| | |
|---|---|
| **From:** | Mardel Belotinsky |
| **To:** | Arrington, Linda; Javier, Julie; Muhammad, Maryam K. |
| **Cc:** | Nolan, Michelle; Thomas, Samantha |
| **Subject:** | Interim Registration Review Decision Case Number 0040 - Label Amendment for EPA Reg. No. 11220-33 + BiOp |
| **Date:** | Wednesday, September 1, 2021 4:33:15 PM |
| **Attachments:** | image001.png<br>11220-33_20210901_cover-letter.pdf<br>11220-33_20210901_8570-1.pdf<br>11220-33_20210901_Label-draft-BiOp-clean.pdf<br>11220-33_20210901_Label-draft-BiOp-annotated.pdf |

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Hello.
Please see attached cover letter, EPA Form 8570-1, and a revised label in both 'annotated' and 'clean' versions, for the product referenced above.

**Mardel Rose Belotinsky**
Registration Manager

**8100 Arroyo Circle**
**Gilroy, California 95020-7305**
**USA**
**Office: 831.637.0195**
**Mobile: 831.801.5734**

**mbelotinsky@tricalgroup.com**

*Please read instructions on reverse before completing form.* Form Approved. OMB No. 2070-0060, Approval expires 2-28-95

| EPA | United States **Environmental Protection Agency** Washington, DC 20460 | ☐ **Registration** ☒ **Amendment** ☐ **Other** | OPP Identifier Number |
|---|---|---|---|

## Application for Pesticide – Section I

| | | |
|---|---|---|
| 1. Company/Product Number<br>11220-33 | 2. EPA Product Manager<br>Nathan Mellor | 3. Proposed Classification<br>☐ None ☒ Restricted |
| 4. Company/Product (Name)<br>Tri-Form 60 EC | PM#<br>21 | |
| 5. Name and Address of Applicant *(Include ZIP Code)*<br>Trical, Inc.<br>8100 Arroyo Circle<br>Gilroy, CA 95020-7305<br>☐ *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:<br>EPA Reg. No. _____<br>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.)

To add the language required by the NMFS Biological Opinion for 1,3-D to the label. Please see the cover letter for detailed information.

## Section - III

**1. Material This Product Will Be Packaged In:**

| Child-Resistant Packaging | Unit Packaging | | Water Soluble Packaging | | 2. Type of Container |
|---|---|---|---|---|---|
| ☐ Yes<br>☒ No<br>**** Certification must be submitted*** | ☐ Yes<br>☒ No<br>If "Yes" Unit Packaging wgt. | No. per Container | ☐ Yes<br>☒ No<br>If "Yes" Packaging wgt. | No. per Container | ☒ Metal<br>☐ Plastic<br>☐ Glass<br>☐ Paper<br>☐ Other (Specify) _____ |

| 3. Location of Net Contents Information | 4. Size(s) Retail Container | 5. Location of Label Directions |
|---|---|---|
| ☒ Label ☐ Container | 5.7 , 17.0 , 28.5 , 56.7 , and/or 119.8 gallons | ☐ On Label<br>☒ 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) |
|---|---|---|
| Mardel Rose Belotinsky | Registration Manager | (831) 637-0195 |

**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<br>Mardel Rose Belotinsky | 3. Title<br>Registration Manager | 6. Date Application Received<br>**(Stamped)** |
| 4. Typed Name<br>Mardel Rose Belotinsky | 5. Date<br>2021 September 1 | |

8100 Arroyo Circle • Gilroy, California • 95020-7305 • USA
Phone: (831) 637-0195 • Fax: (831) 637-0273

September 1, 2021

**VIA EMAIL**
Linda Arrington (Arrington.Linda@epa.gov)
Julie Javier (Javier.Julie@epa.gov)
Maryam Muhammad (Muhammad.Maryam@epa.gov)
USEPA Office of Pesticide Programs
Pesticide Re-evaluation Division
Mail Code 7508P
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

**Re: Interim Registration Review Decision Case Number 0040**
**Label Amendment for EPA Reg. No. 11220-33**

Dear Ms. Arrington, Ms. Javier and Ms. Muhammad:

Enclosed are: (1) EPA Form 8570-1; and (2) a revised label (in both 'annotated' and 'clean' versions), for the product referenced above. The revised label incorporates the label changes required by the National Marine Fisheries Service Biological Opinion on the effects of 1,3-Dichloropropene (1,3-D) on Pacific salmonids (BiOp) as the product contains both 1,3-D and chloropicrin. The changes have been placed on the amended label submitted to EPA on July 20, 2020 that contained the label amendments required by the 2020 Chloropicrin Interim Registration Review Decision (IRRD) and the update to certain EPA websites that EPA required to be made at the same time. The website revisions are as follows.

- The website https://www.epa.gov/fumiganttraining has been updated to https://www.epa.gov/soil-fumigants/soil-fumigant-training-certified-applicators.

- The website https://www.epa.gov/pesticides/reregistration/soil_fumigants/index.htm has been updated to https://www.epa.gov/soil-fumigants/buffer-zone-sign-template.

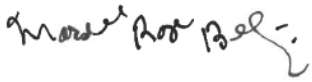
- The website https://www.epa.gov/fumigantstatenotice has been updated to https://www.epa.gov/soil-fumigants/complying-required-state-and-tribal-notification-soil-fumigations.

The label submitted in 2020 is still pending review at EPA. As outlined in an August 6, 2021 email from Linda Arrington, Branch Chief, RMIB 4, Pesticide Re-evaluation Division, to Sara Beth Watson representing the Chloropicrin Manufacturers' Task Force, the company has added the language required by the BiOp to the label described above pending at EPA.

The addition of the BiOp language is the only change made to the label submitted in July 2020.

Please let me know if you have any questions,

Sincerely,



Mardel Rose Belotinsky
Registration Manager

cc: Michelle Nolan (nolan.michelle@epa.gov)
Samantha Thomas (thomas.samantha@epa.gov)

**RESTRICTED USE PESTICIDE**
DUE TO ACUTE TOXICITY AND CARCINOGENICITY
For retail sale to and use by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

# Tri-Form 60 EC

*A multi-purpose liquid fumigant to be used in drip irrigation systems only for preplant treatment of soil to control plant parasitic nematodes and to help manage certain soil-borne diseases and symphlyans in cropland.*

**ACTIVE INGREDIENTS:**
Chloropicrin .....56.7%
1,3-Dichloropropene .....37.1%
**OTHER INGREDIENTS:**..... 6.2%
**TOTAL:** .....100.0%

*This product weighs 11.81 lbs./gal. at 68°F (20°C).*
*Contains 4.49 pounds of 1,3-Dichloropropene and 6.73 pounds of Chloropicrin per gallon.*

**KEEP OUT OF REACH OF CHILDREN**

**DANGER** **PELIGRO**

**POISON** [Note : « Poison » will be printed in red.]

*Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle.*
*(If you do not understand the label, find someone to explain it to you in detail.)*

IN ALL CASES OF OVEREXPOSURE, GET MEDICAL ATTENTION IMMEDIATELY.
TAKE PERSON TO A DOCTOR OR TO AN EMERGENCY TREATMENT FACILITY.

| FIRST AID | |
|---|---|
| **If inhaled:** | • Move person to fresh air.<br>• If person is not breathing, call 911 or an ambulance, and then give artificial respiration, preferably by mouth-to-mouth, if possible.<br>• Call a poison control center or doctor for further treatment advice. |
| **If on skin or clothing:** | • Take off contaminated clothing.<br>• Rinse skin immediately with plenty of water for 15-20 minutes.<br>• Call a poison control center or doctor for treatment advice. |
| **If in eyes:** | • Hold eyes open and rinse slowly and gently with water for 15-20 minutes.<br>• Remove contact lenses, if present, after 5 minutes, and then continue rinsing eyes.<br>• Call a poison control center or doctor for treatment advice. |
| **If swallowed:** | • Call a poison control center or doctor immediately for treatment advice.<br>• Have person sip a glass of water if able to swallow.<br>• Do not induce vomiting unless told to do so by a poison control center or doctor.<br>• Do not give anything to an unconscious person. |

- Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
- For additional information in case of an emergency, call toll free (1-800-424-9300).

**NOTE TO PHYSICIAN**

Because rapid absorption may occur through lungs if product is aspirated and cause systemic effects, the decision to induce vomiting or not should be made by a physician. Probable mucosal damage may contraindicate the use of gastric lavage. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Chloropicrin is a volatile liquid that is the active ingredient in tear gas. As a gas it is a powerful lachrymator. Early symptoms of overexposure are lachrymation, respiratory distress and vomiting. Pulmonary edema may develop later. Treatment is symptomatic.

# PRECAUTIONARY STATEMENTS

## HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER. Hazardous liquid and vapor. Fatal if inhaled, swallowed, or absorbed through skin. Poisonous liquid and vapor. Corrosive. Liquid causes skin burns and irreversible eye damage. Do not breathe vapor or gas. Do not get in eyes, on skin or on clothing. May cause lung, liver, and kidney damage and respiratory system irritation upon prolonged contact. The use of this product may be hazardous to your health. This product contains 1,3-dichloropropene, which has been determined to cause tumors in laboratory animals. Risks can be reduced by exactly following directions for use, precautionary statements, and by wearing the personal protective equipment specified in this labeling. Chloropicrin is readily identifiable by smell. Exposures to very low concentrations of vapor will cause irritation of eyes, nose and throat. Continued exposure after irritation occurs, or exposure to higher concentration may cause painful irritation or temporary blindness. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. PPE constructed of saranex, neoprene, nitrile, and chlorinated polyethylene provide short-term contact or splash protection against liquid in this product. Longer-term protection is provided by PPE constructed of viton, Teflon, and EVAL barrier laminates (for example, responder suits manufactured by Life-guard or silvershield gloves manufactured by North). Where chemical-resistant materials are required, leather, canvas, or cotton materials offer no protection from this product and must not be worn as the sole article of protection when contact with this product is possible. Where coveralls are required, they must be loose-fitting and constructed of woven fabrics (e.g., tight knit cotton or cotton/polyester), non-woven fabrics (e.g., tyvek or sontara), or fabrics containing microporous Teflon.

1. **Handlers performing mechanical transfer of product – closed delivery systems – must wear:**

- Long-sleeved shirt and long pants,
- Chemical-resistant gloves, such as barrier laminate (EVAL) or viton,
- Protective eyewear (do NOT wear goggles), and

- Chemical-resistant footwear with socks.
- Coveralls must be immediately available to the handler in case of an emergency.
- A NIOSH certified half-face air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A).
- If sensory irritation (tearing, burning of the eyes or nose) is experienced and handlers remain in the application block or buffer zone, handlers must wear at a minimum either:
    - A NIOSH certified full facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A), or
    - A gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

See *Directions for Use, Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers*, number 1, *Handlers Wearing Half-Face Air-Purifying Respirators* for when an air-purifying respirator (full facepiece or gas mask) is required.

2. **When performing tasks with potential for contact with liquid fumigant, all handlers (including applicators) must wear:**

- Long-sleeved shirt and long pants,
- Chemical-resistant gloves, such as barrier laminate (EVAL) or viton,
- Chemical-resistant apron,
- Protective eyewear (do NOT wear goggles)
- Chemical-resistant footwear with socks, and
- Chemical-resistant headgear for overhead exposure
- A NIOSH certified half-face air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A).
- If sensory irritation (tearing, burning of the eyes or nose) is experienced and handlers remain in the application block or buffer zone, handlers must wear at a minimum either:
    - A NIOSH certified full facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A), or
    - A gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

See *Directions for Use, Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers*, number 1, *Handlers Wearing Half-Face Air-Purifying Respirators* for when an air-purifying respirator (full facepiece or gas mask) is required.

3. **Handlers in the application block within 5 days after the application is complete with NO potential for contact with liquid fumigant must wear:**

- Coveralls,
- Chemical-resistant gloves, such as barrier laminate (EVAL) or viton,
- Chemical-resistant footwear with socks.

- A NIOSH certified full facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A), or
- A gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

See *Directions for Use, Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers*, number 2, *Handlers in the Application Block within 5 Days after the Application is Complete*.

4. **Handlers in the application block 5 days after the application is complete until the entry restricted period ends or in the buffer zone during the buffer zone period must wear:**

- Long-sleeved shirt and long pants, and
- Shoes with socks.
- If sensory irritation (tearing, burning of the eyes or nose) is experienced and handlers remain in the application block, handlers must wear at a minimum either:
    - A NIOSH certified full facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A), or
    - A gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

See *Directions for Use, Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers*, number 3, *Handlers in the Application Block 5 Days after the Application is Complete Until the Entry Restricted Period Ends or in the Buffer Zone during the Buffer Zone Period*.

IMPORTANT: A self-contained breathing apparatus (SCBA) is not permitted for routine handler tasks. If responding to an emergency, when corrective action is needed to reduce air concentrations to acceptable levels, wear an SCBA. Escape-only SCBA respirators must not be used by handlers for responding to emergencies. In addition, wear PPE required for potential contact with liquid fumigant.

5. **Handlers exposed to greater than 1.5 ppm of chloropicrin (e.g., in an emergency when corrective action is needed to reduce air concentrations to acceptable levels), and handlers exposed to this product in poorly ventilated areas, must wear at a minimum:**

- Chemical-resistant suit,
- Chemical-resistant gloves, such as barrier laminate (EVAL) or viton,
- Chemical-resistant headgear,
- A self-contained breathing apparatus (SCBA) with NIOSH approval number prefix TC-13F.

See further respirator requirements in the *Protection for Handlers* section on this label.

## USER SAFETY REQUIREMENTS

1. Never Fumigate Alone: It is imperative to always have an assistant and proper protective equipment in case of accidents.
2. Dispose of Contaminated Clothing: Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.
3. Clean and Maintain PPE: Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.
4. Contact With Mouth: Never siphon this product by mouth or use mouth to blow out clogged lines, nozzles, etc.
5. Heat Illness Avoidance: Use measures to avoid or minimize heat illness while using this product. These measures include gradual adjustment to heat and respirator stress, fans for cooling, cooling vests, frequent breaks to cool down, frequent intake of drinking water, and maintaining weight from day to day.

## USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE 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

- This pesticide is toxic to mammals and birds. 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 disposing of equipment washwaters or rinsate.
- Chloropicrin has certain properties and characteristics in common with chemicals that have been detected in groundwater (chloropicrin is highly soluble in water and has low adsorption to soil).
- **Groundwater Advisory:** 1,3-dichloropropene is known to move through soil and under certain conditions has the potential to reach groundwater as a result of agricultural use. Application in areas where soils are permeable and groundwater is near the surface could result in groundwater contamination.
- For untarped applications of this product, leaching and runoff may occur if there is heavy rainfall after soil fumigation.

**Reporting Ecological Incidents:**
To report ecological incidents, including mortality, injury, or harm to plants and animals, call (831) 637-0195.

## PHYSICAL OR CHEMICAL HAZARDS

- Combustible. Do not use or store near heat or open flame.

- Do not mix or allow coming in contact with oxidizing agent. A chemical reaction hazard may occur.
- Handle carefully! Do not drop or let container be impacted by heavy objects. An explosion hazard may occur.

## DIRECTIONS FOR USE

**Restricted Use Pesticide**

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

**Endangered Species Protection Requirements**

It is a Federal offense to use any pesticide in a manner that results in an unauthorized "take" (e.g., kill or otherwise harm) of an endangered species and certain threatened species, under the Endangered Species Act section 9. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. You must obtain a Bulletin no earlier than six months before using this product. To obtain Bulletins, consult **http://www.epa.gov/espp/**, call 1-844-447-3813, or email ESPP@epa.gov. You must use the Bulletin valid for the month in which you will apply the product.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only handlers may be in the application block from the start of the application until the entry restricted period ends, and in the buffer zone during the buffer zone period. 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. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS). No instructions elsewhere on this labeling relieve users from complying with the requirements of the WPS.

For the entry restricted period and notification requirements, see the *Entry Restricted Period* and *Notification* section of this labeling. PPE For Entry During the Entry-Restricted Period: PPE for entry that is permitted by this labeling is listed in the *Personal Protective Equipment (PPE)* section of this labeling.

**READ ALL DIRECTIONS FOR USE CAREFULLY BEFORE APPLYING.**
**READ THE ENTIRE LABEL. USE ONLY ACCORDING TO LABEL DIRECTIONS.**
**BEFORE BUYING OR USING THIS PRODUCT, READ "WARRANTY DISCLAIMER" AND "LIMITATION OF REMEDIES".**

**Terms Used in This Labeling**

Soil Fumigant Training Program: Certified applicator training that provides information on (1) how to correctly apply the fumigant, including how to comply with new label requirements; (2)

how to protect handlers and bystanders; (3) how to determine buffer zone distances; (4) how to complete an FMP and the post-application summary; (5) how to determine when weather and other site-specific factors are not favorable for fumigant application; (6) how to comply with required GAPs and how to document compliance with GAPs in the FMP; and (7) how to develop and implement emergency response plans.
Fumigant Safe Handling Information: Information that must be provided annually to handlers that must include the following: (1) what fumigants are and how they work, (2) safe application and handling of soil fumigants, (3) air monitoring and respiratory protection requirements for handlers, (4) early signs and symptoms of exposure, (5) appropriate steps to take to mitigate exposures, (6) what to do in case of an emergency, and (7) how to report incidents.
Application Block: Area within the perimeter of the fumigated portion of a field or greenhouse (including furrows, irrigation ditches, roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.
Application Rate: The ratio of fumigant mass applied compared to the soil surface area (e.g., pounds of product per acre). The application rate is expressed on this labeling in terms of either the "treated area application rate" or the "broadcast equivalent application rate." The "treated area application rate" relates to only the rate of fumigant applied to the portion of the field that is fumigated (e.g., rate within the bed or strips). The "broadcast equivalent application rate" relates to the rate of fumigant applied within the entire perimeter of the application block. For bedded and strip applications, the "broadcast equivalent application rate" must be calculated to determine the buffer zone distance required by this labeling.
Start of the Application: The time at which the fumigant is first delivered/dispensed into the soil in the application block.
Application is Complete: The time at which the fumigant has stopped being delivered/dispensed into the soil and the soil has been sealed; drip lines have been purged (if applicable).
Entry Restricted Period: This period begins at the start of the application and expires depending on the application method and if tarps are used when the tarps are perforated and removed. Entry into the application block during this period is only allowed for appropriately PPE-equipped handlers performing handling tasks. See the *Entry Restricted Period and Notification* section for additional information.
Buffer Zone: An area established around the perimeter of each application block. The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.
Buffer Zone Period: Begins at the start of the application and lasts for a minimum of 48-hours after the application is complete. Non-handlers must be excluded from the buffer zone during the buffer zone period.
Difficult to Evacuate Sites: Pre-K to Grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.
Owner: Any person who has a present possessory interest (fee, leasehold, rental, or other) in an agricultural establishment. A person who has both leased such agricultural establishment to another person and granted that same person the right and full authority to manage and govern the use of such agricultural establishment is not an owner. See definition of "owner" in WPS (40 CFR §170.3).
Roadway: Portion of a street or highway improved, designed or ordinarily used for vehicular travel, exclusive of the sidewalk or shoulder even if such sidewalk or shoulder is used by persons riding bicycles. In the event a highway includes two or more separated roadways, the term *roadway* shall refer to any such roadway separately.
Representative Handling Task: For air monitoring, the locations and handler activities sampled must represent each handler's exposure occurring within the application block. For example, for an

application consisting of a seven-handler crew (1 tractor driver, 1 tractor co-pilot, 4 shovelers, and 1 certified applicator supervising) two breathing zone samples could be collected: one sample for the tractor co-pilot and one sample for a downwind shoveler. Results of previous sampling may indicate which tasks and locations are worst case and therefore representative of all handlers.

## Application Restrictions

- The use of this product is restricted to the methods described in this label.
- Do not formulate and/or tank mix this product into other end-use agricultural products.
- An application block treated with Tri-Form 60 EC must not be within 100 feet of an occupied structure. No person shall be present at this structure at any time during the seven consecutive day period after the application is complete. EXCEPTION: This restriction does not apply to use on soils that have not experienced a 1,3-Dichloropropene treatment in the previous two years, for example, on soils planted with fruit trees, nut and nursery crops, perennial vines, hops, mint or pineapple.
- Tri-Form 60 EC shall not be applied to soil more frequently than once each year.
- Apply this product only through drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
- Do not connect an irrigation system used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- Do not apply within 100 feet of any well used for potable water. Do not apply this product within 100 feet from the edge of karst topographical features. Karst topography is identified from landscape features that result from the dissolving activity of water in carbonate rock formations (limestone, dolomite and marble). Surface features that are associated with karst topography include sinkholes, caverns, springs, and sinking or disappearing streams. In North Dakota, South Dakota, Wisconsin, Minnesota, New York, Maine, New Hampshire, Vermont, Massachusetts, Utah, and Montana: Where groundwater aquifers exist at a depth of 50 feet or less from the surface, do not apply this product where soils are Hydrologic Group A.
- **Application Restrictions for Certain Florida Counties:** For the following Florida counties: Brevard, Charlotte, Citrus, Collier, DeSoto, Glades, Hardee, Hendry, Hernando, Highlands, Hillsborough, Indian River, Lake Lee, Manatee, Martin, Monroe, Okeechobee, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, Sarasota, Seminole, St. Lucie, Sumter, and Volusia, use TRI-FORM 60 EC only on soils that have a relatively shallow hard pan or soil layer restrictive to downward water movement (such as spodic horizon) within six feet of the ground surface and are capable of supporting seepage irrigation regardless of irrigation method employed. DO NOT APPLY WHERE SUBSURFACE DRIP IRRIGATION EQUIPMENT MIGHT RELEASE THE FUMIGANT DIRECTLY INTO SHALLOW SUBSURFACE IRRIGATION WATER.
- Use of Tri-Form 60 EC is prohibited in Broward and Dade counties.

## Product Information

This product is a multi-purpose liquid fumigant for preplant treatment of soil to control nematodes, symphylans, wireworms and certain soil borne diseases in cropland. This product may be applied as a preplant soil treatment to control or to aid in reducing the damaging effects of certain soil borne diseases [soil rot (soil pox) of sweet potatoes; *Streptomyces scabies* (potato scab or common scab of potatoes); Granville (bacterial) wilt, black root rot, black shank diseases of tobacco; *Verticillium* wilt of mint, pink root of onions, pod rot of peanuts]; plant

parasitic nematodes [root-knot, root lesion, citrus, cyst formers (golden, sugar beet, soybean), burrowing, lance, reniform, ring, spiral, sting, pin, stubby root, stylet, dagger and certain others]; symphylans (garden centipedes) and wireworms. Before fumigation, soil sampling for the type and number of pests present is recommended. In fields where pre-treatment soil samples indicate the presence of high population levels of nematodes, a successful fumigation cannot be expected to eradicate entire populations. Therefore, post-treatment sampling is recommended to determine the need for additional pest management practices. Consult State Agricultural Experiment Station or Extension Service specialists for information on other practices such as post-harvest destruction of crop residues, weed control or other cultural practices, and use of nematode resistant crop varieties that may aid in reducing crop losses from soil borne pests.

## Use Precautions

### Recontamination Prevention

Tri-Form 60 EC will help manage certain soil borne pests that are present in the soil treatment zone at time of fumigation. It will not control pests that are introduced into soil after fumigation. To avoid reinfestation of treated soil do not use irrigation water, transplants, seed pieces, or equipment that could carry soil borne pests from infested land. Avoid contamination from moving infested soil onto treated beds through cultivation, movement of soil from below the treated zone, dumping contaminated soil in treated fields and soil contamination from equipment or crop remains. Clean equipment carefully before entering treated fields. Cultural practices, which provide post-harvest destruction of crop residues and weeds prior to fumigation and practices which prevent weed infestation following fumigation and prior to planting, will help prevent recontamination.

### Equipment Clean-Up

Because Tri-Form 60 EC is corrosive under certain conditions, flush all application equipment with fuel oil, kerosene or a similar type of petroleum solvent immediately after use. Fill pumps and meters with new motor oil or a 50% motor oil/fuel oil mixture before storing. Do not use water. Dispose of rinsate by incorporation into field just treated or by other approved means. Never introduce rinsate or unused Tri-Form 60 EC into surface or underground water supplies.

### Fertility Interactions

Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. This is most likely to occur when high rates of fertilizer and fumigant are applied to soils that are either cold, wet, acidic, or high in organic matter. To avoid injury to certain crops including red beets, carrots, corn, radishes, cole crops, legumes (beans), lettuce, onions, and sugarbeets, fertilize when possible as indicated by soil tests made after fumigation. To avoid ammonia injury or nitrate starvation (or both) to crops grown on high organic soils, do not use fertilizers containing ammonium salts. Use only fertilizers containing nitrates until after the crop is well established and the soil temperature is above 65 ºF. In mineral soils, do not apply more than 2/3 of the nitrogen requirements from fertilizers containing ammonium salts until the crop is well established and the soil temperature is above 65 ºF. When using high rates of Tri-Form 60 EC as required by certain state nursery regulations, liming of highly acid soils before fumigation may stimulate nitrification and reduce the possibility of ammonia toxicity. Certain nursery crops such as citrus seedlings, *Cornus* sp., *Crataegus* sp., spruce, and vegetable crops such as cauliflower have shown evidence of phosphorus deficiency following fumigation. To avoid this possible effect, additional phosphate fertilizer (foliar applied) is recommended where experience indicates a deficiency may occur.

## Certified Applicator Training

Any certified applicator supervising a soil fumigant application must have successfully completed one of the soil fumigant training programs listed on the following EPA website https://www.epa.gov/soil-fumigants/soil-fumigant-training-certified-applicators for the active ingredient(s) in this product. The training must be completed in the time frames listed on the website. The FMP must document the date and location where the soil fumigant training program was completed.

## Handlers

The following activities are prohibited from being performed by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in WPS (40 CFR Part 170):

- Monitoring fumigant air concentrations;
- Cleaning up fumigant spills (this does not include emergency personnel not associated with the application);
- Handling or disposing of fumigant containers;
- Cleaning, handling, adjusting, or repairing the parts of application equipment that may contain fumigant residues; and
- Performing any handling tasks as defined by the WPS (40 CFR 170).

The following activities are prohibited from being performed in the application block from the start of the application until the entry restricted period ends and in the buffer zone during the buffer zone period by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in WPS (40 CFR Part 170). (NOTE: persons repairing and monitoring tarps are considered handlers for the duration listed below). Prohibited activities (except for trained and equipped handlers) include:

- Participating in the application as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application participants;
- Installing, repairing, operating, or removing irrigation equipment;
- Performing scouting, crop advising, or monitoring tasks;
- Installing, perforating (cutting, punching, slicing, poking), or removing tarps (when tarps are used); and
- Repairing or monitoring tarps until 14 days after application is complete if tarps are not perforated and removed during those 14 days (when tarps are used).

NOTE: see *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.

Handlers do not include local, state, or federal officials performing inspection, sampling, or other similar official duties.

## Protection for Handlers

**Supervision of Handlers:**

- For water-run applications (e.g., drip), a certified applicator must be in the line of sight of the application at the start of the application, including set-up, calibration, and initiation of the application.
- A certified applicator may leave but must return at least every two hours to visually inspect the equipment to ensure proper functioning, and must directly supervise all WPS-trained

handlers until the application is complete. WPS-trained handlers may perform these monitoring functions in place of a certified applicator but they must be under the supervision of a certified applicator and be able to communicate with a certified applicator at all times during monitoring activities via cell phone or other means.

- The certified applicator or WPS trained handlers under the supervision of and in communication with the certified applicator shall shut the system down and make necessary adjustments should the need arise.
- For handling activities that take place after the application is complete until the entry restricted period expires, the certified applicator is not required to be on-site, but must have communicated in a manner that can be understood by the site owner and handlers responsible for carrying out those activities the information necessary to comply with the label and procedures described in the FMP (e.g., emergency response plans and procedures).

IMPORTANT: This requirement does not override the requirements in the Worker Protection Standard for Agricultural Pesticides for information exchange between operators of agricultural establishments and commercial pesticide applicators.
The certified applicator must provide **Fumigant Safe Handling Information** to each handler or confirm that within the past 12 months, each handler has received **Fumigant Safe Handling Information** in a manner that he/she can understand. **Fumigant Safe Handling Information** will be provided where this product is purchased or at https://www.epa.gov/soil-fumigants/soil-fumigant-training-certified-applicators.

For all handling tasks at least two handlers must be present.

Exception: After the application is complete, only one trained handler is required to perform fumigant site monitoring tasks outside of the buffer zone.

**Exclusion of Non Handlers from the Application Block and Buffer Zone:**
The certified applicator supervising the application and the owner of the establishment where the application is taking place must make sure that all persons who are not trained and PPE-equipped and who are not performing one of the handling tasks as stated in this labeling are:

- excluded from the application block during the entry restricted period, and
- excluded from the buffer zone during the buffer zone period (see buffer zone exemption for transit on roadways in *Buffer Zone Requirements* section).

Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone.

**Providing, Cleaning, and Maintaining PPE:**
The employer of any handler (as stated in this label) must make sure that all handlers are provided and correctly wear the required PPE. The PPE must be cleaned and maintained as required by the Worker Protection Standard for Agricultural Pesticides.

**Air Purifying Respirator Availability:**
The employer of any handler must confirm that an air-purifying respirator and appropriate cartridges/canisters of the type specified in the *PPE* section of this labeling are immediately

available for each handler who will wear one (see *Respirator Fit Testing, Medical Qualification, and Training* section for additional requirements).

Exception: Air-purifying respirators do not need to be made available for handlers performing fumigant site monitoring tasks outside of the buffer zone.

Cartridges or canisters must be replaced when odor or sensory irritation from this product becomes apparent during use, if the measured concentration of chloropicrin is greater than or equal to 1.5 ppm, or after 8 hours of cumulative use, whichever occurs first.

**Respirator Fit Testing, Medical Qualification, and Training:**
Using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134), employers must verify that any handler who uses a respirator is:

- Fit-tested and fit-checked,
- Trained, and
- Examined by a qualified medical practitioner to ensure physical ability to safely wear the style of respirator to be worn. A qualified medical practitioner is a physician or other licensed health care professional who will evaluate the ability of a worker to wear a respirator. The initial evaluation consists of a questionnaire that asks about medical conditions (such as a heart condition) that would be problematic for respirator use. If concerns are identified, then additional evaluations, such as a physical exam, might be necessary. The initial evaluation must be done before respirator use begins. Handlers must be reexamined by a qualified medical practitioner if their health status or respirator style or use-conditions change.
- Upon request by local/state/federal/tribal enforcement personnel, employers must provide documentation demonstrating how they have complied with these requirements.

## Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers

**Air Monitoring Requirements**

- When air-purifying respirators (full facepiece or gas mask) are worn, air monitoring samples for chloropicrin must be collected at least every 2 hours in the breathing zone of a handler performing a representative handling task.
- When breathing zone samples are required, they must be taken outside respiratory protection equipment and within a 10-inch radius of the handler's nose and mouth.
- When using devices to monitor air concentration levels, a direct read detection device, such as an electronic device or a colorimetric device (e.g., Matheson-Kitagawa, Draeger, or Sensidyne) must be used. The devices must have sensitivity of at least 0.15 ppm for chloropicrin. Persons using direct read detection devices must follow the manufacturer's directions.

**Respiratory Protection and Stop Work Triggers**

**1. Handlers Wearing Half-Face Air-Purifying Respirators**
(Handlers are required to start work in half-face air-purifying respirators.)
The *Air Monitoring Requirements* section above must be followed.

- If at any time any handler experiences sensory irritation (tearing, burning of the eyes or nose) while wearing a half-face respirator then either:

- (OPTION 1) An air-purifying respirator (full facepiece or gas mask) must be worn by all handlers who remain in the application block or surrounding buffer zone, or
- (OPTION 2) Operations must cease and handlers not wearing air-purifying respirators (full facepiece or gas mask) must leave the application block and surrounding buffer zone.

For OPTION 1 [all handlers are wearing air-purifying respirators (full facepiece or gas mask)]

a) Handlers can **resume** operations wearing half-face air-purifying respirators if all of the following conditions exist:

- Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
- Handlers do not experience sensory irritation.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handlers taking the air samples. Samples must be taken where the sensory irritation was first experienced.

b) If at any time (1) a handler experiences sensory irritation when wearing an air-purifying respirator (full facepiece or gas mask), or (2) a chloropicrin air sample is greater than or equal to 1.5 ppm, then all handler activities must cease and handlers must be removed from the application block and surrounding buffer zone.

Handlers can **resume** operations wearing half-face air-purifying respirators if all of the following conditions exist:

- Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm,
- Handlers do not experience sensory irritation, and
- Cartridges/canisters have been changed.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced or where sample(s) were greater than or equal to 1.5 ppm.

For OPTION 2 (Operations ceased)

a) Handlers can **resume** operations wearing half-face air-purifying respirators if all of the following conditions exist:

- Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
- Handlers do not experience sensory irritation.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced.

**2. Handlers in the Application Block within 5 Days after the Application is Complete**

(Handlers are required to start work in air-purifying respirators (full facepiece or gas mask)
The *Air Monitoring Requirements* section above must be followed.

- If at any time (1) a handler experiences sensory irritation when wearing an air-purifying respirator (full facepiece or gas mask), or (2) a chloropicrin air sample is greater than or

equal to 1.5 ppm, then all handler activities must cease and handlers must be removed from the application block and surrounding buffer zone.

- Handlers can **resume** operations wearing air-purifying respirators (full facepiece or gas mask) if all of the following conditions exist:
  - Two consecutive chloropicrin samples taken at the handling site at least 15 minutes apart must be less than 1.5 ppm,
  - Handlers do not experience sensory irritation while wearing air-purifying respirators (full facepiece or gas mask), and
  - Cartridges/canisters have been changed.
  - During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced or where sample(s) were greater than or equal to 1.5 ppm.

**3. Handlers in the Application Block 5 Days after the Application is Complete Until the Entry Restricted Period Ends or in the Buffer Zone during the Buffer Zone Period**
(Handlers in the application block 5 days after the application is complete until the entry restricted period ends or in the buffer zone during the buffer zone period are not required to start work in half-face air-purifying respirators).
The *Air Monitoring Requirements* section above must be followed.

- If at any time any handler experiences sensory irritation (tearing, burning of the eyes or nose) then either:
  - (OPTION 1) An air-purifying respirator (full facepiece or gas mask) must be worn by all handlers who remain in the application block or surrounding buffer zone, or
  - (OPTION 2) Operations must cease and handlers not wearing an air-purifying respirator (full facepiece or gas mask) must leave the application block and surrounding buffer zone.

For OPTION 1 [all handlers are wearing air-purifying respirators (full facepiece or gas mask)]
a) Handlers can remove air-purifying respirators (full facepiece or gas mask) if all of the following conditions exist:
  - Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
  - Handlers do not experience sensory irritation.
  - During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced.

b) If at any time: (1) a handler experiences sensory irritation when wearing an air-purifying respirator (full facepiece or gas mask) or (2) a chloropicrin breathing zone sample is greater than or equal to 1.5 ppm, then all handler activities must cease and handlers must be removed from the application block and the surrounding buffer zone.

i. Handlers can **resume** operations **without** wearing an air-purifying respirator (full facepiece or gas mask) if all of the following conditions exist:
   - Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
   - Handlers do not experience sensory irritation.

- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced or where sample(s) were greater than or equal to 1.5 ppm.

ii. Handlers can **resume** operations **with** wearing an air-purifying respirator (full facepiece or gas mask) if all of the following conditions exist:
- Two chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 1.5 ppm,
- Handlers do not experience sensory irritation, and
- Cartridges/canisters have been changed.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced or where sample(s) were greater than or equal to 1.5 ppm.

For OPTION 2 (Operations ceased)
a) Handlers can resume operations if all of the following conditions exist:
- Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
- Handlers do not experience sensory irritation.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced.

**Tarp Perforation and/or Removal**

IMPORTANT: Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see *Handlers* section), and they must be provided the PPE and other protections for handlers as required on this labeling and in the Worker Protection Standard for Agricultural Pesticides.

- Tarps must not be perforated until a minimum of 5 days (120 hours) have elapsed after the application is complete.
- If tarps are perforated within 14 days after the application is complete, tarp removal must not begin until at least 2 hours after tarp perforation is complete.
- If tarps are perforated but not removed within 14 days after the application is complete, planting or transplanting must not begin until at least 48 hours after the tarp perforation is complete.
- If tarps are not perforated or removed within 14 days after the application is complete, planting or transplanting may take place while the tarps are being perforated.
- Tarps may be perforated manually ONLY for the following situations:
  - At the beginning of each row when a coulter blade (or other device which performs similarly) is used on a motorized vehicle such as an ATV.
  - In fields that are 1 acre or less.
  - During flood prevention activities.
- In all other instances tarps must be perforated (cut, punched, poked, or sliced) only by mechanical methods.

## Entry Restricted Period and Notification

### Entry Restricted Period

Entry into the application block (including early entry that would otherwise be permitted under the WPS) by any person – other than a correctly trained and PPE-equipped handler who is performing a handling task listed on this labeling – is PROHIBITED from the start of the application until:

- 5 days (120 hours) after the application is complete for untarped applications, or
- 5 days (120 hours) after the application is complete if tarps are not perforated and removed for at least 14 days after the application is complete, or
- 48 hours after tarp perforation is complete if tarps will be perforated within 14 days after the application is complete and will not be removed for at least 14 days after the application is complete, or
- tarp removal is completed if tarps are both perforated and removed less than 14 days after the application is complete.

NOTES:

- See *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.
- When listing application information for soil fumigant applications to comply with part 170.122 of the WPS, list the entry restricted period time frame in place of the REI.

### Notification

Notify workers of the application by warning them orally and by posting Fumigant Treated Area signs. The signs must bear the skull and crossbones symbol and state:

- "DANGER/PELIGRO"
- "Area under fumigation, DO NOT ENTER/NO ENTRE"
- "1,3-dichloropropene and chloropicrin fumigants in use"
- The date and time of fumigation
- The date and time entry restricted period is over
- Tri-Form 60 EC, and
- Name, address, and telephone number of the certified applicator in charge of the fumigation.

Post the Fumigant Treated Area sign instead of the WPS sign for this application, but follow all WPS requirements pertaining to location, legibility, text size, and sign size (40 CFR §170.120). Post Fumigant Treated Area signs at all entrances to the application block no sooner than 24 hours prior to application.

Fumigant Treated Area signs must remain posted for no less than the duration of the entry restricted period.

Fumigant Treated Area signs must be removed within 3 days after the end of the entry restricted period.

## Mandatory Good Agricultural Practices (GAPs)

The following GAPs must be followed during all fumigant applications.

### Application Timing

- Apply Tri-Form 60 EC at any time of the year when soil conditions permit. Conditions that allow rapid diffusion of the fumigant as a gas through the soil normally give the best results.
- Because Tri-Form 60 EC does not provide residual control of soil pests, use it as a preplant application before planting each crop.

**Tarps** (when tarps are used in TRI-FORM 60 EC applications)

- Tarps must be put in place before the application starts.
- Tarp edges must be buried along the furrow and at the ends of rows.
- A written tarp plan must be developed and included in the FMP.
- Once a tarp is perforated, the application is no longer considered tarped.
- For untarped applications, the drip tape must be buried at a minimum of 6 inches.

### Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
    - on the day of, but prior to the start of the application, and
    - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: https://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

*Identifying Unfavorable Weather Conditions*

Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist within an hour prior to sunset and continue past sunrise and may persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

### Soil Preparation

- Soil must be properly prepared and at the surface generally be free of large clods. The area to be fumigated must be tilled to a depth of 5 to 8 inches.
- Till fields with known plowpans because they can lead to puddling of the fumigant due to inadequate soil drainage.

- Beds should be listed, shaped and ready for planting.
- Field trash must be properly managed. Residue from a previous crop must be worked into the soil to allow for decomposition prior to the start of the application. Little or no crop residue shall be present on the soil surface. Crop residue that is present must not interfere with the soil seal. Removing the crop residue prior to the start of the application is important to limit the natural "chimneys" that occur in the soil when crop residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limit the efficacy of the fumigant. However, crop residue on the field serves to prevent soil erosion from both wind and water and is an important consideration. To accommodate erosion control, fumigant efficacy, and human health protection, clear fields of crop residue as close to the start of the application as possible to limit the length of time that the soil would be exposed to potentially erosive weather conditions.

**Soil Moisture**

- For all soil types, pre-application moisture should be dry enough to prevent soil saturation and bed collapse once application and flushing is complete.
- Soil moisture should when possible be at 50% of available water capacity in the top 2-3" at time of TRI-FORM 60 EC application.

**Product and Dosage**

- Plan the application by calculating the amount of TRI-FORM 60 EC required at the appropriate rate for the crop, acreage, and target pest. TRI-FORM 60 EC must be metered into the water supply line and then passed through a mixing device, such as a centrifugal pump or static mixer, to assure proper agitation.
- Apply TRI-FORM 60 EC through surface or buried drip irrigation systems, being sure to wet the soil thoroughly in the area being treated. Drip emitters should be spaced 8-12" apart.
- Meter TRI-FORM 60 EC into the drip system according to the dosage. An adequate concentration of active ingredient must be present in order to be effective. At no time should the concentration of active ingredient exceed 4,500 ppm by weight in the drip line. For example, a 300 pounds per treated acre application rate would require 8,000 gallons of water per acre to deliver 4,500 ppm.
- Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.
- If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts.

**System Controls and Integrity**

- The irrigation system (main lines, headers, drip tape) must be thoroughly checked for leaks before the start of application. Leak detection requires that the irrigation system be at full operating pressure. The amount of time needed at full operating pressure will vary by irrigation system design. Look for puddling along major pipes (holes in pipes or leaky joints), at the top and ends of rows (leaky connection, open drip tape), and on the bed surface (damaged drip tape, malfunctioning emitters). Any leaks discovered during the pre-application check must be repaired prior to the start of the application.
- To inject fumigant, use a metering system (such as a positive pressure system, positive displacement injection pump, diaphragm pump, or a Venturi system) effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted

with system interlocking controls. Do not use containers, pumps, or other equipment made of aluminum, magnesium or their alloys, as chloropicrin and 1,3-dichloropropene can be can be corrosive to such metals. Do not use drip tube materials made of aluminum, magnesium, zinc, cadmium, tin, and alloys or vinyl. Use drip irrigation components made only of copper, stainless steel, steel, polypropylene, polyethylene, nylon, Teflon, rigid PVC, EPDM, and viton. Rigid PVC should not be exposed to undiluted TRI-FORM 60 EC or more than 1,500 ppm TRI-FORM 60 EC in the diluted form.

- The system must contain:
    - A functional check valve, a vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination and backflow;
    - A functional, automatic, quick-closing check valve to prevent the flow of fluids back toward the fumigant container;
    - A functional, normally closed valve located on the intake side of the injection point and connected to the system interlock to prevent the fumigant from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down; and
    - Functional interlocking controls to automatically shut off the fumigant injection when the irrigation water flow stops or decreases to the point where fumigant distribution is adversely affected.

**Site of Injection and Irrigation System Layout**

- Site of injection must be as close as practical to the area being treated (such as direct injection of fumigant into the header pipe/manifold or into an above-ground delivery pipe attached to the header). If the fumigant is injected into a main line, make sure the irrigation pipe is able to be cleared of all fumigant as the fumigant may pool in low sections of the pipe. Also make sure that valves on lateral lines of the main line are closed if these lateral lines lead to areas not being fumigated at the time of the application.

**System Flush**

- After application of the fumigant, continue to drip-irrigate the area with water to flush the irrigation system. Do not allow the fumigant to remain in the irrigation system after the application is complete. The total volume of water, including the amount used for flushing the irrigation system, must be adequate to completely remove the fumigant from the lines, but should be less than the amount that could over-saturate the beds (bed collapse can occur from over-saturation and should not exceed 1.5 acre-inches (40,000 gallons) of water per acre. If common lines are used for both the fumigant application and water seal (if a water seal is applied) these lines must be adequately flushed before starting the water seal and/or normal irrigation practices.

**Planting Interval**

- After fumigation, to prevent phytotoxicity, allow the fumigant to dissipate completely before planting the crop. Do not disturb treated soil for at least 2 weeks. Under optimum soil conditions for dissipation, 1 week for each 10 gallons/acre is recommended, with a minimum interval of 14 days following application. Wet soil retards diffusion of the fumigant thus requiring a longer aeration period. Aeration is usually complete when the odor of the fumigant is no longer evident. Seed may be used as a bioassay to determine if the product is

present in the soil at concentrations sufficient to cause plant injury. Do not plant if odor of the product is present within the zone of fumigation.

**Bulk and Non-Bulk Containers**

With all bulk and non-bulk containers, TRI-FORM 60 EC must be transferred through connecting hoses, pipes, and/or couplings sufficiently tight to prevent workers or other persons from coming in contact with the liquid product.

- All hoses, piping, and tanks used in connection with this product shall be of type appropriate for use under the pressure and vacuum conditions to be encountered.
- External sight gauges shall be equipped with valves so that pipes to sight gauge can be shut off in case of breakage or leakage.
- The mechanical transfer system must be adequate to make necessary measurements of the pesticide being used.
- Shut-off devices must be installed on the exit end of all hoses and at all disconnect points to prevent leakage of this product when the transfer is stopped and hose is removed or disconnected. A dry coupler that will minimize pesticide leakage must be installed at the disconnect point.
- The pressure in hoses used to move this product beyond a pump must not exceed the manufacturer's maximum pressure specification.

Note: In-tank cleaning of bulk tanks must be performed only by persons who have been specifically trained for this activity. Refer to OSHA 29 Part 1910.146.

**Requirements for Pre-Plant Greenhouse Soil Fumigation**

- The maximum application block size that can be treated is 50,000 square feet.
- All applications must be tarped.
- During the application keep all doors, vents, and windows to the outside open, and keep all fans or mechanical ventilation systems running within the greenhouse.
- Leaks through which gases could enter adjacent enclosed areas must be sealed.

**Clarification for Use in Shade Houses**

- Use in shade houses is permitted only when roof and walls are retracted to the extent possible without roof and wall removal for the duration of treatment and when the buffer zones and re-entry intervals required for equivalent soil applications are used.

**Maximum Application Rates for Pre-Plant Soil Uses:**

- 503 pounds (42.6 gallons) of Tri-Form 60 EC per treated acre for drip applications

**TABLE 1**
**TRI-FORM 60 EC PRODUCT APPLICATION RATES**

| Crop | Soil Type | Maximum Application Rates [(a)] | |
|---|---|---|---|
| | | Gallons/treated acre | Lbs/treated acre |
| Vegetable Crops, Field Crops, Fruit and Nut Crops, Nursery Crops[1, 2, 3] | Mineral, Muck, or Peat | 42.6 | 503 |

[(a)]Do not exceed specified maximum application rates in Table 1 or in the footnotes below.
[1]To control symphylans (garden centipedes) apply at 38.5 or more gallons per treated acre (454.7 lbs/treated acre) and apply during late summer or early fall when the soil is warm. To suppress wireworms, use dosages recommended for nematodes.
[2]For cyst-forming nematodes, increase dosage to 39 gallons per treated acre (460.6 lbs/treated acre).
[3]For mint, apply 42.6 gallons per treated acre (503 lbs/treated acre).

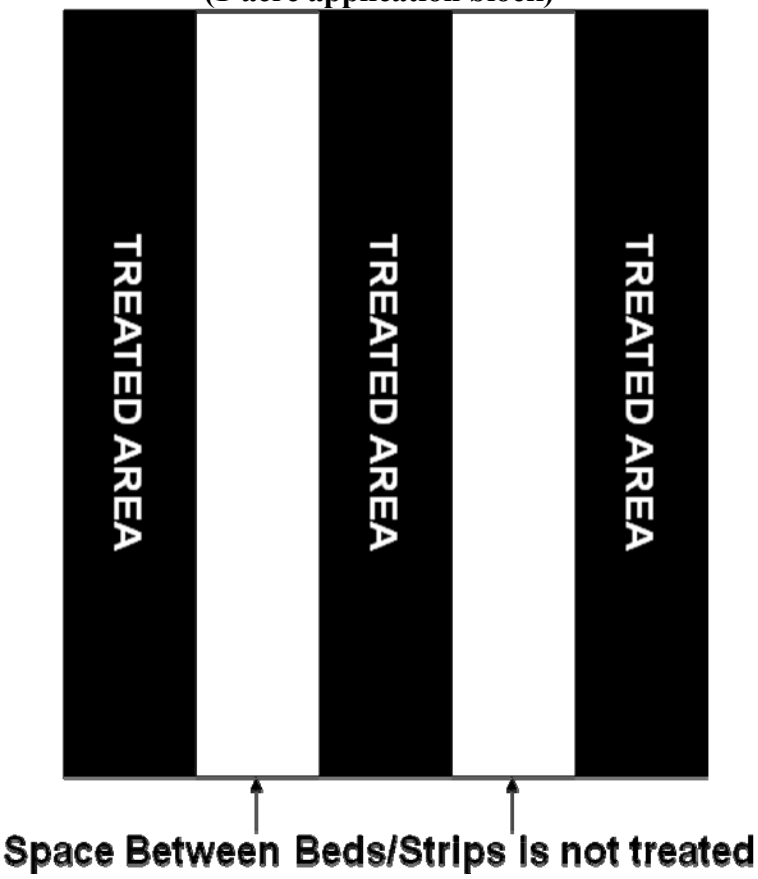
## Calculating the Broadcast Equivalent Application Rate

**To calculate the broadcast equivalent rate for bedded or strip applications the following information is needed:**

- pounds (or gallons) of product per treated acre
- strip or bed bottom width (inches)
- center-to-center row spacing (inches)
- application block size (acres)

Pounds (or gallons) of product **per treated acre** is the ratio of total amount of product applied to the size of the **total area treated** (e.g., the rate of product applied in the bed). For bedded or strip applications, the **total area treated** is the summation of the area (i.e., length x width) of each treated bed bottom or strip that is located within the application block as shown by the black areas in Figure 1 (e.g., black areas are 0.6A or 60% of the area within the application block). The area of the space between the beds/strips is not factored in the total area treated. The **application block size** is the acreage within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, and roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.

**Figure 1. Bedded/Strip Application (1-acre application block)**

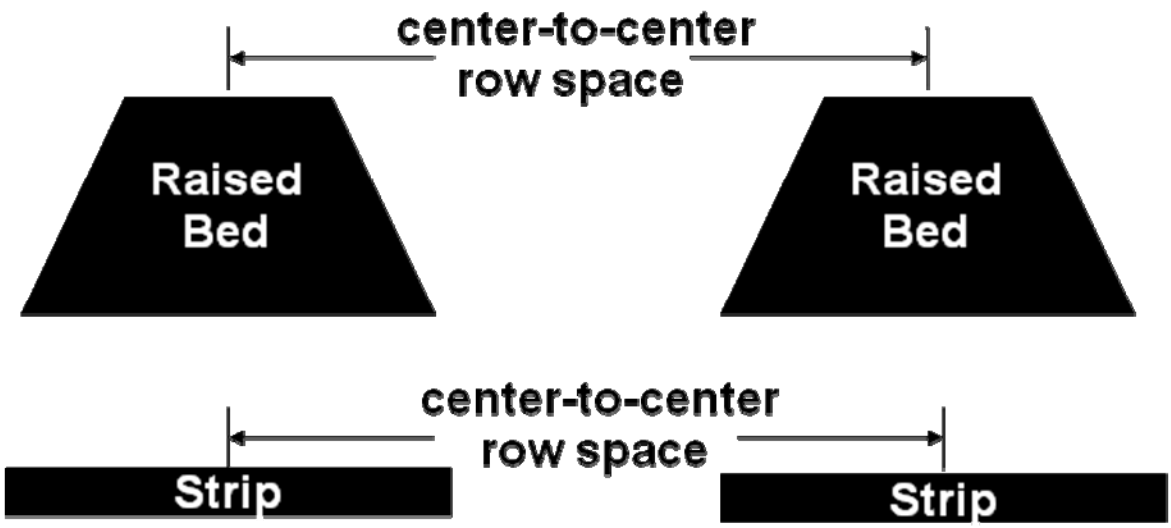


The "broadcast equivalent rate" must be calculated with the following formula:

$$\textbf{Broadcast equivalent rate (pounds (or gallons) product/acre)} = \frac{\textbf{strip or bed bottom width (inches)}}{\textbf{center-to-center row spacing (inches)}} \times \textbf{pounds (or gallons) of product/ treated acre applied in the strip or bed}$$

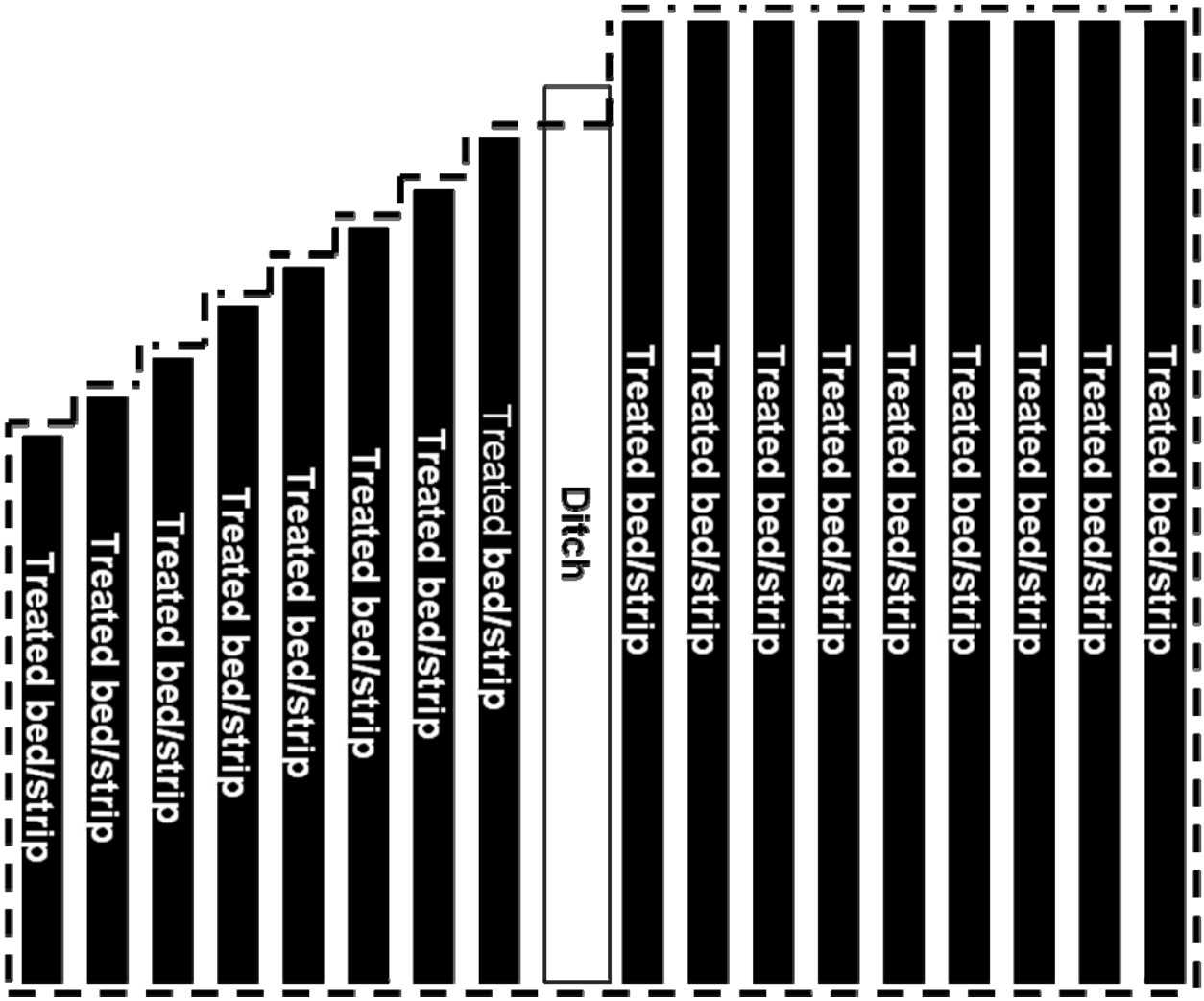
- The bed width must be measured from the bottom of the bed.
- The center-to-center row spacing must be calculated as shown in Figure 2.
- If there are any ditches, waterways, drive rows and other areas that are not fumigated that are in the application block, multiply the above broadcast equivalent equation by **(total area of strips or beds + row spacing)/(application block size).** A sample calculation is provided below.

**Figure 2. Center Row Spacing**




**Sample broadcast equivalent rate calculation**

Assumptions:
- Application method is shank bedded
- Bed width is 30 inches (measured at the bottom of bed)
- Center-to-center row spacing is 60 inches
- 200 pounds of product per treated acre is applied in the beds
- Total application block size is 10 acres
- Ditch in the middle of application block is 0.25 acres
- Area of beds + row spacing is 9.75 acres




$$\text{broadcast equivalent rate (pounds product/acre)} = \frac{\text{strip or bed bottom width (inches)}}{\text{center-to-center row spacing (inches)}} \times \frac{\text{area of strips or beds + row spacing}}{\text{application block size}} \times \text{pounds product/ treated acre applied in the bed}$$

$$= \frac{\text{30 inch width beds}}{\text{60 inch row spacing}} \times \frac{\text{9.75 acres}}{\text{10 acres}} \times \text{200 pounds product/ treated acre}$$

$$= \text{97.5 pounds product/acre}$$

**Buffer Zone Requirements**

A buffer zone must be established for every fumigant application. The following describes the buffer zone requirements: An area established around the perimeter of each application block.

- The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.

- All non-handlers, including field workers, residents, pedestrians, and other bystanders, must be excluded from the buffer zone during the buffer zone period except for transit (see *Buffer Zone Exemption for Transit on Roadways*).
    - Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone.
- The buffer zone period begins at the start of the application and lasts for a minimum of 48-hours after the application is complete.

<u>Buffer zone proximity</u>

- Before the start of application, the certified applicator must determine whether their buffer zone will overlap any chloropicrin buffer zone(s).
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple chloropicrin application blocks must not overlap UNLESS:
    1. A minimum of 12 hours have elapsed from the time the earlier application(s) is complete until the start of the later application, and
    2. *Fumigant Site Monitoring* or *Response Information for Neighbors* have been implemented if there are any residences or businesses within 300 feet of any of the buffer zones.

<u>Structures under the control of the owner of the application block</u>

- Buffer zones must not include buildings used for storage (e.g., sheds, barns, garages) UNLESS:
    1. The storage buildings are not occupied during the buffer zone period, and
    2. The storage buildings do not share a common wall with an occupied structure.

<u>Areas not under the control of the owner of the application block</u>

- Buffer zones must not include residential areas (e.g., employee housing, private property), buildings (e.g., commercial, industrial), outdoor residential areas (e.g., lawns, gardens, play areas) and other areas that people may occupy, UNLESS:
    1. The occupants provide written agreement, prior to the start of the application, that they will voluntarily vacate the buffer zone during the entire buffer zone period, and
    2. Reentry by occupants and other non-handlers must not occur until,
        - The buffer zone period has ended, and
        - Sensory irritation is not experienced upon re-entry.
- Buffer zones must not include agricultural areas owned and/or operated by persons other than the owner of the application block, UNLESS:
    1. The owner of the application block can ensure that the buffer zone will not overlap with a chloropicrin buffer zone from any other property owners, except as provided in the *Buffer Zone Proximity* section, and
    2. The owner of the other property provides written agreement to the applicator that they, their employees, and other persons will stay out of the buffer zone during the entire buffer zone period.
- Buffer zones must not include roadways and rights of way UNLESS:
    1. The area is not occupied during the buffer zone period, and

2. Entry by non-handlers is prohibited during the buffer zone period.
   Buffer Zone Exemption for Transit on Roadways
   Vehicular and bicycle traffic on public and private roadways through the buffer zone is permitted. (NOTE: Buffer zones are not permitted to include bus stops or other locations where persons wait for public transit.)

- For all other publicly owned and/or operated areas such as parks, sidewalks, permanent walking paths, playgrounds, and athletic fields, buffer zones must not include these areas UNLESS:
  1. The area is not occupied during the buffer zone period,
  2. Entry by non-handlers is prohibited during the buffer zone period, and
  3. Written permission to include the public area in the buffer zone is granted by the appropriate state and/or local authorities responsible for management and operation of the area.

Certified applicators must comply with all local laws and regulations.

See the *Posting* section for additional requirements that may apply.

**Buffer Zone Distances**

Buffer zone distances must be calculated using the application rate and the size of the application block.

- Buffer zone distances must be based on look-up tables in this labeling (25 feet is the minimum distance regardless of site-specific application parameters).
- For all other applications, Tables 2-4 must be used to determine the minimum buffer distances as appropriate for the method of application. Round up to the nearest rate and block size, where applicable.
- Applications are prohibited for rates or block sizes that exceed what is presented in the buffer zone tables.

Table 2. Drip Tarp Buffer Zone Distances in Feet

| Broadcast Equivalent Application Rate (lbs Product/Acre) | Application Block Size (Acres) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 |
| 106 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 35 | 40 |
| 115 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 40 | 50 | 50 | 55 | 55 | 60 |
| 124 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 45 | 60 | 60 | 60 | 65 | 65 |
| 133 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 45 | 60 | 60 | 65 | 70 | 75 |
| 141 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 38 | 45 | 53 | 60 | 60 | 65 | 70 | 75 |
| 150 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 40 | 50 | 60 | 60 | 60 | 65 | 70 | 70 | 75 |
| 159 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 40 | 60 | 60 | 60 | 60 | 81 | 88 | 90 | 97 |
| 168 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 32 | 34 | 36 | 38 | 40 | 60 | 60 | 64 | 68 | 97 | 105 | 110 | 118 |
| 177 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 32 | 34 | 36 | 38 | 40 | 60 | 60 | 68 | 77 | 114 | 123 | 130 | 140 |
| 185 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 32 | 34 | 36 | 38 | 40 | 60 | 60 | 73 | 85 | 130 | 141 | 150 | 162 |
| 194 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 35 | 39 | 44 | 49 | 53 | 77 | 93 | 108 | 122 | 146 | 158 | 170 | 183 |
| 203 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 39 | 48 | 56 | 65 | 67 | 68 | 103 | 120 | 134 | 148 | 162 | 176 | 190 | 205 |
| 212 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 45 | 60 | 68 | 75 | 80 | 85 | 140 | 140 | 153 | 165 | 193 | 209 | 226 | 243 |
| 221 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 48 | 65 | 73 | 82 | 93 | 103 | 147 | 160 | 177 | 193 | 224 | 243 | 261 | 281 |
| 229 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 50 | 70 | 79 | 88 | 105 | 122 | 153 | 180 | 201 | 222 | 255 | 276 | 297 | 319 |
| 238 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 53 | 75 | 85 | 95 | 118 | 140 | 160 | 200 | 225 | 250 | 287 | 310 | 333 | 356 |
| 247 | 30 | 30 | 30 | 30 | 30 | 33 | 36 | 39 | 42 | 45 | 69 | 93 | 105 | 122 | 145 | 167 | 192 | 230 | 257 | 283 | 318 | 343 | 369 | 394 |
| 256 | 30 | 30 | 30 | 30 | 30 | 36 | 42 | 48 | 54 | 60 | 86 | 112 | 125 | 148 | 173 | 193 | 223 | 260 | 288 | 317 | 349 | 377 | 404 | 432 |
| 265 | 30 | 30 | 30 | 30 | 30 | 39 | 48 | 57 | 66 | 75 | 110 | 130 | 145 | 175 | 200 | 220 | 255 | 290 | 320 | 350 | 380 | 410 | 440 | 470 |
| 274 | 30 | 30 | 30 | 30 | 30 | 40 | 50 | 59 | 68 | 78 | 114 | 134 | 150 | 181 | 207 | 227 | 264 | 300 | 331 | 362 | 393 | 424 | 455 | 486 |
| 283 | 30 | 30 | 30 | 30 | 30 | 42 | 51 | 61 | 70 | 80 | 117 | 139 | 155 | 187 | 213 | 235 | 272 | 309 | 341 | 373 | 405 | 437 | 469 | 501 |
| 291 | 30 | 30 | 30 | 30 | 30 | 43 | 53 | 63 | 73 | 83 | 121 | 143 | 160 | 193 | 220 | 242 | 281 | 319 | 352 | 385 | 418 | 451 | 484 | 517 |
| 300 | 30 | 30 | 30 | 30 | 30 | 44 | 54 | 65 | 75 | 85 | 125 | 147 | 164 | 198 | 227 | 249 | 289 | 329 | 363 | 397 | 431 | 465 | 499 | 533 |
| 309 | 30 | 30 | 30 | 30 | 35 | 46 | 56 | 67 | 77 | 88 | 128 | 152 | 169 | 204 | 233 | 257 | 298 | 338 | 373 | 408 | 443 | 478 | 513 | 548 |
| 318 | 30 | 30 | 30 | 30 | 35 | 47 | 58 | 68 | 79 | 90 | 132 | 156 | 174 | 210 | 240 | 264 | 306 | 348 | 384 | 420 | 456 | 492 | 528 | 564 |
| 327 | 30 | 30 | 30 | 30 | 35 | 48 | 59 | 70 | 81 | 93 | 136 | 160 | 179 | 216 | 247 | 271 | 315 | 358 | 395 | 432 | 469 | 506 | 543 | 580 |
| 335 | 30 | 30 | 30 | 30 | 35 | 49 | 61 | 72 | 84 | 95 | 139 | 165 | 184 | 222 | 253 | 279 | 323 | 367 | 405 | 443 | 481 | 519 | 557 | 595 |
| 344 | 30 | 30 | 30 | 30 | 35 | 51 | 62 | 74 | 86 | 98 | 143 | 169 | 189 | 228 | 260 | 286 | 332 | 377 | 416 | 455 | 494 | 533 | 572 | 611 |
| 353 | 30 | 30 | 30 | 35 | 40 | 52 | 64 | 76 | 88 | 100 | 147 | 173 | 193 | 233 | 267 | 293 | 340 | 387 | 427 | 467 | 507 | 547 | 587 | 627 |
| 362 | 30 | 30 | 30 | 35 | 40 | 53 | 66 | 78 | 90 | 103 | 150 | 178 | 198 | 239 | 273 | 301 | 349 | 396 | 437 | 478 | 519 | 560 | 601 | 642 |
| 371 | 30 | 30 | 30 | 35 | 40 | 55 | 67 | 80 | 92 | 105 | 154 | 182 | 203 | 245 | 280 | 308 | 357 | 406 | 448 | 490 | 532 | 574 | 616 | 658 |
| 380 | 30 | 30 | 30 | 40 | 40 | 56 | 69 | 82 | 95 | 108 | 158 | 186 | 208 | 251 | 287 | 315 | 366 | 416 | 459 | 502 | 545 | 588 | 631 | 674 |
| 388 | 30 | 30 | 30 | 40 | 40 | 57 | 70 | 84 | 97 | 110 | 161 | 191 | 213 | 257 | 293 | 323 | 374 | 425 | 469 | 513 | 557 | 601 | 645 | 689 |
| 397 | 30 | 30 | 30 | 40 | 45 | 59 | 72 | 85 | 99 | 113 | 165 | 195 | 218 | 263 | 300 | 330 | 383 | 435 | 480 | 525 | 570 | 615 | 660 | 705 |

Table 3. Drip Buried Untarp Buffer Zone Distances in Feet

| Broadcast Equivalent Application Rate (lbs Product/Acre) | Application Block Size (Acres) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 |
| 39 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 44 | 61 | 77 | 88 |
| 48 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 47 | 66 | 84 | 102 | 120 | 138 | 165 | 193 | 220 | 242 |
| 57 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 66 | 105 | 140 | 176 | 212 | 248 | 286 | 325 | 363 | 396 |
| 68 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 61 | 94 | 124 | 154 | 187 | 220 | 275 | 330 | 358 | 385 | 429 | 473 | 517 | 556 |
| 76 | 30 | 30 | 30 | 30 | 30 | 32 | 36 | 41 | 45 | 50 | 103 | 157 | 187 | 217 | 250 | 283 | 358 | 432 | 473 | 514 | 564 | 613 | 663 | 707 |
| 85 | 30 | 30 | 30 | 30 | 30 | 36 | 45 | 54 | 63 | 72 | 146 | 220 | 250 | 281 | 314 | 347 | 440 | 534 | 589 | 644 | 699 | 754 | 809 | 858 |
| 96 | 30 | 30 | 30 | 30 | 30 | 52 | 76 | 100 | 124 | 149 | 206 | 264 | 314 | 363 | 410 | 457 | 531 | 605 | 657 | 710 | 765 | 820 | 875 | 924 |
| 105 | 30 | 32 | 37 | 42 | 47 | 72 | 97 | 123 | 148 | 173 | 238 | 303 | 359 | 415 | 459 | 503 | 589 | 674 | 734 | 795 | 850 | 905 | 960 | 1009 |
| 113 | 30 | 37 | 47 | 56 | 66 | 92 | 119 | 145 | 172 | 198 | 270 | 341 | 404 | 468 | 509 | 550 | 646 | 743 | 811 | 880 | 935 | 990 | 1045 | 1095 |
| 124 | 30 | 44 | 61 | 77 | 94 | 121 | 149 | 176 | 204 | 231 | 314 | 396 | 454 | 512 | 561 | 611 | 715 | 820 | 875 | 930 | 990 | 1051 | 1111 | 1166 |
| 133 | 30 | 50 | 72 | 94 | 116 | 145 | 174 | 203 | 232 | 261 | 353 | 446 | 510 | 575 | 627 | 679 | 787 | 894 | 968 | 1042 | 1119 | 1196 | 1273 | 1345 |
| 142 | 30 | 55 | 83 | 110 | 138 | 168 | 199 | 230 | 261 | 292 | 393 | 495 | 567 | 638 | 693 | 748 | 858 | 968 | 1062 | 1155 | 1249 | 1342 | 1436 | 1524 |
| 152 | 33 | 59 | 88 | 117 | 147 | 180 | 212 | 245 | 278 | 311 | 419 | 528 | 604 | 681 | 739 | 798 | 915 | 1033 | 1132 | 1232 | 1332 | 1431 | 1531 | 1625 |
| 161 | 33 | 62 | 94 | 125 | 156 | 191 | 226 | 261 | 295 | 330 | 446 | 561 | 642 | 723 | 785 | 848 | 972 | 1097 | 1203 | 1309 | 1415 | 1521 | 1627 | 1727 |
| 170 | 33 | 66 | 99 | 132 | 165 | 202 | 239 | 276 | 313 | 350 | 472 | 594 | 680 | 766 | 832 | 898 | 1030 | 1162 | 1274 | 1386 | 1498 | 1610 | 1723 | 1828 |
| 180 | 39 | 70 | 105 | 139 | 174 | 213 | 252 | 291 | 330 | 369 | 498 | 627 | 718 | 808 | 878 | 947 | 1087 | 1226 | 1345 | 1463 | 1581 | 1700 | 1818 | 1930 |
| 189 | 39 | 73 | 110 | 147 | 183 | 224 | 265 | 307 | 348 | 389 | 524 | 660 | 755 | 851 | 924 | 997 | 1144 | 1291 | 1415 | 1540 | 1665 | 1789 | 1914 | 2031 |

Table 4. Drip Tarp Greenhouse Buffer Zone Distances in Feet

| Application Block Size (square feet) | Buffer Zone (feet) |
|---|---|
| ≤ 25,000 | 25 |
| > 25,000 and ≤ 30,000 | 50 |
| > 30,000 and ≤ 35,000 | 75 |
| > 35,000 and ≤ 40,000 | 100 |
| > 40,000 and ≤ 45,000 | 115 |
| > 45,000 and up to 50,000 | 130 |

**Buffer Zone Credits**

The buffer zone distances for Tri-Form 60 EC applications may be reduced by the percentages listed below. Credits may be added, but credits cannot exceed 80%. Also the minimum buffer zone distance is 25 feet regardless of buffer zone credits available.

See https://www.epa.gov/soil-fumigants/tarps for a list of tarps that have been tested and determined to qualify for buffer reduction credits. Only tarps listed on this website qualify for buffer reduction credits.

- 15% reduction in buffer zone distance, IF potassium thiosulfate (KTS) is applied at a minimum rate of 300 pounds per acre.
- 15% reduction in buffer zone distance, IF ¼ to ½ inch of water is applied.
- 10% reduction in buffer zone distance, IF the organic content of the soil in the application block is ≥ 1% - 2%; 20% reduction in buffer zone distance, IF the organic content of the soil in the application block is >2% - 3%; and a 30% reduction in the buffer zone distance, IF the organic content of the soil in the application block is >3%.
- 10% reduction in buffer zone distance, IF the soil temperature is measured to be 50°F or less. Record temperature measurements at the application depth or 12 inches, whichever is shallower.
- 10% reduction in the buffer zone distance, IF the clay content of the soil in the application block is greater than 27%.

Examples of Buffer Zone Calculations with Credits Applied

If the buffer zone is 50 feet and the application qualifies for a buffer zone credit since the soil organic content is 1.5%, then the buffer zone can be reduced by 10%, i.e., reduced by 5 feet based on the following calculation: 50 feet – (50 feet x 10%) = 45 feet.

If the buffer zone is 50 feet and the application qualifies for two buffer zone credits since the soil organic content is 1.5% and the clay content is greater than 27%, then the buffer zone can be reduced by 20% (10% organic content credit + 10% clay content credit), i.e., reduced by 10 feet based on the following calculation 50 feet - (50 feet x 20%) = 40 feet.

## Posting Fumigant Buffer Zones

- Posting of a buffer zone is required unless there is a physical barrier that prevents bystander access to the buffer zone.
- Buffer Zone signs must be placed along or outside the perimeter of the buffer zone, at all usual points of entry and along likely routes of approach from areas where people not under the owner's control may approach the buffer zone.
    - Some examples of points of entry include, but are not limited to, roadways, sidewalks, paths, and bike trails.
    - Some examples of likely routes of approach include, but are not limited to, the area between a buffer zone and a roadway, or the area between a buffer zone and a housing development.
    - When posting, the certified applicator supervising the application must ensure compliance with all local laws and regulations.
- Buffer Zone signs must meet the following criteria:
    - The printed side of the sign must face away from the application block toward areas from which people could approach.
    - Signs must remain legible during the entire posting period and must meet the general standards outlined in the WPS for sign size, text size, and legibility (see 40 CFR §170.120).
    - Signs must be posted no sooner than 24 hours prior to the start of the application and remain posted until the buffer zone period has expired.
    - Signs must be removed within 3 days after the end of the buffer zone period.
    - Buffer Zone signs which meet the criteria above will be provided at points of sale for applicators to use. Templates may be downloaded from https://www.epa.gov/soil-fumigants/buffer-zone-sign-template.
    - The Buffer Zone signs must contain the following information:
        - The 'Do Not Walk' symbol
        - DO NOT ENTER/NO ENTRE
        - Chloropicrin/1,3-Dichloropropene TRI-FORM 60 EC Fumigant BUFFER ZONE
        - Contact information for the certified applicator in charge of the fumigation.

Exception: If multiple contiguous blocks are fumigated within a 14-day period, the entire periphery of the contiguous blocks' buffer zones may be posted. Buffer Zone signs must be posted no sooner than 24- hours prior to the start of the first application. The signs must remain posted until the last buffer zone period expires and signs must be removed within 3 days after the buffer zone period for the last block has expired.

## Restrictions for Difficult to Evacuate Sites

Difficult to evacuate sites are pre-K to grade 12 schools, state-licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.

- No fumigant application with a buffer zone greater than 300 feet is permitted within 1/4-mile (1320 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36- hour period following the end of the application.
- No fumigant application with a buffer zone of 300 feet or less is permitted within 1/8-mile (660 feet) of difficult to evacuate sites unless the site is not occupied by children from state-

licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.

## Emergency Preparedness and Response Measures

If the buffer zone is 25 feet, then the *Emergency Preparedness and Response Measures* are not applicable.

**Triggers for Emergency Preparedness and Response Measures:**
The certified applicator must either follow the directions under the *Fumigant Site Monitoring* section or follow the directions under the *Response Information for Neighbors* section if:

- the buffer zone is greater than **25 feet** but less than or equal to **100 feet**, and there are residences or businesses within **50 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **100 feet** but less than or equal to **200 feet**, and there are residences or businesses within **100 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **200 feet** but less than or equal to **300 feet**, and there are residences or businesses within **200 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **300 feet** or the **buffer zones overlap**, and there are residences or businesses within **300 feet** from the outer edge of the buffer zone.

**Fumigant Site Monitoring**
NOTE: *Fumigant Site Monitoring* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Response Information for Neighbors* section are not followed.

From the start of the application until the buffer zone period expires, a certified applicator or handler(s) under his/her supervision must:

- Monitor for sensory irritation in areas between the buffer zone outer perimeter and residences and businesses that trigger this requirement.
- Monitoring for sensory irritation must begin in the evening on the day of application and continue until the buffer zone period expires. Monitor a minimum of 8 times during the buffer zone period, including these periods:
    - 1 hour before sunset,
    - during the night,
    - 1 hour after sunrise, and
    - during daylight hours.

Implement the emergency response plan immediately if a handler monitoring experiences sensory irritation.

Handlers performing fumigant site monitoring tasks outside the buffer zone are not required to wear an air-purifying respirator.

**Response Information for Neighbors**
NOTE: *Response Information for Neighbors* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Fumigant Site Monitoring* section are not followed.

The certified applicator supervising the application must ensure that residences and businesses that trigger the requirement have been provided the response information at least 1 week before the application starts. The information provided may include application dates that range for no more than 4 weeks. If the application does not occur when specified, the information must be delivered again.

Information that must be included:

- The location of the application block.
- Fumigant(s) applied including the active ingredient, name of the fumigant product(s), and the EPA Registration number.
- Contact information for the applicator and property owner.
- Time period in which the application is planned to take place (must not range more than 4 weeks).
- Early signs and symptoms of exposure to the fumigant(s) applied, what to do, and who to call if you believe you are being exposed (911 in most cases).
- How to find additional information about fumigants.

The method used to share the response information for neighbors can be accomplished through mailings, door hangers, or other methods that will effectively inform the residences and businesses within the required distance from the edge of the buffer zone.

**Notice to State and Tribal Lead Agencies**

If your state and/or tribal lead agency requires notice, information must be provided to the appropriate state or tribal lead agency prior to the application. Please refer to https://www.epa.gov/soil-fumigants/complying-required-state-and-tribal-notification-soil-fumigations for a list of states and tribal lead agencies that require notice and information on how to submit the information.

The information that must be provided to state and tribal lead agencies includes the following:

- Location of the application blocks,
- Fumigant(s) applied including EPA registration number,
- Applicator and property owner contact information, and
- Time period that fumigation may occur.

**Emergency Response Plan**

The certified applicator must include in the FMP a written emergency response plan that identifies:

- Evacuation routes,
- Locations of telephones,
- Contact information for first responders and local/state/federal/tribal personnel, and
- Emergency procedures/responsibilities (e.g., adding water to the field, repairing tarps, fixing equipment, evacuating upwind) if:
    - there is an incident,
    - sensory irritation is experienced outside of the buffer zone and/or
    - there are equipment/tarp/seal failures or complaints, or other emergencies.

**Site Specific Fumigant Management Plan (FMP)**

Prior to the start of application, the certified applicator supervising the application must verify that a site-specific FMP exists for each application block. In addition, an agricultural operation fumigating multiple application blocks may format the FMP in a manner whereby all of the information that is common to all the application blocks is captured once, and any information unique to a particular application block or blocks is captured in subsequent sections.

The FMP must be prepared by the certified applicator, the site owner, registrant, or other party.

The certified applicator supervising the application must verify in writing (sign and date) that the site-specific FMP(s) reflects current site conditions before the start of application.

Each site specific FMP must contain the following elements:

- Certified Applicator Supervising the Application
    - Name,
    - Phone number,
    - Pesticide applicator license and/or certificate number,
    - Specify if commercial or private applicator,
    - Employer name,
    - Employer address, and
    - Date and location of completing EPA approved soil fumigant training program.
- General site information
    - Application block location (e.g., county, township-range-section quadrant), address, or global positioning system (GPS) coordinates
    - Verify if 1,3-dichloropropene has been used on this application block in the previous two years.
    - Confirm that there will be no occupied structures within 100 feet of the application block during the 7 consecutive day period after the application is complete.
    - Name, address, and phone number of application block owner
    - Site map, aerial photo, or detailed sketch showing:
        - application block location
        - application block dimensions
        - buffer zone dimensions
        - property lines
        - roadways
        - rights-of-ways
        - sidewalks
        - permanent walking paths
        - bus stops
        - wells
        - karst topography
        - nearby application blocks
        - surrounding structures (occupied and non-occupied)
        - locations of Buffer Zone signs, and
        - locations of difficult to evacuate sites within 1/4 mile of the application block if the buffer zone is greater than 300 feet, or 1/8 mile if the buffer zone is 300 feet or less

    - Comments
- General application information
    - Target application date/window,
    - Fumigant Product Name, and
    - EPA registration number.
- Tarp Plan (if a tarp is used)
    - Schedule for checking tarps for damage, tears, and other problems,
    - Minimum size of damage that will be repaired,
    - Factors used to determine when tarp repair will be conducted,
    - Equipment/methods used to perforate tarps,
    - Target dates for perforating tarps, and
    - Target dates for removing tarps.
- Soil conditions
    - Description of soil texture in application block,
    - Description of soil moisture, and
    - Method used to determine soil moisture.
- Buffer zones
    - Application method,
    - Injection depth,
    - Application rate from lookup table on label,
    - Application block size from lookup table on label,
    - Credits applied and measurements taken (if applicable),
        - Tarp brand name, Lot number, Thickness, Manufacturer, Batch number, Part number and Color
        - Potassium thiosulfate
        - Water seal
        - Organic matter content
        - Clay content
        - Soil temperature
    - Buffer zone distance, and
    - Description of areas in the buffer zone that are not under the control of the owner of the application block. If buffer zones extend onto areas not under the control of the owner, attach the written agreement and keep it with the FMP.
- Record Emergency Response Plan as described in the *Emergency Response Plan* section.
- Posting of Fumigant Treated Area and Buffer Zone
    - Person(s) who will post and remove (if different) Fumigant Treated Area and Buffer Zone signs, and
    - Location of Buffer Zone signs.
- Emergency Preparedness and Response Measures (if applicable)
    - Fumigant site monitoring (if applicable):
        - When and where it will be conducted
    - Response information for neighbors (if applicable):
        - List of residences and businesses informed,
        - Name and phone number of person providing information, and
        - Method of providing the information.
- State and/or tribal lead agency advance notification (if state and/or tribal lead agency requires notice, provide a list of contacts that were notified and date notified)

- Plan describing how communication will take place between the certified applicator supervising the application, the owner, and other on-site handlers (e.g., tarp perforators/removers, irrigators) for complying with label requirements (e.g., buffer zone location, buffer zone start and end times, timing of tarp perforation and removal, PPE).
    - Name and phone number of persons contacted by the certified applicator, and
    - Date contacted.
- Handler (including Certified Applicators) Information and PPE
    - Names, addresses and phone numbers of handlers
    - Names, addresses, and phone numbers for employers of handlers
    - Tasks that each handler is authorized and trained to perform
    - Date of PPE training for each handler
    - Applicable handler PPE including:
        - Long-sleeved shirts/long pants, shoes, socks
        - Chemical-resistant apron
        - Chemical-resistant footwear
        - Protective eyewear (not goggles)
        - Chemical-resistant gloves
        - Chemical-resistant suit
        - Chemical-resistant headgear
        - Air-purifying respirators
            - Respirator make, model, type, style, size, and cartridge/canister type
        - SCBAs
            - Respirator make, model, type, style, size
        - Other PPE
    - For handlers: Confirmation of receipt of Fumigant Safe Handling Information.
    - For handlers designated to wear respirators (air-purifying respirator or SCBA):
        - date of medical qualification to wear a respirator,
        - date of respirator training, and
        - date of fit-testing for the respirator.
    - Unless exempted in the *Protection of Handlers* section, verify that:
        - handlers have the appropriate respirators and cartridges/canisters during handler activities, and
        - the employer has confirmed that the appropriate respirator and cartridges/canisters are immediately available for each handler who will wear one.
- Air monitoring plan
    - If sensory irritation is experienced, indicate whether operations will cease or operations will continue with use of an air-purifying respirator
    - For monitoring the breathing zone:
        - Representative handler tasks to be monitored,
        - Monitoring equipment to be used, and
        - Timing of the monitoring.
- Good Agricultural Practices (GAPs)
    - Identify (e.g., list, attach applicable label section) applicable mandatory GAPs.
- Ensure that labels and MSDS are on-site and readily available for employees to review.

**Record-Keeping Procedures**
The owner of the application block as well as the certified applicator supervising the application must keep a signed copy of the site-specific FMP for 2 years from the date of application.
For situations where an initial FMP is developed and certain elements do not change for multiple application blocks (e.g., applicator information, certified applicator, handlers, record-keeping procedures, emergency procedures) only elements that have changed need to be updated in the site-specific FMP provided the following:

- The certified applicator supervising the application has verified that those elements are current and applicable to the application block before it is fumigated.
- Record-keeping requirements are followed for the entire FMP (including elements that do not change).

The certified applicator must make a copy of the FMP immediately available for viewing by handlers involved in the application. The certified applicator or the owner of the application block must provide a copy of the FMP to any local/state/federal/tribal enforcement personnel who request the FMP. In the case of an emergency, the FMP must be made immediately available when requested by local/state/federal/tribal emergency response and enforcement personnel. The certified applicator supervising the application must ensure the FMP is at the application block during all handler activities.

Within 30 days after the application is complete, the certified applicator supervising the application must complete a Post-Application Summary.

**Post-Application Summary**

The Post-Application Summary must contain the following elements:

- Actual date and time of the application
- Application rate
- Size of application block
- Weather Conditions
    - Summary of the National Weather Service weather forecast during the application and the 48- hours after the application is complete including:
        - wind speed, and
        - air stagnation advisory (if applicable).
    - Forecast must be checked on the day of, but prior to the start of the application, and on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Tarp damage and repair information (if applicable):
    - Date of tarp damage discovery,
    - Location and size of tarp damage,
    - Description of tarp/tarp seal/tarp equipment failure, and
    - Date and time of tarp repair completion.
- Tarp perforation/removal details (if applicable):
    - Date and time tarps were perforated,
    - Date and time tarps were removed, and
    - Record if tarps were perforated and/or removed early. Describe the conditions that caused early tarp perforation and/or removal.
- Complaint details (if applicable):
    - Person filing complaint (e.g., on-site handler, person off-site),

    - If off-site person, name, address, and phone number of person filing complaint, and
    - Description of control measures or emergency procedures followed after complaint.
- Description of incidents (including date and time), equipment failure, or other emergency and emergency procedures followed (if applicable).
- Communication between applicator, owner and other on-site handlers (if applicable)
    - Record additional dates persons were contacted.
- Air monitoring results:
    - Date(s), time(s), and location(s) of sensory irritation or air sample measurement with the direct read detection device,
    - Handler name and task/activity,
    - Air concentration measurement with direct read detection device (if applicable), and
    - Resulting action/comments (e.g. cease operations, continue operations with air-purifying respirators, implement emergency response plan).
- Drip application monitoring:
    - Record monitoring date(s) and time(s)
    - Name of person(s) monitoring
    - Record observations:
        - Is the equipment functioning properly,
        - Description of corrective action (if applicable), and
        - Other comments.
- Fumigant Treated Area and Buffer Zone Signs:
    - Dates of posting and removal.
- Any deviations from the FMP (e.g. changes in emergency response actions, changes in handler information, changes in handlers responsible for completing emergency tasks).

**Record-Keeping Procedures**

The owner of the application block, as well as the certified applicator supervising the application, must keep a signed copy of the Post-Application Summary for 2 years from the date of application.

## Spill and Leak Procedures

Evacuate everyone from the immediate area of the spill or leak. For entry into affected area to correct the problem, wear the personal protective equipment specified in the *Personal Protective Equipment (PPE)* section. Move leaking or damaged containers outdoors or to an isolated location. Observe strict safety precautions. Work upwind, if possible. Allow spilled fumigant to evaporate or to absorb onto vermiculite, dry sand, earth, or similar absorbent material. Dispose of contaminated material on site or at an approved disposal facility. Only correctly trained and PPE-equipped handlers are permitted to perform such cleanup. Do not permit entry into the spill or leak area by any other person until the concentration of chloropicrin is measured to be less than 0.15 ppm.

## Storage and Disposal

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

**Pesticide Storage:** Store in a cool, dry, well-ventilated area under lock and key. Post as a pesticide storage area.

**Pesticide Disposal:** Pesticide wastes are toxic. Improper disposal of excess pesticide and rinsates is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance. Because 1,3-dichloropropene is corrosive under certain conditions, flush all application equipment with fuel oil, kerosene or a similar type of petroleum solvent immediately after use. Fill pumps and meters with new motor oil or a 50% motor oil/fuel oil mixture before storing. Do not use water. Dispose of rinsate by applicable Federal, State and local regulations. Never introduce rinsate or unused product into surface or underground water supplies.

**Container Handling:** Persons moving, handling, or opening containers must wear the personal protective equipment specified in the *Personal Protective Equipment (PPE*) section of this labeling. Open container only in a well-ventilated area. Remove the valve protection bonnet and safety cap only when fumigant is about to be removed from the cylinder. The safety cap and valve protection bonnet must be replaced when the cylinder is not in use. Do not subject cylinders to rough handling, or to abnormal mechanical shock such as dropping, bumping, dragging, or sliding. Do not use ropes, slings, hooks, tongs, and similar handling devices for unloading cylinders. To transport heavier cylinders, use a hand truck, fork truck, or similar device to which cylinders can be firmly secured.

**Refillable Container:** Only the registrant is authorized to refill cylinders. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**Return of Containers:** Cylinders are the property of the manufacturer or distributor and must be returned promptly by collect freight. Do not ship cylinders without safety caps or valve protection bonnets.

**Container Disposal:** To clean the container before final disposal, remove any remaining liquid from the container, using dry air pressure if necessary. Allow container to aerate for at least 5 days. After aeration, wash container using hot water; then offer container to qualified reconditioner or dispose of as directed by State or local regulations.

## Warranty Disclaimer

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

**Inherent Risks of Use:** It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.) abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of the seller. To the extent consistent with applicable law, all such risks shall be assumed by buyer.

**Limitation of Remedies:** To the extent consistent with applicable law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at the company's election, one of the following: (1) Refund of purchase price paid by buyer or user for product bought, or (2) Replacement of amount of product used. To the extent consistent with applicable law, the company shall not be liable for losses or damages resulting from handling or use of this product unless the company is promptly notified of such loss or damage in writing. To the extent consistent with applicable law, the company shall not be liable for consequential or incidental damages or losses. The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of the company or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

# Tri-Form 60 EC

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TRICAL, INC.
8100 ARROYO CIRCLE • GILROY, CA 95020

**EPA Reg. No. 11220-33**
**EPA Est. 11220-CA-4; 11220-CA-8**
Net Contents_____LBS

**RESTRICTED USE PESTICIDE**
DUE TO ACUTE TOXICITY AND CARCINOGENICITY
For retail sale to and use by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

# Tri-Form 60 EC

*A multi-purpose liquid fumigant to be used in drip irrigation systems only for preplant treatment of soil to control plant parasitic nematodes and to help manage certain soil-borne diseases and symphlyans in cropland.*

**ACTIVE INGREDIENTS:**
Chloropicrin .....56.7%
1,3-Dichloropropene .....37.1%
**OTHER INGREDIENTS:**..... 6.2%
**TOTAL:** .....100.0%

*This product weighs 11.81 lbs./gal. at 68°F (20°C).*
*Contains 4.49 pounds of 1,3-Dichloropropene and 6.73 pounds of Chloropicrin per gallon.*

**KEEP OUT OF REACH OF CHILDREN**

**DANGER** **PELIGRO**

**POISON** [Note : « Poison » will be printed in red.]

*Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle.*
*(If you do not understand the label, find someone to explain it to you in detail.)*

IN ALL CASES OF OVEREXPOSURE, GET MEDICAL ATTENTION IMMEDIATELY.
TAKE PERSON TO A DOCTOR OR TO AN EMERGENCY TREATMENT FACILITY.

| FIRST AID | |
|---|---|
| **If inhaled:** | • Move person to fresh air.<br>• If person is not breathing, call 911 or an ambulance, and then give artificial respiration, preferably by mouth-to-mouth, if possible.<br>• Call a poison control center or doctor for further treatment advice. |
| **If on skin or clothing:** | • Take off contaminated clothing.<br>• Rinse skin immediately with plenty of water for 15-20 minutes.<br>• Call a poison control center or doctor for treatment advice. |
| **If in eyes:** | • Hold eyes open and rinse slowly and gently with water for 15-20 minutes.<br>• Remove contact lenses, if present, after 5 minutes, and then continue rinsing eyes.<br>• Call a poison control center or doctor for treatment advice. |
| **If swallowed:** | • Call a poison control center or doctor immediately for treatment advice.<br>• Have person sip a glass of water if able to swallow.<br>• Do not induce vomiting unless told to do so by a poison control center or doctor.<br>• Do not give anything to an unconscious person. |

- Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
- For additional information in case of an emergency, call toll free (1-800-424-9300).

**NOTE TO PHYSICIAN**

Because rapid absorption may occur through lungs if product is aspirated and cause systemic effects, the decision to induce vomiting or not should be made by a physician. Probable mucosal damage may contraindicate the use of gastric lavage. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Chloropicrin is a volatile liquid that is the active ingredient in tear gas. As a gas it is a powerful lachrymator. Early symptoms of overexposure are lachrymation, respiratory distress and vomiting. Pulmonary edema may develop later. Treatment is symptomatic.

# PRECAUTIONARY STATEMENTS

## HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER. Hazardous liquid and vapor. Fatal if inhaled, swallowed, or absorbed through skin. Poisonous liquid and vapor. Corrosive. Liquid causes skin burns and irreversible eye damage. Do not breathe vapor or gas. Do not get in eyes, on skin or on clothing. May cause lung, liver, and kidney damage and respiratory system irritation upon prolonged contact. The use of this product may be hazardous to your health. This product contains 1,3-dichloropropene, which has been determined to cause tumors in laboratory animals. Risks can be reduced by exactly following directions for use, precautionary statements, and by wearing the personal protective equipment specified in this labeling. Chloropicrin is readily identifiable by smell. Exposures to very low concentrations of vapor will cause irritation of eyes, nose and throat. Continued exposure after irritation occurs, or exposure to higher concentration may cause painful irritation or temporary blindness. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. PPE constructed of saranex, neoprene, nitrile, and chlorinated polyethylene provide short-term contact or splash protection against liquid in this product. Longer-term protection is provided by PPE constructed of viton, Teflon, and EVAL barrier laminates (for example, responder suits manufactured by Life-guard or silvershield gloves manufactured by North). Where chemical-resistant materials are required, leather, canvas, or cotton materials offer no protection from this product and must not be worn as the sole article of protection when contact with this product is possible. Where coveralls are required, they must be loose-fitting and constructed of woven fabrics (e.g., tight knit cotton or cotton/polyester), non-woven fabrics (e.g., tyvek or sontara), or fabrics containing microporous Teflon.

1. **Handlers performing mechanical transfer of product – closed delivery systems – must wear:**

- Long-sleeved shirt and long pants,
- Chemical-resistant gloves, such as barrier laminate (EVAL) or viton,
- Protective eyewear (do NOT wear goggles), and

- Chemical-resistant footwear with socks.
- Coveralls must be immediately available to the handler in case of an emergency.
- A NIOSH certified half-face air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A).
- If sensory irritation (tearing, burning of the eyes or nose) is experienced and handlers remain in the application block or buffer zone, handlers must wear at a minimum either:
    - A NIOSH certified full facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A), or
    - A gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

See *Directions for Use, Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers*, number 1, *Handlers Wearing Half-Face Air-Purifying Respirators* for when an air-purifying respirator (full facepiece or gas mask) is required.

2. **When performing tasks with potential for contact with liquid fumigant, all handlers (including applicators) must wear:**

- Long-sleeved shirt and long pants,
- Chemical-resistant gloves, such as barrier laminate (EVAL) or viton,
- Chemical-resistant apron,
- Protective eyewear (do NOT wear goggles)
- Chemical-resistant footwear with socks, and
- Chemical-resistant headgear for overhead exposure
- A NIOSH certified half-face air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A).
- If sensory irritation (tearing, burning of the eyes or nose) is experienced and handlers remain in the application block or buffer zone, handlers must wear at a minimum either:
    - A NIOSH certified full facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A), or
    - A gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

See *Directions for Use, Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers*, number 1, *Handlers Wearing Half-Face Air-Purifying Respirators* for when an air-purifying respirator (full facepiece or gas mask) is required.

3. **Handlers in the application block within 5 days after the application is complete with NO potential for contact with liquid fumigant must wear:**

- Coveralls,
- Chemical-resistant gloves, such as barrier laminate (EVAL) or viton,
- Chemical-resistant footwear with socks.

- A NIOSH certified full facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A), or
- A gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

See *Directions for Use, Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers*, number 2, *Handlers in the Application Block within 5 Days after the Application is Complete*.

4. **Handlers in the application block 5 days after the application is complete until the entry restricted period ends or in the buffer zone during the buffer zone period must wear:**

- Long-sleeved shirt and long pants, and
- Shoes with socks.
- If sensory irritation (tearing, burning of the eyes or nose) is experienced and handlers remain in the application block, handlers must wear at a minimum either:
    - A NIOSH certified full facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P, or HE, NIOSH approval number prefix TC-84A), or
    - A gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

See *Directions for Use, Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers*, number 3, *Handlers in the Application Block 5 Days after the Application is Complete Until the Entry Restricted Period Ends or in the Buffer Zone during the Buffer Zone Period*.

IMPORTANT: A self-contained breathing apparatus (SCBA) is not permitted for routine handler tasks. If responding to an emergency, when corrective action is needed to reduce air concentrations to acceptable levels, wear an SCBA. Escape-only SCBA respirators must not be used by handlers for responding to emergencies. In addition, wear PPE required for potential contact with liquid fumigant.

5. **Handlers exposed to greater than 1.5 ppm of chloropicrin (e.g., in an emergency when corrective action is needed to reduce air concentrations to acceptable levels), and handlers exposed to this product in poorly ventilated areas, must wear at a minimum:**

- Chemical-resistant suit,
- Chemical-resistant gloves, such as barrier laminate (EVAL) or viton,
- Chemical-resistant headgear,
- A self-contained breathing apparatus (SCBA) with NIOSH approval number prefix TC-13F.

See further respirator requirements in the *Protection for Handlers* section on this label.

## USER SAFETY REQUIREMENTS

1. Never Fumigate Alone: It is imperative to always have an assistant and proper protective equipment in case of accidents.
2. Dispose of Contaminated Clothing: Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.
3. Clean and Maintain PPE: Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.
4. Contact With Mouth: Never siphon this product by mouth or use mouth to blow out clogged lines, nozzles, etc.
5. Heat Illness Avoidance: Use measures to avoid or minimize heat illness while using this product. These measures include gradual adjustment to heat and respirator stress, fans for cooling, cooling vests, frequent breaks to cool down, frequent intake of drinking water, and maintaining weight from day to day.

## USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE 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

- This pesticide is toxic to mammals and birds. 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 disposing of equipment washwaters or rinsate.
- Chloropicrin has certain properties and characteristics in common with chemicals that have been detected in groundwater (chloropicrin is highly soluble in water and has low adsorption to soil).
- **Groundwater Advisory:** 1,3-dichloropropene is known to move through soil and under certain conditions has the potential to reach groundwater as a result of agricultural use. Application in areas where soils are permeable and groundwater is near the surface could result in groundwater contamination.
- For untarped applications of this product, leaching and runoff may occur if there is heavy rainfall after soil fumigation.

**Reporting Ecological Incidents:**
To report ecological incidents, including mortality, injury, or harm to plants and animals, call (831) 637-0195.

## PHYSICAL OR CHEMICAL HAZARDS

- Combustible. Do not use or store near heat or open flame.

- Do not mix or allow coming in contact with oxidizing agent. A chemical reaction hazard may occur.
- Handle carefully! Do not drop or let container be impacted by heavy objects. An explosion hazard may occur.

## DIRECTIONS FOR USE

**Restricted Use Pesticide**

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

**Endangered Species Protection Requirements**

It is a Federal offense to use any pesticide in a manner that results in an unauthorized "take" (e.g., kill or otherwise harm) of an endangered species and certain threatened species, under the Endangered Species Act section 9. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. You must obtain a Bulletin no earlier than six months before using this product. To obtain Bulletins, consult **http://www.epa.gov/espp/**, call 1-844-447-3813, or email ESPP@epa.gov. You must use the Bulletin valid for the month in which you will apply the product.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only handlers may be in the application block from the start of the application until the entry restricted period ends, and in the buffer zone during the buffer zone period. 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. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS). No instructions elsewhere on this labeling relieve users from complying with the requirements of the WPS.
For the entry restricted period and notification requirements, see the *Entry Restricted Period* and *Notification* section of this labeling. PPE For Entry During the Entry-Restricted Period: PPE for entry that is permitted by this labeling is listed in the *Personal Protective Equipment (PPE)* section of this labeling.

**READ ALL DIRECTIONS FOR USE CAREFULLY BEFORE APPLYING.**
**READ THE ENTIRE LABEL. USE ONLY ACCORDING TO LABEL DIRECTIONS.**
**BEFORE BUYING OR USING THIS PRODUCT, READ "WARRANTY DISCLAIMER" AND "LIMITATION OF REMEDIES".**

**Terms Used in This Labeling**

Soil Fumigant Training Program: Certified applicator training that provides information on (1) how to correctly apply the fumigant, including how to comply with new label requirements; (2)

how to protect handlers and bystanders; (3) how to determine buffer zone distances; (4) how to complete an FMP and the post-application summary; (5) how to determine when weather and other site-specific factors are not favorable for fumigant application; (6) how to comply with required GAPs and how to document compliance with GAPs in the FMP; and (7) how to develop and implement emergency response plans.
Fumigant Safe Handling Information: Information that must be provided annually to handlers that must include the following: (1) what fumigants are and how they work, (2) safe application and handling of soil fumigants, (3) air monitoring and respiratory protection requirements for handlers, (4) early signs and symptoms of exposure, (5) appropriate steps to take to mitigate exposures, (6) what to do in case of an emergency, and (7) how to report incidents.
Application Block: Area within the perimeter of the fumigated portion of a field or greenhouse (including furrows, irrigation ditches, roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.
Application Rate: The ratio of fumigant mass applied compared to the soil surface area (e.g., pounds of product per acre). The application rate is expressed on this labeling in terms of either the "treated area application rate" or the "broadcast equivalent application rate." The "treated area application rate" relates to only the rate of fumigant applied to the portion of the field that is fumigated (e.g., rate within the bed or strips). The "broadcast equivalent application rate" relates to the rate of fumigant applied within the entire perimeter of the application block. For bedded and strip applications, the "broadcast equivalent application rate" must be calculated to determine the buffer zone distance required by this labeling.
Start of the Application: The time at which the fumigant is first delivered/dispensed into the soil in the application block.
Application is Complete: The time at which the fumigant has stopped being delivered/dispensed into the soil and the soil has been sealed; drip lines have been purged (if applicable).
Entry Restricted Period: This period begins at the start of the application and expires depending on the application method and if tarps are used when the tarps are perforated and removed. Entry into the application block during this period is only allowed for appropriately PPE-equipped handlers performing handling tasks. See the *Entry Restricted Period and Notification* section for additional information.
Buffer Zone: An area established around the perimeter of each application block. The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.
Buffer Zone Period: Begins at the start of the application and lasts for a minimum of 48-hours after the application is complete. Non-handlers must be excluded from the buffer zone during the buffer zone period.
Difficult to Evacuate Sites: Pre-K to Grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.
Owner: Any person who has a present possessory interest (fee, leasehold, rental, or other) in an agricultural establishment. A person who has both leased such agricultural establishment to another person and granted that same person the right and full authority to manage and govern the use of such agricultural establishment is not an owner. See definition of "owner" in WPS (40 CFR §170.3).
Roadway: Portion of a street or highway improved, designed or ordinarily used for vehicular travel, exclusive of the sidewalk or shoulder even if such sidewalk or shoulder is used by persons riding bicycles. In the event a highway includes two or more separated roadways, the term *roadway* shall refer to any such roadway separately.
Representative Handling Task: For air monitoring, the locations and handler activities sampled must represent each handler's exposure occurring within the application block. For example, for an

application consisting of a seven-handler crew (1 tractor driver, 1 tractor co-pilot, 4 shovelers, and 1 certified applicator supervising) two breathing zone samples could be collected: one sample for the tractor co-pilot and one sample for a downwind shoveler. Results of previous sampling may indicate which tasks and locations are worst case and therefore representative of all handlers.

## Application Restrictions

- The use of this product is restricted to the methods described in this label.
- Do not formulate and/or tank mix this product into other end-use agricultural products.
- An application block treated with Tri-Form 60 EC must not be within 100 feet of an occupied structure. No person shall be present at this structure at any time during the seven consecutive day period after the application is complete. EXCEPTION: This restriction does not apply to use on soils that have not experienced a 1,3-Dichloropropene treatment in the previous two years, for example, on soils planted with fruit trees, nut and nursery crops, perennial vines, hops, mint or pineapple.
- Tri-Form 60 EC shall not be applied to soil more frequently than once each year.
- Apply this product only through drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
- Do not connect an irrigation system used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- Do not apply within 100 feet of any well used for potable water. Do not apply this product within 100 feet from the edge of karst topographical features. Karst topography is identified from landscape features that result from the dissolving activity of water in carbonate rock formations (limestone, dolomite and marble). Surface features that are associated with karst topography include sinkholes, caverns, springs, and sinking or disappearing streams. In North Dakota, South Dakota, Wisconsin, Minnesota, New York, Maine, New Hampshire, Vermont, Massachusetts, Utah, and Montana: Where groundwater aquifers exist at a depth of 50 feet or less from the surface, do not apply this product where soils are Hydrologic Group A.
- **Application Restrictions for Certain Florida Counties:** For the following Florida counties: Brevard, Charlotte, Citrus, Collier, DeSoto, Glades, Hardee, Hendry, Hernando, Highlands, Hillsborough, Indian River, Lake Lee, Manatee, Martin, Monroe, Okeechobee, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, Sarasota, Seminole, St. Lucie, Sumter, and Volusia, use TRI-FORM 60 EC only on soils that have a relatively shallow hard pan or soil layer restrictive to downward water movement (such as spodic horizon) within six feet of the ground surface and are capable of supporting seepage irrigation regardless of irrigation method employed. DO NOT APPLY WHERE SUBSURFACE DRIP IRRIGATION EQUIPMENT MIGHT RELEASE THE FUMIGANT DIRECTLY INTO SHALLOW SUBSURFACE IRRIGATION WATER.
- Use of Tri-Form 60 EC is prohibited in Broward and Dade counties.

## Product Information

This product is a multi-purpose liquid fumigant for preplant treatment of soil to control nematodes, symphylans, wireworms and certain soil borne diseases in cropland. This product may be applied as a preplant soil treatment to control or to aid in reducing the damaging effects of certain soil borne diseases [soil rot (soil pox) of sweet potatoes; *Streptomyces scabies* (potato scab or common scab of potatoes); Granville (bacterial) wilt, black root rot, black shank diseases of tobacco; *Verticillium* wilt of mint, pink root of onions, pod rot of peanuts]; plant

parasitic nematodes [root-knot, root lesion, citrus, cyst formers (golden, sugar beet, soybean), burrowing, lance, reniform, ring, spiral, sting, pin, stubby root, stylet, dagger and certain others]; symphylans (garden centipedes) and wireworms. Before fumigation, soil sampling for the type and number of pests present is recommended. In fields where pre-treatment soil samples indicate the presence of high population levels of nematodes, a successful fumigation cannot be expected to eradicate entire populations. Therefore, post-treatment sampling is recommended to determine the need for additional pest management practices. Consult State Agricultural Experiment Station or Extension Service specialists for information on other practices such as post-harvest destruction of crop residues, weed control or other cultural practices, and use of nematode resistant crop varieties that may aid in reducing crop losses from soil borne pests.

## Use Precautions

### Recontamination Prevention

Tri-Form 60 EC will help manage certain soil borne pests that are present in the soil treatment zone at time of fumigation. It will not control pests that are introduced into soil after fumigation. To avoid reinfestation of treated soil do not use irrigation water, transplants, seed pieces, or equipment that could carry soil borne pests from infested land. Avoid contamination from moving infested soil onto treated beds through cultivation, movement of soil from below the treated zone, dumping contaminated soil in treated fields and soil contamination from equipment or crop remains. Clean equipment carefully before entering treated fields. Cultural practices, which provide post-harvest destruction of crop residues and weeds prior to fumigation and practices which prevent weed infestation following fumigation and prior to planting, will help prevent recontamination.

### Equipment Clean-Up

Because Tri-Form 60 EC is corrosive under certain conditions, flush all application equipment with fuel oil, kerosene or a similar type of petroleum solvent immediately after use. Fill pumps and meters with new motor oil or a 50% motor oil/fuel oil mixture before storing. Do not use water. Dispose of rinsate by incorporation into field just treated or by other approved means. Never introduce rinsate or unused Tri-Form 60 EC into surface or underground water supplies.

### Fertility Interactions

Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. This is most likely to occur when high rates of fertilizer and fumigant are applied to soils that are either cold, wet, acidic, or high in organic matter. To avoid injury to certain crops including red beets, carrots, corn, radishes, cole crops, legumes (beans), lettuce, onions, and sugarbeets, fertilize when possible as indicated by soil tests made after fumigation. To avoid ammonia injury or nitrate starvation (or both) to crops grown on high organic soils, do not use fertilizers containing ammonium salts. Use only fertilizers containing nitrates until after the crop is well established and the soil temperature is above 65 ºF. In mineral soils, do not apply more than 2/3 of the nitrogen requirements from fertilizers containing ammonium salts until the crop is well established and the soil temperature is above 65 ºF. When using high rates of Tri-Form 60 EC as required by certain state nursery regulations, liming of highly acid soils before fumigation may stimulate nitrification and reduce the possibility of ammonia toxicity. Certain nursery crops such as citrus seedlings, *Cornus* sp., *Crataegus* sp., spruce, and vegetable crops such as cauliflower have shown evidence of phosphorus deficiency following fumigation. To avoid this possible effect, additional phosphate fertilizer (foliar applied) is recommended where experience indicates a deficiency may occur.

## Certified Applicator Training

Any certified applicator supervising a soil fumigant application must have successfully completed one of the soil fumigant training programs listed on the following EPA website https://www.epa.gov/soil-fumigants/soil-fumigant-training-certified-applicators for the active ingredient(s) in this product. The training must be completed in the time frames listed on the website. The FMP must document the date and location where the soil fumigant training program was completed.

## Handlers

The following activities are prohibited from being performed by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in WPS (40 CFR Part 170):

- Monitoring fumigant air concentrations;
- Cleaning up fumigant spills (this does not include emergency personnel not associated with the application);
- Handling or disposing of fumigant containers;
- Cleaning, handling, adjusting, or repairing the parts of application equipment that may contain fumigant residues; and
- Performing any handling tasks as defined by the WPS (40 CFR 170).

The following activities are prohibited from being performed in the application block from the start of the application until the entry restricted period ends and in the buffer zone during the buffer zone period by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in WPS (40 CFR Part 170). (NOTE: persons repairing and monitoring tarps are considered handlers for the duration listed below). Prohibited activities (except for trained and equipped handlers) include:

- Participating in the application as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application participants;
- Installing, repairing, operating, or removing irrigation equipment;
- Performing scouting, crop advising, or monitoring tasks;
- Installing, perforating (cutting, punching, slicing, poking), or removing tarps (when tarps are used); and
- Repairing or monitoring tarps until 14 days after application is complete if tarps are not perforated and removed during those 14 days (when tarps are used).

NOTE: see *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.

Handlers do not include local, state, or federal officials performing inspection, sampling, or other similar official duties.

## Protection for Handlers

**Supervision of Handlers:**

- For water-run applications (e.g., drip), a certified applicator must be in the line of sight of the application at the start of the application, including set-up, calibration, and initiation of the application.
- A certified applicator may leave but must return at least every two hours to visually inspect the equipment to ensure proper functioning, and must directly supervise all WPS-trained

handlers until the application is complete. WPS-trained handlers may perform these monitoring functions in place of a certified applicator but they must be under the supervision of a certified applicator and be able to communicate with a certified applicator at all times during monitoring activities via cell phone or other means.

- The certified applicator or WPS trained handlers under the supervision of and in communication with the certified applicator shall shut the system down and make necessary adjustments should the need arise.
- For handling activities that take place after the application is complete until the entry restricted period expires, the certified applicator is not required to be on-site, but must have communicated in a manner that can be understood by the site owner and handlers responsible for carrying out those activities the information necessary to comply with the label and procedures described in the FMP (e.g., emergency response plans and procedures).

IMPORTANT: This requirement does not override the requirements in the Worker Protection Standard for Agricultural Pesticides for information exchange between operators of agricultural establishments and commercial pesticide applicators.
The certified applicator must provide **Fumigant Safe Handling Information** to each handler or confirm that within the past 12 months, each handler has received **Fumigant Safe Handling Information** in a manner that he/she can understand. **Fumigant Safe Handling Information** will be provided where this product is purchased or at https://www.epa.gov/soil-fumigants/soil-fumigant-training-certified-applicators.

For all handling tasks at least two handlers must be present.

Exception: After the application is complete, only one trained handler is required to perform fumigant site monitoring tasks outside of the buffer zone.

**Exclusion of Non Handlers from the Application Block and Buffer Zone:**
The certified applicator supervising the application and the owner of the establishment where the application is taking place must make sure that all persons who are not trained and PPE-equipped and who are not performing one of the handling tasks as stated in this labeling are:

- excluded from the application block during the entry restricted period, and
- excluded from the buffer zone during the buffer zone period (see buffer zone exemption for transit on roadways in *Buffer Zone Requirements* section).

Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone.

**Providing, Cleaning, and Maintaining PPE:**
The employer of any handler (as stated in this label) must make sure that all handlers are provided and correctly wear the required PPE. The PPE must be cleaned and maintained as required by the Worker Protection Standard for Agricultural Pesticides.

**Air Purifying Respirator Availability:**
The employer of any handler must confirm that an air-purifying respirator and appropriate cartridges/canisters of the type specified in the *PPE* section of this labeling are immediately

available for each handler who will wear one (see *Respirator Fit Testing, Medical Qualification, and Training* section for additional requirements).

Exception: Air-purifying respirators do not need to be made available for handlers performing fumigant site monitoring tasks outside of the buffer zone.

Cartridges or canisters must be replaced when odor or sensory irritation from this product becomes apparent during use, if the measured concentration of chloropicrin is greater than or equal to 1.5 ppm, or after 8 hours of cumulative use, whichever occurs first.

**Respirator Fit Testing, Medical Qualification, and Training:**
Using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134), employers must verify that any handler who uses a respirator is:

- Fit-tested and fit-checked,
- Trained, and
- Examined by a qualified medical practitioner to ensure physical ability to safely wear the style of respirator to be worn. A qualified medical practitioner is a physician or other licensed health care professional who will evaluate the ability of a worker to wear a respirator. The initial evaluation consists of a questionnaire that asks about medical conditions (such as a heart condition) that would be problematic for respirator use. If concerns are identified, then additional evaluations, such as a physical exam, might be necessary. The initial evaluation must be done before respirator use begins. Handlers must be reexamined by a qualified medical practitioner if their health status or respirator style or use-conditions change.
- Upon request by local/state/federal/tribal enforcement personnel, employers must provide documentation demonstrating how they have complied with these requirements.

## Air Monitoring Requirements, Respiratory Protection and Stop Work Triggers

**Air Monitoring Requirements**

- When air-purifying respirators (full facepiece or gas mask) are worn, air monitoring samples for chloropicrin must be collected at least every 2 hours in the breathing zone of a handler performing a representative handling task.
- When breathing zone samples are required, they must be taken outside respiratory protection equipment and within a 10-inch radius of the handler's nose and mouth.
- When using devices to monitor air concentration levels, a direct read detection device, such as an electronic device or a colorimetric device (e.g., Matheson-Kitagawa, Draeger, or Sensidyne) must be used. The devices must have sensitivity of at least 0.15 ppm for chloropicrin. Persons using direct read detection devices must follow the manufacturer's directions.

**Respiratory Protection and Stop Work Triggers**

**1. Handlers Wearing Half-Face Air-Purifying Respirators**
(Handlers are required to start work in half-face air-purifying respirators.)
The *Air Monitoring Requirements* section above must be followed.

- If at any time any handler experiences sensory irritation (tearing, burning of the eyes or nose) while wearing a half-face respirator then either:

- (OPTION 1) An air-purifying respirator (full facepiece or gas mask) must be worn by all handlers who remain in the application block or surrounding buffer zone, or
- (OPTION 2) Operations must cease and handlers not wearing air-purifying respirators (full facepiece or gas mask) must leave the application block and surrounding buffer zone.

For OPTION 1 [all handlers are wearing air-purifying respirators (full facepiece or gas mask)]

a) Handlers can **resume** operations wearing half-face air-purifying respirators if all of the following conditions exist:

- Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
- Handlers do not experience sensory irritation.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handlers taking the air samples. Samples must be taken where the sensory irritation was first experienced.

b) If at any time (1) a handler experiences sensory irritation when wearing an air-purifying respirator (full facepiece or gas mask), or (2) a chloropicrin air sample is greater than or equal to 1.5 ppm, then all handler activities must cease and handlers must be removed from the application block and surrounding buffer zone.

Handlers can **resume** operations wearing half-face air-purifying respirators if all of the following conditions exist:

- Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm,
- Handlers do not experience sensory irritation, and
- Cartridges/canisters have been changed.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced or where sample(s) were greater than or equal to 1.5 ppm.

For OPTION 2 (Operations ceased)

a) Handlers can **resume** operations wearing half-face air-purifying respirators if all of the following conditions exist:

- Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
- Handlers do not experience sensory irritation.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced.

**2. Handlers in the Application Block within 5 Days after the Application is Complete**

(Handlers are required to start work in air-purifying respirators (full facepiece or gas mask)
The *Air Monitoring Requirements* section above must be followed.

- If at any time (1) a handler experiences sensory irritation when wearing an air-purifying respirator (full facepiece or gas mask), or (2) a chloropicrin air sample is greater than or

equal to 1.5 ppm, then all handler activities must cease and handlers must be removed from the application block and surrounding buffer zone.

- Handlers can **resume** operations wearing air-purifying respirators (full facepiece or gas mask) if all of the following conditions exist:
  - Two consecutive chloropicrin samples taken at the handling site at least 15 minutes apart must be less than 1.5 ppm,
  - Handlers do not experience sensory irritation while wearing air-purifying respirators (full facepiece or gas mask), and
  - Cartridges/canisters have been changed.
  - During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced or where sample(s) were greater than or equal to 1.5 ppm.

**3. Handlers in the Application Block 5 Days after the Application is Complete Until the Entry Restricted Period Ends or in the Buffer Zone during the Buffer Zone Period**
(Handlers in the application block 5 days after the application is complete until the entry restricted period ends or in the buffer zone during the buffer zone period are not required to start work in half-face air-purifying respirators).
The *Air Monitoring Requirements* section above must be followed.

- If at any time any handler experiences sensory irritation (tearing, burning of the eyes or nose) then either:
  - (OPTION 1) An air-purifying respirator (full facepiece or gas mask) must be worn by all handlers who remain in the application block or surrounding buffer zone, or
  - (OPTION 2) Operations must cease and handlers not wearing an air-purifying respirator (full facepiece or gas mask) must leave the application block and surrounding buffer zone.

For OPTION 1 [all handlers are wearing air-purifying respirators (full facepiece or gas mask)]
a) Handlers can remove air-purifying respirators (full facepiece or gas mask) if all of the following conditions exist:
  - Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
  - Handlers do not experience sensory irritation.
  - During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced.

b) If at any time: (1) a handler experiences sensory irritation when wearing an air-purifying respirator (full facepiece or gas mask) or (2) a chloropicrin breathing zone sample is greater than or equal to 1.5 ppm, then all handler activities must cease and handlers must be removed from the application block and the surrounding buffer zone.

i. Handlers can **resume** operations **without** wearing an air-purifying respirator (full facepiece or gas mask) if all of the following conditions exist:
   - Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
   - Handlers do not experience sensory irritation.

- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced or where sample(s) were greater than or equal to 1.5 ppm.

ii. Handlers can **resume** operations **with** wearing an air-purifying respirator (full facepiece or gas mask) if all of the following conditions exist:
- Two chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 1.5 ppm,
- Handlers do not experience sensory irritation, and
- Cartridges/canisters have been changed.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced or where sample(s) were greater than or equal to 1.5 ppm.

For OPTION 2 (Operations ceased)
a) Handlers can resume operations if all of the following conditions exist:
- Two consecutive chloropicrin breathing zone samples taken at the handling site at least 15 minutes apart must be less than 0.15 ppm, and
- Handlers do not experience sensory irritation.
- During the collection of air samples an air-purifying respirator (full facepiece or gas mask) must be worn by the handler taking the air samples. Samples must be taken where the sensory irritation was first experienced.

**Tarp Perforation and/or Removal**

IMPORTANT: Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see *Handlers* section), and they must be provided the PPE and other protections for handlers as required on this labeling and in the Worker Protection Standard for Agricultural Pesticides.

- Tarps must not be perforated until a minimum of 5 days (120 hours) have elapsed after the application is complete.
- If tarps are perforated within 14 days after the application is complete, tarp removal must not begin until at least 2 hours after tarp perforation is complete.
- If tarps are perforated but not removed within 14 days after the application is complete, planting or transplanting must not begin until at least 48 hours after the tarp perforation is complete.
- If tarps are not perforated or removed within 14 days after the application is complete, planting or transplanting may take place while the tarps are being perforated.
- Tarps may be perforated manually ONLY for the following situations:
  - At the beginning of each row when a coulter blade (or other device which performs similarly) is used on a motorized vehicle such as an ATV.
  - In fields that are 1 acre or less.
  - During flood prevention activities.
- In all other instances tarps must be perforated (cut, punched, poked, or sliced) only by mechanical methods.

## Entry Restricted Period and Notification

### Entry Restricted Period

Entry into the application block (including early entry that would otherwise be permitted under the WPS) by any person – other than a correctly trained and PPE-equipped handler who is performing a handling task listed on this labeling – is PROHIBITED from the start of the application until:

- 5 days (120 hours) after the application is complete for untarped applications, or
- 5 days (120 hours) after the application is complete if tarps are not perforated and removed for at least 14 days after the application is complete, or
- 48 hours after tarp perforation is complete if tarps will be perforated within 14 days after the application is complete and will not be removed for at least 14 days after the application is complete, or
- tarp removal is completed if tarps are both perforated and removed less than 14 days after the application is complete.

NOTES:

- See *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.
- When listing application information for soil fumigant applications to comply with part 170.122 of the WPS, list the entry restricted period time frame in place of the REI.

### Notification

Notify workers of the application by warning them orally and by posting Fumigant Treated Area signs. The signs must bear the skull and crossbones symbol and state:

- "DANGER/PELIGRO"
- "Area under fumigation, DO NOT ENTER/NO ENTRE"
- "1,3-dichloropropene and chloropicrin fumigants in use"
- The date and time of fumigation
- The date and time entry restricted period is over
- Tri-Form 60 EC, and
- Name, address, and telephone number of the certified applicator in charge of the fumigation.

Post the Fumigant Treated Area sign instead of the WPS sign for this application, but follow all WPS requirements pertaining to location, legibility, text size, and sign size (40 CFR §170.120). Post Fumigant Treated Area signs at all entrances to the application block no sooner than 24 hours prior to application.

Fumigant Treated Area signs must remain posted for no less than the duration of the entry restricted period.

Fumigant Treated Area signs must be removed within 3 days after the end of the entry restricted period.

## Mandatory Good Agricultural Practices (GAPs)

The following GAPs must be followed during all fumigant applications.

### Application Timing

- Apply Tri-Form 60 EC at any time of the year when soil conditions permit. Conditions that allow rapid diffusion of the fumigant as a gas through the soil normally give the best results.
- Because Tri-Form 60 EC does not provide residual control of soil pests, use it as a preplant application before planting each crop.

**Tarps** (when tarps are used in TRI-FORM 60 EC applications)

- Tarps must be put in place before the application starts.
- Tarp edges must be buried along the furrow and at the ends of rows.
- A written tarp plan must be developed and included in the FMP.
- Once a tarp is perforated, the application is no longer considered tarped.
- For untarped applications, the drip tape must be buried at a minimum of 6 inches.

### Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
    - on the day of, but prior to the start of the application, and
    - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: https://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

*Identifying Unfavorable Weather Conditions*

Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist within an hour prior to sunset and continue past sunrise and may persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

### Soil Preparation

- Soil must be properly prepared and at the surface generally be free of large clods. The area to be fumigated must be tilled to a depth of 5 to 8 inches.
- Till fields with known plowpans because they can lead to puddling of the fumigant due to inadequate soil drainage.

- Beds should be listed, shaped and ready for planting.
- Field trash must be properly managed. Residue from a previous crop must be worked into the soil to allow for decomposition prior to the start of the application. Little or no crop residue shall be present on the soil surface. Crop residue that is present must not interfere with the soil seal. Removing the crop residue prior to the start of the application is important to limit the natural "chimneys" that occur in the soil when crop residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limit the efficacy of the fumigant. However, crop residue on the field serves to prevent soil erosion from both wind and water and is an important consideration. To accommodate erosion control, fumigant efficacy, and human health protection, clear fields of crop residue as close to the start of the application as possible to limit the length of time that the soil would be exposed to potentially erosive weather conditions.

**Soil Moisture**

- For all soil types, pre-application moisture should be dry enough to prevent soil saturation and bed collapse once application and flushing is complete.
- Soil moisture should when possible be at 50% of available water capacity in the top 2-3" at time of TRI-FORM 60 EC application.

**Product and Dosage**

- Plan the application by calculating the amount of TRI-FORM 60 EC required at the appropriate rate for the crop, acreage, and target pest. TRI-FORM 60 EC must be metered into the water supply line and then passed through a mixing device, such as a centrifugal pump or static mixer, to assure proper agitation.
- Apply TRI-FORM 60 EC through surface or buried drip irrigation systems, being sure to wet the soil thoroughly in the area being treated. Drip emitters should be spaced 8-12" apart.
- Meter TRI-FORM 60 EC into the drip system according to the dosage. An adequate concentration of active ingredient must be present in order to be effective. At no time should the concentration of active ingredient exceed 4,500 ppm by weight in the drip line. For example, a 300 pounds per treated acre application rate would require 8,000 gallons of water per acre to deliver 4,500 ppm.
- Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.
- If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts.

**System Controls and Integrity**

- The irrigation system (main lines, headers, drip tape) must be thoroughly checked for leaks before the start of application. Leak detection requires that the irrigation system be at full operating pressure. The amount of time needed at full operating pressure will vary by irrigation system design. Look for puddling along major pipes (holes in pipes or leaky joints), at the top and ends of rows (leaky connection, open drip tape), and on the bed surface (damaged drip tape, malfunctioning emitters). Any leaks discovered during the pre-application check must be repaired prior to the start of the application.
- To inject fumigant, use a metering system (such as a positive pressure system, positive displacement injection pump, diaphragm pump, or a Venturi system) effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted

with system interlocking controls. Do not use containers, pumps, or other equipment made of aluminum, magnesium or their alloys, as chloropicrin and 1,3-dichloropropene can be can be corrosive to such metals. Do not use drip tube materials made of aluminum, magnesium, zinc, cadmium, tin, and alloys or vinyl. Use drip irrigation components made only of copper, stainless steel, steel, polypropylene, polyethylene, nylon, Teflon, rigid PVC, EPDM, and viton. Rigid PVC should not be exposed to undiluted TRI-FORM 60 EC or more than 1,500 ppm TRI-FORM 60 EC in the diluted form.

- The system must contain:
    - A functional check valve, a vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination and backflow;
    - A functional, automatic, quick-closing check valve to prevent the flow of fluids back toward the fumigant container;
    - A functional, normally closed valve located on the intake side of the injection point and connected to the system interlock to prevent the fumigant from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down; and
    - Functional interlocking controls to automatically shut off the fumigant injection when the irrigation water flow stops or decreases to the point where fumigant distribution is adversely affected.

**Site of Injection and Irrigation System Layout**

- Site of injection must be as close as practical to the area being treated (such as direct injection of fumigant into the header pipe/manifold or into an above-ground delivery pipe attached to the header). If the fumigant is injected into a main line, make sure the irrigation pipe is able to be cleared of all fumigant as the fumigant may pool in low sections of the pipe. Also make sure that valves on lateral lines of the main line are closed if these lateral lines lead to areas not being fumigated at the time of the application.

**System Flush**

- After application of the fumigant, continue to drip-irrigate the area with water to flush the irrigation system. Do not allow the fumigant to remain in the irrigation system after the application is complete. The total volume of water, including the amount used for flushing the irrigation system, must be adequate to completely remove the fumigant from the lines, but should be less than the amount that could over-saturate the beds (bed collapse can occur from over-saturation and should not exceed 1.5 acre-inches (40,000 gallons) of water per acre. If common lines are used for both the fumigant application and water seal (if a water seal is applied) these lines must be adequately flushed before starting the water seal and/or normal irrigation practices.

**Planting Interval**

- After fumigation, to prevent phytotoxicity, allow the fumigant to dissipate completely before planting the crop. Do not disturb treated soil for at least 2 weeks. Under optimum soil conditions for dissipation, 1 week for each 10 gallons/acre is recommended, with a minimum interval of 14 days following application. Wet soil retards diffusion of the fumigant thus requiring a longer aeration period. Aeration is usually complete when the odor of the fumigant is no longer evident. Seed may be used as a bioassay to determine if the product is

present in the soil at concentrations sufficient to cause plant injury. Do not plant if odor of the product is present within the zone of fumigation.

**Bulk and Non-Bulk Containers**

With all bulk and non-bulk containers, TRI-FORM 60 EC must be transferred through connecting hoses, pipes, and/or couplings sufficiently tight to prevent workers or other persons from coming in contact with the liquid product.

- All hoses, piping, and tanks used in connection with this product shall be of type appropriate for use under the pressure and vacuum conditions to be encountered.
- External sight gauges shall be equipped with valves so that pipes to sight gauge can be shut off in case of breakage or leakage.
- The mechanical transfer system must be adequate to make necessary measurements of the pesticide being used.
- Shut-off devices must be installed on the exit end of all hoses and at all disconnect points to prevent leakage of this product when the transfer is stopped and hose is removed or disconnected. A dry coupler that will minimize pesticide leakage must be installed at the disconnect point.
- The pressure in hoses used to move this product beyond a pump must not exceed the manufacturer's maximum pressure specification.

Note: In-tank cleaning of bulk tanks must be performed only by persons who have been specifically trained for this activity. Refer to OSHA 29 Part 1910.146.

**Requirements for Pre-Plant Greenhouse Soil Fumigation**

- The maximum application block size that can be treated is 50,000 square feet.
- All applications must be tarped.
- During the application keep all doors, vents, and windows to the outside open, and keep all fans or mechanical ventilation systems running within the greenhouse.
- Leaks through which gases could enter adjacent enclosed areas must be sealed.

**Clarification for Use in Shade Houses**

- Use in shade houses is permitted only when roof and walls are retracted to the extent possible without roof and wall removal for the duration of treatment and when the buffer zones and re-entry intervals required for equivalent soil applications are used.

**Maximum Application Rates for Pre-Plant Soil Uses:**

- 503 pounds (42.6 gallons) of Tri-Form 60 EC per treated acre for drip applications

**TABLE 1**
**TRI-FORM 60 EC PRODUCT APPLICATION RATES**

| Crop | Soil Type | Maximum Application Rates [(a)] | |
|---|---|---|---|
| | | Gallons/treated acre | Lbs/treated acre |
| Vegetable Crops, Field Crops, Fruit and Nut Crops, Nursery Crops[1, 2, 3] | Mineral, Muck, or Peat | 42.6 | 503 |

[(a)]Do not exceed specified maximum application rates in Table 1 or in the footnotes below.
[1]To control symphylans (garden centipedes) apply at 38.5 or more gallons per treated acre (454.7 lbs/treated acre) and apply during late summer or early fall when the soil is warm. To suppress wireworms, use dosages recommended for nematodes.
[2]For cyst-forming nematodes, increase dosage to 39 gallons per treated acre (460.6 lbs/treated acre).
[3]For mint, apply 42.6 gallons per treated acre (503 lbs/treated acre).

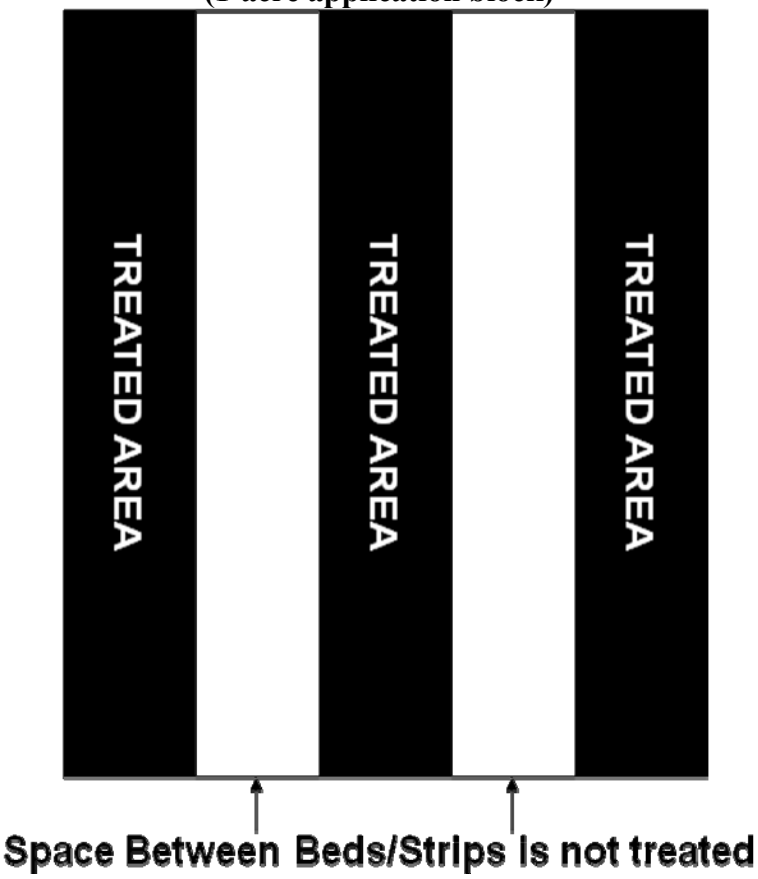
## Calculating the Broadcast Equivalent Application Rate

**To calculate the broadcast equivalent rate for bedded or strip applications the following information is needed:**

- pounds (or gallons) of product per treated acre
- strip or bed bottom width (inches)
- center-to-center row spacing (inches)
- application block size (acres)

Pounds (or gallons) of product **per treated acre** is the ratio of total amount of product applied to the size of the **total area treated** (e.g., the rate of product applied in the bed). For bedded or strip applications, the **total area treated** is the summation of the area (i.e., length x width) of each treated bed bottom or strip that is located within the application block as shown by the black areas in Figure 1 (e.g., black areas are 0.6A or 60% of the area within the application block). The area of the space between the beds/strips is not factored in the total area treated. The **application block size** is the acreage within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, and roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.

**Figure 1. Bedded/Strip Application (1-acre application block)**

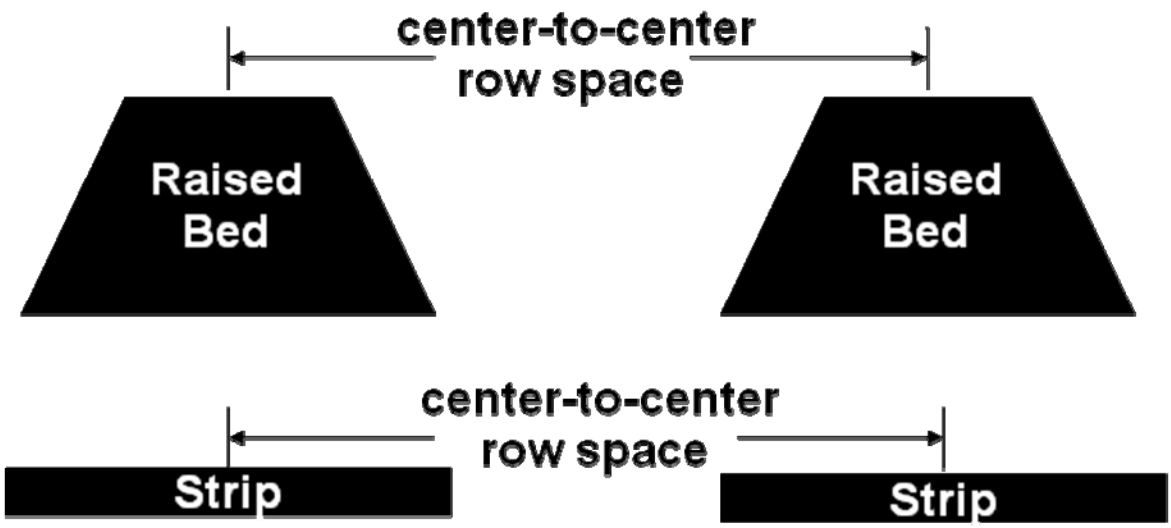


The "broadcast equivalent rate" must be calculated with the following formula:

$$\textbf{Broadcast equivalent rate (pounds (or gallons) product/acre)} = \frac{\textbf{strip or bed bottom width (inches)}}{\textbf{center-to-center row spacing (inches)}} \times \textbf{pounds (or gallons) of product/ treated acre applied in the strip or bed}$$

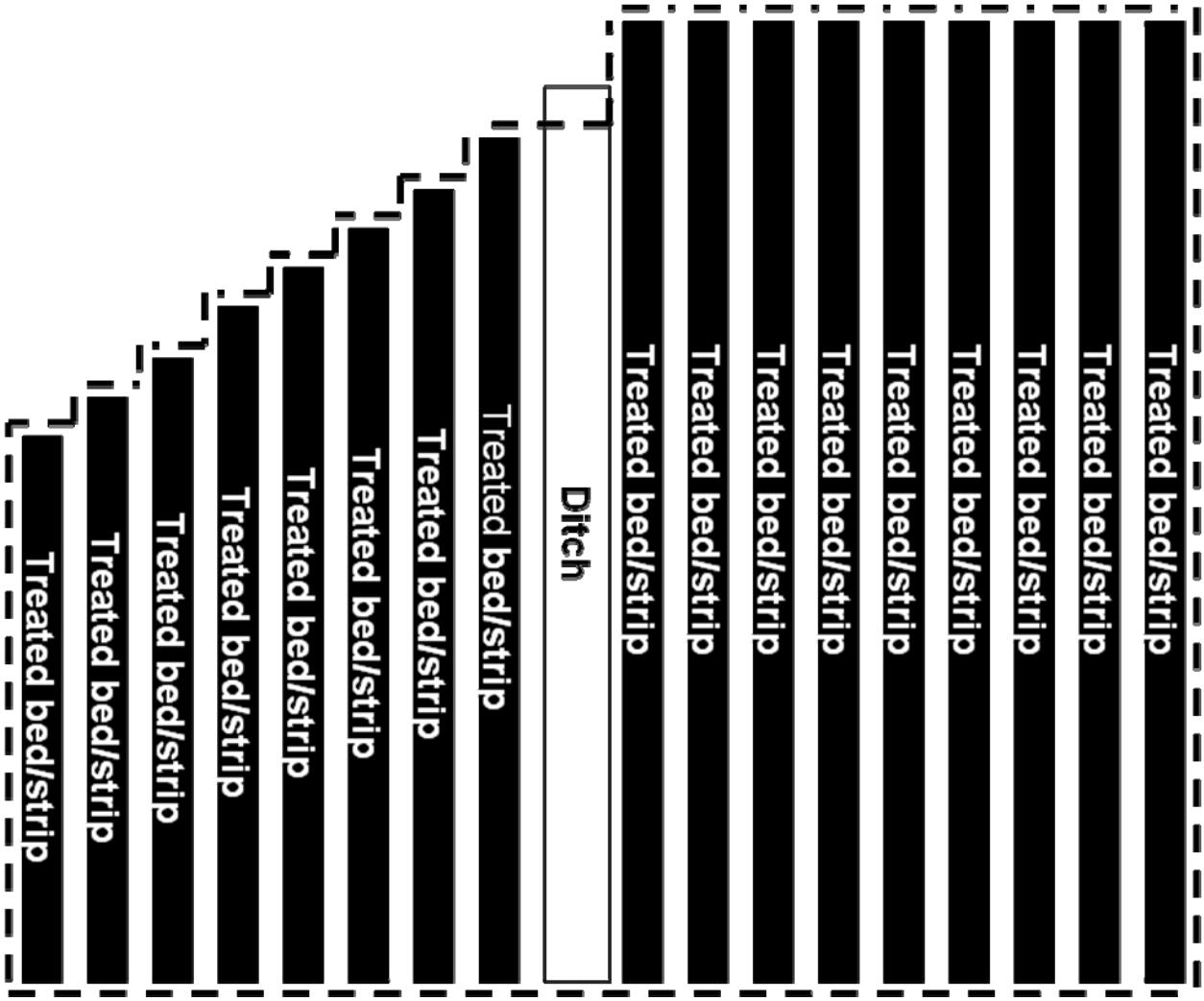
- The bed width must be measured from the bottom of the bed.
- The center-to-center row spacing must be calculated as shown in Figure 2.
- If there are any ditches, waterways, drive rows and other areas that are not fumigated that are in the application block, multiply the above broadcast equivalent equation by **(total area of strips or beds + row spacing)/(application block size).** A sample calculation is provided below.

**Figure 2. Center Row Spacing**




**Sample broadcast equivalent rate calculation**

Assumptions:
- Application method is shank bedded
- Bed width is 30 inches (measured at the bottom of bed)
- Center-to-center row spacing is 60 inches
- 200 pounds of product per treated acre is applied in the beds
- Total application block size is 10 acres
- Ditch in the middle of application block is 0.25 acres
- Area of beds + row spacing is 9.75 acres




$$\text{broadcast equivalent rate (pounds product/acre)} = \frac{\text{strip or bed bottom width (inches)}}{\text{center-to-center row spacing (inches)}} \times \frac{\text{area of strips or beds + row spacing}}{\text{application block size}} \times \text{pounds product/ treated acre applied in the bed}$$

$$= \frac{\text{30 inch width beds}}{\text{60 inch row spacing}} \times \frac{\text{9.75 acres}}{\text{10 acres}} \times \text{200 pounds product/ treated acre}$$

$$= \text{97.5 pounds product/acre}$$

**Buffer Zone Requirements**

A buffer zone must be established for every fumigant application. The following describes the buffer zone requirements: An area established around the perimeter of each application block.

- The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.

- All non-handlers, including field workers, residents, pedestrians, and other bystanders, must be excluded from the buffer zone during the buffer zone period except for transit (see *Buffer Zone Exemption for Transit on Roadways*).
    - Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone.
- The buffer zone period begins at the start of the application and lasts for a minimum of 48-hours after the application is complete.

<u>Buffer zone proximity</u>

- Before the start of application, the certified applicator must determine whether their buffer zone will overlap any chloropicrin buffer zone(s).
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple chloropicrin application blocks must not overlap UNLESS:
    1. A minimum of 12 hours have elapsed from the time the earlier application(s) is complete until the start of the later application, and
    2. *Fumigant Site Monitoring* or *Response Information for Neighbors* have been implemented if there are any residences or businesses within 300 feet of any of the buffer zones.

<u>Structures under the control of the owner of the application block</u>

- Buffer zones must not include buildings used for storage (e.g., sheds, barns, garages) UNLESS:
    1. The storage buildings are not occupied during the buffer zone period, and
    2. The storage buildings do not share a common wall with an occupied structure.

<u>Areas not under the control of the owner of the application block</u>

- Buffer zones must not include residential areas (e.g., employee housing, private property), buildings (e.g., commercial, industrial), outdoor residential areas (e.g., lawns, gardens, play areas) and other areas that people may occupy, UNLESS:
    1. The occupants provide written agreement, prior to the start of the application, that they will voluntarily vacate the buffer zone during the entire buffer zone period, and
    2. Reentry by occupants and other non-handlers must not occur until,
        - The buffer zone period has ended, and
        - Sensory irritation is not experienced upon re-entry.
- Buffer zones must not include agricultural areas owned and/or operated by persons other than the owner of the application block, UNLESS:
    1. The owner of the application block can ensure that the buffer zone will not overlap with a chloropicrin buffer zone from any other property owners, except as provided in the *Buffer Zone Proximity* section, and
    2. The owner of the other property provides written agreement to the applicator that they, their employees, and other persons will stay out of the buffer zone during the entire buffer zone period.
- Buffer zones must not include roadways and rights of way UNLESS:
    1. The area is not occupied during the buffer zone period, and

2. Entry by non-handlers is prohibited during the buffer zone period.
   Buffer Zone Exemption for Transit on Roadways
   Vehicular and bicycle traffic on public and private roadways through the buffer zone is permitted. (NOTE: Buffer zones are not permitted to include bus stops or other locations where persons wait for public transit.)

- For all other publicly owned and/or operated areas such as parks, sidewalks, permanent walking paths, playgrounds, and athletic fields, buffer zones must not include these areas UNLESS:
  1. The area is not occupied during the buffer zone period,
  2. Entry by non-handlers is prohibited during the buffer zone period, and
  3. Written permission to include the public area in the buffer zone is granted by the appropriate state and/or local authorities responsible for management and operation of the area.

Certified applicators must comply with all local laws and regulations.

See the *Posting* section for additional requirements that may apply.

**Buffer Zone Distances**

Buffer zone distances must be calculated using the application rate and the size of the application block.

- Buffer zone distances must be based on look-up tables in this labeling (25 feet is the minimum distance regardless of site-specific application parameters).
- For all other applications, Tables 2-4 must be used to determine the minimum buffer distances as appropriate for the method of application. Round up to the nearest rate and block size, where applicable.
- Applications are prohibited for rates or block sizes that exceed what is presented in the buffer zone tables.

Table 2. Drip Tarp Buffer Zone Distances in Feet

| Broadcast Equivalent Application Rate (lbs Product/Acre) | Application Block Size (Acres) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 |
| 106 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 35 | 40 |
| 115 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 40 | 50 | 50 | 55 | 55 | 60 |
| 124 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 45 | 60 | 60 | 60 | 65 | 65 |
| 133 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 45 | 60 | 60 | 65 | 70 | 75 |
| 141 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 38 | 45 | 53 | 60 | 60 | 65 | 70 | 75 |
| 150 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 40 | 50 | 60 | 60 | 60 | 65 | 70 | 70 | 75 |
| 159 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 40 | 60 | 60 | 60 | 60 | 81 | 88 | 90 | 97 |
| 168 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 32 | 34 | 36 | 38 | 40 | 60 | 60 | 64 | 68 | 97 | 105 | 110 | 118 |
| 177 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 32 | 34 | 36 | 38 | 40 | 60 | 60 | 68 | 77 | 114 | 123 | 130 | 140 |
| 185 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 32 | 34 | 36 | 38 | 40 | 60 | 60 | 73 | 85 | 130 | 141 | 150 | 162 |
| 194 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 35 | 39 | 44 | 49 | 53 | 77 | 93 | 108 | 122 | 146 | 158 | 170 | 183 |
| 203 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 39 | 48 | 56 | 65 | 67 | 68 | 103 | 120 | 134 | 148 | 162 | 176 | 190 | 205 |
| 212 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 45 | 60 | 68 | 75 | 80 | 85 | 140 | 140 | 153 | 165 | 193 | 209 | 226 | 243 |
| 221 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 48 | 65 | 73 | 82 | 93 | 103 | 147 | 160 | 177 | 193 | 224 | 243 | 261 | 281 |
| 229 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 50 | 70 | 79 | 88 | 105 | 122 | 153 | 180 | 201 | 222 | 255 | 276 | 297 | 319 |
| 238 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 53 | 75 | 85 | 95 | 118 | 140 | 160 | 200 | 225 | 250 | 287 | 310 | 333 | 356 |
| 247 | 30 | 30 | 30 | 30 | 30 | 33 | 36 | 39 | 42 | 45 | 69 | 93 | 105 | 122 | 145 | 167 | 192 | 230 | 257 | 283 | 318 | 343 | 369 | 394 |
| 256 | 30 | 30 | 30 | 30 | 30 | 36 | 42 | 48 | 54 | 60 | 86 | 112 | 125 | 148 | 173 | 193 | 223 | 260 | 288 | 317 | 349 | 377 | 404 | 432 |
| 265 | 30 | 30 | 30 | 30 | 30 | 39 | 48 | 57 | 66 | 75 | 110 | 130 | 145 | 175 | 200 | 220 | 255 | 290 | 320 | 350 | 380 | 410 | 440 | 470 |
| 274 | 30 | 30 | 30 | 30 | 30 | 40 | 50 | 59 | 68 | 78 | 114 | 134 | 150 | 181 | 207 | 227 | 264 | 300 | 331 | 362 | 393 | 424 | 455 | 486 |
| 283 | 30 | 30 | 30 | 30 | 30 | 42 | 51 | 61 | 70 | 80 | 117 | 139 | 155 | 187 | 213 | 235 | 272 | 309 | 341 | 373 | 405 | 437 | 469 | 501 |
| 291 | 30 | 30 | 30 | 30 | 30 | 43 | 53 | 63 | 73 | 83 | 121 | 143 | 160 | 193 | 220 | 242 | 281 | 319 | 352 | 385 | 418 | 451 | 484 | 517 |
| 300 | 30 | 30 | 30 | 30 | 30 | 44 | 54 | 65 | 75 | 85 | 125 | 147 | 164 | 198 | 227 | 249 | 289 | 329 | 363 | 397 | 431 | 465 | 499 | 533 |
| 309 | 30 | 30 | 30 | 30 | 35 | 46 | 56 | 67 | 77 | 88 | 128 | 152 | 169 | 204 | 233 | 257 | 298 | 338 | 373 | 408 | 443 | 478 | 513 | 548 |
| 318 | 30 | 30 | 30 | 30 | 35 | 47 | 58 | 68 | 79 | 90 | 132 | 156 | 174 | 210 | 240 | 264 | 306 | 348 | 384 | 420 | 456 | 492 | 528 | 564 |
| 327 | 30 | 30 | 30 | 30 | 35 | 48 | 59 | 70 | 81 | 93 | 136 | 160 | 179 | 216 | 247 | 271 | 315 | 358 | 395 | 432 | 469 | 506 | 543 | 580 |
| 335 | 30 | 30 | 30 | 30 | 35 | 49 | 61 | 72 | 84 | 95 | 139 | 165 | 184 | 222 | 253 | 279 | 323 | 367 | 405 | 443 | 481 | 519 | 557 | 595 |
| 344 | 30 | 30 | 30 | 30 | 35 | 51 | 62 | 74 | 86 | 98 | 143 | 169 | 189 | 228 | 260 | 286 | 332 | 377 | 416 | 455 | 494 | 533 | 572 | 611 |
| 353 | 30 | 30 | 30 | 35 | 40 | 52 | 64 | 76 | 88 | 100 | 147 | 173 | 193 | 233 | 267 | 293 | 340 | 387 | 427 | 467 | 507 | 547 | 587 | 627 |
| 362 | 30 | 30 | 30 | 35 | 40 | 53 | 66 | 78 | 90 | 103 | 150 | 178 | 198 | 239 | 273 | 301 | 349 | 396 | 437 | 478 | 519 | 560 | 601 | 642 |
| 371 | 30 | 30 | 30 | 35 | 40 | 55 | 67 | 80 | 92 | 105 | 154 | 182 | 203 | 245 | 280 | 308 | 357 | 406 | 448 | 490 | 532 | 574 | 616 | 658 |
| 380 | 30 | 30 | 30 | 40 | 40 | 56 | 69 | 82 | 95 | 108 | 158 | 186 | 208 | 251 | 287 | 315 | 366 | 416 | 459 | 502 | 545 | 588 | 631 | 674 |
| 388 | 30 | 30 | 30 | 40 | 40 | 57 | 70 | 84 | 97 | 110 | 161 | 191 | 213 | 257 | 293 | 323 | 374 | 425 | 469 | 513 | 557 | 601 | 645 | 689 |
| 397 | 30 | 30 | 30 | 40 | 45 | 59 | 72 | 85 | 99 | 113 | 165 | 195 | 218 | 263 | 300 | 330 | 383 | 435 | 480 | 525 | 570 | 615 | 660 | 705 |

Table 3. Drip Buried Untarp Buffer Zone Distances in Feet

| Broadcast Equivalent Application Rate (lbs Product/Acre) | Application Block Size (Acres) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 |
| 39 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 44 | 61 | 77 | 88 |
| 48 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 47 | 66 | 84 | 102 | 120 | 138 | 165 | 193 | 220 | 242 |
| 57 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 66 | 105 | 140 | 176 | 212 | 248 | 286 | 325 | 363 | 396 |
| 68 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 61 | 94 | 124 | 154 | 187 | 220 | 275 | 330 | 358 | 385 | 429 | 473 | 517 | 556 |
| 76 | 30 | 30 | 30 | 30 | 30 | 32 | 36 | 41 | 45 | 50 | 103 | 157 | 187 | 217 | 250 | 283 | 358 | 432 | 473 | 514 | 564 | 613 | 663 | 707 |
| 85 | 30 | 30 | 30 | 30 | 30 | 36 | 45 | 54 | 63 | 72 | 146 | 220 | 250 | 281 | 314 | 347 | 440 | 534 | 589 | 644 | 699 | 754 | 809 | 858 |
| 96 | 30 | 30 | 30 | 30 | 30 | 52 | 76 | 100 | 124 | 149 | 206 | 264 | 314 | 363 | 410 | 457 | 531 | 605 | 657 | 710 | 765 | 820 | 875 | 924 |
| 105 | 30 | 32 | 37 | 42 | 47 | 72 | 97 | 123 | 148 | 173 | 238 | 303 | 359 | 415 | 459 | 503 | 589 | 674 | 734 | 795 | 850 | 905 | 960 | 1009 |
| 113 | 30 | 37 | 47 | 56 | 66 | 92 | 119 | 145 | 172 | 198 | 270 | 341 | 404 | 468 | 509 | 550 | 646 | 743 | 811 | 880 | 935 | 990 | 1045 | 1095 |
| 124 | 30 | 44 | 61 | 77 | 94 | 121 | 149 | 176 | 204 | 231 | 314 | 396 | 454 | 512 | 561 | 611 | 715 | 820 | 875 | 930 | 990 | 1051 | 1111 | 1166 |
| 133 | 30 | 50 | 72 | 94 | 116 | 145 | 174 | 203 | 232 | 261 | 353 | 446 | 510 | 575 | 627 | 679 | 787 | 894 | 968 | 1042 | 1119 | 1196 | 1273 | 1345 |
| 142 | 30 | 55 | 83 | 110 | 138 | 168 | 199 | 230 | 261 | 292 | 393 | 495 | 567 | 638 | 693 | 748 | 858 | 968 | 1062 | 1155 | 1249 | 1342 | 1436 | 1524 |
| 152 | 33 | 59 | 88 | 117 | 147 | 180 | 212 | 245 | 278 | 311 | 419 | 528 | 604 | 681 | 739 | 798 | 915 | 1033 | 1132 | 1232 | 1332 | 1431 | 1531 | 1625 |
| 161 | 33 | 62 | 94 | 125 | 156 | 191 | 226 | 261 | 295 | 330 | 446 | 561 | 642 | 723 | 785 | 848 | 972 | 1097 | 1203 | 1309 | 1415 | 1521 | 1627 | 1727 |
| 170 | 33 | 66 | 99 | 132 | 165 | 202 | 239 | 276 | 313 | 350 | 472 | 594 | 680 | 766 | 832 | 898 | 1030 | 1162 | 1274 | 1386 | 1498 | 1610 | 1723 | 1828 |
| 180 | 39 | 70 | 105 | 139 | 174 | 213 | 252 | 291 | 330 | 369 | 498 | 627 | 718 | 808 | 878 | 947 | 1087 | 1226 | 1345 | 1463 | 1581 | 1700 | 1818 | 1930 |
| 189 | 39 | 73 | 110 | 147 | 183 | 224 | 265 | 307 | 348 | 389 | 524 | 660 | 755 | 851 | 924 | 997 | 1144 | 1291 | 1415 | 1540 | 1665 | 1789 | 1914 | 2031 |

Table 4. Drip Tarp Greenhouse Buffer Zone Distances in Feet

| Application Block Size (square feet) | Buffer Zone (feet) |
|---|---|
| ≤ 25,000 | 25 |
| > 25,000 and ≤ 30,000 | 50 |
| > 30,000 and ≤ 35,000 | 75 |
| > 35,000 and ≤ 40,000 | 100 |
| > 40,000 and ≤ 45,000 | 115 |
| > 45,000 and up to 50,000 | 130 |

**Buffer Zone Credits**

The buffer zone distances for Tri-Form 60 EC applications may be reduced by the percentages listed below. Credits may be added, but credits cannot exceed 80%. Also the minimum buffer zone distance is 25 feet regardless of buffer zone credits available.

See https://www.epa.gov/soil-fumigants/tarps for a list of tarps that have been tested and determined to qualify for buffer reduction credits. Only tarps listed on this website qualify for buffer reduction credits.

- 15% reduction in buffer zone distance, IF potassium thiosulfate (KTS) is applied at a minimum rate of 300 pounds per acre.
- 15% reduction in buffer zone distance, IF ¼ to ½ inch of water is applied.
- 10% reduction in buffer zone distance, IF the organic content of the soil in the application block is ≥ 1% - 2%; 20% reduction in buffer zone distance, IF the organic content of the soil in the application block is >2% - 3%; and a 30% reduction in the buffer zone distance, IF the organic content of the soil in the application block is >3%.
- 10% reduction in buffer zone distance, IF the soil temperature is measured to be 50°F or less. Record temperature measurements at the application depth or 12 inches, whichever is shallower.
- 10% reduction in the buffer zone distance, IF the clay content of the soil in the application block is greater than 27%.

Examples of Buffer Zone Calculations with Credits Applied

If the buffer zone is 50 feet and the application qualifies for a buffer zone credit since the soil organic content is 1.5%, then the buffer zone can be reduced by 10%, i.e., reduced by 5 feet based on the following calculation: 50 feet – (50 feet x 10%) = 45 feet.

If the buffer zone is 50 feet and the application qualifies for two buffer zone credits since the soil organic content is 1.5% and the clay content is greater than 27%, then the buffer zone can be reduced by 20% (10% organic content credit + 10% clay content credit), i.e., reduced by 10 feet based on the following calculation 50 feet - (50 feet x 20%) = 40 feet.

## Posting Fumigant Buffer Zones

- Posting of a buffer zone is required unless there is a physical barrier that prevents bystander access to the buffer zone.
- Buffer Zone signs must be placed along or outside the perimeter of the buffer zone, at all usual points of entry and along likely routes of approach from areas where people not under the owner's control may approach the buffer zone.
    - Some examples of points of entry include, but are not limited to, roadways, sidewalks, paths, and bike trails.
    - Some examples of likely routes of approach include, but are not limited to, the area between a buffer zone and a roadway, or the area between a buffer zone and a housing development.
    - When posting, the certified applicator supervising the application must ensure compliance with all local laws and regulations.
- Buffer Zone signs must meet the following criteria:
    - The printed side of the sign must face away from the application block toward areas from which people could approach.
    - Signs must remain legible during the entire posting period and must meet the general standards outlined in the WPS for sign size, text size, and legibility (see 40 CFR §170.120).
    - Signs must be posted no sooner than 24 hours prior to the start of the application and remain posted until the buffer zone period has expired.
    - Signs must be removed within 3 days after the end of the buffer zone period.
    - Buffer Zone signs which meet the criteria above will be provided at points of sale for applicators to use. Templates may be downloaded from https://www.epa.gov/soil-fumigants/buffer-zone-sign-template.
    - The Buffer Zone signs must contain the following information:
        - The 'Do Not Walk' symbol
        - DO NOT ENTER/NO ENTRE
        - Chloropicrin/1,3-Dichloropropene TRI-FORM 60 EC Fumigant BUFFER ZONE
        - Contact information for the certified applicator in charge of the fumigation.

Exception: If multiple contiguous blocks are fumigated within a 14-day period, the entire periphery of the contiguous blocks' buffer zones may be posted. Buffer Zone signs must be posted no sooner than 24- hours prior to the start of the first application. The signs must remain posted until the last buffer zone period expires and signs must be removed within 3 days after the buffer zone period for the last block has expired.

## Restrictions for Difficult to Evacuate Sites

Difficult to evacuate sites are pre-K to grade 12 schools, state-licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.

- No fumigant application with a buffer zone greater than 300 feet is permitted within 1/4-mile (1320 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36- hour period following the end of the application.
- No fumigant application with a buffer zone of 300 feet or less is permitted within 1/8-mile (660 feet) of difficult to evacuate sites unless the site is not occupied by children from state-

licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.

## Emergency Preparedness and Response Measures

If the buffer zone is 25 feet, then the *Emergency Preparedness and Response Measures* are not applicable.

**Triggers for Emergency Preparedness and Response Measures:**
The certified applicator must either follow the directions under the *Fumigant Site Monitoring* section or follow the directions under the *Response Information for Neighbors* section if:

- the buffer zone is greater than **25 feet** but less than or equal to **100 feet**, and there are residences or businesses within **50 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **100 feet** but less than or equal to **200 feet**, and there are residences or businesses within **100 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **200 feet** but less than or equal to **300 feet**, and there are residences or businesses within **200 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **300 feet** or the **buffer zones overlap**, and there are residences or businesses within **300 feet** from the outer edge of the buffer zone.

**Fumigant Site Monitoring**
NOTE: *Fumigant Site Monitoring* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Response Information for Neighbors* section are not followed.

From the start of the application until the buffer zone period expires, a certified applicator or handler(s) under his/her supervision must:

- Monitor for sensory irritation in areas between the buffer zone outer perimeter and residences and businesses that trigger this requirement.
- Monitoring for sensory irritation must begin in the evening on the day of application and continue until the buffer zone period expires. Monitor a minimum of 8 times during the buffer zone period, including these periods:
    - 1 hour before sunset,
    - during the night,
    - 1 hour after sunrise, and
    - during daylight hours.

Implement the emergency response plan immediately if a handler monitoring experiences sensory irritation.

Handlers performing fumigant site monitoring tasks outside the buffer zone are not required to wear an air-purifying respirator.

**Response Information for Neighbors**
NOTE: *Response Information for Neighbors* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Fumigant Site Monitoring* section are not followed.

The certified applicator supervising the application must ensure that residences and businesses that trigger the requirement have been provided the response information at least 1 week before the application starts. The information provided may include application dates that range for no more than 4 weeks. If the application does not occur when specified, the information must be delivered again.

Information that must be included:

- The location of the application block.
- Fumigant(s) applied including the active ingredient, name of the fumigant product(s), and the EPA Registration number.
- Contact information for the applicator and property owner.
- Time period in which the application is planned to take place (must not range more than 4 weeks).
- Early signs and symptoms of exposure to the fumigant(s) applied, what to do, and who to call if you believe you are being exposed (911 in most cases).
- How to find additional information about fumigants.

The method used to share the response information for neighbors can be accomplished through mailings, door hangers, or other methods that will effectively inform the residences and businesses within the required distance from the edge of the buffer zone.

**Notice to State and Tribal Lead Agencies**

If your state and/or tribal lead agency requires notice, information must be provided to the appropriate state or tribal lead agency prior to the application. Please refer to https://www.epa.gov/soil-fumigants/complying-required-state-and-tribal-notification-soil-fumigations for a list of states and tribal lead agencies that require notice and information on how to submit the information.

The information that must be provided to state and tribal lead agencies includes the following:

- Location of the application blocks,
- Fumigant(s) applied including EPA registration number,
- Applicator and property owner contact information, and
- Time period that fumigation may occur.

**Emergency Response Plan**

The certified applicator must include in the FMP a written emergency response plan that identifies:

- Evacuation routes,
- Locations of telephones,
- Contact information for first responders and local/state/federal/tribal personnel, and
- Emergency procedures/responsibilities (e.g., adding water to the field, repairing tarps, fixing equipment, evacuating upwind) if:
    - there is an incident,
    - sensory irritation is experienced outside of the buffer zone and/or
    - there are equipment/tarp/seal failures or complaints, or other emergencies.

**Site Specific Fumigant Management Plan (FMP)**

Prior to the start of application, the certified applicator supervising the application must verify that a site-specific FMP exists for each application block. In addition, an agricultural operation fumigating multiple application blocks may format the FMP in a manner whereby all of the information that is common to all the application blocks is captured once, and any information unique to a particular application block or blocks is captured in subsequent sections.

The FMP must be prepared by the certified applicator, the site owner, registrant, or other party.

The certified applicator supervising the application must verify in writing (sign and date) that the site-specific FMP(s) reflects current site conditions before the start of application.

Each site specific FMP must contain the following elements:

- Certified Applicator Supervising the Application
    - Name,
    - Phone number,
    - Pesticide applicator license and/or certificate number,
    - Specify if commercial or private applicator,
    - Employer name,
    - Employer address, and
    - Date and location of completing EPA approved soil fumigant training program.
- General site information
    - Application block location (e.g., county, township-range-section quadrant), address, or global positioning system (GPS) coordinates
    - Verify if 1,3-dichloropropene has been used on this application block in the previous two years.
    - Confirm that there will be no occupied structures within 100 feet of the application block during the 7 consecutive day period after the application is complete.
    - Name, address, and phone number of application block owner
    - Site map, aerial photo, or detailed sketch showing:
        - application block location
        - application block dimensions
        - buffer zone dimensions
        - property lines
        - roadways
        - rights-of-ways
        - sidewalks
        - permanent walking paths
        - bus stops
        - wells
        - karst topography
        - nearby application blocks
        - surrounding structures (occupied and non-occupied)
        - locations of Buffer Zone signs, and
        - locations of difficult to evacuate sites within 1/4 mile of the application block if the buffer zone is greater than 300 feet, or 1/8 mile if the buffer zone is 300 feet or less

    - Comments
- General application information
    - Target application date/window,
    - Fumigant Product Name, and
    - EPA registration number.
- Tarp Plan (if a tarp is used)
    - Schedule for checking tarps for damage, tears, and other problems,
    - Minimum size of damage that will be repaired,
    - Factors used to determine when tarp repair will be conducted,
    - Equipment/methods used to perforate tarps,
    - Target dates for perforating tarps, and
    - Target dates for removing tarps.
- Soil conditions
    - Description of soil texture in application block,
    - Description of soil moisture, and
    - Method used to determine soil moisture.
- Buffer zones
    - Application method,
    - Injection depth,
    - Application rate from lookup table on label,
    - Application block size from lookup table on label,
    - Credits applied and measurements taken (if applicable),
        - Tarp brand name, Lot number, Thickness, Manufacturer, Batch number, Part number and Color
        - Potassium thiosulfate
        - Water seal
        - Organic matter content
        - Clay content
        - Soil temperature
    - Buffer zone distance, and
    - Description of areas in the buffer zone that are not under the control of the owner of the application block. If buffer zones extend onto areas not under the control of the owner, attach the written agreement and keep it with the FMP.
- Record Emergency Response Plan as described in the *Emergency Response Plan* section.
- Posting of Fumigant Treated Area and Buffer Zone
    - Person(s) who will post and remove (if different) Fumigant Treated Area and Buffer Zone signs, and
    - Location of Buffer Zone signs.
- Emergency Preparedness and Response Measures (if applicable)
    - Fumigant site monitoring (if applicable):
        - When and where it will be conducted
    - Response information for neighbors (if applicable):
        - List of residences and businesses informed,
        - Name and phone number of person providing information, and
        - Method of providing the information.
- State and/or tribal lead agency advance notification (if state and/or tribal lead agency requires notice, provide a list of contacts that were notified and date notified)

- Plan describing how communication will take place between the certified applicator supervising the application, the owner, and other on-site handlers (e.g., tarp perforators/removers, irrigators) for complying with label requirements (e.g., buffer zone location, buffer zone start and end times, timing of tarp perforation and removal, PPE).
    - Name and phone number of persons contacted by the certified applicator, and
    - Date contacted.
- Handler (including Certified Applicators) Information and PPE
    - Names, addresses and phone numbers of handlers
    - Names, addresses, and phone numbers for employers of handlers
    - Tasks that each handler is authorized and trained to perform
    - Date of PPE training for each handler
    - Applicable handler PPE including:
        - Long-sleeved shirts/long pants, shoes, socks
        - Chemical-resistant apron
        - Chemical-resistant footwear
        - Protective eyewear (not goggles)
        - Chemical-resistant gloves
        - Chemical-resistant suit
        - Chemical-resistant headgear
        - Air-purifying respirators
            - Respirator make, model, type, style, size, and cartridge/canister type
        - SCBAs
            - Respirator make, model, type, style, size
        - Other PPE
    - For handlers: Confirmation of receipt of Fumigant Safe Handling Information.
    - For handlers designated to wear respirators (air-purifying respirator or SCBA):
        - date of medical qualification to wear a respirator,
        - date of respirator training, and
        - date of fit-testing for the respirator.
    - Unless exempted in the *Protection of Handlers* section, verify that:
        - handlers have the appropriate respirators and cartridges/canisters during handler activities, and
        - the employer has confirmed that the appropriate respirator and cartridges/canisters are immediately available for each handler who will wear one.
- Air monitoring plan
    - If sensory irritation is experienced, indicate whether operations will cease or operations will continue with use of an air-purifying respirator
    - For monitoring the breathing zone:
        - Representative handler tasks to be monitored,
        - Monitoring equipment to be used, and
        - Timing of the monitoring.
- Good Agricultural Practices (GAPs)
    - Identify (e.g., list, attach applicable label section) applicable mandatory GAPs.
- Ensure that labels and MSDS are on-site and readily available for employees to review.

**Record-Keeping Procedures**
The owner of the application block as well as the certified applicator supervising the application must keep a signed copy of the site-specific FMP for 2 years from the date of application.
For situations where an initial FMP is developed and certain elements do not change for multiple application blocks (e.g., applicator information, certified applicator, handlers, record-keeping procedures, emergency procedures) only elements that have changed need to be updated in the site-specific FMP provided the following:

- The certified applicator supervising the application has verified that those elements are current and applicable to the application block before it is fumigated.
- Record-keeping requirements are followed for the entire FMP (including elements that do not change).

The certified applicator must make a copy of the FMP immediately available for viewing by handlers involved in the application. The certified applicator or the owner of the application block must provide a copy of the FMP to any local/state/federal/tribal enforcement personnel who request the FMP. In the case of an emergency, the FMP must be made immediately available when requested by local/state/federal/tribal emergency response and enforcement personnel. The certified applicator supervising the application must ensure the FMP is at the application block during all handler activities.

Within 30 days after the application is complete, the certified applicator supervising the application must complete a Post-Application Summary.

**Post-Application Summary**

The Post-Application Summary must contain the following elements:

- Actual date and time of the application
- Application rate
- Size of application block
- Weather Conditions
    - Summary of the National Weather Service weather forecast during the application and the 48- hours after the application is complete including:
        - wind speed, and
        - air stagnation advisory (if applicable).
    - Forecast must be checked on the day of, but prior to the start of the application, and on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Tarp damage and repair information (if applicable):
    - Date of tarp damage discovery,
    - Location and size of tarp damage,
    - Description of tarp/tarp seal/tarp equipment failure, and
    - Date and time of tarp repair completion.
- Tarp perforation/removal details (if applicable):
    - Date and time tarps were perforated,
    - Date and time tarps were removed, and
    - Record if tarps were perforated and/or removed early. Describe the conditions that caused early tarp perforation and/or removal.
- Complaint details (if applicable):
    - Person filing complaint (e.g., on-site handler, person off-site),

    - If off-site person, name, address, and phone number of person filing complaint, and
    - Description of control measures or emergency procedures followed after complaint.
- Description of incidents (including date and time), equipment failure, or other emergency and emergency procedures followed (if applicable).
- Communication between applicator, owner and other on-site handlers (if applicable)
    - Record additional dates persons were contacted.
- Air monitoring results:
    - Date(s), time(s), and location(s) of sensory irritation or air sample measurement with the direct read detection device,
    - Handler name and task/activity,
    - Air concentration measurement with direct read detection device (if applicable), and
    - Resulting action/comments (e.g. cease operations, continue operations with air-purifying respirators, implement emergency response plan).
- Drip application monitoring:
    - Record monitoring date(s) and time(s)
    - Name of person(s) monitoring
    - Record observations:
        - Is the equipment functioning properly,
        - Description of corrective action (if applicable), and
        - Other comments.
- Fumigant Treated Area and Buffer Zone Signs:
    - Dates of posting and removal.
- Any deviations from the FMP (e.g. changes in emergency response actions, changes in handler information, changes in handlers responsible for completing emergency tasks).

**Record-Keeping Procedures**

The owner of the application block, as well as the certified applicator supervising the application, must keep a signed copy of the Post-Application Summary for 2 years from the date of application.

## Spill and Leak Procedures

Evacuate everyone from the immediate area of the spill or leak. For entry into affected area to correct the problem, wear the personal protective equipment specified in the *Personal Protective Equipment (PPE)* section. Move leaking or damaged containers outdoors or to an isolated location. Observe strict safety precautions. Work upwind, if possible. Allow spilled fumigant to evaporate or to absorb onto vermiculite, dry sand, earth, or similar absorbent material. Dispose of contaminated material on site or at an approved disposal facility. Only correctly trained and PPE-equipped handlers are permitted to perform such cleanup. Do not permit entry into the spill or leak area by any other person until the concentration of chloropicrin is measured to be less than 0.15 ppm.

## Storage and Disposal

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

**Pesticide Storage:** Store in a cool, dry, well-ventilated area under lock and key. Post as a pesticide storage area.

**Pesticide Disposal:** Pesticide wastes are toxic. Improper disposal of excess pesticide and rinsates is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance. Because 1,3-dichloropropene is corrosive under certain conditions, flush all application equipment with fuel oil, kerosene or a similar type of petroleum solvent immediately after use. Fill pumps and meters with new motor oil or a 50% motor oil/fuel oil mixture before storing. Do not use water. Dispose of rinsate by applicable Federal, State and local regulations. Never introduce rinsate or unused product into surface or underground water supplies.

**Container Handling:** Persons moving, handling, or opening containers must wear the personal protective equipment specified in the *Personal Protective Equipment (PPE*) section of this labeling. Open container only in a well-ventilated area. Remove the valve protection bonnet and safety cap only when fumigant is about to be removed from the cylinder. The safety cap and valve protection bonnet must be replaced when the cylinder is not in use. Do not subject cylinders to rough handling, or to abnormal mechanical shock such as dropping, bumping, dragging, or sliding. Do not use ropes, slings, hooks, tongs, and similar handling devices for unloading cylinders. To transport heavier cylinders, use a hand truck, fork truck, or similar device to which cylinders can be firmly secured.

**Refillable Container:** Only the registrant is authorized to refill cylinders. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**Return of Containers:** Cylinders are the property of the manufacturer or distributor and must be returned promptly by collect freight. Do not ship cylinders without safety caps or valve protection bonnets.

**Container Disposal:** To clean the container before final disposal, remove any remaining liquid from the container, using dry air pressure if necessary. Allow container to aerate for at least 5 days. After aeration, wash container using hot water; then offer container to qualified reconditioner or dispose of as directed by State or local regulations.

## Warranty Disclaimer

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

**Inherent Risks of Use:** It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.) abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of the seller. To the extent consistent with applicable law, all such risks shall be assumed by buyer.

**Limitation of Remedies:** To the extent consistent with applicable law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at the company's election, one of the following: (1) Refund of purchase price paid by buyer or user for product bought, or (2) Replacement of amount of product used. To the extent consistent with applicable law, the company shall not be liable for losses or damages resulting from handling or use of this product unless the company is promptly notified of such loss or damage in writing. To the extent consistent with applicable law, the company shall not be liable for consequential or incidental damages or losses. The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of the company or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

# Tri-Form 60 EC

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