

Residues of Picloram, Clopyralid or Aminopyralid Herbicide Create Killer Compost

Minute concentrations of picloram, clopyralid and aminopyralid, as low as 1 ppb (parts per billion), can be lethal to sensitive garden plants such as peas, beans, lettuce, spinach, tomatoes and potatoes.

Most pesticides, including herbicides, break down quickly in the composting process. Picloram, Clopyralid and Aminopyralid do not. These chemicals are

- Easily absorbed by plants.
- Remain chemically stable and intact in both live and dead plants.
- Do not breakdown substantially in animal digestive tracts so contaminate manure, urine and bedding with residues.
- Breakdown very slowly in composts and soils with an estimated half life of 1 - 2 years.
- Affect sensitive crops at very low concentrations - 1-3 ppb.

The only way to handle this potential threat is to keep materials contaminated with picloram, clopyralid and aminopyralid out of your garden in the first place.

Trade Names Please

When you're talking to a farmer supplying hay, straw or manure asking about picloram, clopyralid and aminopyralid is probably not enough. You'll need to ask about specific trade names of the herbicides.

These herbicides are sold under the following trade names.

- 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.

Where and Why are Picloram, Clopyralid and Aminopyralid Used?

These herbicides are used to control broadleaf weeds such as Canada thistle in the following situations

- Turf such as golf courses.
- Pastures for animals such as cattle, horses and other animals.
- Grass family crops such as wheat, barley, grass hay.
- Transmission line rights of way.
- Ditches along roads.

Two things make these herbicides a popular choice. First, they are persistent so do not need to be applied often. Second, they appear to have little to no effect on the health of animals and people.

How Do Picloram, Clopyralid and Aminopyralid End Up in your Garden?

There are three main paths that could bring these herbicides to your garden.

- Contaminated Mulch materials - hay, straw and grass clippings.

- Contaminated Manure and Bedding from livestock fed crops treated with these herbicides. **Ask whether animals have been fed hay harvested from ditches or transmission lines. Avoid those that have.**
- Contaminated Composts made from contaminated hay, bedding, grass clippings and manure.

Ironically, the people most likely to wind up with these materials in their gardens are organic gardeners.

What Crops are Affected?

Even very small amounts of picloram, clopyralid and aminopyralid - as little as 1 ppb - can negatively affect sensitive plants. Dow, the manufacturer of these herbicides, claims that only a few plants are affected. The average home gardener may beg to differ. Sensitive plants include:

- 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 are exposed to these herbicides develop cupped or fern like leaves and twisted stems. They do not produce well, though in theory the crop is safe for you to eat.

What to do if your Garden is Contaminated

This will pass. It may take a long time but eventually the herbicides will disappear. In the meantime you can grow grass family crops including corn, wheat and barley. Yippee!

You can grow a lawn. If you have contaminated material left use it on your lawn and grasscycle. Do not use these clippings for compost or mulch.

Some crops such as the squash and mint family are less sensitive - they can handle concentrations of about 300 ppb before succumbing.

Keeping testing using the bioassay method developed by Washington State University until your soil tests clear.

How to test Compost, Soil and Materials for Picloram, Clopyralid and Aminopyralid residues

Lab tests are very expensive and slow for these residues in large part because they need to detect extremely low levels of pesticides. However, you can do a fairly accurate test yourself using these methods.

To test manure, compost or soil you think might be contaminated.

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 link will give you more details on this [bioassay method](#) including photos of herbicide damaged plants.

To screen grass clippings, hay and straw you are thinking of using as a compost or mulch material

1. Fill 6 clean pots with commercial potting mix. Three will be for your tests and three will be controls.
2. Place each of the pots in a separate saucer to prevent water from one pot reaching another.
3. Water the pots and leave to stand for 24 hours.
4. Plant each pot with three pea or bean seeds.
5. Soak the clippings, hay or straw in a clean bucket making a tea colored brew. Use this brew to water your three test pots and regular water for your control pots.
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 hay, grass or straw. Signs of other kinds of damage will most likely indicate other issues such as damping off or bacteria-infected soil, etc.

Go here to find [photos](#) of herbicide damaged plants and scroll down to page 5.

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