

## Important Warning Regarding Persistent Herbicides

*The Maine Board of Pesticides Control is asking distributors and applicators of certain persistent broadleaf herbicides (containing aminopyralid, clopyralid, aminocyclopyrachlor and picloram) to help make sure customers know that hay, plant materials, bedding, manure and compost cannot leave the property where the products are applied.*

Over the last several years, there have been several incidents across the country in which certain broadleaf herbicides have persisted in hay, plant materials, bedding, manure or compost and later caused plant injury in broadleaf vegetable crops. This concern became local last year when the Board's office was contacted by an anonymous vegetable grower whose crops were damaged by compost derived in part from his livestock's manure. The grower had purchased hay from a local hay broker to feed his livestock. What he didn't realize is that the hay came from a field that was treated with Forefront™ herbicide. Forefront™ contains the active ingredient aminopyralid, which is favored for control of certain broadleaf weeds (especially bedstraw) in hay and pasture land. Unfortunately, aminopyralid, and a similar herbicide active ingredient called clopyralid, will often persist in hay, bedding, manure and compost made from that hay, bedding or manure, and remain biologically active enough to ruin sensitive broadleaf vegetable crops and even woody ornamentals.

These persistent herbicides are a class of systemic herbicides that are used to control a wide variety of broadleaf weeds. This relatively new class of herbicides called "pyridine and pyrimidine carboxylic acids" are designed for use in hayfields, horse pastures, agricultural crop production, golf courses, rights-of-way, and lawns to control unwanted weeds.

### Chemical compounds in these persistent herbicides

There are a number of compounds that fall into the category of persistent herbicides. The most prevalent are:

Company	Trade names	Active Ingredients
DuPont	Imprelis Perspective Method Streamline Viewpoint	Aminocyclopyrachlor Potassium salt
Dow AgroSciences	Capstone Forefront Opensight Milestone	Aminopyralid Aminopyralid Diisopropanolamine salt
Dow AgroSciences	Confront Lontrel Millennium Ultra Stinger Transline Agri Spur Thistledown Hornet Garrison Quali Pro	Clopyralid Clopyralid Potassium salt Clopyralid Monethanolamine salt Clopyralid Triethanolamine salt

Company	Trade names	Active Ingredients
Dow AgroSciences	Tordon Picloram Pathway	Picloram Potassium salt Picloram Triisopropanolamine salt

Many of these compounds appear on labels in slightly different variations making identification by the untrained applicator difficult.

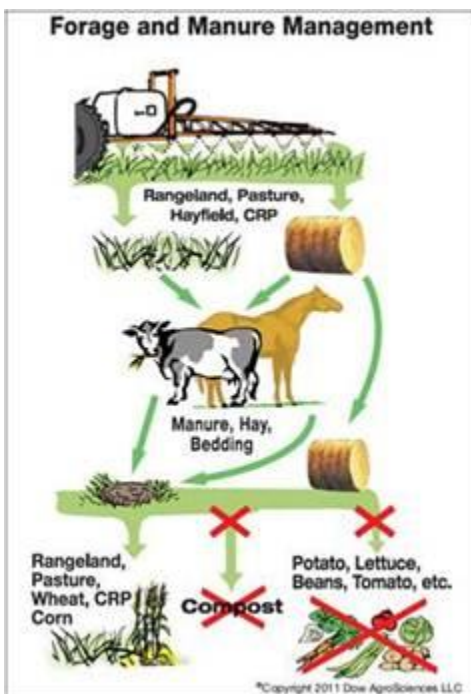
## How long do persistent herbicides last in soil?

Depending on the type of herbicide and the level of concentration in your soil, persistent herbicides can last anywhere from a month to three or more years before completely breaking down into inert compounds. The length of time depends upon a variety of factors, including the type of soil, and moisture content of the soil. These herbicides all survive much longer in a pile of compost than they typically do when incorporated into other soils, such as in a garden.

## Where do persistent herbicides come from and how did they get into compost?

The most common pathway known for persistent herbicides making their way into compost is through manures and bedding as well as leaf and yard debris. Depending on the region, these compounds are used in variable amounts on horse pastures, hay and grain fields, golf courses, rights-of-way, and lawns. The resulting hay, grass, or digested materials are required to be disposed of somewhere other than a garden or compost facility, or introduced back onto the land of original application. The labeling requirements for many of the persistent herbicides state that manures from animals grazing in treated areas or hay and grass clippings from treated areas are not to be sent to a compost facility.

The product labels for products containing these herbicides have prominent prohibitions against removing the hay, bedding or manure from the farm on which the herbicide was applied. A Board investigation revealed that hay brokers were not made aware of these prohibitions as the label requires, which led to the 2013 incident with the vegetable grower. Consequently, the Board has elected to alert dealers, commercial agricultural applicators and growers about the herbicide label prohibitions in hopes of avoiding similar incidents in the future.



## Why don't persistent herbicides break down in the compost process?

Commercial composting involves several processes of intense and prolonged biological activity at high temperatures. The temperatures are not constant among compost operations. This environment not only results in rapid degradation of food scraps and other feedstock, but is also extremely effective at degrading the vast majority of herbicide residues into their harmless constituent pieces. Persistent herbicides are compounds that have been formulated by the manufacturers specifically to be resistant to biological degradation.

While most residual traces of herbicides typically breakdown in compost piles in a matter of days, these particular compounds can be resistant to breakdown for months or even years.

## What you must do if you apply these materials

If an herbicide is applied to hay or pasture land containing aminopyralid, such as Forefront, Milestone or Capstone, applicators have an obligation to ensure that any hay, bedding, manure or compost remains on the farm where the application was made. Similarly, applicators must ensure that hay, bedding, manure and compost are not used on the farm as soil amendments or mulch on vegetable or ornamental gardens. Commercial applicators should stress these concerns with their customers and it is recommended that they ask their customers to sign an acknowledgement (**see suggested form below and attached**) of the requirements.

Similar issues have arisen in other states and the Board's staff has been involved in an issue arising from municipal compost in which lawn clippings from treated lawns were the likely cause (in the case of turf, clopyralid is the herbicide that was used). Dow AgroSciences has been working with EPA to implement measures to prevent these types of issues from arising. Current product labels contain a large pictogram that prohibits movement of treated hay, bedding or manure from the farm on which it originates, and prohibits the use of the manure for compost. However, pesticide label language is generally thought to regulate activities of the pesticide applicator, and the pesticide applicator was not the person who sold hay for use on other farms.

- Applicators or growers should make sure the label instructions are passed on and understood by anyone involved with treated crops and residues.
- Livestock managers must make sure any manure or bedding from animals that have grazed areas treated with any of these products stays on the farm and does not end up in any compost production stream.

If you have any questions, please reply or contact the BPC at 207-287-2731