

Drift Experiences in Iowa & Beyond

11-5-16

UNL - Lincoln, NE

Michael L. White
ISU Extension Viticulture Specialist
909 East 2nd Ave. Suite E
Indianola, Iowa 50125-2892
Cel: 515-681-7286
E-mail: mlwhite@iastate.edu



About Us Midwest Grape and Wine Industry Institute

Helping support the state's evolving grape and wine industry, because the potential economic opportunities in wineries, value-added agriculture and tourism are limitless.



Research, Quality, Training

Get more information and register online here for the Wine Filtration and Oxygen Management Workshop on Monday, October 18, 2016 at Iowa State University.



The Midwest Grape and Wine Industry Institute was formed as a result of the state's evolving grape & wine industry. Goals of the Institute include:

- Conduct research to evaluate cold-hardy grape varieties that can thrive in the Midwest
- Conduct enology (the science of wine & wine making) research
- Develop a wine quality award program that will provide wine buyers a quality-assurance stamp of approval
- Establish an outreach program to the industry by training a team of specialists
- Partner with community colleges to develop job training programs specific to growing grapes and making wine

Wineries and Vineyards in Iowa

Presently, there are 97 licensed wineries and over 300 vineyards (totaling 1,200+ acres) in Iowa. The potential economic opportunities in wineries, value-added agriculture and tourism are limitless.



**Established
9-26-06**

Now Hiring!

We are currently looking to hire an Enology Field Specialist/Winemaker. To apply, please visit: <https://www.iastatejobs.com/postings/21822> For guaranteed consideration, submit online applications by November 1, 2016.

Contact Us

2312 Food Sciences Building
Ames, IA
50011-1061
Phone: 515-294-3308
Fax: 515-294-4362
E-mail: murlf@iastate.edu

Office Hours:

Normal office hours are weekdays- 8:00am to 5:00pm. However, hours may vary due to staff time in the field, holidays, etc. So please call in advance when you are planning to ship samples or visit.

Find Us
Or find us on Facebook:




Support the
Midwest Grape and Wine
Industry Institute

What is Spray Drift

The EPA defines spray or dust drift as:
"the physical movement of pesticide droplets or particles through the air at the time of pesticide application or soon thereafter from the target site to any non- or off-target site. Spray drift shall not include movement of pesticides to non- or off-target sites caused by erosion, migration, volatility, or windblown soil particles that occurs after application or application of fumigants unless specifically addressed on the product label with respect to drift control requirements."

Current Iowa Law

 **21—45.27(206)** Use of high volatile esters. The use of high volatile esters formulations of **2,4-D** and 2,4,5-T, the alcohol fraction of which contains five or fewer carbons, shall be prohibited in the counties of Harrison, Mills, Lee, Muscatine and that part of Pottawattamie county west of Range 41 West of the 5th P.M. to become effective upon filing.



IDALS Pesticide Bureau



What They Do?

Pesticide Product Registration
Commercial Pesticide Applicator Licensing
Private Pesticide Applicator Licensing
Iowa Aerial Applicator Directory
Agricultural Consultants Directory

Pesticide Dealer Licenses
Sensitive Crops Directory
Pesticide Applicator Exams
Pesticide Investigations
8 inspectors

**Contact your state Pesticide
Bureau to report a pesticide drift
incident.**



Pesticide Bureau

**Iowa Department of Agriculture &
Land Stewardship**

515-281-8591

pesticides@iowaagriculture.gov



Don't delay in turning in a pesticide drift complaint. Most state department's of agriculture have 30 to 45 day drift complaint windows. ASAP is BEST!

Pesticide Drift is Not Trespassing

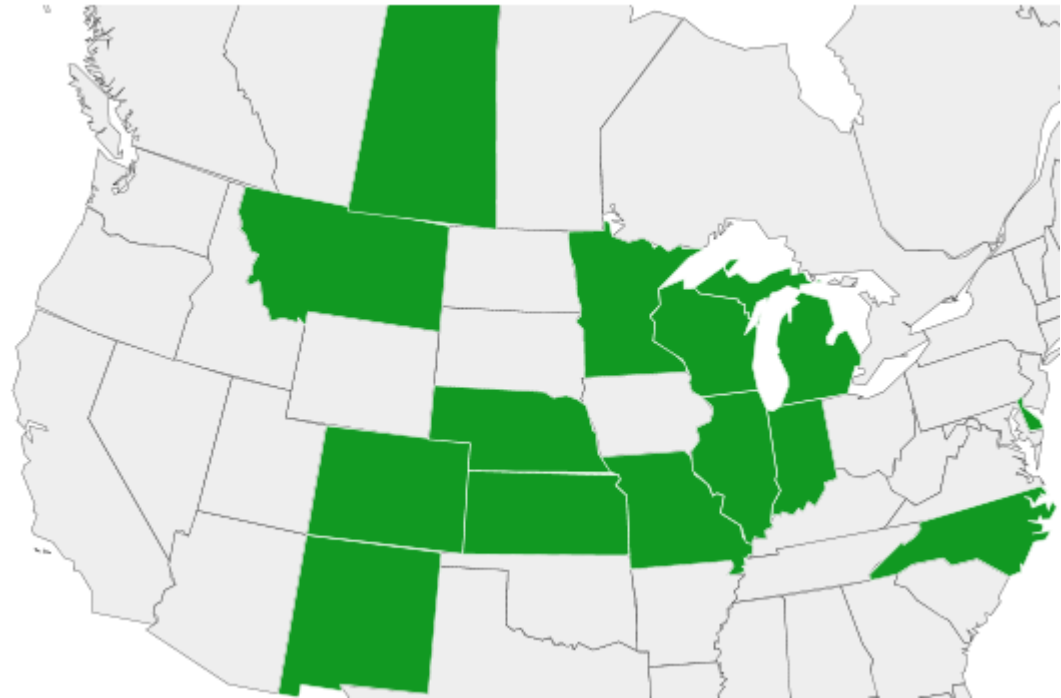
Pesticide that drifts onto an organic farm is negligence -- not trespassing -- the *Minnesota Supreme Court* said Wednesday

Environmental lawyers said the decision provides important clarification of the legal recourse for Minnesotans who have been harmed by drifting pollution, anything from pesticide to soot. Rather than simply proving that drift has occurred, which is what the Appeals Court decided in the pesticide case, plaintiffs must prove negligence and, in order to win damages, they also have to prove harm.

Supreme Court rejects pesticide trespass 8-1-12 Minneapolis Star Tribune:
<http://www.startribune.com/local/164607876.html?refer=y>

Iowa will soon be moving away from their Sensitive Crops Directory to get on the FieldWatch / DriftWatch / BeeCheck Program

Field Watch / DriftWatch / BeeCheck States



The Sensitive Crops Directory was set up within the Iowa Department of Agriculture & Land Stewardship in 2008



Dow AgroSciences

- **New 2,4-D Choline chemistry to be pre-mixed with glyphosate and glufosinate for GMO herbicide tolerant corn, soybeans and cotton.**
- **2,4-D Choline chemistry shown to have 90% less volatility than the conventional 2,4-D low volatile ester**
- **Enlist Cotton approved in January of 2016.
Approved for export in Aug. 2016.**
- **Herbicide available for Corn & Soybeans in 2016 but neither have been approved by the Chinese for export.**



Engenia – New low volatile dicamba for release in 2014 on soybeans

Engenia will use BAPMA, N, N-Bis-(aminopropyl) methylamine. BAPMA “is a tridentate amine, that provides strong and effective binding of dicamba spray residues.

40% less volatile than currant formulations

Roundup Ready 2 Xtend herbicide application pending EPA approval for 2017 application to Roundup Ready 2 Extend soybeans.

Low volatile dicamba & glyphosate & polyplastic polymer in mix to reduce volatility of new dicamba over 90%



Ag Dealer & Farmer Liability Insurance will determine the success of the Dow – Enlist and Monsanto – Roundup Ready 2 Extend herbicide programs.

If there is a problem?



Drift Claims:



Premiums:



Deductible per claim:



Applicator Cost:



Farmer Cost:





**Pesticide Drift can be a
VERY EMOTIONAL
issue.**

Farmer Allegedly Killed Over Dicamba

Confrontation Over Herbicide Drift Leads to Arkansas Shooting Death

OMAHA (DTN) -- A northeast Arkansas cotton, soybean and corn farmer was allegedly shot to death Thursday afternoon in an argument over dicamba herbicide drift.

Chris Clayton , DTN Ag Policy Editor
10/28/2016 | 5:09 PM CDT

Response to Wine Grapes (*Vitis* spp.) Cultivars to Simulated Drift Rates of 2,4-D and Dicamba with/without Glyphosate - Mohsen Mohseni-Moghadam, Scott Wolfe, Imde Dami and Douglas Doohan – Ohio State University. Weed Technology Vol. 30 issue 3, July – Sept. 2016

Glyphosate



2,4-D

Dicamba



Control

Table 1.

The effect of simulated drift rates of 2,4-D, dicamba, or glyphosate on injury determined visually and shoot length of Riesling, Chardonnay, Chardonel, Vidal blanc, and Traminette grapevines in greenhouse trial,^a averaged over grape cultivars.

- [Image of typeset table](#)

Herbicide	Rate	Injury ^b			Shoot length ^b		
		7 DAT ^c	42 DAT	357 DAT	7 DAT	42 DAT	357 DAT
	g ha ⁻¹	%			cm		
2,4-D	2.8	6 d	37 c	4 b	59 a	124 ab	74 a
2,4-D	8.4	13 c	29 d	0 b	50 ab	88 d	69 a
2,4-D	28	31 a	66 a	35 a	33 c	22 e	50 b
Dicamba	1.9	2 e	10 e	0 b	51 ab	118 bc	77 a
Dicamba	5.6	6 d	36 c	0 b	51 ab	110 c	70 a
Dicamba	19	15 b	47 b	0 b	46 b	87 d	75 a
Glyphosate	2.8	2 e	6 ef	0 b	56 a	138 a	76 a
Glyphosate	8.4	4 e	3 f	0 b	53 ab	117 bc	73 a
Glyphosate	28	4 c	3 ef	0 b	56 a	120 bc	69 a
Untreated control	—	0 f	0 f	0 b	58 a	136 a	71 a
LSD (0.05%)		2	7	9	9	14	10

^a By 42 DAT, two Chardonel, one Chardonnay, two Riesling, and three Vidal blanc vines, all treated with 2,4-D at 28 g ha⁻¹, were recorded as 100% injury.

^b Means with the same letter are not significantly different according to Fisher's protected LSD test ($\alpha = 0.05$).

^c Abbreviation: DAT, days after treatment.

Table 2.

The effect of simulated drift rates^a of 2,4-D, dicamba, and glyphosate on injury determined visually and shoot length of Riesling, Chardonnay, Chardonel, Vidal blanc, and Traminette grapevines. Means reported for “Type of grape” are averaged across all treatments within the three hybrid and two *vinifera* varieties.

- [Image of typeset table](#)

Variety ^b	Injury ^c			Shoot length ^c		
	7 DAT ^d	42 DAT	357 DAT	7 DAT	42 DAT	357 DAT
	%			% of control		
Chardonel	8 b	24 ab	6	69	79	117
Chardonnay	10 a	28 a	2	89	77	96
Riesling	9 a	27 a	3	80	66	106
Traminette	7 b	19 c	2	98	80	104
Vidal blanc	9 ab	22 bc	6	79	79	96
LSD (5%)	2	5	NS	—	—	—
Type of grape						
French hybrids	8 b	22 b	5	84	79	105
<i>Vinifera</i>	9 a	27 a	3	84	71	101
LSD (5%)	1	3	NS	—	—	—

^a Herbicide treatments included 1/30, 1/100, and 1/300 of the recommended field rate of 840, 560, and 840 kg ha⁻¹ for 2,4-D, dicamba, and glyphosate, respectively.

^b The average shoot length for untreated control vines at 7 DAT were 63, 65, 65, 52, and 61 cm, at 42 DAT were 113, 150, 154, 125, and 136 cm, and at 357 DAT were 117, 96, 106, 104, and 96 cm for Chardonel, Chardonnay, Riesling, Traminette, and Vidal blanc, respectively.

^c Means with the same letter are not significantly different according to Fisher’s protected LSD test ($\alpha = 0.05$).

^d Abbreviations: DAT, days after treatment; NS, not significant ($P = 0.05$).

Oh yeah! Well, it ain't you dumb &\$%^@!

It sure looks like pesticide drift to me!



Potato Leafhopper,
IA 10-31-12



Think, before pointing fingers!



Show & Tell Story Time

**A selection of vineyard pesticide
drift experiences.**



**Captan / Abound /
Rally injury to Norton
grapes. KS 4-19-16**



Captan injury to Vignoles grapes. Keokuk Co, IA 6-26-09



**Captan labels typically say
“NO” to oils or surfactants,
solvent based pesticides or
oranic phosphates.**



**Captan / Rally /
Assail injury to
Frontenac.
Warren Co. IA
7-25-15**



**Pristine injury to Concord,
Winneshiek Co., IA 6-22-16**



**Pristine injury to Concord
Univ. of MO. 6-17-13**

Pristine Label: DO NOT use on Concord or Noiret (NY73.0136.17) due to foliar injury. Possible foliar injury could occur to Worden, Fredonia, Niagara, Steuben, Rougeon or related grape varieties

**Marion Co. IA
10-17-16**



Marion Co. IA 5-10-05



**Fall and Spring
Frost Damage.**

Kossuth Co. IA 5-9-10



6-26-09



7-2-09



Eutypa dieback or dead arm disease caused by *Eutypa lata* on LaCrosse grapes. Marion Co. IA June/July 2009

Looks very similar to glyphosate injury.

7-2-09



**St. Croix Grapes
Galena, IL 6-1-16**



**Glyphosate Injury from
prior Summer Application
to Suckers.**

Adel, IA 6-13-12



**Frost, phomopsis &
anthracnose. Van
Buren Co., IA 5-23-09**



**Black Rot on
Frontenac, IA 7-8-10**



**Downy mildew on
LaCrescent. WI, 8-3-16**



Stinger (clopyralid) & Banvel Pottawattamie Co. June, 2011

Sample ID : Grape Sample

Matrix : Plant Tissue

Lab No. : 001

Test Code : P2800

Test Name : Herbicide Profile, Ionic

Analyte

Result

Units

Note

2,4-D

Trace

mg/kg

Hi H2O MDL's apply

Clopyralid (Stinger)

0.24

mg/kg

Dicamba (Banvel)

0.12

mg/kg



Briana poor pollination

Iowa County

May 2011

2,4-D/Glyphosate drift

\$155/vine settlement 1 year later.



Dead Marquette



Frontenac

Giant Ragweed Injury



**Follow the path
of plant injury to
the source.**



Dogwood Injury in Fencerow



Wild Grape Injury

Glyphosate injury on Sweetclover

Follow the Yellow Brick Road!



2,4-D on Red Bud Tree



Dicamba on Tomato



Command on Soybeans



Bluegrass very sensitive to glyphosate & pigment bleaching herbicides



Authority on Hemp



**6-5-15
Brianna**



**6-12-15
Brianna**

**Captan / Oil / Rally /
9-24-3 AgroK Mitchell
Co. IA June 2015**



**6-12-16
Frontenac**



Glyphosate / Flexstar / Select drift to 2 acre vineyard June, 2013. O'Brien Co. IA



Marquette

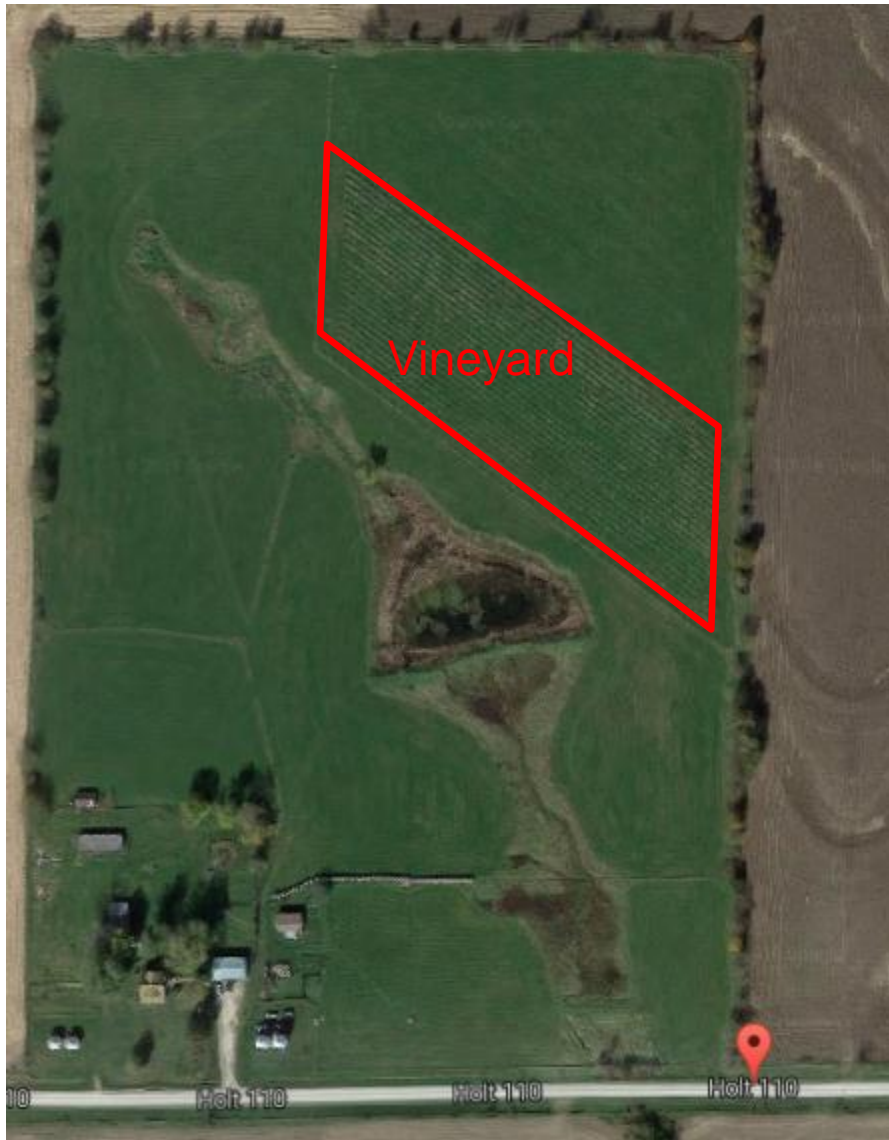


Brianna

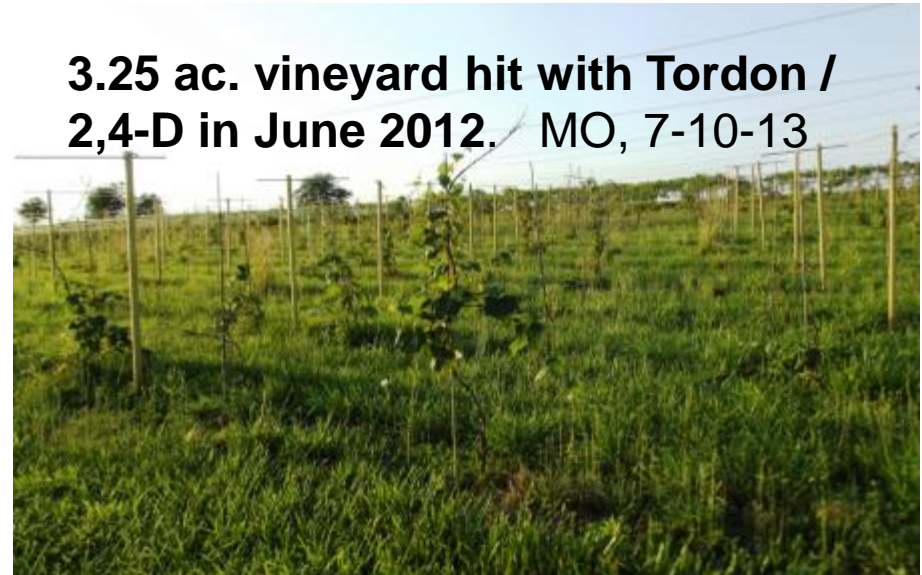


Brianna

**5-29-16 2,4-D & Crop Oil drift.
Ida Co. IA 7-21-16**



3.25 ac. vineyard hit with Tordon / 2,4-D in June 2012. MO, 7-10-13



Edelweiss with no Fruit, 7-10-13





**Stinger drift
from corn field.
Carroll Co. IA
May 2008**



2011 & 2013 Herbicide drift case in Minnesota:

Same ag dealer involved in both cases.

Complaint was filed with MN Dept. of Agriculture.

Settled out-of-court for \$50K in 2015 for 500 replaced vines & 1500 damaged vines. \$25/vine.

400 photos & 250 hrs involved in documenting damage.

\$10K in legal fees



2,4-D drift on Marquette, MN 7-8-23



**Salina, OK
Fall of 2015
Drift from
right-of-way.
application by
some
untrained
college
students on a
red clover
field and a 25
acre vineyard
/ orchard.**



**Banvel, Garlon 3A, Milestone VM and Tordon RTU
(dicamba, triclopyr, triclopyr & aminopyralid and picloram & 2,4-D
amine)**

Phenoxy Herbicide Injury can:

1. Reduce Yield
2. Reduce Fruit Quality
3. Affect Ripening
4. Reduce Winter Hardiness
5. Reduce Overall Growth
6. Affect Next Year's Growth
7. Kill the Plant

The dose, the timing, the environment and the cultivar determines the poison.

What to do right after a drift incident:

1. Identify area affected.
2. Document the date, time and growth stage of the grapes.
3. If possible, identify the source of the drift and make a determination if you want to settle this problem between friends or foes.
4. Contact your State Department of Agriculture if you cannot determine source of the drift and/or you want to formalize the complaint ASAP (30 - 45 day deadline in many states).
5. Flag a selection of affected and unaffected plants, take high resolution pictures weekly until symptoms subside and measure final yields per plant.
6. Severe injury settlements should be held off until after next season's harvest. Photo and yield documentation should be continued.

Note: Insurance Companies want to settle ASAP!

Practice Good Husbandry in the Vineyard after a Pesticide Drift Incident



Cutting off affected foliage does more harm than good.

The plants need to grow and metabolize the pesticide contaminants to recover.



2,4-D drift on Edelweiss, 6-23-09