

## Montana Organic Growers: *Manure and Compost Matters*

Commercial and home gardeners in Montana have reported damage to broadleaf vegetable crops and flowers after applying livestock manure, compost, hay, and grass clippings to the soil. The plant symptoms reported include: poor or absence of seed germination; death of young plants; twisted, cupped and elongated leaves; misshapen fruit; and reduced yields. Although these symptoms can be caused by numerous biotic and abiotic factors including diseases, insects and other natural causes, a possible source of injury may include herbicide residue present in mulch, manure, or composted materials.

The source of residues in these materials may result from noxious weed control projects on grass hayfields, pastures and rangeland. When noxious weeds are treated with products such as Milestone®, Tordon® 22K or other residual herbicides, forage from the herbicide-treated pasture may be consumed by horses and other livestock. These herbicides can pass through the animal's digestive tract unchanged\* and are excreted in urine and manure. If manure, hay used for bedding or mulch, or composted materials (e.g. grass clippings, manure, hay) containing herbicide residues are applied to fields or gardens, herbicide damage may occur to certain broadleaf vegetables, flowers or other sensitive crops.

What can you do to ensure the manure, mulch, or compost is safe to use in your garden or commercial field? Before acquiring or using livestock manure – fresh, aged or composted — it's important to ask what the animals were fed, the origin of the hay and what, if any, herbicides were used on the hay, pasture or rangeland grasses consumed by the livestock. If you don't know if any herbicides were used, either don't accept the manure, or test for the presence of residual herbicides before using the product. The same is true for hay or grass clippings used as mulch or in compost. Be particularly careful about obtaining grass clippings from golf courses and other commercial turf fields where broadleaf residual herbicides are commonly used. You can test for the presence of herbicides by conducting a simple inexpensive bioassay with beans (follow the procedure described online at [www.manurematters.com/na/en/bioassay](http://www.manurematters.com/na/en/bioassay)) to determine if residues are present in the manure, compost, or clippings.

If you find yourself with a small quantity of herbicide-contaminated manure, grass clippings, hay or compost, spread it on a *grass* pasture or rangeland, or *grass* hayfield or arrange to have it disposed of properly. For more information regarding herbicide contaminants in commercial gardens, please contact your local county cooperative extension agent, county weed district coordinator or the Montana Department of Agriculture. Additional information is also available online at [www.pesticides.montana.edu/PAT/Coordinators/non-target%20plant%20toxicity/index.html](http://www.pesticides.montana.edu/PAT/Coordinators/non-target%20plant%20toxicity/index.html) or [aminopyralidstewardshipinstructions.com](http://aminopyralidstewardshipinstructions.com)

*\*Note: Depending on the herbicide used, it takes three-to-seven days feeding on non treated forage for most animals' digestive tracts to produce manure clear of any herbicide residue. Consult the appropriate product label for specific information.*

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Tordon 22K is a federally Restricted Use Pesticide.  
Always read and follow label directions.