



Sallie Lee
Urban Regional Extension Agent
News Release

The potential for secondary herbicide damage

Question: My gardening methods are as close to organic as possible. I'm very careful about using any pesticides in my vegetable garden, and fertilizer is a combination of my compost pile and manure from a horse farm down the road. When my tomatoes started growing, they were stunted and just didn't look very healthy. I had a sample analyzed and learned it was herbicide damage. How can this be since I've not applied herbicides to this garden?

Answer: Since you mentioned fertilizing your garden primarily with manure, I suspect the problem may have come via the horses. And ironically, those most likely to experience this problem are organic or "natural" gardeners, although farmers have also reported damage to vegetable crops after applying horse or livestock manure, compost, hay, or grass clippings to the soil.

As crops and gardens begin to grow, gardeners and farmers report poor seed germination, death of young plants, twisted, cupped, or elongated leaves, misshapen fruit, and reduced yields. Although these symptoms can be caused by factors such as disease, insects, and even herbicide drift from outside the garden, damage caused by material placed on or in the soil could be the culprit.

Products usually associated with secondary herbicide damage are in a class of herbicides called *pyridine carboxylic acids*. Known in the "trade" as aminopyralid, clopyralid, fluroxypyr, picloram, and triclopyr, these herbicides are registered for use in pastures, grain crops, residential lawns, commercial turf, roadsides, and certain vegetables and fruits. These products are used to control a wide variety of broadleaf weeds, including some plants that can make animals that eat the weeds very sick. Based on evaluations by USDA-EPA and other agencies, these herbicides can be applied to hay fields or pastures containing forage that can be safely eaten by horses and livestock. The herbicide materials pass through the digestive tracks of horses, cows, etc. and are gotten rid of via the animal's urine and manure. However, and this is the problem area, these herbicides remain active in manure even *after* it is composted, as well as in hay, straw, and grass clippings taken from treated areas. The materials can leach into soil with rainfall, irrigation, and even dew!

Although these herbicides eventually break down with exposure to sunlight, soil microbial action, heat, and moisture, according to some field reports they can take up to several *years* to completely deactivate and break down. Degradation is particularly slow in piles of manure and compost, and when these normally beneficial products are applied to vegetables, flowers, or other broadleaf crops, damage can be devastating.

Several familiar crops are particularly sensitive to picloram, clopyralid, or aminopyralid, and include lettuce, peas and beans, some types of roses, tomatoes, carrots, marigolds, eggplant, mushrooms, potatoes, and grapes.

Preventing damage from these herbicides can be more troublesome when hay, manure, or grass clippings are sold or shared with others who aren't aware of the potentially adverse effects their residues can have on gardens or flower beds. In other words, it helps to know where manure, compost, clippings, etc. came from and if not, be very cautious when accepting or purchasing these. And, if you're accustomed to recycling your own grass clippings and are concerned about potential damage to sensitive plant materials, it may be helpful to know that products containing clopyralid (commonly known as Stinger, Reclaim, and Curtail, to name a few) have not been registered for use on residential lawns since 2002. Consequently, anyone with access to this product should be aware of label restrictions, and would not apply it to residential lawns. Therefore, clippings from these lawns should not pose a problem for use as mulch around vegetables and ornamentals.

Manures and composts from vegetation-consuming animals are good sources of nutrients and organic matter for growing food and ornamentals alike. Mulching or amending soils with manure and compost creates characteristics of a healthy growing medium – dark, crumbly, aromatic, and teeming with earthworms and beneficial microorganisms. Farmers and gardeners have used these products for years with positive results, but they should be used with caution and adherence to label instructions in order to prevent unintentional damage.

If you have additional questions regarding the use of herbicides and the potential for secondary damage to your garden or flower beds, contact Sallie Lee, urban regional Extension agent, at the St. Clair county Extension office at (205) 338-9416. You can perform your own bioassay test to determine if damage was likely caused by the herbicides mentioned in this article.

Picloram damage to tomato plant

