



Herbicide Carryover to Rotational Crops has Shown Up in Several Fields in 2015

Several factors impact the potential for herbicide carryover to rotational crops.

This season I have received several calls and visited fields where herbicides applied the previous year have caused damage to this year's rotational crop. Typically dry conditions that lead to low soil moisture, reduces herbicide degradation (breakdown). In past years, this is normally the main factor that increases the chances for potential herbicide carryover. However, several herbicides are degraded by soil microbes. The cold temperatures we experienced last winter led to early (November) frozen soils that slowed the degradation of many herbicides by soil microbes. Herbicides that degrade by soil microbes include the imidazolinone herbicides (i.e., Raptor), PPO-herbicides (i.e., Flexstar/Reflex and Sharpen), and some HPPD-inhibiting herbicides (i.e., Callisto). In addition, the shorter than normal 2014 growing season combined with early planting in 2015 reduced the time interval needed for degradation of many of these herbicides.

As conservation tillage equipment evolves, some of our newer tillage practices may also contribute to increased instances of herbicide carryover. For example, with many of the new vertical tillage implements there is less mixture of the soil that leaves herbicide residues in a more surface concentrated area. Tillage practices that lead to mixing the soil can help dilute these herbicide residues and possibly decrease the magnitude of herbicide carryover.

While there is little that can be done this season to deal with herbicide carryover issues, it is important to plan for the next growing season. ***One of the most important things to realize is the rotational crop intervals for the herbicides that you use.*** For example, Raptor and Reflex are common herbicides used for weed control in dry beans. Both of these herbicides have 18-month rotational restrictions to sugarbeets. Following these rotation restrictions are essential to ensuring growth of a healthy and profitable crop.

Crop rotation restrictions for different herbicides can be found in [Table 12](#) of the *2015 MSU Weed Control Guide for Field Crops* and on the herbicide label. If there are still concerns about the potential for carryover, field or greenhouse bioassays can be conducted to help determine potential carryover problems. These bioassays are generally inexpensive and will help estimate the potential for rotational crop injury from herbicide residues.

Things to consider prior to planting rotational crops:

- Know what herbicides and when the herbicides were applied to the field
- Check the crop rotation restrictions on the label or in [Table 12](#) of the *2015 MSU Weed Control Guide for Field Crops (E-434)*

- Are there special factors such as extremely cold winters, soil pH, soil type, or rainfall amounts that may change the length of time for that herbicide to degrade that need to be considered
- Applying herbicides at maximum label rates can lengthen rotation restrictions
- Still concerned, conduct a bioassay using soil from the field in question planted with the intended rotational crop

REACH Research Contacts

Christy Sprague, Weed Extension Specialist, Michigan State University