



## Clopyralid

### The Basics

We've been busy doing research on clopyralid and trying to get our heads around how it ends up in our community. We've collected a **TON** of information. This has answered some of our relevant questions but has also opened up more areas that are unclear. So we continue to investigate.

- What is clopyralid?
- How is it regulated and legally used?
- What's the level of toxicity?
- And the big question is, what is the path of travel that gets this stuff into our community?

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### What is clopyralid?

So, here are the basics for what we've found: Clopyralid is a selective herbicide, meaning it affects certain plants, but not others. Clopyralid targets broadleaf plants. It's used to control broadleaf weeds such as thistle, clover, and dandelion. It also affects our broadleaf garden plants such as tomatoes, peas, lettuce, spinach potatoes, peppers, and sunflowers.

It has little effect on grasses and other monocots but also does little harm to members of the mustard family (Brassicaceae) and several other groups of broad-leaved plants. Which means it seems to not be toxic at all for most plants.

*Read More:*

- [Washington State University - Q&A for Gardeners and Farmers in Western Washington](#)
- [Penn State University - Introduction to Weeds and Herbicides](#)

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### How does it work?

Clopyralid is a synthetic plant growth regulator that mimics the targeted plant's natural growth hormone, or auxin. This is interesting because clopyralid has to be a match to

the plant's growth hormone in order for it to be effective. Clopyralid replaces the plant's auxin and disrupts the growth process. Depending on how much is used, it can harm or kill the targeted plant.

*Read More:*

- [The Nature Conservancy - Weed Control Methods Handbook](#)
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## Who makes this stuff?

Dow AgroSciences is the developer of clopyralid. Dow, as well as other manufacturers, use clopyralid in the formulation of herbicides under various brand names such as Stinger, Transline, Curtail, and Millennium Ultra.

*Read More:*

- [Wikipedia - Clopyralid](#)
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## How does it decompose?

It is degraded almost entirely by microbial metabolism in soils and aquatic sediments. Clopyralid is not degraded by sunlight or hydrolysis. It is water-soluble, does not bind strongly with soils, and has the potential to be highly mobile in soils, especially sandy soils.

So, when it's on the surface level, there are more microbes to help break it down. As it travels deeper throughout the soil and into our water resources, there is less microbial activity, so it can persist for longer periods of time.

*Read More:*

- [The Nature Conservancy - April, 2001](#)
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## Is it safe?

Well, it depends on how you define "safe". The Environmental Protection Agency's (EPA) definition of "safe" means that "there is a reasonable certainty that no harm will result from aggregate exposure to the pesticide chemical residue, including all anticipated dietary exposures including exposure through drinking water and in residential settings." Basically, it has categorized clopyralid as low toxicity and does not pose a cancer risk to humans. We are still investigating this, though!

Read More:

- [WSDOT - Roadside Vegetation Management Herbicide Fact Sheet](#)
  - [Federal Register: Clopyralid; Pesticide Tolerances](#)
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## How is it Regulated?

This next section reads more like a lullaby, but it is important, so here we go...

Who are the regulating bodies in regard to pesticide use?

Answer: Congress, FIFRA

It starts in Congress. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) is a United States federal law that set up the basic U.S. system of pesticide regulation to protect applicators, consumers, and the environment.

It is a violation of federal law to use a pesticide in a manner inconsistent with its labeling. It travels to the EPA next.

Read More:

- [EPA - Federal Insecticide, Fungicide, and Rodenticide Act \(FIFRA\) and Federal Facilities](#)
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## EPA, Federal

The EPA is responsible for administering the regulations of FIFRA. Before a pesticide may be sold or distributed in the United States, it must be registered (licensed) with the EPA. The registration process includes approved uses and establishes a "tolerance" level or the maximum safe amount of pesticide that can be used. The registration process involves evaluating human health and environmental risks through thorough testing. The EPA continues to review each registered product approximately every 15 years to determine if it meets FIFRA's registration standards. The EPA also has the responsibility of reviewing pesticide product labels as part of the licensing and registration process. Are you still with us? Onward...

Read More:

- [EPA - Our Mission and What We Do](#)
  - [Federal Register – Clopyralid; Pesticide Tolerances](#)
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**Department of Agriculture, State (ODA) for those of us in Oregon.**

OK, we are getting closer to regulations at home...

States can either accept the federal regulations of use or pass their own pesticide regulations, provided they are at least as stringent as federal.

**States have primary authority for compliance, monitoring, and enforcing against illegal pesticide use.** In the state of Oregon, the Oregon Department of Agriculture (ODA) is responsible for enforcing State and Federal regulations regarding the licensing, distribution, and use of pesticide and fertilizer products.

The Pesticide Analytical and Response Center (PARC), a department within the ODA, coordinates investigations to collect and analyze information about **reported** pesticide-related incidents in Oregon that have suspected health or environmental effects. PARC is mandated to perform the following activities:

- collect incident information
- mobilize expertise for investigations
- identify trends and patterns of problems
- make policy or other recommendations for action
- report results of investigations
- prepare activity reports for each legislative session

*Read More:*

- [ODA – Pesticide and Fertilizer Programs](#)
- [ODA - Pesticide Analytical and Response Center \(PARC\)](#)
- [ODA – Oregon Regulations on Pesticide Applications](#)

Wow! ODA has a big responsibility!

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## Organic Certifiers such as OMRI and Oregon Tilth

Many of us choose organic products that support healthy soil, water, and air, leading to healthier plants, animals, and people. The organic label offers assurances for the integrity of the product.

OMRI (Organic Materials Review Institute): OMRI is an independent nonprofit organization that reviews input products, such as fertilizers, pest controls, and livestock health care products to determine their suitability for producing organic food and fiber. Inputs are products used to grow, process, or produce organic foods or fibers.

**The OMRI Listed® seal** assures the suitability of products for certified organic production.

OMRI conducts site inspections and product sampling when there is cause to collect such information, and also to randomly verify compliance. OMRI's initial and annual fees are based on the company's annual gross sales.

*Read More:*

- [OMRI.org](https://www.omri.org)
- [OMRI Policy Manual](#)

**Oregon Tilth:** Oregon Tilth is a nonprofit membership organization dedicated to supporting and advocating organic food and farming. Oregon Tilth's purpose is to educate gardeners, farmers, legislators, and the general public about the need to develop and use sustainable growing practices.

Oregon Tilth Certified Organic (OTCO), the certification program of the organization, engages in organic certification activities for agricultural producers, product manufacturers, and other handlers of organic products.

During the initial certification process, OTCO conducts a material review and on-site inspection of each production unit, facility, and site that produces or handles organic products. During the on-site inspection, collection and testing of soil, water, waste, seeds, plant or animal tissue, and processed product may be undertaken at OTCO's or the inspector's discretion.

Once an operation is certified, OTCO annually conducts announced and unannounced inspections as a compliance monitoring tool.

When there is reason to suspect that an organic product has been produced using or contaminated with a prohibited substance, OTCO will require sampling and testing to be conducted. OTCO is required to conduct residue sampling of between 5 and 10% of certified operations at a minimum.

*Read More:*

- [www.Tilth.org](https://www.tilth.org)
- [Oregon Tilth Certified Organic - Procedures Manual](#)

Whew! Are you still awake? So, here's a question that continues to be investigated: Can the way in which pesticides are monitored and enforced be improved?

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## What are the allowable uses of clopyralid?

Keeping it in the neighborhood, we are going to focus only on the state of Oregon. The state of Oregon has adopted greater restrictions for the use of clopyralid than the EPA's federal pesticide regulations.

On a federal level, clopyralid is classified as a Restricted Use Pesticide (RUP). This means anyone using clopyralid must become a certified applicator by obtaining a license from the Oregon Department of Agriculture. During the licensing process, a person must demonstrate knowledge in how to handle and apply pesticides in a safe and responsible manner.

The only allowable location uses for clopyralid in Oregon state are forest, golf course, cemetery, right-of-way, and agriculture. Clopyralid can be sprayed on our food too. Here's a list of crops where it may be used: apple, apricot, asparagus, barley, blueberries, cavalo cherry, cranberry, oats, flax, hops, peppermint, spearmint, swiss chard, nectarine, peach, plum, plumcot, prune, strawberry, field corn, field seed corn, silage corn, sweet corn, yellow popcorn, garden beet, cauliflower, cabbage, Napa cabbage, choy sum, kohlrabi, collard greens, kale, brussel sprouts, canola (rapeseed), rape greens, Chinese broccoli, Chinese mustard cabbage, rutabaga, turnip, mustard greens, mustard seeds, mizuna, peppermint, spearmint, stone fruits, and triticale.

*Read More:*

- [Oregon Pesticide Licensing Guide](#)
- [Oregon Department of Agriculture - Division 57: Pesticide Control](#)
- [CORTEVA Agriscience - Stinger](#)
- [WSU – PICOL \(Pesticide Center Information Online\)](#) - search by active ingredient: clopyralid

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## What are the prohibited uses for clopyralid?

So, any location other than the list above (under **allowable uses**) is a prohibited use of clopyralid. Just to be clear, the prohibited uses include:

- Residential lawns
- School grounds
- Parks
- Commercial and public turf plantings
- Recreational areas other than golf courses
- Grass clippings or other materials from a treated site (containing clopyralid) for use in compost

Just in case you were wondering... here are the regulations that Washington State has adopted specifically to clopyralid. (starting at section 16-228-1235)

*Read More:*

- [Washington State Legislature - Department of Agriculture](#)
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## How does it end up in our community?

The big question on all of our minds is with all of the regulations, monitoring systems, and enforcement in place, how is it STILL making its way to our community? Here are more pieces to the puzzle...

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## What is clopyralid's path of travel from farm to local garden?

Let's take a road trip together and find out.

### ***First Stop: The Applicator***

Clopyralid's first stop is when it leaves the container and is used on the plants.

Remember: whenever clopyralid is used, it may only be applied by a certified pesticide applicator, meaning someone licensed by the state who has demonstrated knowledge in how to handle and apply pesticides in a safe and responsible manner.

Additionally, the EPA states the "use of a pesticide in a manner inconsistent with its labeling is **illegal**."

The label states strict guidelines about what can be done with any plants, hay, or straw treated with clopyralid or even manure from animals that have grazed on treated areas. The intent is to contain the clopyralid, allowing it sufficient time to decompose before it is used in compost or mulch.

So here's what the clopyralid product labels say:

*"Do not use plant residues, including hay or straw from treated areas, or manure or bedding straw from animals that have grazed or consumed forage from treated areas, for composting or mulching where susceptible plants may be grown the following season."*

*"Do not spread manure from animals that have grazed or consumed forage or hay from treated areas on land used for growing susceptible broadleaf crops."*

There are several possibilities of travel after the plant has been sprayed. A treated crop, such as hay or grain could be fed to a cow or chicken, which then passes through the animal's digestive tract and the clopyralid is excreted in the urine or manure. Another possibility could be the turf on a golf course or cemetery is sprayed, the grass is mowed, and the grass clippings, if mobilized, are now a spreadable contaminant.

Read More:

- [Oregon State University – Herbicide carryover](#)
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### Here's where the investigation continues:

- If the label instructions are being followed properly, why is clopyralid still in manure that is being sold? Clopyralid's path of travel should end here.

Here's another question to consider:

- Is Oregon's Department of Agriculture taking an active enough role in the management of pesticides? Or are their hands tied in some ways that we do not understand? More to come on this as we continue to do research. Stay tuned...

Read More:

- [OHA \(Oregon Health Authority\) - Oregon Regulations on Pesticide Applications](#)
- [WSU – PICOL \(Pesticide Center Information Online\)](#) - search by active ingredient: clopyralid

## **Second Stop: The Producer**

This stop receives a product material from the first stop, the applicator. This could be manure, straw, hay, grass, or other plant residue that has clopyralid in it. The producer could be a mushroom farmer who buys manure and straw as a base to grow mushrooms in. It could be a compost or fertilizer producer who gathers up various ingredients such as rotting fruit from an orchard or manure from dairy farmers to create a marketable soil amendment product.

One path that has been uncovered in our research starts with the United States Department of Agriculture, Forest Service division. The Forest Service uses the herbicide called Transline, which is 40.9% clopyralid to control noxious weeds and is used in right-of-way management, wildlife openings, and facilities maintenance. The Forest Service mulches forest debris and sells it. A chicken farmer purchases contaminated wood chips from the Forest Service as bedding for the chickens. The chicken farmer then sells the chicken manure as a soil amendment that contains various degrees of wood chips in it. DEANS recently bought chicken manure from an OMRI certified producer, tested a sample, and the results showed positive traces of clopyralid.

The producer may not have any knowledge that the product coming from the applicator contains clopyralid.



To establish a more reliable source of input products, DEANS chooses to buy all materials (manures, composts, and soil amendments) from "Certified" farms and producers when possible, which **guarantee** products are suitable for organic use. The producers are either OMRI or Oregon Tilth certified. Hmm...but pesticides are not suitable for organic use.

*Read More:*

- [omri.org](http://omri.org)
- [tilth.org](http://tilth.org)

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## **What does "Certified for Organic Use" mean? Is it even real anymore? We are very interested in getting to the bottom of this.**

Recent testing at DEANS has shown clopyralid to be present in three separate products from the second stop of travel. These producers are either OMRI or Oregon Tilth certified.

Instead of pointing the finger of blame on a specific producer or certifier, we realize this may be an even broader issue and we are continuing to investigate.

Here are some general details regarding the producers we have purchased from that tested positive.

- Producer #1 is an Oregon based farm that specializes in growing mushrooms primarily for the foodservice industry as well as supplying mushrooms to New Seasons Market and other grocers. They are certified organic by Oregon Tilth. DEANS received mushroom compost from this farm.
- Producer #2 specializes in transforming organic residuals, or waste, into marketable products such as compost, fertilizer, and soil amendments. The wastes are primarily generated by confined animal feeding operations (CAFOs) and municipalities. They are certified for organic use by OMRI. DEANS purchased compost made from dairy manure from this business.
- Producer #3 specializes in making organic fertilizer products from chicken manure. They are certified for organic use by OMRI. DEANS purchased an all-purpose garden and plant fertilizer from them.

So, how does an organic product end up with clopyralid in it? What is OMRI and Oregon Tilth's responsibility in this? More research to come. Stay tuned...

### ***Third Stop: The Retailer (DEANS)***

OK, so the retailer is buying bulk products from the previous supply chain, the producers. Retailers could include landscape supply stores, like DEANS or nurseries. DEANS chooses producers that are certified by OMRI and Oregon Tilth, guaranteeing their materials (compost, manure, soil amendments) are all certified for organic use.

In house, DEANS performs regular testing relating to pH, N-P-K (Nitrogen, Phosphorus, and Potassium) and EC (salts) along with nutrient content on several of our products. DEANS has historically relied on the "certified for organic use" seal from OMRI and Oregon Tilth to supply chemical-free materials to our community. DEANS is now seeking out new relationships in search of reliable organic material sources.

### ***Last Stop: Our Community and Garden***

Finally, we get to our community. At this point, it seems unlikely that clopyralid could travel all the way to our garden, but unfortunately, in some cases it has. So here's what we can do...

#### **What can I do if I suspect Clopyralid contamination in my garden?**

First confirm the source of the problem...it could be due to numerous factors including pH, EC (salts), nutrient levels and not herbicidal. There are several independent labs you can submit a soil sample to confirm the presence of a herbicide. In addition, there are several at home soil test kits available. You can learn more [here](#).

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#### **What are the legal ramifications for the misuse of clopyralid?**

When a violation of state and/or federal pesticide laws is determined to have occurred, several enforcement actions are available to ODA. These include suspension or revocation of pesticide license, civil penalty (which may also lead to criminal charges), issue a stop sale, use or removal order, refer to the EPA for review and enforcement actions, and crop embargo or detainment.

*Read More:*

- [OHA \(Oregon Health Authority\) - Oregon Regulations on Pesticide Applications](#)

**Yay! You made it to the end...**

**But it clearly isn't the end!** We are continuing to dig deeper into the question of how this stuff gets into our community. As you can probably tell by now, it's not as easy as singling out one source.

***Our goal is to get to the truth. We intend to see this through to the end.***

We are currently petitioning the EPA to affect permanent change banning the use of Clopyralid. [CLICK HERE](#) to get involved!