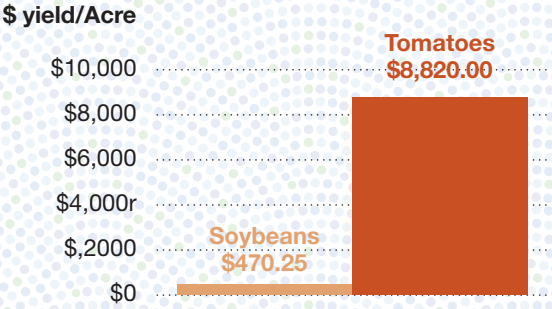
North Central IPM Center

PART 3 OF 5

Preparing for Drift Damage

Dicamba and 2,4-D drift damage has captured national attention in recent years. Could your farm be at risk? And if so, will you be ready to respond to a drift incident? In this fact sheet, we look at specific ways you can avoid, prevent, and prepare for drift damage.

Value per Acre, Soybeans vs. Tomatoes



Make sure that your agronomic neighbors understand the high value per acre of your specialty crop, and the cost of replanting or replacing your field.

Based on 2017–2018 USDA data, National Agricultural Statistics Service

Be Prepared

Evaluate your risk. Most fruit, vegetable, and ornamental crops are sensitive to 2,4-D and/or dicamba, but some are more sensitive than others. Are your crops known to be highly sensitive to damage? Are you located in a high-risk area for drift injury, for example, an area dominated by corn and soybean rotations?

Communicate with owners and operators of surrounding properties. A positive personal relationship with these neighbors will help. Explain the high sensitivity of your crop to herbicide drift, the high cost of production, and the per acre cash value. Your neighbors may be unaware that for most vegetable and fruit crops there is no established residue tolerance for dicamba, and a drift event may result in a complete loss of your crop even if yields are not negatively impacted.

Make your crop known. Register for your state's sensitive crop registry. This list is managed by Fieldwatch/Driftwatch (driftwatch.org) or your state agricultural agency. Pesticide applicators are required to check these registries before spraying. You can also mark your property with signage available from Fieldwatch/Driftwatch and other associations.

Know the rules and regulations that govern herbicide application. You can look up specific product labels at CDMS (cdms.net) or Greenbook (greenbook.net). Label instructions are part of pesticide regulations, and applicators who do not follow them can face fines or lose their applicator's license. In addition to the national label, your state pesticide regulatory agency may have additional restrictions, such as cut-off dates.

Maintain financial and production records for individual crops and fields. If a drift event occurs, good recordkeeping will prepare you to document financial losses for reduced or lost yield, reduced quality, and the inability to recoup production costs. Historical yield data can be used to approximate yield losses associated with drift injury. Production budgets documenting costs of inputs, labor, and equipment depreciation will document production-related financial losses.

Prepare a detailed farm map or maps, including landscape features (wooded areas, wind breaks, buildings, farm ponds, adjacent property). These maps can be a handy way to track where damage occurred and where samples were collected. Since these may be used as evidence for a loss claim, make sure the maps are

accurate. To-scale, hand-drawn maps may be acceptable, but a better alternative is outlining the farm and fields on a series of aerial photographs or satellite images (such as Google maps).

Familiarize yourself with analytical laboratories that will analyze crop samples for herbicide residues. Research their requirements regarding sample size, labeling, storage, and shipping, since these may vary. Also find out what pesticides they provide testing for and how low their detection levels go.

Do not rely on your crop insurance. Insurance companies typically do not consider herbicide drift an "act of God" and therefore do not provide coverage for drift damage. Check with your insurance provider before drift happens and know where you stand.

Consider investing in a weather station if one is not already on or near your farm. A weather station with data logging can track wind data and provide other useful information for your operation such as rainfall and air temperature. Weather data is often a key in determining applicator negligence.

Learn the typical symptoms of injury caused by herbicide drift and how to distinguish them from other similar symptoms. These vary from crop to crop. Learn the warning signs for your crops using the resources listed here or check with your state extension service, pesticide regulatory agency, or grower support organization.

Talk to other growers. Conferences and grower support organizations can help growers share regional information and resources, including available experts or lawyers. Consider establishing a relationship with a lawyer before a problem arises or discussing the issue preemptively with a current legal advisor.

Be Vigilant

Regularly monitor the health and growth of your crops. Symptoms of 2,4-D and dicamba can show up within hours if plants are growing quickly, or within a few days under slower growing conditions. Scout your fields several times a week during spray season—to watch for drift damage, but also to be aware of other health issues. Detecting possible drift-related injury becomes more difficult if crops are suffering from nutritional deficiencies, water-related stress, or damage from machinery, pests, or plant diseases.

Consider investing in a weather station if one is not already on or near your farm.

Be aware of spray applications occurring on surrounding fields, and how closely they follow the required precautions. Document possible issues with photographs.

Here are a few generally prohibited practices to watch for.

- Spraying when winds are stronger than 15 mph (for 2,4-D) or 10 mph (for dicamba), especially when blowing toward a sensitive crop or when wind direction is changing frequently.
- Applications made an hour or more before sunrise or within 2 hours prior to sunset. These are likely times for a temperature inversion to be present. A temperature inversion may also be indicated by heavy dew or fog, winds under 3 mph, and airborne dust or smoke that forms layers and moves laterally rather than vertically. Applicators may not apply pesticides during a temperature inversion due to an increased risk of drift.
- Over the top applications on soybeans more than 45 days after planting (or more than 60 days after planting cotton), or more than twice after soybean emergence.

Avoid locating sensitive crops in low areas of a field where potentially contaminated field runoff or cooling air masses are likely to settle.

Consider the ways that tree lines or structures can block, trap, or change air flow and wind intensity in your production areas.

- Failure to maintain a buffer zone between the sprayed field and sensitive crops (currently a minimum of 30 feet for 2,4-D and 110 feet for dicamba, but higher for protected areas).
- Applications preceding rainfall predictions that are likely to result in soil runoff in the next 24 hours.

Be Proactive

Select sites carefully

- Avoid areas near corn and dicamba/2,4-D-tolerant soybeans, and non-crop areas that are likely to use chemical weed control (golf courses, roadsides).
- Herbicides such as dicamba and 2,4-D can volatilize and drift in response to changes in temperature and atmospheric pressure as well. Avoid locating sensitive crops in low areas of a field where potentially contaminated field runoff or cooling air masses are likely to settle.

Use windbreaks

- Windbreaks should be planted perpendicular to prevailing winds.
- Plant several rows of pine and a variety of short and tall vegetation to best absorb and deflect drift damage.
- A windbreak too dense may drive airflow up and over.
- Include a few trees or other species that are sensitive to problematic herbicides. This can help you monitor and track potential problems.

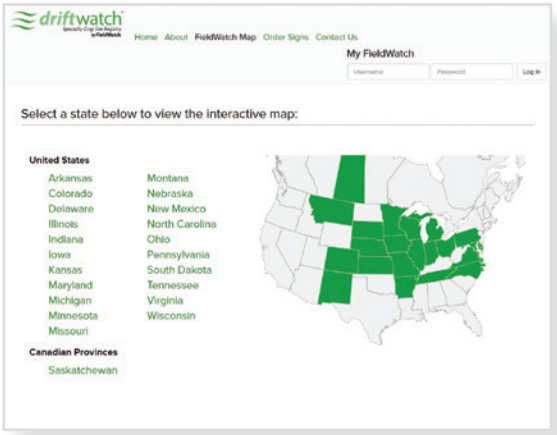
Practice good stewardship on your own operation

- Use care when applying lawn and pasture herbicides which may contain 2,4-D.
- Follow label directions and safety precautions and carefully wash out sprayer equipment to avoid accidental contamination.
- Vary the approaches and products used on your farm, by employing integrated pest management and different herbicide modes of action (MOA). Consistent use of the same product and MOA is a major cause of pesticide-resistance.

Support efforts to bring this issue to the attention of state and federal decision-makers.

Helpful Resources

Drift Watch
Provides a directory of state sensitive crop registries and sells field signs.
https://driftwatch.org/



As of Spring 2020, Driftwatch/Fieldwatch serves most of the North Central United States, increasing applicators' awareness of specialty crops.

Google Earth
Free online tool for generating aerial satellite maps.
https://www.google.com/earth/

Drift Symptoms

IPM Herbicide Symptoms database
University of California Division of Agriculture and Natural Resources
Provides a searchable gallery of herbicide damage photos for a wide variety of crops and products, plus information on herbicide trade names, active ingredients, and modes of action.
http://herbicidesymptoms.ipm.ucanr.edu

Herbicide Injury Website
North Carolina State Extension
An excellent series of fact sheets on the symptoms of several common herbicides and a handy injury site visit check list.
https://weeds.ces.ncsu.edu/weeds-herbicide-injury/

Herbicide Site of Action Key
University of Wisconsin
Simple but useful 2-page key to identifying herbicide plant injury noticed at emergence or later in the growing season.
https://ipcm.wisc.edu/download/pubsPM/2018_HerbicideInjury_web.pdf

Plant Injury from Herbicide Residue
Virginia Cooperative Extension Service Publication PPWS-77P
Discusses effects and persistence of several growth regulator herbicides, including dicamba and 2,4-D.
https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/PPWS/PPWS-77/PPWS-77P-pdf.pdf

University of Missouri Herbicide Damage Trials
Excellent photos of drift damage at various levels of severity
Investigations of Sensitivity of Ornamental, Fruit, and Nut Plant Species to 2,4-D and Dicamba
https://weedscience.missouri.edu/2017-2018TreeResults.pdf
Evaluations of Dicamba and 2,4-D Injury on Common Vegetable and Flower Species
https://weedscience.missouri.edu/Vegetable%20Injury%20with%20Dicamba%20and%202,4-D%202018.pdf

Herbicide Law and Drift Information

Herbicide Label Information
www.cdms.net
www.greenbook.net

Air Temperature Inversions Causes, Characteristics and Potential Effects on Pesticide Spray Drift
Explains spray drift from temperature inversions.
https://www.ag.ndsu.edu/publications/crops/air-temperature-inversions-causes-characteristics-and-potential-effects-on-pesticide-spray-drift

State Pesticide Regulatory Agencies
Association of American Pesticide Control Officials
Links for all state regulatory agencies. Additional restrictions and reporting procedures for your state.
https://aapco.org/2015/07/28/resources-2/

Sources

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Acknowledgments

The following individuals reviewed part or all of this fact sheet: Bill Johnson, Purdue University; Cathy Herms, The Ohio State University; Steve Smith, Red-Gold; Maria Smith, The Ohio State University

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This work is/was supported by the USDA National Institute of Food and Agriculture, Crop Protection and Pest Management Program through the North Central IPM Center (2018-70006-28883).

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