



Vinews
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The First Wave of Damage from Phenoxy Herbicides Hits Missouri

Many of us in the viticulture industry have been outspoken on the release of corn and soybeans that are resistant to glyphosate and phenoxy herbicides. Dow Agrosiences is releasing corn and soybeans resistant to glyphosate and 2,4-D whereas Monsanto is releasing corn and soybeans resistant to glyphosate and dicamba. Monsanto released soybeans for planting this season prior to the release of an approved herbicide. This has resulted in farmers applying a non-approved dicamba herbicide to their soybean crops. This has resulted in more than 100 pesticide drift complaints from 4 Bootheel counties.

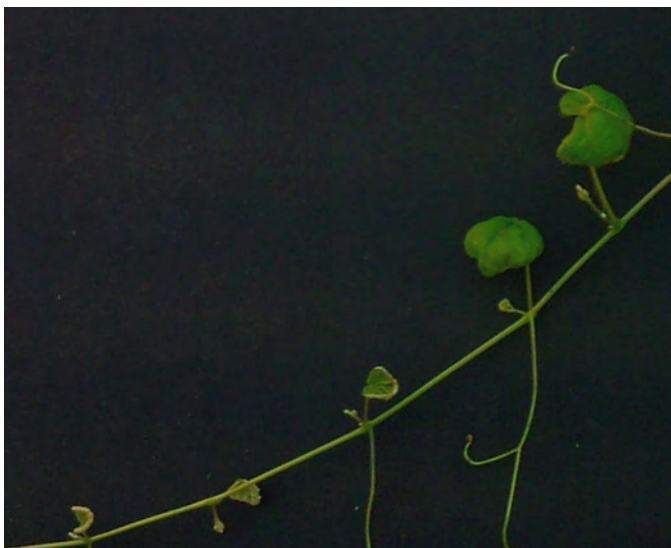


Cupped leaves and shortened internodes are symptoms of dicamba injury. Dicamba applied at 1/100 the use rate on Norton grapevine in a greenhouse

[Suspected illegal herbicide use takes toll on southeast Missouri farmers](#)

Which brings me back to think about a recent presentation at the Missouri Grape Growers Field Day held on June 14, 2016. Daryl Slade, Enforcement Program Coordinator, Bureau of Pesticide Control for the Missouri Department of Agriculture (MODAG) provided a great presentation that focused on pesticide drift investigations to vineyards. From 2009 to June 2016 MODAG conducted 418 agricultural use follow-up investigations of which 16 investigations involved vineyards. Interestingly, most of these vineyard investigations were north of I-70 with the most southern county being Ste. Genevieve. However what was most striking about data presented was the limited amount of complaints from vineyard operators per year. From 2009 to 2016, vineyard complaints ranged from 1 to 3 per year.

What I find interesting about this data is that in most all the vineyards I visit I can find and identify herbicide damage from what is most likely phenoxy herbicides. What do growers say when I bring this to their attention? Often the response is that they experience herbicide drift damage every year. I then ask if they filed a complaint with MODAG and often the response is no. This is where the grape and wine industry is going to run into problems in the future.



Glyphosate + dicamba symptomology on Norton 14 days after treatment in a greenhouse. Rate applied 1/100 the use rate of glyphosate and dicamba. Leaf cupping and leaves fail to fully expand.

The Missouri grape growing industry needs data that represents the amount of herbicide drift damage that is actually occurring. I strongly believe that vineyard complaints from herbicide drift to MODAG do not represent the amount of herbicide drift actually occurring. Why is this important!!! With the eventual release of corn and soybeans resistant to glyphosate and phenoxy herbicides the amount of damage to Missouri vineyards likely is going to increase. However public officials are unlikely to implement prohibition or prohibition zones or other measures that would reduce damage to vineyards unless the viticulture industry has representative data clearly showing that damage is occurring. Damage is a subjective term, for some it may mean yield loss, leaf loss, leaf distortion, or vine death. I want growers to quit thinking about damage to vines as only resulting in yield loss. Off target movement of a pesticide is against the law. Whether the off target movement is from overspray or from pesticide drift.

Grapevines are great indicators of phenoxy herbicides in the environment. Recently I applied dicamba, 2,4-D, glyphosate, glyphosate + dicamba, and glyphosate + 2,4-D to greenhouse grown Norton grapevines. The rates represent 1/100 the recommended use rate of Enlist Duo and Roundup Xtend. These are the herbicide products being released by Dow AgroSciences and Monsanto to be used on the glyphosate + 2,4-D and glyphosate +dicamba resistant corn and soybeans. I documented the symptomology of herbicide damage using time-lapse photography. Dicamba resulted in leaf deformation within 48-hours after treatment whereas 2,4-D resulted in leaf cupping 3-hours after treatment. Glyphosate applied alone resulted in no observable visual damage. The addition of glyphosate to dicamba or 2,4-D resulted in delaying the symptomology from the phenoxy herbicides. However, the classic phenoxy herbicide symptomology did appear over time.

If you are unaware of the symptoms of phenoxy herbicide damage, please take the time to educate yourself on the symptomology. In addition, if you suspect herbicide drift damage in your vineyard, please consider reporting the damage to MODAG. In the future, these pesticide investigation reports may very well be used by public officials to formulate laws that protect the Missouri grape and wine industries.

Cumulative Growing Degree Days for the Seven Grape Growing Regions of Missouri from April 1 to August 8, 2016.

Region	Location by County	Growing Degree Days ¹		
		2016	2015	30 Year Average
Augusta	St. Charles	2531	2486	2458
Hermann	Gasconade	2382	2403	2288
Ozark Highland	Phelps	2604	2589	2436
Ozark Mountain	Lawrence	2581	2564	2425
Southeast	Ste. Genevieve	2585	2637	2470
Central	Boone	2467	2399	2351
Western	Ray	2358	2323	2298

¹Growing degree days at base 50 from April 1 to August 8, 2016. Data compiled from Useful and Useable at <https://mygeohub.org/groups/u2u/tools>. Click on link below to determine growing degree days in your area.

To determine the number of growing degree days accumulated in your area since April 1, click this link [Search for GDD at your location using this tool](#).

Please scout your vineyards on a regularly scheduled basis in an effort to manage problem pests. This report contains information on scouting reports from specific locations and may not reflect pest problems in your vineyard. If you would like more information on IPM in grapes, please contact Dean Volenberg at 573-882-0476 or volenbergd@missouri.edu