



January 17, 2020

WI DNR Pesticide Use Advisory Team

This Pesticide Assessment was conducted at the request of the Wisconsin Department of Natural Resources (WI DNR). The Department Pesticide Use Team requested that Dr. Mark Renz (University of Wisconsin Professor and Extension Weed Specialist) review and summarize aspects of active ingredients commonly used for unwanted plant control in forests and natural areas and provide his **professional opinion** on the risks and value of this active ingredient compared to other commonly used practices. For more detailed information about this active ingredient, please consult the [US Environmental Pesticide Agency](#) or [National Pesticide Information Center](#). Pesticide labels are the law and must be followed.

Per your request, I am providing information to consider when determining if clopyralid should continue to be listed as a general pesticide for use on Wisconsin Department of Natural Resources lands. My comments are related to the specific assessment considerations that you wanted me to consider. All of my toxicological information is taken directly from the resources listed at the end of this letter.

Clopyralid is a selective herbicide providing control of a range of broadleaf weeds and brush in grasslands, forestry, non-crop, residential sites, agriculture, and natural areas. It is applied to foliage of plants that are actively growing and directly to cut surfaces or bark of trees. It is mostly targeted towards noxious and invasive annual, biennial and perennial weed species, but also has control of agronomic broadleaf weeds. Clopyralid can also provide residual weed control activity controlling re-infestations and reducing the need for re-treatment depending on the rate applied and the target weeds. It has been registered for use since 1987 and is a key tool for invasive species. Due to its selective nature it allows for use in prairies as it has limited activity on several native forb species. It is currently used by Wisconsin DNR for invasive plant control of spotted knapweed, crown vetch, Canada thistle, black locust and a range of other invasive plants. While alternatives exist to this product that provide equivalent effectiveness to many species ((aminopyralid) its effectiveness on specific invasive species (birdsfoot trefoil) and added selectivity to prairie forbs (less forbs are injured compared to aminopyralid) make this a better option in select situations.



Assessment Considerations

1. What are the human health risks (applicator and the public): Acute toxicity studies indicate that clopyralid has low toxicity to humans. The active ingredient does have the potential to cause acute eye irritation if it comes into contact with the eye (very slight temporary corneal injury). Chronic toxicity is also very low for clopyralid. Clopyralid is classified by the U.S. Environmental Protection Agency as “not likely to be a human carcinogen. While there is risk of exposure to people visiting natural areas, following the label restrictions and using appropriate signage to prevent them from accessing areas where it was used for the appropriate time should eliminate the potential for any exposure. the EPA concluded that “there was reasonable certainty that no harm will result to the general population from aggregate exposure to clopyralid residues.”

2. What are the potential negative environmental impacts and risks?
 - **Environmental fate:** In soil and water, clopyralid is degraded primarily by microbes. Rates of breakdown increase with increasing soil moisture and temperature, and decrease with increasing amounts of organic matter. No harmful metabolites accumulate during the degradation process. Although degradation can occur rapidly in some soils (3-4 weeks), it generally takes a year or more for clopyralid to decrease to undetectable levels in treated soils. The half-life of clopyralid in water ranges from 8 to 40 days. It is water soluble, does not bind strongly with soils, and has the potential to be highly mobile in soils, especially sandy soils. While the majority of the herbicide remains near the surface it has been detected as deep as 1 meter in soils. Given concerns about leaching into water tables, EPA has placed an advisory statement that warns of applications to areas with a high water table and/or soils amenable to leaching (sandy/course soils, or fractured soils). Potential for surface water contamination is also an issue. Label provides information that, if followed, will limit these impacts but users should use caution when using this herbicide to avoid any potential movement. This has not been documented to have occurred in Wisconsin (to my knowledge) during the 30+ years of use.



Risk to organisms: Clopyralid is practically non-toxic to birds and mammals. It also has low toxicity to aquatic animals and very low toxicity to soil invertebrates and microbes.

In summary this product is used in Wisconsin, primarily for invasive plant control. Studies conducted indicate that applicators or citizens are not at risk from its use if label directions are followed (PPE and restricted entry intervals). The biggest concern is applications to sandy soils or fractured soils with a high water table. I suggest following the advisory statement on labels to ensure leaching into the soil does not occur. Given the limited use by WI DNR I am confident that, **if the label is followed**, limited to no impacts to the environment will occur due to WI DNR use.

3. How effective is the proposed pesticide for the proposed target(s)? Clopyralid based herbicides are effective on several highly invasive species. Given its residual activity and selectivity it is an effective and flexible tool for WI DNR land managers. Comparisons of effectiveness should be conducted with aminopyralid specifically as this has a better environmental profile and often have comparable control.
4. What is the specificity of the proposed pesticide to the proposed target(s)? Clopyralid is used primarily for treating to foliage of invasive plants but it is also used for application to trees/shrubs (cut surface/basal bark). Its use in active restoration can provide invasive plant control with limited injury to desirable plants.
5. Is there a need for a maximum application site frequency and/or area other than specified on the product label? No but consider the groundwater advisory statement about areas with high water tables and sandy/fractured soils.
6. Is there another pesticide and/or Integrated Pest Management (IPM) technique that should be considered in-lieu of the proposed pesticide? Several other products exist that will provide similar results, but they often have a higher cost, environmental concerns, and/or greater non-target impacts. Details would be site and species specific. This product is very similar in the spectrum of plants it controls as aminopyralid. **Given this clopyralid use should be limited to situations where aminopyralid applications are not as effective as leaching potential**



is much less with this aminopyralid vs clopyralid. Other techniques to be considered include removal, grazing, burning, and repeated mowing. These techniques have positive and negative attributes which would need to be considered compared to herbicide use but most often these non-chemical treatments either result in a large amount of disturbance (removal) or need to be repeated multiple times to obtain similar levels of success as the use of this herbicide.

7. Other Considerations: This product can persist through the composting process so ensure that any plant material treated does not enter this pathway, nor manure from animals that have eaten treated plants (see label). Also see leaching potential issue. I would recommend that areas that can have the water table within the top meter of the soil surface be excluded from potential treatment.

<https://www.invasive.org/gist/products/handbook/11.Clopyralid.pdf>

<https://content.ces.ncsu.edu/lontrel-clopyralid>

http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_07e6/0901b803807e65d8.pdf

Feel free to contact me if you have any specific questions with regards to this information.

Sincerely,

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