



Water Quality Best Management Practices for Acetochlor

The Minnesota Department of Agriculture (MDA) has developed voluntary Best Management Practices (BMPs) to address the presence of acetochlor and its breakdown products in Minnesota’s groundwater and surface water from normal agricultural use. If the BMPs are proven ineffective, mandatory restrictions on herbicide use and practices may be required. The BMPs also may refer to mandatory label use requirements. Always read product labels. To learn more about on the monitoring results for acetochlor and other pesticides in Minnesota’s water resources, refer to the [MDA’s Monitoring and Assessment webpage](#).

The acetochlor BMPs are companions to a set of core [BMPs for use with all agricultural herbicides](#). Herbicide-specific BMPs were developed for use with atrazine, metolachlor and metribuzin. If you use any of these herbicides in the production of crops, be sure to consult each herbicide-specific BMP before application. State and federal law can require that the use of a pesticide be limited or reduced due to the potential for adverse impacts on humans or the environment.

Information about ACETOCHLOR

- Acetochlor is a preemergence herbicide widely used in Minnesota to control weeds in crops such as corn, soybeans, and sugar beets. It targets most annual grass weeds and several annual broadleaf weeds. Acetochlor typically is applied just before planting, shortly after planting, or early post-crop emergence, often in combination with other herbicides to provide residual weed control.
- Acetochlor is a Site-of-Action (SOA) 15 herbicide that controls weeds by inhibiting the synthesis of very long chain fatty acids. Other herbicides in this class include dimethenamid, flufenacet, metolachlor, and pyroxasulfone. Herbicides in this class should be considered in the context of an Integrated Weed Management (IWM) Plan. All SOA 15 herbicides have similar potential to contaminate water resources.
- Acetochlor has properties that may result in surface water contamination from runoff or erosion. It has been found in Minnesota surface water at concentrations of concern (above the Minnesota chronic aquatic life standard). Violations of the surface water standard for acetochlor resulted in Minnesota streams being placed on the state’s list of impaired waters. The Minnesota Pollution Control Agency posts a complete [list of impaired waters](#).
- Acetochlor has properties similar to other pesticides frequently detected in groundwater. Its use in areas with permeable soils, such as coarse textured soils, particularly where the groundwater is shallow, may result in groundwater contamination. Detections of acetochlor breakdown products are common in such areas, though concentrations are low relative to current drinking water guidelines.

Certain soils, regions and watersheds are more vulnerable to losses of acetochlor. 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 and 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.

Example trade names for products and package mixtures containing acetochlor.

ACETOCHLOR IS AN ACTIVE INGREDIENT IN

Breakfree NXT	Volley products
Cadence products	Enversa
Keystone products	Kyro
SureStart products	Resicore
Surpass products	Fearless

List is not all-inclusive and can change with the introduction of new products and product cancellations. Always check the label or consult the registration database at [USEPA Pesticide Product and Label System](#) and search for Active Ingredient.

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

The BMPs are provided as a series of options. Producers, agronomists, and educators should select those practices that are the 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. Always read the product label. Label use requirements and application setbacks are legally enforceable.

Water Quality Best Management Practices for Acetochlor

To be Used in Conjunction with MDA's Core "BMPs for All Agricultural Herbicides"

Acetochlor– Specific Practice*	Description	Benefit
1. Adopt the core BMPs for All Agricultural Herbicides when applying acetochlor	<ul style="list-style-type: none"> Minnesota Department of Agriculture'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. 	Adoption of core BMPs, along with those specific for acetochlor, and adherence to mandatory label use requirements and application setbacks can reduce runoff or leaching.
2. Scout fields multiple times a year	<ul style="list-style-type: none"> Inspect your fields year-around: before planting, before and after each herbicide use, and after harvesting, to optimize weed control plan and assess effectiveness. Customize weed management based on field-specific needs with guidance from product labels, crop consultants, and University of Minnesota Extension. Report herbicide failures to the product registrant or an Extension Educator. 	Multiple scoutings ensure timely and effective acetochlor application. As a residual herbicide, acetochlor does not permit weed identification before application.
3. Consider using a combination of preemergence and postemergence herbicides including premixes	<ul style="list-style-type: none"> Use both preemergence and postemergence herbicides with multiple sites-of-action to achieve consistent weed control and reduce resistance risk. Use an herbicide Sites-of-Action chart when selecting herbicides to use. Use the appropriate label rate for your soil texture and choose acetochlor premixes over standalone acetochlor products for reduced rates and enhanced weed control, given premixes containing acetochlor and other herbicides often result better than standalone acetochlor products. Consider using non-acetochlor premixes on some acres instead of acetochlor premixes on all acres. 	The preemergence and postemergence program enables lower rates of individual active ingredients and alternative herbicides.
4. Combine and rotate the use of acetochlor with herbicide from different sites-of-action (SOA)	<ul style="list-style-type: none"> Avoid using acetochlor in the same field each year. Consider rotating between acetochlor and non-acetochlor herbicides within the growing season and in subsequent years. Consult your dealer, agronomist, or Extension Educator to identify the best non-acetochlor options for your farm. Consider using non-acetochlor herbicides early in the season, at planting or pre-emergence, and use acetochlor products later in the season. Carefully review acetochlor product labels and adjust application rates based on soil texture, organic matter, and weed infestation. If product labels permit post-crop emergence application, consider layered applications to extend the time of weed control and help reduce the amount of herbicide loss in runoff during early spring rains. 	Diversification of herbicide sites-of-actions and use of proper acetochlor application rates delays resistance in weeds and provides effective weed control with minimal risk to water resources.
5. Soil incorporate acetochlor	<ul style="list-style-type: none"> Evenly incorporate pre-plant or at-plant applications of acetochlor to the depth recommended on the product label to help improve weed control and minimize acetochlor loss through surface runoff. Follow the incorporation depth recommended on the acetochlor product labels if fertilizers are used as a pesticide carrier. 	Incorporated acetochlor is less likely to be lost in surface runoff and reach nearby streams, lakes, and tile inlets.
6. Review each product label for groundwater protection. Maintain required setbacks from wells and sinkholes	<ul style="list-style-type: none"> Do not mix or load acetochlor within 50 feet of wells, including abandoned wells, drainage wells and sink holes. Do not apply acetochlor products within 50 feet of wells (including uncapped abandoned wells and drainage wells) if soil meets certain texture, organic matter, and groundwater depth combinations. If you have a well on or near your field, review soil properties and depth of water table at your farm before acetochlor application. 	Protects groundwater from acetochlor leaching.
7. Review each product label for surface water protection. Maintain required setbacks from surface waters	<ul style="list-style-type: none"> Do not mix or load acetochlor within 50 feet of perennial or intermittent streams and rivers, tile surface inlets, and natural or impounded lakes and reservoirs. Follow the most restrictive setback requirements when using multiple active ingredients in an application. Aerial application of acetochlor is not allowed in Minnesota. 	Protects vulnerable streams, rivers, lakes, and reservoirs from acetochlor impacts.
8. Maintain vegetative filter strips between acetochlor application areas and points where runoff enters surface water, tile inlets, and sinkholes	<ul style="list-style-type: none"> Construct and maintain vegetative filter strips along surface waters, karst features, tile inlets and sinkholes. The U.S. Department of Agriculture National Resources Conservation Service (USDA NRCS) recommends a minimum 30-foot-wide vegetative filter strip for sediment and associated materials and a minimum of 60 feet for soluble chemicals. The recommended width depends on the size of the contributing area and its slope. Minnesota Buffer Law (Minn. Stat. §103F.48, Subd. 3(b)) requires perennial vegetative buffers of up to 50 feet along lakes, rivers, and streams and buffers of 16.5 feet along ditches. Contact your local Soil and Water Conservation District (SWCD) office for more information about buffers and local requirements. Minnesota shoreland rules require agricultural land within specified distances of public waters to be maintained in permanent vegetation or operated under an approved conservation plan (Minnesota Rules, Chapter 6120). Contact your county zoning administrator for details. Consider establishing buffers or retiring less productive soils, especially those prone to erosion or located near water bodies, as these fields might not yield positive income. 	Protects vulnerable streams, rivers, lakes, reservoirs, and groundwater from acetochlor runoff.
9. Reduce acetochlor use by using other weed control methods	<p>Reduce the amount of acetochlor used on a farm by using alternative weed control methods. Options include:</p> <ul style="list-style-type: none"> Use chemical control with other sites-of-action (SoA) 15 herbicides or herbicides having other SoA groups. Use cultural and mechanical weed control methods, such as cover crops, rotary hoe and inter-row cultivation. Consider planting in narrow spacing as appropriate without compromising the yield. Consider diversifying your crop rotation and use a perennial crop (e.g., alfalfa) where practical. Consider using a combine-mounted weed seed harvester to reduce the weed seed bank from late season weed escapes/survivors. <p>Consult crop advisors and University of Minnesota Extension for additional alternative weed control methods.</p>	Using alternative weed control methods help reduce the total amount of acetochlor entering the environment and minimize the off-field movement of the acetochlor.
10. Adopt conservation tillage practices appropriate for your farm's topography and in SE Minnesota karst areas	<ul style="list-style-type: none"> Conservation tillage leaves 30% or more of the soil covered with crop residue after planting and can include such methods as strip till, ridge till, mulch till, and no-till. Strip till and ridge till have been found to be effective on soils that warm too slowly with no-till. Incorporation may not be applicable for conservation tillage; therefore, timing may be more critical. Consult with Soil and Water Conservation District, University of Minnesota Extension, or USDA Natural Resources Conservation Service staff on conservation tillage guidelines. 	Controlling loss of soil and runoff helps reduce acetochlor losses to surface waters.
11. Adopt spray drift management and precision application methods	<ul style="list-style-type: none"> Adopt spray drift management practices given on product label on nozzle selection, weather conditions, spray boom height, etc. to reduce acetochlor drift to off-target sites. Consider combining the pre-plant and pre-crop emergence application with the fertilizer application through impregnation or use of the liquid nitrogen application as a carrier. Avoid applying if the wind is gusting or exceeds 15 miles per hour. Keep the spray boom as low as possible above the target surface. Consider using the runoff forecasting tool such as the Minnesota Runoff Risk Advisory Forecast (RRAF) system to assess the precipitation and runoff risk in your fields while planning acetochlor application. Consider using precision application technologies such as auto-steer, auto-boom shutoff, auto-height adjustment, and variable rate technology to reduce overspray, spray overlaps and off-target movement. 	Spray drift management and precision applications assure the right rate is applied in the right place. Use of the runoff forecasting tool will help adjust acetochlor application timing and minimize acetochlor losses via surface runoff.

* For practices related to the use of specific herbicides refer to MDA's herbicide-specific Best Management Practices. All BMPs are available at [Herbicide BMPs to Protect Water Quality](#). See Additional Information and References on BMPs for All Agricultural Herbicides to access detailed guidance on all recommended practices.



Water Quality **Best Management Practices** for **Acetochlor**

In accordance with the Americans with Disabilities Act, this information is available in alternative forms of communication upon request by calling 651-201-6000.
TTY users can call the Minnesota Relay Service at 711. The MDA is an equal opportunity employer and provider.

File Name: Water Quality BMP for All Agricultural Herbicides.indd Revised: 4.10.26