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### **Beware of herbicide contaminated compost**

A problem that is becoming an increasing concern is herbicide damage on vegetable plants in backyard gardens. Many homeowners are adding composted manure to their gardens to improve the health of their soil. Compost potentially adds beneficial nutrients and micorrhizal fungus. When the manure has been contaminated by herbicides, it can prove deadly to the vegetable crop.

Stronger herbicides are being used to control noxious weeds in lawns, roadsides and hay fields. A number of these herbicides are exhibiting a long residual in both living and dead plant material. The herbicide will stay active, even though it has passed through the digestive tract of an animal and has been in a compost pile for up to three years, according to the Montana Dept of Agriculture. At a rate of only one part per billion, the herbicides picloram, clopyralid and aminopyralid will damage vegetables and landscape ornamentals.

It is extremely important to know where your manure compost comes from and what the animal has been eating. Certified weed free hay is good for preventing the spread of noxious weeds into our natural areas, but not good for your garden. Many of these hay fields have been sprayed with herbicides to control weeds and this will end up passing through the horses. Cattle can consume herbicides by grazing along treated roadways and fence lines. There was an unfortunate contamination of an organic vegetable farm in the Bitterroot last summer, when a livestock producer unknowingly purchased contaminated hay and fed it to his cattle. An organic farmer bought the manure and spread it on her fields. It will be years before these fields will be able to produce vegetables again.

If you are using chemicals, such as Milestone, to control weeds in your lawn or roadways, follow the instructions on the label. It will tell you how long the residual is and not to compost this material. Homeowners need to be careful adding grass clippings to the garden or compost pile that may have had herbicide treatments. If in doubt, do not use lawn clippings.

In the Flathead Extension office, we received over two dozen plant samples that exhibited herbicide damage last year. A percentage of the symptoms were attributed to overspray and the rest were from contaminated compost. The trade names of the herbicides with long residuals are:

- Picloram - sold as Tordon, Access, Surmount, Grazon, and Pathway.
- Clopyralid - sold as Curtail, Confront, Clopyr AG, Lontrel, Stinger, Millennium Ultra, Millenium Ultra Plus, Reclaim, Redeem, Transline.

- Aminopyralid - sold as Milestone, Forefront, Pharaoh, Banish.

The garden plants most sensitive to these herbicides are:

- Legume family - including lupines, peas, beans and clover.
- Compositae family - including daisy, aster, sunflower and lettuces.
- Nightshade family - including tomatoes, potatoes, peppers and eggplants.
- Umbelliferae family - including carrots.
- Many other vegetables and flowers.

Sensitive plants that are exposed to these herbicides develop cupped or fern like leaves and twisted stems. The herbicides are growth inhibitors and affect the development of leaves and flowers. The theory behind these products is that they are safer for people or pets.

According to state researchers, the best way to test your compost is this bioassay method.

1. Thoroughly mix 1-2 parts manure, compost or soil with 1 part commercial potting soil in a clean bucket. Prepare enough to fill three 4-inch pots.
2. Fill another three clean pots solely with commercial potting soil. These will be the untreated comparisons.
3. Place each of the pots in a separate saucer to prevent water from one pot reaching another.
4. Water the pots and leave to stand for 24 hours.
5. Plant each pot with three pea or bean seeds.
6. Observe subsequent growth for four-week period and note any ill effects in the pots containing the possibly contaminated mix, such as cupped leaves, fern like growth on new shoots or twisted stems. These symptoms may indicate picloram, clopyralid or aminopyralid residue in the manure, compost or soil. Signs of other kinds of damage will most likely indicate other issues such as damping off or bacteria-infected soil, etc.

This message is not meant to discourage anyone from using composted manure. It is important that you know where your compost comes from. Once contaminated with an herbicide it can be years before you can grow certain crops in that area.

Happy Spring and Happy Gardening.