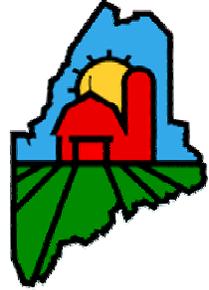




Persistent Herbicides in Leaf and Yard Compost



Revised February 21, 2003

Questions and Answers for Gardeners and Farmers in Maine

Background:

What is clopyralid?

Clopyralid is the common name of a herbicide that kills broad-leaved weeds such as dandelions, clover, and thistle. It has been registered for use on turf, field corn, grass hay, and some other crops, but in Maine is primarily used on lawns. There are 17 products registered for use in Maine that contain clopyralid including Confront, Curtail, Millennium, Redeem, and Stinger. Clopyralid is listed as an active ingredient on all 17 of these products' labels. Clopyralid, and the similar herbicides picloram and triclopyr, have long lasting effects against target weeds when applied at low rates. They also have low toxicity to humans and animals. (Any questions about regulation of these products should be directed to the Board of Pesticides Control at 287-2731.)

Are there persistent herbicides in Maine compost?

Certain herbicides such as clopyralid, picloram and triclopyr are quite persistent in the environment. In 1999, composters in Washington State discovered that clopyralid was surviving the compost process, and injuring plants where the compost was used. During the spring and fall of 2002, the Maine Department of Environmental Protection (DEP) sampled compost made with leaf and yard wastes at four Maine facilities. Analysis for persistent herbicides detected clopyralid in five of nine samples tested. One incompletely composted sample also contained picloram. No detectable levels of triclopyr were present at any of the nine Maine sites.

Does exposure to clopyralid in Maine compost pose a health threat?

No. The low levels of clopyralid detected in Maine compost are not high enough to raise health concerns for humans or pets. This herbicide has a relatively low toxicity. The amount of herbicide that passes through the compost process does not pose a health risk to compost users, or those who might come into contact with areas where the compost has been used. (For more information on the potential health risks from

clopyralid or other herbicides, contact Lebelles Hicks, PhD DABT with the Board of Pesticides Control at 287-2731 or by e-mail: lebelles.hicks@maine.gov)

How does clopyralid get into compost?

Some home lawn care companies and homeowners use herbicides containing clopyralid. When clippings from treated lawns are recycled as yard debris, they become a feedstock for compost. Clopyralid breaks down very slowly during the composting process. As a result, the finished compost product can still contain clopyralid. Therefore, clippings from lawns treated within the last two years with clopyralid, picloram, or triclopyr, should not be composted.

Are all plants harmed by clopyralid?

No. Clopyralid affects only susceptible plants, including legumes (peas, beans, lupine), composites (sunflowers, marigolds, lettuce), nightshades (tomatoes, potatoes, peppers), and polygonums (buckwheat). Sensitivity varies among species within those families. Clopyralid does not affect grasses, corn, berries, cole crops (broccoli, cabbage, cauliflower, etc.), tree fruit, or the vast majority of woody and perennial ornamental plants.

Are other herbicides likely to be found in Maine compost?

No. Except for clopyralid, picloram, and triclopyr, herbicides currently registered for use in Maine for lawns break down quickly during composting and are not a problem in the final product. The limited testing by Maine DEP did not detect picloram or triclopyr in compost. DEP used special test methods that were able to detect the low concentrations of herbicides that have impacted crops in other parts of the country.

Will contaminated compost damage my plants?

In Washington and Idaho, severe damage occurred in some gardens where susceptible plants were grown. However, the concentrations of clopyralid found in Maine are lower than those found in these western states. To be safe, unless testing demonstrates that the compost is free of clopyralid, users of compost made with leaf and yard waste should restrict use to lawns and woody landscape plants. Check with your local compost supplier for more information on the testing that has been done on their products, and appropriate uses of the compost they sell.

What are composters doing?

Some composters are establishing bioassay and analytical testing programs to evaluate their product to determine if it is suitable for unrestricted use. They are also taking steps to prevent contaminated feedstock from entering their facility. Check with local compost suppliers for more information on the testing that has been done on their products and on appropriate uses of the compost they sell.

What is the State of Maine doing?

The Board of Pesticides Control has contacted all licensed pesticide applicators at lawn-care companies and golf courses to remind them that grass clippings from treated turf should be diverted to licensed landfills. Maine DEP has undertaken testing of compost, and helped compost facilities establish procedures to prevent contaminated grass clippings from entering their facilities. Nine compost facilities have been tested for clopyralid, triclopyr and picloram. Four of the nine facilities had no detectable levels of these three herbicides. The five remaining facilities had levels of clopyralid ranging from 2 to 148 ug/Kg. Compost at the facility with clopyralid at 148 ug/Kg also contained picloram at 15 ug/ Kg and represents a pile in the early stages of composting. This facility will be re-tested when the compost is ready for use. DEP has also helped establish appropriate sampling protocols, as listed in the following section. The Department of Agriculture is providing composters with information on appropriate use of their compost.

Sampling and Analysis Guidance:

Sampling:

- The laboratory can supply sample containers and shipping cooler.
- Sampling equipment must be decontaminated prior to each composite sample, or disposable equipment must be used. Decontamination consists of washing all equipment with laboratory grade detergent and rinsing with herbicide free water.
- Use gloves when sampling. See the attached MSDS for safety precautions.
- Sample cup size sub-samples from at least 20 places in the compost pile into a clean 10-gallon plastic bag or 5-gallon plastic bucket. Samples should be taken about 12" below the surface of the compost pile. Mix thoroughly and fill a 1-gallon size zip-lock bag with the mixed sample. Double-bag with an additional zip-lock bag; place in cooler with ice, and immediately ship to the lab.
- Samples must be labeled, and the Chain of Custody Record must be completed with all requested information. Sample identification (Sample Number, Site Name and Location, Date, Compost Feedstock), must be included on the sample label, and must reference corresponding sample identification on the chain of custody.
- Samples must be packed into a shipping cooler with ice packs. The goal is to reduce sample temperatures to $<4^{\circ}\text{C}$. If samples will be stored overnight before returning to the laboratory, they must be placed in an access controlled refrigerator at $4 \pm 2^{\circ}\text{C}$.
- All samples must be shipped to the laboratory in cooler[s] with ice packs within five days to assure conformance to technical holding times. Samples should be shipped US Post overnight mail [or equivalent] with original chain of custody record.
- A copy of the chain of custody record and shipping receipt should be retained for project records.

- The laboratory will take custody of the samples upon mail delivery, and must sign and date chain of custody record, making note of sample condition.

Analysis:

Samples may be tested by bioassay for a qualitative test to determine if the compost causes any adverse plant growth, or by laboratory analysis for definitive clopyralid concentrations. In either case, appropriate quality assurance measures should be followed and laboratory data packages should include results of quality control samples.

Analytical results packages should be reviewed for completeness, conformance with technical holding times, method blank results, laboratory control sample recoveries, matrix spike recoveries and duplicate precision.

Quality control and data evaluation guidance is available at ME DEP. For more information contact Deb Stahler by e-mail at Deborah.Stahler@maine.gov or call (207) 287-7878.

Laboratory Contacts:

Analytical Laboratories	Bioassay Laboratories
Anatek Labs, Inc. 1282 Alturas Drive Moscow, ID 83843 Phone: (800) 943-2839	Woods End Research Laboratories, Inc. PO Box 297 Mt. Vernon, ME 04352 Phone: (207) 293-2457
Morse Laboratories Inc. 1525 Fulton Avenue Sacramento, CA 95825 Phone: (916) 481-3141	

How should I use compost?

Even if compost contains clopyralid, it will not affect woody landscape plants or lawns. You can use compost at the recommended rates for Maine. Some examples are:

1. For a new lawn, spread ½ to 1 inch of compost and till into the top 2 to 4 inches of soil prior to seeding.
2. For an established lawn, topdress with up to a ¼ inch of compost two to three times during the growing season. (Treat bare spots like a new lawn.)
3. For planting shrubs, blend with soil at a rate of 3 parts soil to one part compost.

(For more information on appropriate uses, contact the facility where you received your compost, or contact Bill Seekins, Department of Agriculture, at 287-7531 or

bill.seekins@maine.gov].

Where can I get more information?

The Department of Crop and Soil Sciences at Washington State University Pullman is doing bioassays and research on clopyralid. They have an excellent website describing the history of the problem, research on clopyralid contamination, and clopyralid bioassays (see <http://www.css.wsu.edu/compost/compost.htm>). You can get additional copies and updates of this fact sheet at the DEP's "Residuals" Web Page at: <http://www.state.me.us/dep/rwm/residuals.htm>

Who should you contact in Maine for More information?

<ul style="list-style-type: none">• Robert Batteese Board of Pesticides Control 28 State House Station Augusta ME 04333-0028 207-287-2731 Robert.batteese@maine.gov	<ul style="list-style-type: none">• Mark King Residual Use Program, DEP 17 State House Station Augusta, ME 04333-0017 207-287-2651 Mark.A.King@maine.gov
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