



# Keys to Effective Aquatic Plant Management



Before treatment



7 days after treatment



# Keys to Effective Aquatic Plant Management



## IDENTIFY

Properly identify the nuisance plant or algae. For more detailed identification, visit [www.sepro.com](http://www.sepro.com)



## SELECT PRODUCT

Choose a product labeled to control your plant or algae. Make sure all required application equipment and safety wear is available.



## MEASURE

Measure the treatment area to know how much product is needed.



## READ & FOLLOW LABEL

Before applying, fully read the label. Follow directions to prepare and plan application.

Water care is more than plant control. A complete plan often involves identifying critical plants and habitat, and assessing what threatens the water's uses.

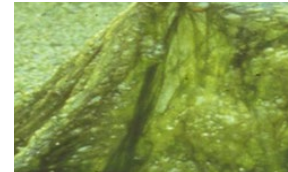
**We can help. Call SePRO at 1-800-558-5106.**



Plants shown are some of the more common plants in residential lakes and ponds. **(Recommended chemical treatment is shown after plant name).**

## Algae

Algae are primitive plants with no true leaves, stems or root systems.



### Filamentous ('moss')

**[Cutrine® Plus algaecide - liquid for top growth, Cutrine Plus Granular Algaecide for bottom growth]**

Thread-like, usually grows from bottom and rises to top as greenish surface mats.



### Planktonic ('Pea Soup')

**[Cutrine Plus algaecide - liquid]**

Microscopic plants cause green or brown tinge, algae blooms can cause odor, oxygen loss and fish suffocation.



### Chara (Muskgrass, Stonewort)

**[Cutrine Plus Granular Algaecide]**

Leaf-like structures make this form of algae easily confused with submerged weeds, identify by musky odor when crushed, and bristly feel.

## Emergent Plants

Emergent (Marginal) plants grow above water in shallow depths.



### Cattail

**[Weedtrine® D Aquatic Herbicide]**

Up to 9 ft stalk with brown cigar-shaped 'flower'



### Creeping Water Primrose

**[Weedtrine D Aquatic Herbicide]**

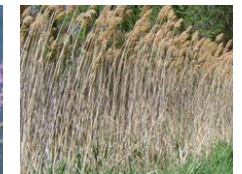
Hollow red stem with many leaves and yellow flowers



### Purple Loosestrife

**[Weedtrine D Aquatic Herbicide]**

2 - 7 ft tall, purple flowers



### Phragmites

**[Weedtrine D Aquatic Herbicide]**

10 - 12 ft tall thick aggressive grass

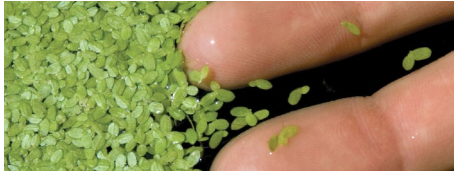


IDENTIFY

Plants shown are some of the more common plants in residential lakes and ponds. **(Recommended chemical treatment is shown after plant name).**

## Floating Plants

Floating plants can be divided into two basic categories: Plants rooted to the bottom with floating leaves and free-floating surface plants.



### Duckweed

**(Sonar® RTU Aquatic Herbicide)**

Small, oval-shaped plant smaller than a pencil eraser, root attached, common in quiet waters.



### Salvinia

**(Weedtrine® D Aquatic Herbicide with surfactant or Sonar RTU)**

Rounded paired leaves 1/2" long with root-like hairs beneath.



### Watermeal

**(Pond-Klear™ Aquatic Herbicide)**

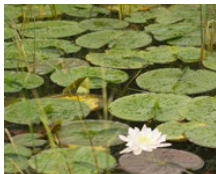
Smallest flowering plant, rootless, grain-sized.



### Watershield

**(Weedtrine D Aquatic Herbicide or Sonar RTU)**

Oval-shaped leaves with slimy coating underneath and on stems of mature plants, purple flower in early summer.



### Water Lily

**(Weedtrine D Aquatic Herbicide or Sonar RTU)**

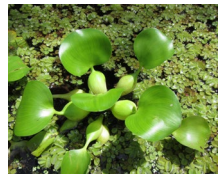
Round notched leaves Similar to Spatterdock, heart shaped leaves with yellow flowers.



### Water Pennywort

**(Weedtrine D Aquatic Herbicide with surfactant or Sonar RTU)**

Half-dollar sized, shiny, leathery leaves, long creeping stems can form.



### Water Hyacinth

**(Weedtrine D Aquatic Herbicide with surfactant or Sonar RTU)**

Broad, lance-shaped leaves 8" long with blue flower. Common in [sub]tropical areas.

## Submerged Plants

Submerged plants are usually rooted at the bottom and entirely under water.



### Pondweed

**(Weedtrine® D Aquatic Herbicide)**

There are many species of pondweed including: Curly-leaf (upper left), American (top center) and Sago (upper right).



### Coontail

**(Sonar® RTU Aquatic Herbicide)**

Rootless, leaves crowded at tip.



### Eurasian Watermilfoil

**(Weedtrine D Aquatic Herbicide tank-mixed with Cutrine® Plus Algaecide - liquid or Sonar RTU)**

Leaves in whorls of 4 with up to 20 leaf divisions, stalk with tiny reddish flowers may extend above surface.



### Naiads

**(Weedtrine D Aquatic Herbicide tank-mixed with Cutrine® Plus Algaecide - liquid or Sonar RTU)**

Slender, branching stem with leaves <1" long that are wider at the base; spines on margins.



### Hydrilla/Elodea

**(Weedtrine D Aquatic Herbicide tank-mixed with Cutrine® Plus Algaecide - liquid or Sonar RTU)**

Long-stemmed branching plants with whorled leaves 5/8" long. Leaves toothed in Hydrilla, not toothed in Elodea.



### Bladderwort

**(Weedtrine D Aquatic Herbicide tank-mixed with Cutrine® Plus Algaecide - liquid or Sonar RTU)**

Slender, branching stem with leaves <1" long that are wider at the base; spines on margins.



## SELECT PRODUCT

The algacides and herbicides recommended in this guide have been registered with the EPA and meet the federal safety standards put forth to protect human health and the environment. Make note that koi, hybrid goldfish/carp, and trout can be particularly sensitive to copper products. Seek expert advice when treating waters containing these types of fish.

Waters that have an abundance of vegetation may already be low in dissolved oxygen and stressing fish. When treating, decaying vegetation consumes oxygen, putting fish at more risk. To reduce the risk to fish of oxygen depletion, treat only 1/3 to 1/2 of the pond at a time. Wait 1 - 2 weeks between treatments.

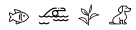
**Call SePRO at 1-800-558.5106 with any questions. We're here to help you and your fish.**



### Aquashade® Aquatic Plant Growth Control

More than a colorant! EPA registered dye controls underwater plants.

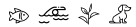
**Wait one hour and water can be used to fish, swim, irrigate or water animals:**



### Aquashade® Plus

2.4x more concentrated than the original Aquashade® for powerful underwater weed control.

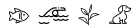
**Wait one hour and water can be used to fish, swim, irrigate or water animals:**



### Bacti-Klear® Aquatic Microbial Blend

Beneficial bacteria reduce muck and odors, improving water clarity. Available in a liquid or pellet form.

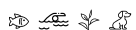
**Water can be used immediately to fish, swim, irrigate or water animals:**



### Aquashadow® Black Colorant

Created to beautify cloudy water with a pleasing reflective appearance.

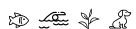
**Water can be used immediately to fish, swim, irrigate or water animals:**



### Aquashadow® WSP Blue & Black Colorant

In water-soluble packets (WSP), an easy to use application of dye for a naturally pleasing appearance.

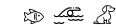
**Water can be used immediately to fish, swim, irrigate or water animals:**



### Sonar® RTU Aquatic Herbicide

Systemically kills many species of aquatic weeds.

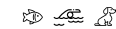
**Water can be used immediately to fish or swim. Wait 1 day to allow animals to drink the water. See label for potable water and irrigation restrictions:**



### Weedtrine® D Aquatic Herbicide

Quickly kills many species of aquatic weeds.

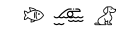
**Water can be used immediately to fish, swim, or water livestock. See label for potable water and irrigation restrictions:**



### Pond-Klear® Aquatic Herbicide

Kills duckweed and watermeal in as little as 3 days!

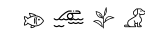
**Water can be used immediately to fish, swim, or water animals. See label for irrigation restrictions:**



### Cutrine® Plus Algacide

Fast algae contact from top to bottom. Available in a liquid or granular form.

**Water can be used immediately to fish, swim, or water animals.**





## MEASURE

Measure the treatment area to aid in purchasing the correct amount of chemical, avoid wasting product, and avoid over- or under-dosing the water.

## Useful Formulas

1. Rectangular Pond/Lake **Surface Acres** =  $\frac{\text{Length (ft)} \times \text{Width (ft)}}{43,560}$

2. Circular or Oval Pond/Lake **Surface Acres** =  $\frac{\text{Length (ft)} \times \text{Width (ft)} \times 0.8}{43,560}$

3. **Average Depth** =  $\frac{\text{Sum of the Depth Measurements Taken}}{\text{Number of Depth Measurements Taken}}$

4. **Acre-Feet** = Surface Acres x Average Depth

5. **Converting Gallons to Acre-Feet:** Acre-Feet =  $\frac{\text{Gallons of Water}}{325,869}$

## Acreage Calculation Chart

WIDTH (in feet)	AREA (in surface acres)															
	LENGTH (in feet)															
	30	40	50	60	70	80	90	100	150	200	250	300	350	400	450	500
30	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.10	0.14	0.17	0.21	0.24	0.28	0.31	0.34
40	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.14	0.18	0.23	0.28	0.32	0.37	0.41	0.46
50	0.03	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.17	0.23	0.29	0.34	0.40	0.46	0.52	0.57
60	0.04	0.06	0.07	0.08	0.10	0.11	0.12	0.14	0.21	0.28	0.34	0.41	0.48	0.55	0.62	0.69
70	0.05	0.06	0.08	0.10	0.11	0.13	0.14	0.16	0.24	0.32	0.40	0.48	0.56	0.64	0.72	0.80
80	0.06	0.07	0.09	0.11	0.13	0.15	0.17	0.18	0.28	0.37	0.46	0.55	0.64	0.73	0.83	0.92
90	0.06	0.08	0.10	0.12	0.14	0.17	0.19	0.21	0.31	0.41	0.52	0.62	0.72	0.83	0.93	1.03
100	0.07	0.09	0.11	0.14	0.16	0.18	0.21	0.23	0.34	0.46	0.57	0.69	0.80	0.92	1.03	1.15
150	0.10	0.14	0.17	0.21	0.24	0.28	0.31	0.34	0.52	0.69	0.86	1.03	1.21	1.38	1.55	1.72
200	0.14	0.18	0.23	0.28	0.32	0.37	0.41	0.46	0.69	0.92	1.15	1.38	1.61	1.84	2.07	2.30
250	0.17	0.23	0.29	0.34	0.40	0.46	0.52	0.57	0.86	1.15	1.43	1.72	2.01	2.30	2.58	2.87
300	0.21	0.28	0.34	0.41	0.48	0.55	0.62	0.69	1.03	1.38	1.72	2.07	2.41	2.75	3.10	3.44
350	0.24	0.32	0.40	0.48	0.56	0.64	0.72	0.80	1.21	1.61	2.01	2.41	2.81	3.21	3.62	4.02
400	0.28	0.37	0.46	0.55	0.64	0.73	0.83	0.92	1.38	1.84	2.30	2.75	3.21	3.67	4.13	4.59
450	0.31	0.41	0.52	0.62	0.72	0.83	0.93	1.03	1.55	2.07	2.58	3.10	3.62	4.13	4.65	5.17
500	0.34	0.46	0.57	0.69	0.80	0.92	1.03	1.15	1.72	2.30	2.87	3.44	4.02	4.59	5.17	5.74



## READ & FOLLOW LABEL

Use these formulas to help calculate how much product you need. (See 'Measure' section for help with measuring your pond).

### Aquashade® Aquatic Plant Growth Control

For control where plants are not within 2 feet of the water surface.

\_\_\_\_\_ acre-ft x 32 oz./acre-ft = \_\_\_\_\_ oz. to use

### Aquashade® Plus Aquatic Plant Growth Control

For control where plants are not within 2 feet of the water surface.

\_\_\_\_\_ acre-ft x 13 oz./acre-ft = \_\_\_\_\_ oz. to use

### Bacti-Klear® Aquatic Microbial Blend

For first time applications to reduce pond muck and organic matter

Pellets: \_\_\_\_\_ acres x 20 lb./acre = \_\_\_\_\_ lb. to use

Liquid: \_\_\_\_\_ acre-ft x 3 gal./acre-ft = \_\_\_\_\_ gal. to use

(See container label for amounts to use for maintenance application. Use maintenance application amount once desired appearance is reached.)

### Citrine® Plus Algaecide

Liquid: For most mild cases of "pea-soup" or string algae  
\_\_\_\_\_ acre-ft x 0.6\* gal./acre-ft = \_\_\_\_\_ gal. to use

Granular Dosage: 60 lb per surface acre (1 lb. treats 720 sq. ft)  
\_\_\_\_\_ acres x 60 lb./surface acre = \_\_\_\_\_ lb. to use

⚠ Koi, hybrid goldfish/carp and trout are sensitive to copper products. Call SePRO for help at 1-800-558-5106.

### Sonar® RTU (Ready to Use) Aquatic Herbicide

**1/4 acre:** 64 oz (2 quarts) Sonar RTU

**1/4 acre:** Apply 32 oz (1 quart) followed by a treatment of 16 oz 21 days later, and another 1 quart 21 days after second treatment.

**1/2 acre:** 128 oz (4 quarts) Sonar RTU

**1/2 acre:** Apply 2 quarts followed by a treatment of 1 quart 21 days later, and another 1 quart 21 days after second treatment.

## Weedtrine®D Aquatic Herbicide

For submerged weeds

\_\_\_\_\_ acres x 5 (up to 10) gal. = \_\_\_\_\_ gal. to use

For emergent weeds make sure you add a surfactant

\_\_\_\_\_ acres x 5 gal. = \_\_\_\_\_ gal. to use

For floating weeds make sure you add a surfactant

\_\_\_\_\_ acres x 2.5 (up to 3.75) gal. = \_\_\_\_\_ gal. to use

## Pond-Klear™ Aquatic Herbicide

For duckweed, watermeal and other floating and underwater weeds

\_\_\_\_\_ acre-ft x 17.6 oz./acre-ft = \_\_\_\_\_ oz. to use

**(Mix with aquatic herbicides and algaecides at recommended dose.)**

## Aquashadow® Black Liquid Colorant

Determine the water volume (acre-feet or cubic meters) as follows:

$$\frac{\text{Length (ft)} \times \text{Width (ft)} \times \text{Average Depth (ft)}}{43,560} = \text{Acre Feet}$$

Apply 32 oz per acre-feet

## Aquashadow® Blue & Black Water-soluble Packets (WSP) Colorant

Toss in one pouch per acre-foot of water

$$\frac{\text{Length (ft)} \times \text{Width (ft)} \times \text{Average Depth (ft)}}{43,560} = \text{Acre Feet}$$

Note: One Acre-foot = 326,000 gal. = 1,234m<sup>3</sup>

Pond volume:	1 acre-ft	2 acre-ft	3 acre-ft
How many:	1 packet	2 packets	3 packets

## Frequently Asked Questions

### I spilled some dye product; how do I clean it up?

Don't add water. Soak up as much as you can with absorbent cloths. Scrub stain with oxygenated cleaner or mild bleach solution. Contact SePRO at 1-800-558-5106 for additional assistance.

### Why use Cutrine Plus Algaecide instead of Copper Sulfate Crystals?

Citrine Plus Algaecide is chelated, which protects the copper from binding with carbonates in the water. This allows the copper to stay active against algae longer. The chelated formula is more effective and longer lasting, especially in hard water.

### What is a non-ionic surfactant? And do I need it?

A non-ionic surfactant is a necessary additive when applying certain products to emergent or floating plants. The surfactant helps the chemical "stick" to the plant and penetrate the waxy leaf coating.

### When will I see results?

Planktonic algae should subside in 1 to 2 days. Filamentous algae often turn pale yellow or white in 3 to 4 days. Plants take longer, typically wilting or showing discoloration in up to 2 weeks.

### How long will control last?

Many weeds can be controlled for an entire season with one properly timed treatment. However, herbicides do not kill seeds and some do not get into root systems, which can result in regrowth. Algae often require treatments every 3 to 6 weeks because they are able to rapidly reproduce. If the plants/algae start to grow back or turn green again, check your dose and reapply. If fish are present, follow the wait times for re-dosing in section 5, 'Apply the Product'.

### Need more help?

Call SePRO at 1-800-558-5106. We have trained aquatic specialists that can help with product recommendations, dosing and application, plant identification, and any other pond questions.

## Conversions

AREA	WEIGHT	DISTANCE
------	--------	----------

1 acre = 43,560 ft<sup>2</sup>  
4,047 m<sup>2</sup>  
0.405 ha.

1 pound = 453.6 gr.  
16 oz.  
0.45 kg.

1 foot = 0.305 m.

VOLUME
--------

1 oz = 29.6 mL.  
6 tsp.  
2 tbsp.  
0.125 c.

1 acre-foot = 325,869 gal.  
43,560 ft<sup>3</sup>  
1,233 m<sup>3</sup>

1 gallon = 3,785 mL.  
128 oz.  
16 c.  
8 pt.  
4 qt.  
3.78 L.

**Apply the product according to label instructions.**

**Call SePRO at 1-800-558.5106 with any questions.**



**SePRO Corporation** • 11550 North Meridian Street • Suite 600 • Carmel, IN 46032  
(800) 558-5106 • [www.sepro.com](http://www.sepro.com)

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