

## HOW TO KEEP YOUR POND GREEN FREE



It's the No. 1 complaint of pondkeepers - algae. This ubiquitous, unwelcome plant life in all its green glory is the bane of the pondkeeper's existence and can make the simple pleasures of pond and fish keeping seem like chores. In addition to other non-life-threatening challenges, algae obscure colorful fish and deplete valuable oxygen. The good news is, with a few simple steps, you can stop seeing green and start seeing the beautiful, unobstructed tranquility of your water garden.

### Start with Algae Education

The best way to eliminate algae is to first understand *what algae are* and *how algae grow*. The term algae encompasses a group of simple plants exceptionally adept at making the best of available conditions to reproduce rapidly. Algae are primitive plants, which, via photosynthesis, combine water and carbon dioxide to form sugars for energy and growth. Algae produce oxygen, a useful by-product, but when sunlight is not available at night, they quickly respire. This respiration uses the stored sugars and oxygen to form carbon dioxide and water and, thus, depletes the oxygen in the pond.

Experienced pond and fish keepers generally recognize two types of algae: the algae that cause "green water" and "blanket weed" algae.

**Green water** is caused by single-celled algae, which remains suspended in the water. If conditions are right in a pond, i.e., there are plenty of nutrients and sunlight, as many as five million algae cells per milliliter of pond water can be present. These organisms are so tiny, they pass through even the finest filter.

**String Algae** is caused by a filamentous species of algae, which grow in long strands. These algae eventually tangle together, forming thick mats that can double their weight within 24 hours. Blanket weed or string algae tend to adhere to rocks and waterfalls, which can be unsightly.

Once you understand how algae grow, the next step is to learn how to treat it. Following are some tried and true methods, which will not only help you treat algae, but also help prevent it.

### Adding Plants

In a natural setting, fish produce nutrients that are absorbed by plants, leaving very little for algae. However, many garden ponds do not possess enough plants to handle all the nutrients produced by the fish. This causes an excess build-up and produces an ideal environment for rapid algae growth. Whether you are just beginning your pond development and want to avoid algae problems or have an existing problem to control, you'll first want to increase the number of oxygenating plants on the surface of the pond. This is perhaps the simplest, long-term solution to keeping water clean and clear.

Floating plants, such as lilies and lotus, provide shade and reduce direct sunlight in the pond to control algae growth. Add submerged plants that release oxygen to the water, such as anacharis and parrot's feather. As a guide, one bunch of six to seven strands of oxygenating plant can be added to every two square feet of water surface.

All aquatic plants also absorb nutrients and starve the algae. After initial plant introduction, green water may occur, but will only last for a short time. Once the plants are well established, no further preventive measures are necessary. Established marginal plants can be planted around the periphery of the pond or in the shallow sections of the pond. These are also effective in absorbing nutrients and provide some shade.

One popular way to introduce plant life into the pond system without putting plants into the main pond is to construct a plant filter. A plant filter is a simple channel or small filtration pond through which water from the pond is fed at a relatively slow rate. Fast-growing plants (efficient nutrient removers) are grown within this channel in planting baskets or are free-floating, such as water lettuce or water hyacinth. As these plants grow, they absorb nutrients from the water and "out-compete" algae to control its growth. Generally, the plant filter needs to be stocked with plants equaling approximately one-fifth the surface area of the main pond.



Water treatments added to the pond water are an excellent option where algae problems already exist. Green water can be controlled using repeated applications of a green water algae treatment. A variety of TetraPond products are available, depending on your pond's condition. For example:

## Water Treatments

**AlgaeControl™** – Highly effective at combating green water, string algae and blanket weed.

**Barley & Peat Extract** – A *natural* water clarifier in a convenient liquid form that releases humic acids and replaces messy barley bales.

**Sludge Reducer** – Naturally clears pond water. Great to use in the spring before pond is shaded by aquatic plant cover. Contains a high concentration of natural, beneficial bacteria and enzymes that consume organic matter and nutrients in the pond.

**Water Clarifier (formerly AquaRem®)** – Works *fast*, quickly clumps contaminants so they can be easily removed by filtration, wet vacuuming or a fine mesh net.

Reapplication of water treatments is necessary for maximum effectiveness, and you should carefully follow manufacturers' guidelines.

## Fish Feeding

Using a quality fish food will also help, as it will be fully digested, leaving fewer nutrients to pass through the fish which in turn will encourage algae growth. Be sure to feed your fish only enough food that they will consume within five minutes.

## Ultraviolet (UV) Clarifiers

UV clarifiers combat green water by exposing suspended single-celled algae to very high levels of ultra violet light, which destroys its reproductive ability. UV clarifier units consist of a tubular fluorescent bulb that emits UV light. Because UV light is harmful to the human eye, the bulb is enclosed in a dark, opaque housing.

Pond water enters through the clarifier's inlet tube and travels around the UV light. The UV light kills the suspended algae, causing them to clump together into particles large enough to be removed by filtration, and then exits the clarifier. Finally, impurities are removed from the water as it passes through a mechanical and/or a biological filter, and exits back into the pond.

### **Installation & Safety Sense**

When it comes to installation, place the UV clarifier where it won't be flooded or fall into the pond. Suggest mounting it onto a dry flat surface, like the lid of the pond filter. Connect the UV unit to a GFI outlet or circuit to protect against shock.

For safe and frustration-free installation, follow the manufacturers' directions. They'll provide key information on properly installing the UV clarifier and incorporating it with existing pond filters and pumps.

The bulbs and their glass sleeves are very fragile so be careful, and patient, when assembling the unit or changing a bulb. While the connections must fit securely, forcing the bulb can result in breakage- which is certainly no fun to clean up or to replace! When handling the bulb, avoid touching it with bare hands and remove any fingerprints using a clean cloth. The bulbs are sensitive, and even natural oils from your skin can cause the bulb to overheat and shorten its life.

UV bulbs are also extremely powerful and emit harmful ultra violet light, so never look directly at the unshielded bulb. To monitor the light, always look through the lamp's translucent connectors.

## Ultraviolet (UV) Clarifiers

### Maintaining Optimal Performance

Ensure effective performance by replacing the UV bulbs as specified by the manufacturer- whether or not the light still glows. Some suggest a life span of 8,000 operational hours, which is approximately once every 11 months of continuous operation, which means about 2 years of usage. It's helpful to keep a record of bulb purchases. Refer to the packaging and manufacturers' instructions on recommended flow rate for water to pass through the clarifier.

Throughout the water gardening season, UV clarifiers can run constantly except during maintenance. It's best to disconnect the unit, remove the inlet and outlet hoses, and drain any residual water when cleaning the UV clarifier

During the cold winter months, protect UV clarifiers from the danger of frost by draining and storing them indoors. If temperatures in your climate deem it necessary, you can run the clarifier year round.

### Blanket Weed Control

There are several different ways of controlling blanket weed and green algae. Some pondkeepers use a garden hose to blast blanket weed off of rocks and waterfalls. Others remove the weed by hand or net. UV clarifiers are effective against green water algae, but not blanket or string algae that adheres to rocks and waterfalls.

## Balance Is Best

No pond is ever totally free of algae, but in a balanced environment, algae can be kept in check. Understanding how algae grow is a good start, followed by an appropriate treatment for the type of algae present. UV clarifiers, treatments and other algae eliminators are effective methods for treating and preventing algae proliferation, but don't ignore Mother Nature. The addition of plants should be part of the long-term solution

