



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 metsulfuron 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 US EPA, the National Pesticide Information Center, or the WSSA Herbicide Handbook. I have listed links to these resources at the end of this letter.

Metsulfuron is a selective herbicide providing control of a range of broadleaf weeds and brush in grasslands, forestry, non-crop, agricultural and natural areas. It is applied to foliage of plants that are actively growing. It is mostly targeted towards noxious and invasive annual, biennial and perennial weed species. Metsulfuron can also provide some residual activity controlling re-infestations, but this is rate and location dependent. It has been registered for use since 1986 and is widely used in grasslands and non-crop areas throughout the United States. It is especially effective on multiflora rose, Japanese barberry, and invasive plants in the apiaceae family (wild parsnip, wild chervil, Japanese hedge parsley). Although a range of alternative herbicides are equally effective.



Assessment Considerations

1. What are the human health risks (applicator and the public): Metsulfuron has low acute dermal toxicity and low amounts of eye irritation, with even less toxicity from inhalation or ingestion. It also has not displayed any chronic toxicities. It is not believed to be carcinogenic by the EPA. 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.
2. What are the potential negative environmental impacts and risks?
 - **Environmental fate:** Metsulfuron persists in the environment to varying degrees depending on soil temperature, moisture content, and pH. Metsulfuron degrades in the soil via both microbes and hydrolysis. The chemical will degrade faster under acidic conditions (hydrolysis), and in soils with higher moisture content and higher temperature. Half-life estimates range from 14 - 180 days, with an overall average of reported values of 30 days. Metsulfuron breaks down in water slowly with half-lives between 29 and greater than 84 days. Metsulfuron is moderately mobile in soils, with higher mobility potential in alkaline soils than in acidic soils (more soluble under alkaline conditions). It has been documented to leach past 1 meter in depth, but typically the majority of the herbicide remains near the soil surface thus EPA did NOT put a groundwater advisory statement on labels.
 - **Risk to organisms:** Metsulfuron is practically nontoxic to birds, fish, invertebrates, and honeybees. It does not accumulate in fish. Therefore, risk to organisms is low.

In summary this product is used in Wisconsin, primarily for invasive plant control in grasslands, forestry, and non-crop situations. Studies indicate that applicators or citizens are not at risk from its use if label directions are followed (PPE and restricted entry intervals) and few wildlife have any sensitivity to this product. Given that the use typically increases the quality of the habitat for these species (eliminates unwanted species), positive results for wildlife are expected. Given these facts and 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)? Metsulfuron is the most effective herbicide on several highly invasive species (multiflora rose, Japanese barberry, wild parsnip, wild chervil, Japanese hedgeparsley). Given its residual activity and selectivity it is an effective and flexible tool for WI DNR land managers although a range of other products can be used in place of this herbicide.
4. What is the specificity of the proposed pesticide to the proposed target(s)? Metsulfuron is used primarily for treating to foliage of invasive plants.
5. Is there a need for a maximum application site frequency and/or area other than specified on the product label? No.
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. These products will need to be compared with metsulfuron to determine which fits the desired goal for invasive plant control. Things that should be evaluated include cost, soil type, depth to groundwater, and other key environmental factors. Details would be site and species specific. 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: Several annual species are likely resistant to this product (kochia) from extensive use in non-crop areas.

<https://www.govinfo.gov/content/pkg/FR-2002-08-07/pdf/02-19807.pdf>

<http://pmep.cce.cornell.edu/profiles/extoxnet/metiram-propoxur/metsulfuron-methyl-ext.html>

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

Sincerely,

Department of Agronomy
College of Agricultural and Life Sciences
University of Wisconsin-Madison 1575 Linden Dr. Madison, Wisconsin 53706
608/262-1390 Fax: 608/262-5217 <http://agronomy.wisc.edu/>



WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON

Mark Renz PhD
Extension Weed Scientist
Agronomy Dept., University of Wisconsin-Madison
email: mrenz@wisc.edu
Office: 608 263-7437

Department of Agronomy
College of Agricultural and Life Sciences
University of Wisconsin-Madison 1575 Linden Dr. Madison, Wisconsin 53706
608/262-1390 Fax: 608/262-5217 <http://agronomy.wisc.edu/>