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Carryover Concerns for 2013

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Abstract

One of the consequences of the current drought will be reduced herbicide degradation. In some situations, this prolonged persistence will lead to damage to the rotational crop next spring. The risk of carryover injury will vary widely from field to field depending on several factors (Table 1); thus, it is important to evaluate each field individually.

Keywords

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Carryover Concerns for 2013

By Bob Hartzler and Mike Owen, Department of Agronomy

One of the consequences of the current drought will be reduced herbicide degradation. In some situations, this prolonged persistence will lead to damage to the rotational crop next spring. The risk of carryover injury will vary widely from field to field depending on several factors (Table 1); thus, it is important to evaluate each field individually.

Table 1. Factors determining risk of carryover injury risk

1. chemical half-life
2. rate of herbicide applied
3. application date
4. soil characteristics (texture, organic matter, pH)
5. rainfall (total amount and distribution throughout year)
6. sensitivity of rotational crop
7. growing conditions following planting next spring

The relative persistence (half-life) and the rate of herbicides used in the field have the greatest impact on the likelihood of toxic residues. Only a few of the herbicide active ingredients used in corn and soybean have characteristics that may lead to carryover problems in 2013 (Table 2).

Table 2. Herbicides with carryover potential

High Risk

- atrazine (numerous products)
- chlorimuron (Authority XL, Canopy, Envice, Valor XLT, others)
- imazaquin (Scepter)
- simazine (Princep, others)

Moderate to Slight Risk

- fomesafen (Reflex, Flexstar, Prefix)
- clopyralid (Hornet)
- cloransulam (FirstRate, Hornet, Gauntlet, etc.)
- imazethapyr (Pursuit)

Dinitroanilines

- pendimethalin (Prowl, others)
- trifluralin (Treflan, others)

HPPD Inhibitors

- isoxaflutole (Balance Flexx)

- mesotrione (Callisto, Lumax, Lexar)
- tembotrione (Laudis, Capreno)
- topramezone (Impact)

The products listed as 'High Risk' have the potential to damage rotational crops under 'normal' conditions. Most farmers have learned what rates can be used on their soils safely, but this year's drought will result in a high risk even with reduced rates. Both chlorimuron and atrazine are more persistent in high pH soils. Preemergence applications of chlorimuron will have a much higher risk of problems because these rates are much higher than when chlorimuron is applied postemergence (Classic). In certain situations, the best option may be to alter rotation plans to avoid planting a susceptible crop.

Products listed under the 'Moderate to Slight Risk' have been known to occasionally cause problems or have half-lives that suggest they might cause problems under abnormal conditions. Risks with these products will vary widely from field to field depending on the specific conditions encountered.

To minimize problems next spring, evaluate this year's herbicide program for compounds that pose a carryover risk. Consider rates, application date, soil characteristics and label restrictions. Keep in mind that if rainfall returns to normal, this rain will have much less effect on herbicide degradation than had it occurred near the time of herbicide application. Also, while tillage should dilute herbicide residues within the soil profile, past experience has shown that this practice does not consistently reduce crop injury from herbicide residues. The conditions a crop experiences during establishment greatly influence its ability to tolerate residual concentrations of herbicides. Using practices that minimize additional stresses to the crop seedling (planting date, seedbed conditions, etc.) can reduce problems associated with low concentrations of herbicides.

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