

Key points

- Aminopyralid and clopyralid residuals at very low levels in manures and composted products can cause plant injury.
- Aminopyralid and clopyralid can survive the composting process and after being fed to animals cause carryover plant injury.
- Prevention of off-site aminopyralid and clopyralid contamination to mitigate injury is key, particularly in keeping these herbicides out of compost facilities.
- Documentation is required for reporting applications of aminopyralid and clopyralid.

A quick demonstration

A greenhouse demonstration (pot assay) was done to show the effects of residuals. Pots were planted with soybean, and a small amount of liquid manure was added containing different concentrations of aminopyralid or clopyralid.

Treatments concentrations commonly used in Wisconsin farming systems ranged from a low dose of 10 parts per billion (where reports of injury are found in leguminous crops) up to a high dose of 50,000 parts per billion (the maximum allowable tolerance for grass grown for hay for aminopyralid).

Results from the high dose treatments showed that many of the soybeans died with no biomass production. At lower doses there was at least one less plant per pot; those left had substantial numbers of leaves displaying cupping symptoms.

Pot assays using this approach can be done on-farm using treated manures or composts.

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Aminopyralid and clopyralid carryover in manure and compost

Aminopyralid and clopyralid are two active ingredients found in many herbicides commonly used in Wisconsin and provide very good weed control; residuals are often found in composted products from fields where these materials were applied and in manures from animals that were fed forages from these same fields. Plant injury can occur from these residuals.

Aminopyralid and clopyralid are in the picolinic acid class of herbicides, and they are effective in weed control — specifically targeting clovers, thistles and other broadleaf species. They can be applied alone but are also found in combination products. Both products can persist in the environment for months and sometimes longer, including a year or more.

Certain plant species (alfalfa, soybeans and many solanaceous crops) are sensitive at extremely low doses of aminopyralid or clopyralid. Symptoms of contamination and carryover are lack of crop growth and cupping of the plants. Growers must record where and when applications occur and be aware of potential carryover and persistence, especially in forages, manures and composts. While many herbicides break down in the composting process, these persist.

Overall, there is a need to limit aminopyralid and clopyralid off-farm movement by tracking forages, manure and composted products. It is also recommended that manure and composts that have been treated with these active ingredients be applied to grass crops, such as corn or wheat, which have a higher level of tolerance and lower risk for injury.

New regulations

There has been an increase in residuals found in compost facilities. If materials are found in composted products and then used by gardeners or commercial producers, plant injury can occur in sensitive crops including tomatoes, potatoes, soybeans and alfalfa.

The United States Environmental Protection Agency (US EPA) has some new regulations for aminopyralid and clopyralid use that are designed to limit carryover and subsequent plant injury. Some specifics are detailed below but always review the pesticide label prior to use to ensure the most up-to-date requirements.

For products containing aminopyralid:

- If used on grass pastures or forages, keep treated plant matter on-site for 18 months — the time for that aminopyralid to break down.
- End products that have had the material applied (including forages) can only be used on the farm, it cannot be sold or transported off-site.
- Manure from animals are fed treated forage must be kept on site for 18 months.
- If manure is separated and moved off-site, animals should be moved to another area and fed forages that have not been treated with aminopyralid for three days —the time it takes for all of the herbicide to move through their system.
- Communication of these restrictions and the use of these products must be given to the operator or owner of the farm, and a record of that communication must be kept for two years.

For products containing clopyralid:

- Same restrictions as aminopyralid (above) when clopyralid is applied to pastures and turf. When clopyralid is applied to corn, specialty crops, or wheat, these restrictions do not apply.

To watch the accompanying video with professor Mark Renz of the University of Wisconsin Agronomy Department, scan or click here

