



Pond Home Study Course

Lesson 3 Algae and Weed Control

Frequently Asked Questions

How can I get rid of overabundant plants or algae?

Plants and algae are best controlled by reducing nutrient loads (nitrogen and phosphorous) to the pond. Otherwise, you can use physical, chemical or biological methods to kill or remove unwanted plants and algae.

Do I need a permit to use an aquatic herbicide?

YES! Any application of an herbicide to a private pond requires a state permit. The permit application is simple (two pages) and is usually processed within two weeks.

What are grass carp?

Grass carp are non-native fish that eat some types of aquatic plants. Sterile grass carp can be stocked in your pond to control unwanted aquatic plant growth but you must obtain a state permit and purchase sterile grass carp from an approved hatchery.

What kinds of aquatic plants may be found in my pond?

The easiest way to answer this question is to consider aquatic plants to fall into four functional groups with similar characteristics.

1. Algae - simplest plants that are microscopic (plankton) or have single or branched filaments (filamentous). Some forms of algae are attached to the bottom, have branched stems, but no true leaves.
2. Submerged aquatic vegetation - These plants have stems and true leaves. Almost all the plant is submerged. Sometimes submerged plants have a few floating leaves and reproductive structures at the water surface.
3. Floating plants - Plants that have most of their leaves and flowers floating on the water surface. They range from watermeal and duckweed (tiny floating plants) to water lilies.

4. Emergent plants - Sometimes called wetland plants, they are rooted in water or moist soil and have most of their stems and leaves extending above the water surface. Cattails are a good example of this category of plants.

When are algae or other aquatic plants a problem?

When aquatic plants impair the use of a pond, they become a nuisance and are a problem to you. Plants produce oxygen by day and consume it in respiration at night. Extremely dense growths of aquatic plants can cause excessively low oxygen levels early in the morning, which could affect fish or other aquatic life. Excessive submerged plant growth can isolate prey from predatory fish, which can cause a stunted or overabundant forage fish population.

My pond is covered with green slime or stringy "moss." What is it?

Look closely at the plant material. If the water is tinted green, green-blue or possibly even brownish, then your pond is probably experiencing a *planktonic* (free floating, microscopic) *algae* bloom. These blooms usually consume available nutrients and run their course. A foul odor sometimes accompanies the bloom.

If the plants do not contain leaves and are stringy filaments, clumps or netlike masses, then one or a number of the species of *filamentous algae* are present. *Filamentous algae* usually start growing on the bottom, form mats that can float to the surface, and can eventually cover the entire surface of the pond.

Can lowering the water level control plants?

This practice, termed "draw down," can dry out and provide partial control of plants in the dewatered area. It is particularly effective when done in association with freezing weather. If you draw a pond down after turtles, frogs and salamanders begin hibernation in the mud and this mud is exposed, chances are that these hibernating creatures will be killed. If your pond is larger than 1 acre, you must apply for a Pennsylvania DEP/Fish and Boat Commission *Permit to Draw Off Water From Impoundments* because release of larger amounts of water is a regulated activity.

Can the addition of desirable plants such as water lily and arrowroot help lower nutrient levels in the pond as well as out compete undesirable aquatic vegetation?

Floating plants like water lily will shade the water and greatly reduce algae growth. That being said, you would still have to have lilies covering most of the shallow water to really stop algae growth. Emergent and submerged plants will also have an impact by taking up nutrients, but there are often

enough nutrients to still allow algae growth. The plants would have to be mechanically removed from the pond to remove the nutrients they had taken up. A good riparian buffer should be the first consideration to reduce nutrient build up in a pond.

Can plants and algae I harvest from the pond be composted?

Yes, you can compost your aquatic weeds. Anything that was once alive will compost. A compost pile wants to be 40-60% water so the wet weeds will help you there. I would not go overboard and some experimentation would need to be done, but take some grass clippings, brown leaves, and your aquatic weeds and mix them together and see if the pile starts heating up within 24 hours. Most people fail at composting because they don't start with enough material. You need to start with at least a three foot high pile.

How well does barley straw work when added in the summer (after filamentous algae is present)?

Barley straw is most effective when applied early in the year prior to the appearance of the algae (fall through early spring). If the straw is applied to warmer water above 70 degrees F, it MAY become effective in as little as two weeks. In any case, it remains effective for 6 months after application. We want to make it clear that barley straw does absolutely nothing when applied in summer and may in fact cause increased algae growth in some cases.

If I stock with grass carp, are the chances great for discoloration of the pond water due to their waste?

The grass carp will eat the plants and defecate out the nutrients associated with plants which may result in an algae bloom. This is a greater possibility if nutrients from other sources besides the carp are entering the pond. Fewer grass carp will reduce the likelihood of this happening.

The only cases where grass carp have discolored the pond (that we are aware of) were caused by gross overstocking or inappropriate stocking of grass carp where a favored plant did not exist. That's why we always suggest to start out on the low side of the stocking recommendations and make sure you have properly identified the plant to minimize the chances of this happening.

Are the Triploid Grass Carp really all that effective in controlling aquatic vegetation?

Grass carp can be very effective in controlling unwanted aquatic plants and in some cases if not managed right will control all of your vegetation. They do prefer certain plants over others and so identifying what plants you have and want to control is always the first step.

Would the Triploid Grass Carp consume desirable plants such as water lily and arrowhead?

Grass carp prefer finer leafed submerged aquatic vegetation and small floating plants like duckweed. They prefer: pondweeds, naiads, common elodea, coontail, and muskgrass. Grass carp do NOT prefer spatterdock, cattail, water lily, or species of filamentous algae. Grass carp won't bother arrowhead or water lily.

What are the best ways to prevent a pond weed problem?

The best way to prevent a weed or algae problem in a pond is to reduce the nutrients getting into the pond. A good riparian buffer around the pond will help slow the runoff water down and help the nutrients settle out before they reach the pond water.

If a person does not have to be certified to apply chemicals, how is proper usage ensured?

The most dangerous chemicals are "restricted" and you must have an applicators license to apply them, but you are right, many unrestricted pesticides are sold to people without an applicators license. We hope you see from worksheet 3 that these chemical applications are not an easy process to figure out, but having water quality data and the proper measurements of your pond ahead of time, will help a lot. The application permit that is to be submitted before any application is made to any water body in PA is also a protection device. These permits will be reviewed to see if what the applicant wants to do is the right method to use for the weed or algae they are trying to control and if the application rate is correct for the size of the pond. Unfortunately, many applications are made without the permit being filed. These people do not get into trouble, unless they cause a water quality problem or fish kill in their pond or a receiving stream. Then, they are in a lot of trouble!

How can I mechanically control cattails?

In a small pond you can cut the cattails below the waterline in early or mid summer. They will re-sprout and these will have to be cut again. Normally, two cuttings should control cattails.

Does aeration inhibit algae growth?

Aeration of a pond will inhibit algae growth, but it will have limited effect on a shallow pond, unless you have some deep pockets. The way this works is the dissolved oxygen keeps the phosphorous in the sediment of the pond. If dissolved oxygen is reduced and an aerobic condition exists then phosphorous will come out of the sediment and this leads to algae growth. Deep water is needed to hold enough oxygen to prevent the phosphorous removal. You can see how important the depth measurement of your pond is.

Are regulations different regarding chemical applications for pond owners versus lakes that are part of a watershed?

The only different factor for chemical applications to lakes is ownership. For the permit application, the owner has to sign. In the case of a lake, there are often multiple owners. So, one person must sign acting as the lake association president or some official person that is designated by the lake community. In some cases, where no agreement can be reached among the multiple owners of the lake, chemical applications may not be possible.

Will herbicidal treatment have a huge effect on pH levels?

Herbicidal treatment will have very little effect on pH levels. The herbicide should not impact the water pH and vice versa.

Once algae mats appear on the surface, does the algae continue to grow or is the only growth period under the water?

The algae will continue to grow on the surface. It starts on the bottom, produces oxygen and starts to float, then continues to grow on the surface.

What is the best mechanical tool or method to remove duckweed/watermeal?

A very fine mesh, something like hardware cloth, stretched out between poles. Some have also made vacuum devices to skim the duckweed off the top.

Every summer my pond gets very turbid and looks brownish. I assume this is planktonic growth. During the cold months of the year the pond is clear. Am I correct?

You are correct the planktonic algae will bloom under the right conditions and turn the pond water brown, yellow, pea soup green, or even red. You can take a glass of this colored water and if it is sediment, after a couple of days, it will settle out. If it is algae, it will remain turbid and will still be moving around.

Source: Penn State Cooperative Extension Pond Management Website and PA Fish and Boat Commission Pond Website

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