

Water Quality **Best Management Practices** for **METRIBUZIN**

July 2011

The Minnesota Department of Agriculture (MDA) has developed voluntary Best Management Practices (BMPs) to address the presence of metribuzin and its breakdown products in Minnesota's groundwater from normal agricultural use (see reverse side of page for metribuzin-specific BMPs). If the BMPs are proven ineffective, mandatory restrictions on herbicide use and practices may be required. The BMPs may also refer to mandatory label use requirements. Always read product labels. For information on monitoring results for pesticides in Minnesota's water resources, refer to the MDA's Monitoring and Assessment webpage:

www.mda.state.mn.us/monitoring

The metribuzin BMPs are companions to a set of core BMPs for use with all agricultural herbicides. Herbicide-specific BMPs have also been developed for use with acetochlor, alachlor, atrazine, and metolachlor. If you use any of these herbicides in the production of crops, be sure to consult each herbicide-specific BMP prior to applying these herbicides. State and federal law can require that the use of a pesticide be limited or curtailed due to the potential for adverse impacts on humans or the environment.

Example trade names for products and package mixtures containing metribuzin. List is not all-inclusive and can change with the introduction of new products; always check the label, or consult MDA's product registration database at <http://state.ceris.purdue.edu/doc/mn/statemn.html> and search for Active Ingredient.*

Metribuzin is an active ingredient in:

Authority MTZ	Cloak	Metribuzin
Axiom	Dimetric	Tricor
Boundary	Domain	
Canopy	Matador	

* Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement is implied.

Information about METRIBUZIN

- Metribuzin can travel (seep or leach) through soil and contaminate groundwater which may be used as drinking water. Users are advised not to apply metribuzin where the water table (groundwater) is close to the surface and where the soils are very permeable i.e., well drained soils such as loamy sands. Metribuzin and its breakdown products have been frequently detected in Minnesota groundwater beneath areas with coarse-textured soils.
- Metribuzin is a photosynthesis inhibiting herbicide that manages weeds through a particular mode of action (chemistry). When used in an Integrated Weed Management (IWM) Plan, its use should be considered jointly with other photosynthesis inhibiting herbicides. Use of herbicides with different modes of action (e.g., plant growth regulators, pigment inhibitors or sulfonylurea herbicides), alone or in tank mixes, may be desirable in an IWM Plan to effectively control weeds while protecting the environment.



Certain soils, regions and watersheds are more vulnerable to losses of metribuzin. Sensitive areas include those with highly permeable geologic material, highly erodible soils or seasonally high water tables (including areas with drain tiles). Note that portions of every Minnesota county may include one or more of these conditions.

Contact your Natural Resources Conservation Service or Soil & Water Conservation District for further information on specific soil and water resource conditions on and near your farm. Then work with crop consultants and educators to select and adopt the Best Management Practices that are appropriate for your field and farm.

The BMPs are provided as a series of options. Producers, crop consultants and educators should select options most appropriate for a given farming operation, soil types and geography, tillage and cultivation practices, and irrigation and runoff management. The MDA encourages development of Integrated Weed Management Plans for every Minnesota farm (see “Additional Information and References” for more information*). **Always read the product label. Label use requirements and application setbacks are legally enforceable.**

Water Quality *Best Management Practices* for METRIBUZIN
To be used in conjunction with MDA’s core “BMPs for All Agricultural Herbicides”

Metribuzin-Specific Practice*	Description	Benefit
<p>1. Adopt the core “BMPs for All Agricultural Herbicides” when applying metribuzin.</p>	<p>MDA’s core “BMPs for All Agricultural Herbicides” are designed as the baseline set of options to mitigate or prevent losses of herbicides to water resources. The core BMPs are available at www.mda.state.mn.us/herbicidebmps</p>	<p>Adoption of core BMPs with those specific for metribuzin and adherence to mandatory label use requirements and application setbacks result in opportunities for multiple water quality protection benefits.</p>
<p>2. Limit total metribuzin rate, including amounts in premixes and tank mixes:</p> <ul style="list-style-type: none"> - on sand soils to no more than 0.4 lbs active ingredient per acre per year. - on loamy sands and sandy loams to no more than 0.5 lbs active ingredient per acre per year. 	<p>Following these application limits is especially important on coarse-textured and irrigated soils (where sand, loamy sand or sandy loam soil textural classifications make up more than 25% of the field). These soils are common in central Minnesota, but are also present in many other locations.</p>	<p>By reserving metribuzin for use on the crop/weed association most in need of its effectiveness (e.g., during the potato year of a corn-bean-potato or bean-potato rotation) – and by limiting its annual application rate – environmental losses are minimized.</p>
<p>3. Rotate use of metribuzin (and atrazine and other photosynthesis inhibiting herbicides) with herbicides from a different chemical class.</p>	<p>Evaluate this practice in the context of other effective control practices in the management system (e.g., use of tank mixes with multiple modes of action; crop rotation; planned, periodic use of herbicide-resistant varieties in a rotation; mechanical weed control; field scouting). Determine which crop in the rotation is in greatest need of photosynthesis inhibiting herbicides, and reserve their use for that crop.</p>	<p>With time, this practice will reduce development of herbicide resistant weeds or weed species shifts, and means less annual availability of these herbicides for loss to the environment.</p>

*BMPs related to the use of other specific herbicides and for all agriculture herbicides are available at www.mda.state.mn.us/herbicidebmps See “Additional Information & References” on “BMPs for All Agricultural Herbicides” to access detailed guidance on recommended practices.