



Supplemental Label

CASCADE[®] Aquatic Herbicide

EPA Reg. No. 70506-176

Revised Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with its label. This supplemental label and the federally registered label must be in the possession of the user at the time of pesticide application. Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA registered label.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift.

Avoid contact with or drift to other crops or plants as injury may result.

Wash out spray equipment with water after each operation.

Not for use in brackish or saltwater.

Treated water can be used for sprinkling bentgrass immediately.

HOW TO APPLY:

CASCADE is a contact herbicide; consequently, do not apply before weeds are present. Application as early as possible after weeds appear and are actively growing is recommended for best results.

If an entire pond is treated at one time, or if the dissolved oxygen level is low at time of application, decay of weeds may remove enough oxygen from the water, causing fish to suffocate. Water containing very heavy vegetation should be treated in sections to prevent suffocation of fish. Sections should be treated 5-7 days apart. Carefully measure size and depth of area to be treated and determine amount of CASCADE to apply from chart.

CASCADE should be sprayed on the water or injected below the water surface and should be distributed as evenly as possible. It may be applied as a concentrate or diluted with water depending on the equipment. Some dilution will give better distribution. For best results apply when water is quiescent and/or flows are minimal.

In instances where the weed(s) to be controlled is an exposed surface problem (i.e., some of the broad-leaved pond weeds) coverage is important. For best results apply the concentrate or with the least amount of water compatible with the application equipment.

Necessary approval and/or permits should be obtained in states where required.



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Drinking Water (Potable Water)

- Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits. The drinking water (potable water) restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of endothall in the water is less than the MCL (Maximum Contamination Level) of 0.1 ppm. Applicators should consider the unique characteristics of the treated waters to assure that endothall concentrations in potable drinking water do not exceed 0.1 ppm at the time of consumption.
- For applications of endothall, the drinking water setback distance from functioning potable water intakes is greater than or equal to 600 feet.
- **Note:** Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.

Only use higher rates when making treatments to small areas with an increased potential for rapid dilution or when making long and narrow applications such as for boat lanes or shoreline treatments where dilution may reduce the exposure of plants and the herbicide.

Use lower rates for large contiguous treatment blocks or in protected areas such as coves where reduced water movement will not result in rapid dilution of the herbicide from the target treatment area or when treating entire lakes or ponds.

AQUATIC WEEDS CONTROLLED AND DOSAGE RATE CHARTS

CASCADE is recommended for the control of the following aquatic weeds in irrigation and drainage canals, ponds and lakes at the rates indicated. Since the active ingredient is water soluble and tends to diffuse from the treated area, select the dosage rate applicable to the area to be treated. Use the lower rate in each range of rates where the growth is young and growing and/or where the weed stand is not heavy. Marginal treatments of large bodies of water require higher rates as indicated.



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Aquatic Weed	RATES			
	Entire Pond/ Lake or Large Area Treatment	Gallons per Acre Ft.	Spot or Lake Margin Treatment	Gallons per Acre Ft.
Bur Reed, Sparganium spp.	3.0-4.0 ppm	1.9-2.6 gal.	4.0-5.0 ppm	2.6-3.2 gal.
Coontail, Ceratophyllum, spp.	1.0-2.0 ppm	0.6-1.3 gal	2.0-3.0 ppm	1.3-1.9 gal.
Horned Pondweed, Zannichellia palustris	1.0-2.0 ppm	0.6-1.3 gal.	2.0-3.0 ppm	1.3-1.9 gal.
Hydrilla, Hydrilla verticillata	2.0-3.0 ppm	1.3-1.9 gal	3.0-4.0 ppm	1.9-2.6 gal.
Hygrophila, Hygrophila polysperma	4.0-5.0 ppm	2.6-3.2 gal.	5.0 ppm	3.2 gal.
Milfoil, Myriophyllum spp.	2.0-3.0 ppm	1.3-1.9 gal.	3.0-4.0 ppm	1.9-2.6 gal
Naiad, Najas spp.	1.0-3.0 ppm	0.6-1.9 gal.	2.0-4.0 ppm	1.3-2.6 gal.
Pondweed, Potamogeton spp. Including: American, P. nodosus Largeleaf (Bass Weed), P. amplifolius Curlyleaf, P. crispus Flatstem, P. zosterformis Floating-leaf, P. natans Illinois, P. Illinoensis Narrowleaf, P. pusillus Threadleaf, P. filiformis Sago, P. pectinatus Variable Leaf, P. diversifolius	0.5-3.0 ppm 2.0-3.0 ppm 2.0-3.0 ppm 0.5-1.5 ppm 2.0-3.0 ppm 1.0-2.0 ppm 1.5-2.5 ppm 1.0-2.0 ppm 2.0-3.0 ppm 1.0-2.0 ppm 1.0-2.0 ppm	0.3-1.9 gal. 1.3-1.9 gal. 1.3-1.9 gal. 0.3-1.0 gal. 1.3-1.9 gal. 0.6-1.3 gal. 1.0-1.6 gal 0.6-1.3 gal. 1.3-1.9 gal 0.6-1.3 gal 0.6-1.3 gal	1.5-4.0 ppm 3.0-4.0 ppm 3.0-4.0 ppm 1.5-3.0 ppm 3.0-4.0 ppm 2.0-3.0 ppm 2.5-3.5 ppm 2.0-3.0 ppm 3.0-4.0 ppm 2.0-3.0 ppm 2.0-3.0 ppm	1.0-2.6 gal. 1.9-2.6 gal. 1.9-2.6 gal. 1.0-1.9 gal. 1.9-2.6 gal. 1.3-1.9 gal. 1.6-2.3 gal. 1.3-1.9 gal. 1.9-2.6 gal. 1.3-1.9 gal. 1.3-1.9 gal.
Parrotfeather, Myriophyllum aquaticum	2.0-3.0 ppm	1.3-1.9 gal.	3.0-4.0 ppm	1.9-2.6 gal.
Water Stargrass, Heteranthera spp.	2.0-3.0 ppm	1.3-1.9 gal.	3.0-4.0 ppm	1.9-2.6 gal.



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LAKES AND PONDS

Restrictions for Lakes and Ponds Only:

Do not contaminate water intended for domestic purposes.

Do not use treated water for animal consumption or for domestic purposes within the following periods:

- 0.5 ppm dipotassium salt ---7 days after application
- 4.25 ppm dipotassium salt ---14 days after application
- 5.0 ppm dipotassium salt ---25 days after application

RATE OF APPLICATION---LAKES AND PONDS

The following chart indicates the total quantity of material to be applied.

APPROXIMATE GALLONS OF CASCADE FOR ONE ACRE (208' times 208') TREATMENT

DEPTH	DOSAGE IN GALLONS FOR VARIOUS CONCENTRATIONS IN PPM						
	0.5 ppm	1.0 ppm	1.5 ppm	2.0 ppm	3.0 ppm	4.0 ppm	5.0 ppm
1 ft.	0.3	0.6	1.0	1.3	1.9	2.6	3.2
2 ft.	0.6	1.3	1.9	2.6	3.8	5.1	6.4
4 ft.	1.3	2.6	3.8	5.1	7.7	10.2	12.8
6 ft.	1.9	3.8	5.8	7.6	11.5	15.3	19.2

IRRIGATION AND DRAINAGE CANALS

Restrictions for Irrigation and Drainage Canals Only:

Do not contaminate water intended for domestic purposes.

Do not use treated water for domestic purposes within the following periods:

- 0.5 ppm dipotassium salt ---7 days after application
- 4.25 ppm dipotassium salt ---14 days after application
- 5.0 ppm dipotassium salt ---25 days after application

RATE OF APPLICATION---IRRIGATION AND DRAINAGE CANALS

Apply in a manner to achieve the desired rate and adequate mixing so the product is distributed throughout the entire water column. Adequate concentration (rate) and exposure time (length of treatment) will impact the efficacy of the herbicide (endothall) on the target weed species. Although endothall is a contact herbicide adequate exposure time is critical. The rates and the length of treatment are guidelines to provide control of the target species and assume that the entire canal is treated. This rate chart has been developed based on Concentration Exposure Time (CET) data for endothall. The CET concept allows rates and the length of exposure to be adjusted for different treatment scenarios.



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Target Weed: Milfoil (Myriophyllum spp.) Parrotfeather (Myriophyllum spp.) Pondweeds (Potamogeton spp.)	0.5- 1.0 ppm	1.0- 2.0 ppm	2.0- 3.0 ppm	3.0- 4.0 ppm	4.0- 5.0 ppm	Restriction A maximum of 30ppm per growing season, not to exceed 5ppm per application. A minimum of a 7-day application interval, with no PHI.
Length of Treatment	48 hrs	24 hrs	12 hrs	8 hrs	6 hrs	
Target Weed: Coontail (Ceratophyllum spp.) Horned Pondweed (Zannichellia spp.) Hydrilla (Hydrilla verticillata) Naiad (Najas spp.) Water Stargrass (Heteranthera spp.)	0.5- 1.0 ppm	1.0- 2.0 ppm	2.0- 3.0 ppm	3.0- 4.0 ppm	4.0- 5.0 ppm	
Length of Treatment	72 hrs	36 hrs	18 hrs	12 hrs	8 hrs	
Hygrophila (Hygrophila polysperma) may be suppressed at the higher application rates listed in this table.						

To calculate the amount of Cascade required for a particular treatment use the following formula;

$$[\text{Cubic Feet per Second (CFS)} \times \text{Length of Treatment (hrs)} \times \text{rate (ppm)}] \times 0.052947 = \text{Gallons of Cascade needed for treatment}$$

To calculate the amount of Cascade to be applied per hour use the following formula:

$$\text{Gallons of Cascade per hour} = \text{Total gallons of Cascade} / \text{Length of Treatment (hrs)}$$

The “Directions For Use” of this product reflect the cumulative inputs from both historical field use and product testing programs. Actual field conditions may vary. Phytotoxicity is not expected, however all crop (species) and cultivars (varieties) have not been tested.