



Milk Thistle

(*Silybum marianum*)

Description: Milk thistle is a biennial or winter annual thistle, growing up to 6 feet tall. It is sparsely branched with slightly cobwebby stems. The leaves are long and broad, with deep lobes, pointed tips and bases that clasp the stem. The upper surface of the leaves are shiny and dark green with conspicuous white marbling. In Thurston County, the purple flowers grow up to 4 inches in diameter and bloom from April to August.

Impacts: Once established, milk thistle forms dense clumps which exclude livestock and crowd out more desirable forage species. It has the potential to invade extensive acres of pasture land. Individual plants are so large that forage displacement is high. Milk thistle is a nitrate accumulator. Ingestion by grazing animals may cause nitrate poisoning, which can be lethal to cattle and sheep. The seed is capable of remaining dormant in the soil for many years. It infests roadsides, waste and disturbed areas, pastures and farmland.



Milk thistle seed is valued as an herbal medicine, and plants are sometimes cultivated intentionally for this purpose. Plants are also grown as a garden curiosity due to their large size, interesting foliage and flowers. However, seeds commonly escape, creating a nuisance weed even in gardens and landscaping. Milk thistle is a Class A Noxious Weed in Washington State due to its limited distribution and serious detrimental effects.

Control Options: Thurston County's Integrated Pest Management emphasizes cultural, biological, and manual control methods to keep pests and vegetation problems low enough to prevent damage. The strategy of Thurston County's IPM policy is to minimize the use of pesticides.



► Cultural / Habitat

Do not plant milk thistle intentionally. While milk thistle does have beneficial medicinal properties, the extract is difficult to process. It takes 70 pounds of seeds to produce one pound of extract purified to 70-80% silymarin (of which 60% is silybin, the most active and beneficial constituent). In this form, it is still difficult for the body to utilize, requiring large quantities which are not feasible for home production.

Revegetating areas with desirable plants where control work has been done can help reduce the amount of milk thistle in subsequent years and also prevent other weeds from taking advantage of the disturbed soil.

► Manual / Mechanical

Hand pulling or digging can be effective for isolated plants or small patches (up to 20 plants or even more if easily pulled), especially if done in the seedling stage. Seedlings are recognizable even when very young, as the white marbling is evident on the first set of true leaves. Larger patches or plants at or near the blooming stage can be difficult to control manually because of the numerous thorns on the leaves and stems, and long sharp bracts on the flower heads. Mowing is usually not effective as it simply delays the blooming process.

► Biological

While bio-control agents are used on milk thistle with variable success in other areas of the country, none are particularly suited to Western Washington. Also, because bio-control agents are dependent on large, undisturbed infestations of host plants, it is not an appropriate control method for Class A Noxious Weeds which must be eradicated entirely, whenever they are found.



► **Chemical**

Spot spraying with **triclopyr** (examples: Lilly Miller’s liquid concentrate “Blackberry and Brush Killer” and Ortho’s “Brush-B-Gon Poison Ivy Killer Concentrate”) is effective in controlling milk thistle. Triclopyr is a selective herbicide that will not kill grass when used according to label instructions, but may damage or kill other broadleaf plants. Triclopyr products are rated as “moderate in hazard” by Thurston County’s pesticide review process because broadcast applications of triclopyr at greater than 2 lbs of active ingredient per acre can result in contaminating the food supply for birds and small animals. Since this prescription recommends only spraying individual plants or small patches, the risk to birds and small animals is greatly reduced.

Thurston County has observed that most ready-to-use, pre-mixed products do not contain sufficient active ingredients to be as effective as concentrated products that are then mixed with water to create a specific finished concentration. The following instructions are for products containing 8% triclopyr (be sure the product you choose lists triclopyr as the only active ingredient) which will be mixed down to a specified dilution rate. Be sure to read your label carefully, and make adjustments to rates accordingly.

Foliar applications of triclopyr:

- Spot application means the herbicide is applied only to the plants and not on the surrounding plants or soil. Spray each plant thoroughly on the stems and leaves enough to be wet but not dripping.
- Triclopyr is a selective, broadleaf weed killer and can injure any plants that it comes in contact with, except for grass. Care should be used to avoid contact with ornamentals and other desirable plants.
- Keep people and pets off treated areas until spray solution has dried.



For selective control of milk thistle in agricultural settings (pastures, hayfields, etc.): an herbicide containing the active ingredient **aminopyralid** (example: Milestone™, Milestone VM™, etc.) may be a preferred choice. Aminopyralid products will not harm grass and can be used around livestock (provided all label precautions are followed). **Do not use plant material or hay from treated areas for mulch. Likewise, do not use manure from animals that have grazed or eaten hay from treated areas.**

Aminopyralid is currently sold in farm supply stores as an agricultural herbicide that is only to be used in areas listed on the label and **may not be used in urban lawns or landscapes.** Aminopyralid products are considered “moderate in hazard” by Thurston County’s review process for the potential for chemical mobility and persistence.

Timing: Apply either triclopyr or aminopyralid in the spring when plants are actively growing and in the pre-bud to early bud growth stage—the goal is to insure all plants have emerged, but are treated before they reproduce.

Pollinator Protection: To minimize negative impacts to bees and other pollinators, treatment prior to blooming is recommended. Removal of flowers before treatment can be an option in some situations. If treatment must occur during the blooming period, try to spray early or late in the day or on cloudy, cool days when pollinators are least active.

Product/Method	Rates	Mix
Triclopyr Lilly Miller® “Blackberry & Brush Killer” or Ortho® “Brush-B-Gon Poison Ivy Killer Concentrate”	4 oz. (1/2 cup) per 500 ft ²	To determine the amount of mix needed, first measure the area to be treated, then measure the amount of plain water needed to spray the area using a backpack or tank sprayer. Allow sufficient time for the area to dry completely before treatment. Then add 4 oz. (1/2 cup) of product to enough water for each 500 sq. ft of area that needs to be treated. Spray plants until they are wet but not dripping.
Aminopyralid Milestone® Spot/Foliar	1 tsp per 1000 ft ²	To treat a 1,000 sq. ft. area: Using a 2 to 4 gallon backpack or tank sprayer, add half of the water needed to cover all plants with one teaspoon Milestone™, agitate, then add water to reach desired amount (0.5 - 2.5 gallons total volume, depending on quantity and size of plants). Lightly spray all milk thistle plants in a 1,000 sq. ft. area, then continue lightly spraying the milk thistle until the tank is empty and all plants have been thoroughly covered. The addition of a non-ionic surfactant (at least 80% active ingredient) is recommended to enhance herbicide activity.

READ AND FOLLOW ALL LABEL DIRECTIONS AND RESTRICTIONS. Obey all label precautions including site specific and safety measures. Always use personal protective equipment that includes coveralls, chemical resistant gloves, shoes plus socks, and protective eyewear. Use of brand names does not connote endorsement and is for reference only; other formulations of the same herbicides may be available under other names. Information provided is current as of the date of the fact sheet. Pesticide product registration is renewed annually. Product names and formulations may vary from year to year.

REFERENCES:

- Saskatchewan Ministry of Agriculture: <http://www.agriculture.gov.sk.ca/Default.aspx?DN=9f9ebf1f-6e30-451f-a1ea-d711a59f5d21>
- The Nature Conservancy Element Stewardship Abstract for Silybum marianum (Blessed Milk Thistle), Caitlin Bean
- Oregon Department of Agriculture: http://www.oregon.gov/ODA/PLANT/WEEDS/profile_milkthistle.shtml
- Written Findings of the Washington State Noxious Weed Control Board Problem Thistles of Oregon, OR Dept. of Agriculture, EC Bulletin 1288



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