

Herbicide selection near sensitive vegetation

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Herbicide selection near sensitive vegetation

- Why be concerned?
- Recent examples
- Herbicides that are higher-risk

Why be concerned?

- Farming at the rural-urban fringe
 - Every minute, 2 acres of farmland are lost in the U.S. (American Farmland Trust, “Farming on the edge”)
- Specialty and high-value crops interspersed in field crops
 - Organic production
 - Landscape, ornamentals, and nurseries
 - Vineyards
 - Specialty crop production

WI specialty crops are increasing

Crop	2002		2007		Average acres
	# farms	Acres production	# farms	Acres production	
<u>GRAINS</u>					
Corn	29,021	2.9 million	27,505	3.3 million	120
Soybean	15,245	1.5 million	14,513	1.4 million	96
<u>SPECIALTY CROPS</u>					
Vegetables	2,850	252,693	3,319	297,238	90
Orchards	1,009	9,683	1,135	9,730	9
Floriculture	814	644	953	864	0.9
Nursery	624	14,334	637	12,177	19
Fruit	--	--	1,132	9,719	9
Grape	--	--	253	479	2
Berry	--	--	1,019	20,485	20

WI organic production

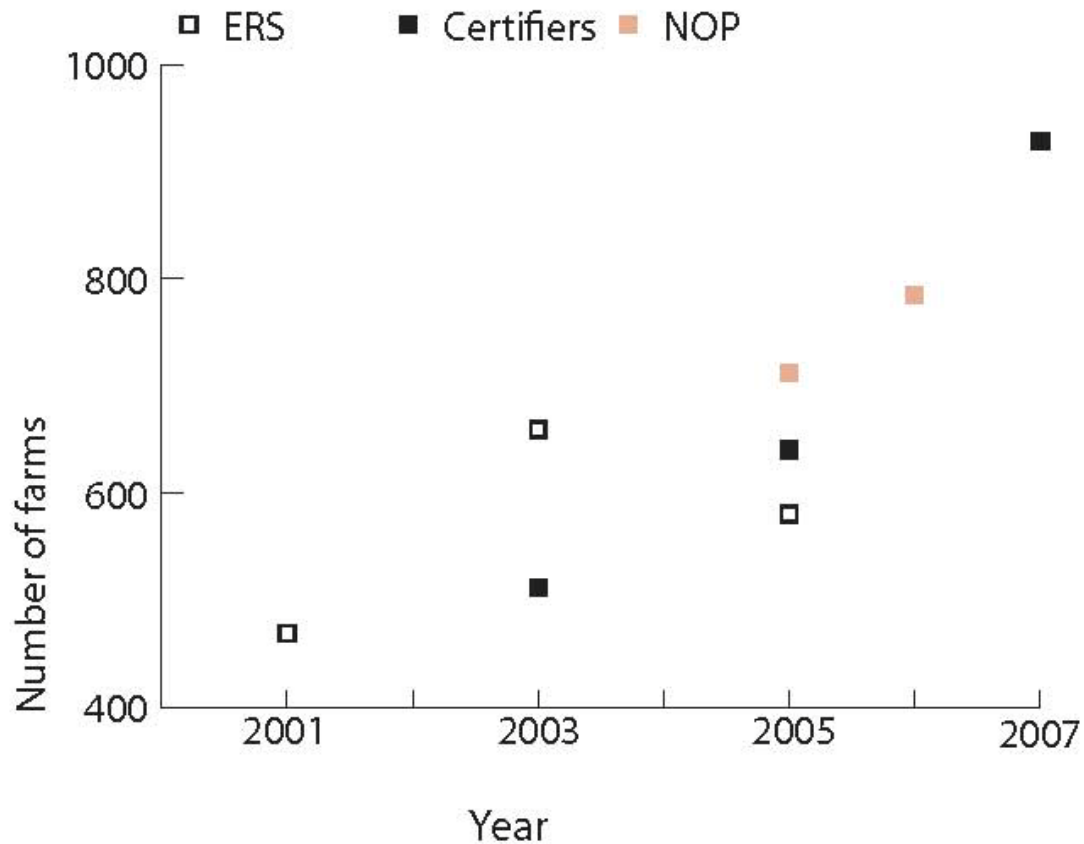
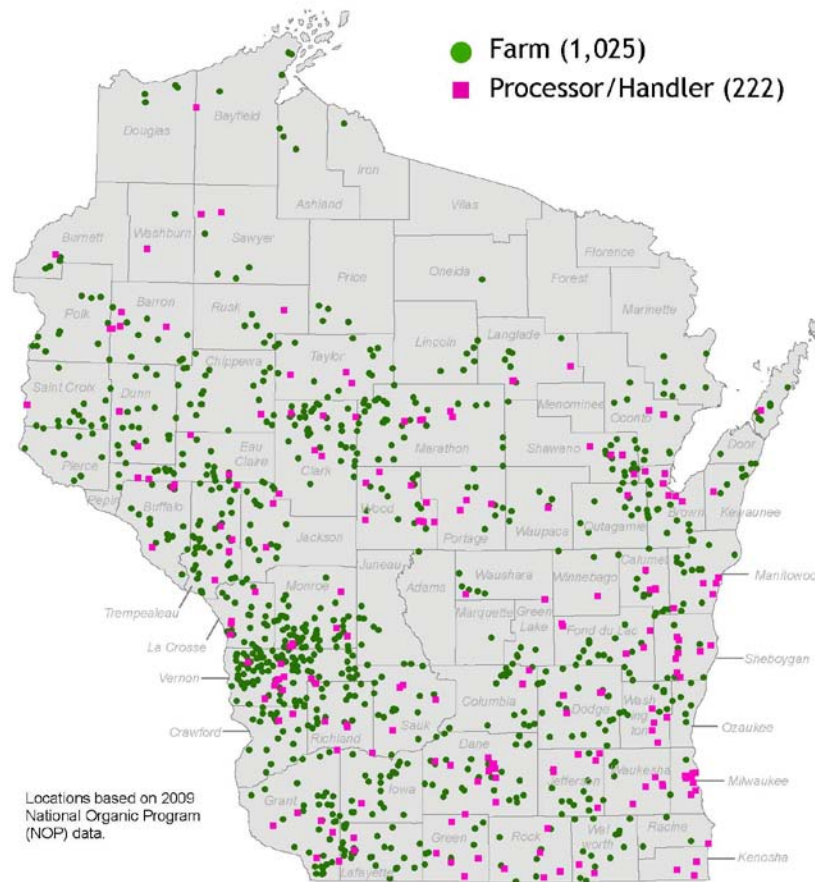


Figure 1: Estimates of the number of organic farms in Wisconsin, 2001-2007.

ERS: USDA Economic Research Service; NOP: National Organic Program

WI organic production

Wisconsin Certified Organic Farms and Processors/Handlers



Wisconsin Department of Agriculture, Trade and Consumer Protection 03/27/2009

WI landscape and ornamentals

- Association of American Pesticide Control Officials (AAPCO) 2005 survey:
 - Agricultural crops were the intended target of 70% of confirmed drift cases
 - Lawns and landscapes most frequent recipient (43%) of drift
 - 53% of cases involved commercial applicators for hire, 22% involved certified private applicators
 - In Wisconsin, 5 most common ingredients involved in drift: 2,4-D, glyphosate, dicamba, atrazine, mesotrione

WI vineyards



WI specialty crop production



Why be concerned?

- Some newer herbicides cause obvious symptomology and/or are active at very low doses



Off-target herbicides can be expensive

- “Organic Farm Wins \$1 Million Drift Suit”
 - Jacobs Farm Del Cabo: culinary herbs
 - Trace levels of organophosphates detected in air and on plants after application to nearby Brussels sprouts in 2006
 - Western Farm Service – the applicator – found liable by a jury in 2009 and fined \$1 million

Off-target herbicides can be expensive

- “Southern Idaho farmers regroup after pesticide mishap”
 - Allegation: Bureau of Land Management applied Oust herbicide to control rangeland weeds after a wild fire in 2000, and the herbicide blew on soil particles to nearby cropland.
 - Allegation: 118 local farmers affected, injury observed on over 100,000 acres in 11 counties in 2004
 - August 2009: U.S. District Court determined negligence in 4 sample cases of the lawsuit, and the jury awarded \$17.5 million
 - Plaintiffs’ attorney suggested that total damages could exceed \$200 million

Keep in mind:

- ALL herbicides can drift
- Crops that receive drift are subject to the same pesticide residue issues as if the herbicide was intentionally applied, regardless of visible injury

Let's try to avoid regulation...

- In some areas, pesticide use is regulated near sensitive vegetation
 - In state of Oregon grape growing region, Department of Agriculture permit is now required to apply 2,4-D ester from April 1 to September 1

Let's try to avoid regulation...

- Kansas State Sensitive Crops Registry
 - Listing of sensitive crop production available by county, used by applicators
 - What if we had voluntary interactive “Google” maps of sensitive locations, such as vineyards and organic operations?
- Purdue Driftwatch site

General drift mitigation measures

- **Don't** spray when:
 - Wind is moving towards sensitive sites
 - Temperature and humidity favor volatilization
 - Air inversions exist
 - Nearby vegetation is at sensitive stage
- Consider application and equipment
 - Drift reduction nozzles and additives
 - Reduced spray pressure

General drift mitigation measures

- Communicate: maintain good neighborly relations
- Be aware of your surroundings!



Herbicides with past drift issues

- Common threads:
 - Have post-emergent activity
 - Cause visual injury at very low doses
 - Primarily control broadleaf weeds or are non-selective
 - Symptomology is very characteristic

Herbicides with past drift issues

- Synthetic auxins (example trade names):
 - 2,4-D (several trade names)
 - Dicamba (Banvel, Clarity)
 - Clopyralid (Stinger)
 - MCPA (several trade names)

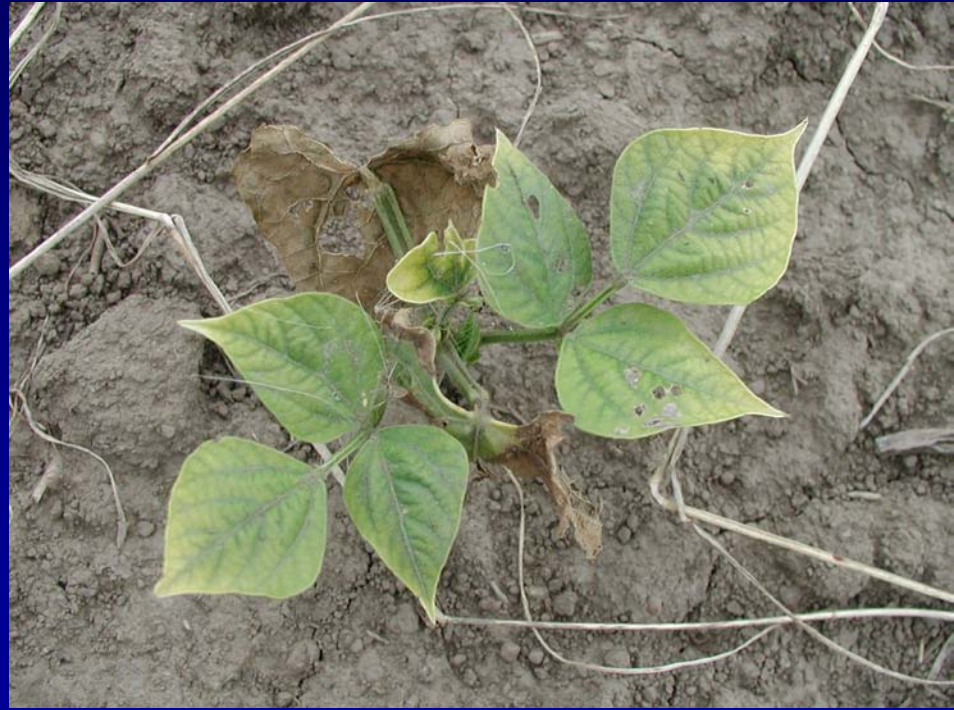
Herbicides with past drift issues

- Synthetic auxins



Herbicides with past drift issues

- Atrazine (several trade names)
 - Yellowing between leaf veins
 - Begins at outer leaf margin and moves inward



Herbicides with past drift issues

- Glyphosate (several trade names)
 - Yellowing of growing points
 - Bushy growth – “bonsai” appearance
 - Cupped and curled leaves
 - Fall uptake can injure spring growth



Herbicides with past drift issues

- Bleaching herbicides:
 - Clomazone (Command)
 - Mesotrione (Callisto, Lumax, Camix)



Summary

- Choose herbicides wisely:
 - Herbicides with primarily pre-emergent activity
 - Herbicides labeled on sensitive species
 - Herbicides less prone to drift
- Choose application timing wisely:
 - When air is moving away from sensitive sites
 - Avoid active times of sensitive plant growth
- In the longer term:
 - Communicate with neighbors
 - Wind blocks and buffers