Proposal to EPA to Address Dicamba Drift from Particle Drift and Supporting Information

Steven Claussen, President
Willmar Fabrications, Red-ball Hooded Sprayers
August 20, 2020

Section 1. Proposal

- Require future applications of OTT dicamba products with quality hooded sprayers in areas with a history of consistent high wind speeds and dicamba drift incidents in order to mitigate particle drift in those areas, and require other mitigation measures as appropriate.

- Rationale as supported by information on the following slides:
  - Regions with consistent higher wind speeds are associated with large numbers of dicamba drift incidents; upper mid-west states consistently have higher winds and drift incidents.
  - Multi-year weather data show applicators have insufficient time to make practical and safe applications to treat an expanding acreage of soybeans.
  - Particle drift incidents may be caused by applications using standard (open) boom sprayers during wind/gusts far exceeding 10 mph.
  - Multiple studies demonstrate hooded sprayers can significantly reduce particle drift of fines which may also contribute to inversions.
  - This restriction would not be applicable to other regions without consistent high winds and dicamba incidents.

Proposal Execution

- Dicamba labels can provide physical specs for quality spray hoods thereby allowing multiple manufacturers/providers.
- Most soybean acres in these states are treated by custom applicators; average sprayer covers 10,000 acres
  - Estimated 13.4 million acres Xtend soybeans in high wind (wind tower) area of upper mid-west
  - Would require 1,300 hooded sprayers
  - Total cost $26.8 million ($20K/sprayer)
- For more favorable pricing, Wilmar can partner with dicamba registrants.
- Sufficient lead time is critical to meet manufacturing and roll-out needs.

Section 2. Number of soybean acres in upper mid-west states is expanding, and planting -- emergence data.

Soybean Acres (millions) by USDA District for 5 States

Crop district	Minnesota	Iowa	Missouri	Illinois	Indiana	Total
N west	1.5	1.6	0.9	1.	0.7	
W central	1.6	1.6			0.7	
Central	1.1	1.4		1.3M		
S west	1.4	1.0				
S central	1.3	0.6				
N central		1.3			1.2	
East				1.4		
N east				0.7		
District totals	6.9	7.5	0.9	4.4	2.6	22.3
State total	7.8	10.0	5.1	10.0	5.4	38.3
% acres in high wind (Wind Tower) area	88%	75%	18%	44%	48%	58%

2020 Soybean Planting Data (5-year ave.)

	Acres intent to plant	May 10 emerged	Acre emerged May 24 spray	Increment emerged May 17	New acres emerged June 1 spray	Increm. emerged May 24	New acres Emerged June 8 spray
Illinois	10,500	10% 6%	1,050 M	11% 10%	1,155 M 1,050		
Indiana	5,400	7% 2%	378	11% 7%	594 378		
Iowa	9,300	6% 1%	558	19% 7%	1,767M 650		
Minn.	7,400	5% 1%	370	13% 8%	962 592		
Neb.	5,100	6% 1%	306	23% 7%	1,173M 357		
Totals	37,700	7% 2%	2,700M 750	15% 8%	5,700M 3,000M		

3x the acres to spray. Rain, wet fields, and wind could be a problem.

Section 3. Wind and rain data for dicamba application window suggests applicators have about 25% of window for legal applications in this region.

Iowa Spray Periods

Percent of available spray periods for 2018 and 2020 between June 1 – 30 (60 periods) and 2019 between June 23 – July 15 (46 periods) when wind was 3 – 10 mph and no gust over 10 mph.

City	2018 (June 1 – 30)	2019 (June 23 – July 15)	2020 (June 1 - 30)
Atlantic	18%	28%	15%
Le Mars	23%	13%	22%
Mason City	18%	33%	12%
Mt. Pleasant	50%	20%	17%

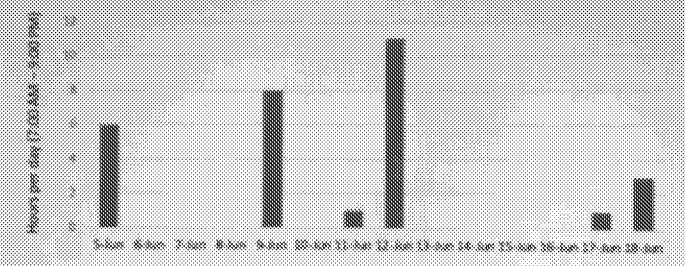
Iowa Wind Gusts in June 2020

Spray periods are lost due to wind, rain, wet fields.

June 1 – 30 **60 total possible spray periods:** **6 am – 12 pm and 12 pm – 6 pm**	Atlantic	Le Mars	Mason City	Mt. Pleasant	Total
• Acceptable periods when wind was 3-10 mph, no rain or wet fields, and temps below 85°	9	13	7	10	39
• Percent of periods able to spray	15%	22%	12%	17%	17%
• Days available to spray	6	8	5	6	25
• Days when wind gust above 10 mph	6	7	4	4	21
• Percent with gust	100%	88%	80%	67%	84%
• Maximum wind gust recorded	25 mph	28 mph	31 mph	29 mph	28 mph

Wind speeds collected from Weather Underground (http://www.wunderground.com)
Rainfall collected from plotted fields on Climate Fieldview (https://climate.com).

Daytime hours with wind speed between 3 and 10 MPH.



IOWA STATE UNIVERSITY
Extension and Outreach

Kanawha, IA (North central Iowa)
June 5-18, 2020

Hours per day with wind speeds suitable for dicamba application on soybean.

REDBALL

Minnesota Spray Periods

Percent of available spray periods for 2018 and 2020 between June 1 – 30 (60 periods) and 2019 between June 23 – July 15 (46 periods) when wind was 3 – 10 mph and no gust over 10 mph.

City	2018 (June 1 – 30)	2019 (June 23 – July 15)	2020 (June 1 - 30)
Benson	20%	29%	30%
Fergus Falls	37%	29%	23%
Mankato	12%	29%	27%
Redwood Falls	20%	21%	25%
Rochester	28%	25%	17%

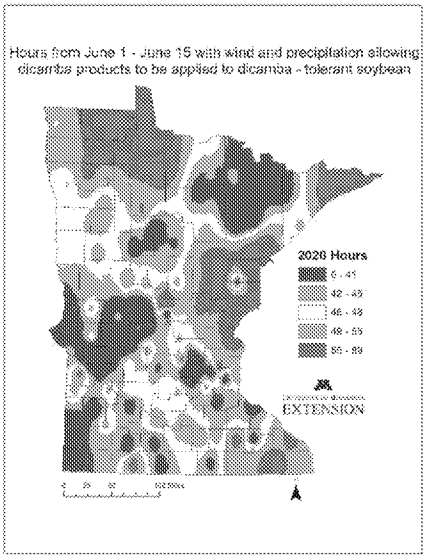
Minnesota Wind Gusts in June 2020

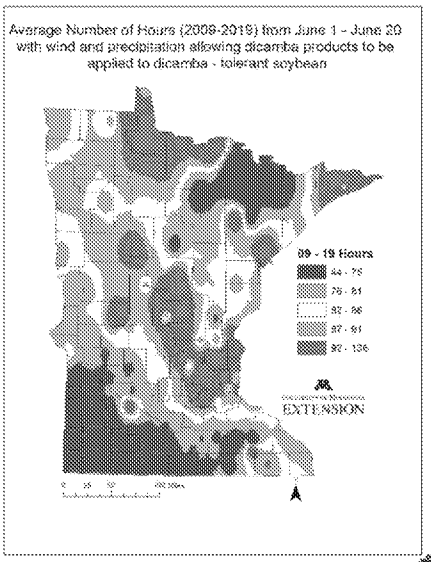
Spray periods are lost due to wind, rain, wet fields.

June 1 – 30 60 total possible spray periods: 6 am – 12 pm and 12 pm – 6 pm	Benson	Fergus Falls	Mankato	Redwood Falls	Rochester	Total
• Acceptable periods when wind was 3-10 mph, no rain or wet fields, and temps below 85°	18	14	16	15	10	73
• Percent of periods able to spray out of 60	30%	23%	27%	25%	17%	24%
• Days available to spray	12	10	11	9	8	50
• Days when wind gust occurred above 10 mph	7	7	4	6	3	27
• Percent with gust	58%	70%	36%	67%	38%	54%
• Maximum wind gust recorded	28 mph	25 mph	22 mph	23 mph	29 mph	25 mph

Wind speeds collected from Weather Underground (http://www.wunderground.com)
Rainfall collected from plotted fields on Climate Fieldview (https://climate.com).

Minnesota Sprayable Hours—2020 and 10-Yr Ave.





Note: Key values are different.

Illinois Spray Periods

Percent of available spray periods for 2017, 2018 and 2020 between June 1 – 30 (60 periods) and 2019 between June 23 – July 15 (46 periods) when wind was 3 – 10 mph and no gust over 10 mph.

City	2017 (June 1 – 30)	2018 (June 1 – 30)	2019 (June 23 – July 15)	2020 (June 1 - 30)
Belleville	40%	58%	43%	N/A
Bloomington	23%	27%	28%	25%
Champaign	32%	25%	48%	22%
Kankakee	23%	30%	24%	15%
Springfield	N/A	38%	46%	22%

Illinois Wind Gusts in June 2020

Spray periods are lost due to wind, rain, wet fields and temperatures 85° or higher.

June 1 – 30 60 total possible spray periods: 6 am – 12 pm and 12 pm – 6 pm	Bloomington	Champaign	Edwards	Kankakee	Springfield	Total
• Periods when wind was 3-10 mph, no rain or wet field and temps below 85°	15	13	18	9	13	68
• Percent of periods able to spray out of 60	25%	22%	30%	15%	22%	23%
• Days available to spray	11	9	10	7	9	46
• Days when wind gust occurred above 10 mph	5	5	7	3	4	24
• Percent with gust	45%	56%	70%	43%	44%	52%
• Maximum wind gust recorded	25 mph	30 mph	24 mph	22 mph	23 mph	25 mph

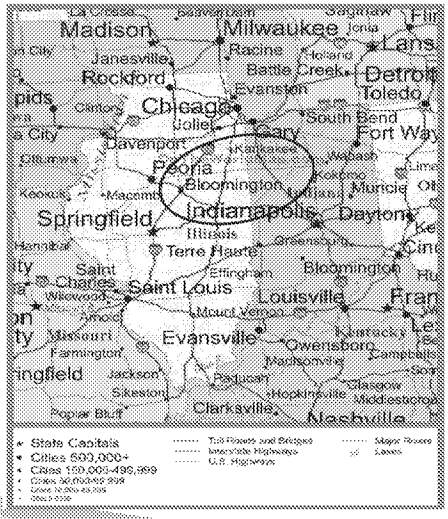
Wind speeds collected from the National Weather Service (http://www.weather.gov) and/or Weather Underground (http://www.wunderground.com).
Rainfall collected from plotted fields on Climate Fieldview (https://climate.com).

Summary of weather data

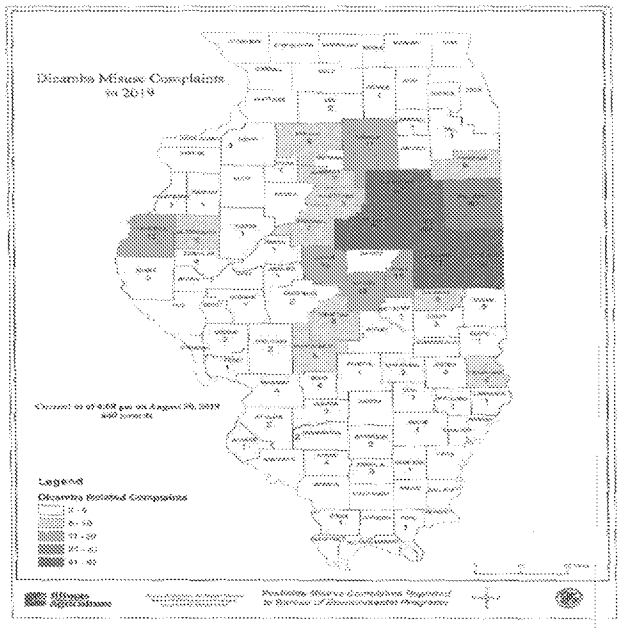
- Soybeans were planted at pace significantly above 5-year average which required more acres to spray during early - mid June.
- Applicators had limited time to spray crop/weed at label height resulting in applicators potentially needing to spray when wind may be above label speed of 10 mph.
- Data shows there were very few periods in June to spray on label and even on those "good" days there were significant wind gusts that occurred above 10mph.

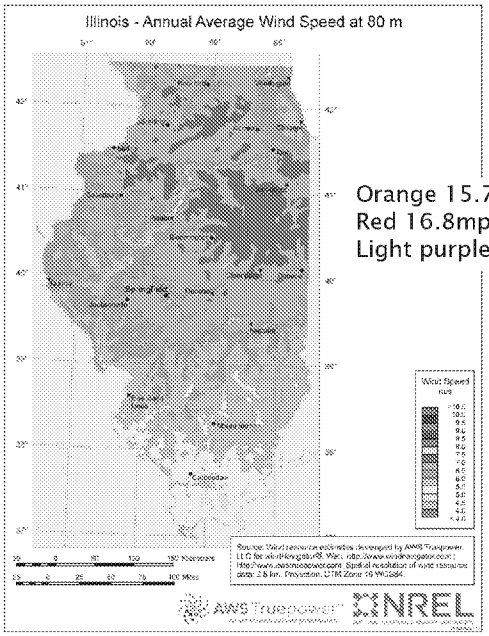
Section 4. Illinois and Indiana have high dicamba drift incidents and these and neighboring states have high consistent wind speeds; hence, locations of wind towers. The maps of Illinois dicamba incidents and Illinois wind speeds overlap.

Primary drift area in Illinois and Indiana 2019

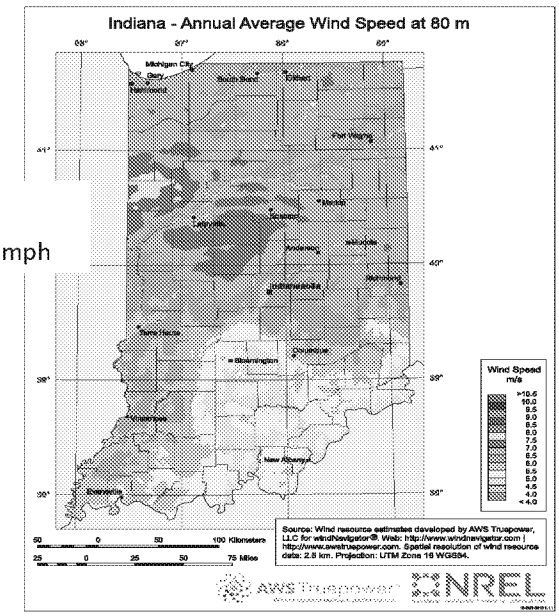


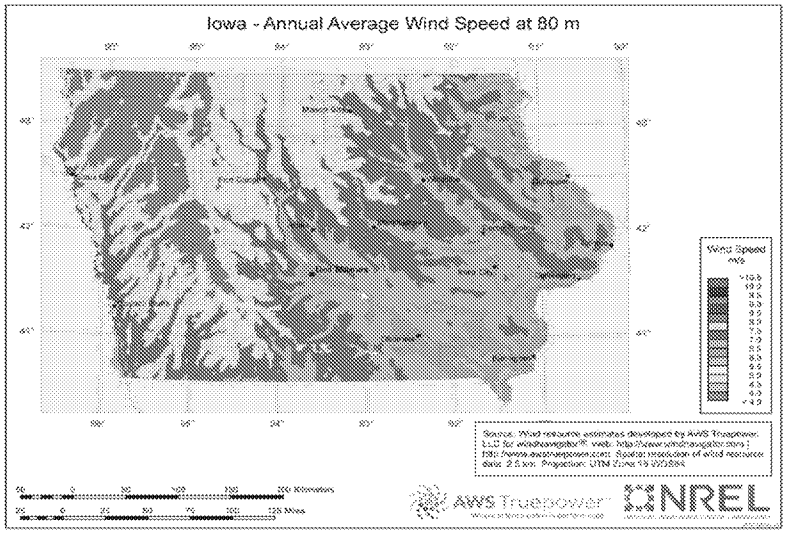
Illinois Dicamba Misuse Complaints, 2019





Orange 15.7mph
Red 16.8mph
Light purple 17.9mph





Red 16.8 mph
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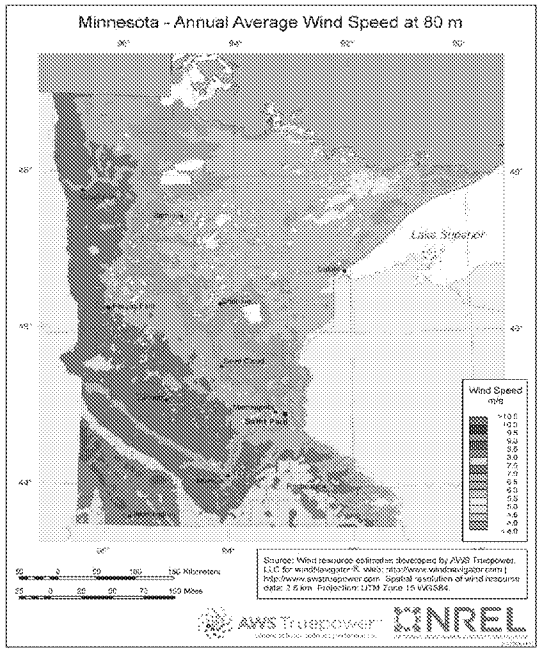
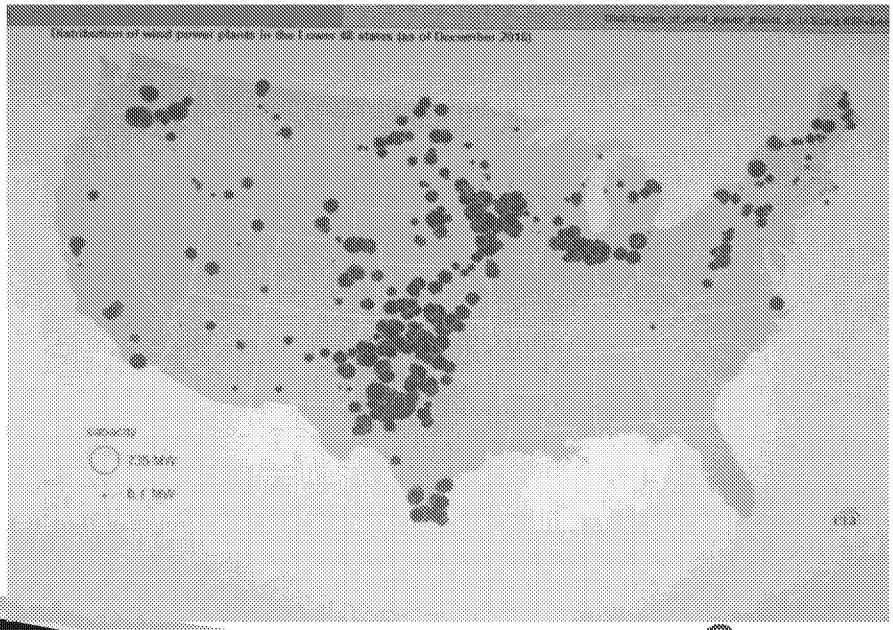


Red 16.8 mph
Orange 15.7 mph

Locations of wind towers in US.
Note Illinois and Indiana and other mid-west states.



Summary

- Quality hooded sprayers can significantly mitigate dicamba particle drift that may contribute to damage incidents, especially in high wind areas. Adding hoods to use restrictions would change the risk/benefit assessment for future dicamba registration decisions.
- Dicamba is a critical tool to control the growing issue of glyphosate resistant weeds. OTT applications are needed to address this issue.
- Unfavorable weather severely constrains applicators to make safe applications pressuring applicators to make unsafe/illegal applications to meet business demands.
- There is a relationship between high wind areas and drift incidents.
- Labels that require hooded sprayers in “drift prone areas” will help address drift issues while allowing growers/applicators in non drift areas to continue with current application practices that are sufficient.
- The cost for hoods is far less then the cost of poor weed control, costs of drift impact on sensitive crops, or costs to agriculture without efficacious herbicides.