October 15, 2021

WI DNR Pesticide Use Advisory Team

Per your request, I am providing information to consider when determining if florpyrauxifen should be listed as a general pesticide for unregulated 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 or other reputable sources of information. I have listed links to these resources at the end of this letter.

Florpyrauxifen is a selective herbicide providing broadleaf weed control in agricultural and nonagricultural settings, and it is registered for use in both terrestrial and aquatic environments. Major terrestrial sites in Wisconsin include pasture and rangeland, non-crop areas, natural areas and cropland (wheat). It is applied to foliage of plants that are actively growing. It mostly targets terrestrial weedy, noxious and invasive annual, biennial and perennial weed species. In terrestrial noncrop systems it is mixed with other active ingredients. This expands the range of species susceptible to the product. It has been registered for use since 2017 in the United States. While alternatives to this product already exist in the marketplace and are effective, the reduced environmental risk of this product in combination with the high level of activity on common invasive plants in the Apiaceae family (e.g. wild parsnip, wild chervil) make this a desirable option in noncrop and natural areas.

Assessment Considerations

1. What are the human health risks (applicator and the public): Toxicity studies indicate that florpyrauxifen has very low acute toxicity as studies found no adverse effects from inhalation, ingestion, or dermal exposures. Similarly, developmental and reproductive toxicity studies found no adverse effects of this compound when administered to lab animals at high rates (300 mg/kg/day). Chronic toxicity is also low for florpyrauxifen as The EPA has classified this product to “not likely be carcinogenic to humans” and data suggest low potential for bioaccumulation in the environment. Given the low application rates for use, lack of persistence in the environment (see below) and toxicity of this chemical, human health risks are minor to applicators and citizens of Wisconsin.

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2. What are the potential negative environmental impacts and risks?

   Environmental fate: Florpyrauxifen persists in the environment for short periods. Soil half-life values can range from 9-67 days depending on the environmental conditions. While the parent compound breaks down into metabolites, EPA is not concerned about the hazards of these degradates and it is believed that these breakdown in weeks to months. Breakdown occurs via photolysis, hydrolysis, and microbial activity. Florpyrauxifen is tightly bound to soil with low risk for movement in the soil. While florpyrauxifen has an extremely low risk for contaminating groundwater, other active ingredients mixed with this product (aminopyralid) can require a groundwater advisory statement on the label. The statement **suggests** areas with a high-water table and coarse soils are avoided when making applications, but this is not a requirement.

   Risk to organisms: Florpyrauxifen is practically non-toxic to bees, birds, reptiles, amphibians and mammals. While injury to some fish and invertebrates have been occasionally observed from aquatic applications, these were at concentrations much higher than would occur from terrestrial applications. Given the low toxicity, rapid breakdown, low absorption of the compound, and high binding to the soil the risks to other organisms is low. Risk of physical drift to non-target plants exist but can be minimized if following label directions.

3. How effective is the proposed pesticide for the proposed target(s)? Products that contain florpyrauxifen are effective on some broadleaf invasive species. Species that are especially sensitive to this active ingredient include plants in the Apiaceae family (carrot family). Research has demonstrated activity of this active ingredient is similar or better than standard products used. The manufacturer is mixing this active ingredient with other active ingredients to provide broad spectrum broadleaf control with no injury to established grasses (mixing with 2,4-D = ProClova; mixing with aminopyralid = TerraVue/DuraCore).

4. What is the specificity of the proposed pesticide to the proposed target(s)? Products that contain florpyrauxifen are used primarily for treating to foliage of invasive broadleaf plants. As previously stated, the specificity of this active ingredient alone is limited therefore it is

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mixed with other products to provide largescale broadleaf efficacy. Injury to established grasses has been rare and when present minor. When injury to grasses was observed it has not persisted more than one month and did not appear to impact the competitiveness of grass.

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? As previously states several other products exist that will provide similar control compared to products that contain florpyrauxifen. Often these products have higher use rates and/or a worse environmental/toxicological footprint than florpyrauxifen. The high efficacy, low environmental impact and cost are all factors that result in the selection of products that contain florpyrauxifen vs other active ingredients. Other techniques for managing invasive plants should be considered prior to application of products containing florpyrauxifen. These include removal, grazing, burning, and repeated mowing alone or in combination. These techniques have positive and negative attributes which would need to be considered compared to herbicide use. Herbicide use is often selected over non-chemical treatments as these result in a large amount of disturbance (removal) or need to be repeated multiple times at a higher cost to obtain similar levels of success as the use of this herbicide.
7. Other Considerations: Drift potential should be considered prior to use, especially in areas where sensitive plants (soybeans, grapes, tomatoes) are adjacent to the property. Florpyrauxifen has been demonstrated to physically drift and injure sensitive plants. Caution in how this product is applied should be used. Information on the label will provide specific instructions to minimize this impact.

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In summary this active ingredient is mixed with other active ingredients (aminopyralid) and used to control invasive and weed plants in natural areas, non-crop areas, and pastures in Wisconsin. Studies suggest that florpyrauxifen use in terrestrial systems poses minimal risk to applicators or citizens. Impacts from other active ingredients mixed with florpyrauxifen is more likely but any of these impacts can be minimized ***if the label is followed***. Benefits of using this active ingredient will be reduced toxicity and environmental impact as well as reduced cost compared to other products.

References:

Review of Florpyrauxifen-benzyl for Application to Massachusetts Lakes and Ponds. 2019. Massachusetts Dept. of Agriculture.

Florpyrauxifen-benzyl Chemical Fact Sheet. 2018. Wisconsin DNR.

Florpyrauxifen-benzyl new active ingredient review. 2018. Minnesota Dept. of Agriculture.

Peer review of the pesticide risk assessment of the active substance florpyrauxifen (variant assessed florpyrauxifen-benzyl). 2018. European Food Safety Authority (EFSA).

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

Sincerely,

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