.5			*Apply at or beyond flowering stage.*
Switchgrass	*Panicum virgatum*	1.5	1.1–2.2		Boot to head stage.
Thistle, artichoke [1]	*Cynara cardunculus*	1.5			Apply when plants are beyond the bloom stage.
Thistle, Canada	*Cirsium arvense*	1.5	1.6–2.2		Apply when most plants are at or beyond the bud stage of growth. After harvest, mowing, or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to application. Fall treatments must be applied before a killing frost. Allow 3 or more days before tillage. For fall applications or following mowing, allow a minimum of 6-8 inches rosette development.
			0.4–0.7	Yes	For suppression: Apply in late summer or fall after harvest, mowing, or tillage. Allow rosette regrowth to be a minimum of 6 inches in diameter before treating. Allow 3 or more days before tillage.
Timothy	*Phleum pratense*	1.5	1.6–2.2		Boot to head; wait 3 days before tillage.
Torpedograss[1]	*Panicum repens*	1.5	2.7–3.6		At or beyond seedhead. Repeat applications will be required to maintain control. Fall treatments must be made prior to a killing frost.

WEED SPECIES	SCIENTIFIC NAME	SPOT SPRAY % V/V	QUARTS PER ACRE	TANK MIX WITH 2,4-D OR DICAMBA	APPLICATION TIMING AND REMARKS
Trumpetcreeper[1]	*Campsis radicans*	1.5	1.6		Late September/October applications on actively growing plants at least 18 inches in height; retreatment may be required. Make applications at least one week before killing frost.
Vaseygrass	*Paspalum urvillei*	1.5	2.2–3.6		Apply at early head stage.
Vetch	*Vicia* spp.	1.5	1.4–2.9		Boot to head.
Virginia creeper	*Parthenocissus quinquefolia*	1.5	3.3		Full leaf expansion.
Velvetgrass	*Holcus* spp.	1.5	2.2–3.6		Early head stage
Wheatgrass, western	*Agropyron smithii*	1.5	2.6–2.2		Boot to head.

[1] Partial control.

Table 4. Woody Brush and Trees Controlled

Apply SYN-1219 after full leaf expansion, unless otherwise directed. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. In most areas, best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring to early summer when brush species are at high moisture content and are flowering.

Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing, or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Reduced performance may result if fall treatments are made following a frost.

When plants are growing under stressed conditions, or where infestations are dense, SYN-1219 may be used at 3.6 to 7.6 quarts per acre or a 0.7 to 1.5% solution for spot spray clean-up.

The following are controlled with 1.6 to 2.2 qts.[1]	
Birch	Rose, multiflora
Cherry; bitter, black, pin	Salmonberry
Elderberry	Sweetgum
Hawthorn	Thimbleberry
Hazel	Trumpetcreeper
Oak, southern red	
The following are controlled with 2.2 to 3.3 qts.[1]	
Alder	Oak, post
Blackberry	Quaking Aspen
Honeysuckle	Willow
The following are controlled with 2.7 to 3.6 qts.[1]	
Kudzu	
Poison ivy/Poison oak	
The following are controlled with 1.6 to 3.6 qts.[1]	
Ash[2]	Oak; black, white[2]
Bearmat (Bearclover)[2]	Oak; northern, pin
Beech[2]	Oak, scrub[2]
Blackgum	Persimmon[2]
Bracken	Pine
Cascara[2]	Poplar, yellow[2]
Ceanothus[2]	Redbud, eastern
Chamise[2]	Russian olive[2]
Dogwood[2]	Sage, white[2]
Elm[2]	Saltcedar
Florida holly (Brazilian peppertree)[2]	Sassafras[2]
Gorse[2]	Sourwood[2]
Hickory[2]	Sumac; poison, smooth, winged[2]
Hornbeam, American[2]	Swordfern[2]
Locust, black[2]	Vine maple[2]
Manzanita[2]	Virginia creeper
Maple, red	Waxmyrtle, southern[2]

The following are controlled with 3.6 qts.[1]	
Broom; French, Scotch	Maple, sugar
Buckwheat, California[2]	Monkey flower[2]
Catsclaw[2]	Sage, black
Coyote brush	Sage brush, California
Eucalyptus	Tallowtree, Chinese
Hasardia[2]	Tan oak resprouts[2]
Madrone resprouts[2]	Tobacco, tree[2]

[1] Alternatively, use a 1.5% solution for spot spray clean-up.
[2] Provides partial control

This product is sold only for uses stated on its label. This formulation is covered by U.S. Patent No. 5,468,718.

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For non-emergency (e.g., current product information), call
Syngenta Crop Protection at 1-800-334-9481.

Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

SCP XXXX

SYN–1219 – bb – 12–19–02

Base Label

(2.5 gal.)

SYN-1219 Herbicide

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:

*Glyphosate: N-(phosphonomethyl) glycine	45.2%
Other Ingredients:	54.8%
Total:	100.0%

*Contains 500 grams per liter or 4.17 pounds per U.S. gallon of glyphosate acid.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use in attached booklet

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-xxxx
EPA Est.

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Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com

SCP XXXX

2.5 gallons
U.S. Standard Measure

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

FIRST AID	
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident), Call **1-800-888-8372**	

Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

Physical and Chemical Hazards

Do not store, mix or apply this product or spray solutions of this product in unlined steel (except stainless steel), galvanized steel containers, or sprayer tanks. This product or spray solutions of this product will react with these containers and tanks and produce hydrogen gas which may form a highly combustible mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by spark, open flame, lighted cigarette, welder torch, or other ignition source.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic, or plastic-lined steel containers.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

SYN–1219 – bb – 12–19–02

Pages 422-472 - *Confidential Statements of Formula may be entitled to confidential treatment*

Superseded by CSFs dated
12/5/03

CHEMICAL NAME/PESTICIDE CHEMICAL CODE (PCC) REQUEST FORM

CR#: 03-0254

REQUESTOR NAME: LINDA L. KUTNEY LINDA KUTNEY REQUEST DATE: 6/19/03

TEL: 305-7382 ORG: TRB ROOM: 270 MAIL CODE: 7505C

(Division Branch)

CSF ATTACHED:

- [X] YES If CSF is attached complete Item A and the chemical name in Item B
- [ ] NO If CSF is not attached complete Item A through Item C

A. INFORMATION REQUIRED:

✓ Check Applicable Category

- [X] Provide PCC and Tolerance Exemption Status for Food-Use Inert Ingredient(s)
- [ ] Provide PCC for Non-Food Use Inert Ingredient(s)
- [ ] Provide PCC for Active Ingredient(s)
- [ ] Provide PCC for Dye
- [ ] Determine if Fragrance is Acceptable for Use in Formulation
- [ ] Other (Describe): IS MSDS INCLUDED? YES D 288453

B. INGREDIENT INFORMATION:

Ingredient No. 1:

Chem. Name: [redacted]

Trade Name:

CAS Reg. No:

Ingredient No. 2:

Chem. Name: [redacted]

Trade Name:

CAS Reg. No.:

Ingredient No. 3:

Chem. Name: [redacted]

Trade Name:

CAS Reg. No.:

Ingredient No. 4

Chem. Name:

Trade Name:

CAS Reg. No.:

C. PESTICIDE PRODUCT INFORMATION

EPA Reg. No./File Symbol: 100-RRRO Product Name: Syn1219

Registrant: Syngenta Food- Use Pesticide: [X] Yes [ ] No

Percent in Formulation (For Fragrances/Dyes only): %

INFORMATION REPORTED:

Ingredient No. 1:

PCC: [redacted]

Tol. Status/Other Info: 40 CFR 180.1001 (d)

Ingredient No. 2:

PCC: [redacted]

Tol. Status/Other Info.: 40 CFR 180.1001 (d)

Ingredient No. 3:

PCC: [redacted]

Tol. Status/Other Info: 40 CFR 180.1001 (c)

Ingredient No. 4

PCC:

Tol. Status/Other Info.:

Completed by: LINDA FAN Date Completed: 06/25/2003

Once completed, this form may be entitled to treatment as CBI under section 10 of FIFRA. If so, a red CBI cover should be affixed to the request form and the document handled accordingly.

Inert ingredient information may be entitled to confidential treatment

Comparison of Touchdown Total Formulations (A13013M) with Proposed New Alternate (A13013BE):

Syngenta Source of Glyphosate Acid Technical:

	% by weight (certified limits)			
Ingredient	**A13013M – Basic CSF 153/5 Dec. 5, '03**	**A13013BE – New Alt.**	**Purpose in Formula**	**CAS No.**
[redacted]				

[redacted] **Source of Glyphosate Technical:**

	% by weight (certified limits)			
Ingredient	**A13013M – Alt. CSF 154/6 Dec. 5, '03**	**A13013BE – New Alt.**	**Purpose in Formula**	**CAS No.**
[redacted]				

Inert ingredient information may be entitled to confidential treatment
Product ingredient source information may be entitled to confidential treatment

Both of the new inerts in the formulation, [redacted] are included in Touchdown 008 (100-RRIA) which was submitted as a new product registration July 14, 2003. The inerts are in the basic formulation and one alternate. Copies of these Touchdown 008 CSF's are attached (see Confidential Attachment B).

Inert ingredient information may be entitled to confidential treatment

Business Confidential Information

Attachment A

Inert Exemption Status and Information Concerning the Inhalation Study

Inert Exemption Status

The inert ingredient:

[redacted]

Information Concerning the Acute Inhalation Study

Included in this submission are 6 acute toxicology studies conducted with the subject formulation. The inhalation study was conducted with a minor variant of the product as submitted. As indicated in the toxicology summary, Volume 10, p. 4, the two glyphosate formulation variants differ in [redacted]

Inert ingredient information may be entitled to confidential treatment