

---

# Algae in Farm Ponds

---

## What are algae?

Algae are a normal part of a healthy environment, but they can grow excessively, or “bloom,” in response to environmental conditions. This is why many people think of algae as the green slime that takes over swimming holes at the height of the summer.

There are many kinds of algae, like green, red, brown, and blue-green algae, and it is important to be familiar with them because most of them are harmless, but some blue-green algae can produce potent toxins.



Blue-green algae blooms can form a slimy mat on top of the water

Cyanobacteria, also known as blue-green algae, are the most primitive group of algae. They are simple but remarkably successful organisms. Although they are most closely related to other bacteria, they have the same pigment for photosynthesis that plants have.

## Why should I be concerned about algae blooms?

Algae, like other plants, need nutrients to grow. Nitrogen and phosphorus are especially important to them, and these nutrients can be scarce in aquatic environments. Algae growth is limited because nutrients are limited, so if more nutrients are put into the system, algae growth can explode. Algae blooms often occur because of phosphorus from runoff. Phosphorus-rich runoff can come from farms, cities and residential areas.

When a big algae bloom happens, eventually a lot of algae are dying at the same time. The algae dying and decaying takes up a lot of oxygen, so there is little oxygen left for the other organisms, like fish. Algae blooms can “kill” lakes because they can make it impossible for other organisms to live.

## Why should I be concerned about blue-green algae?

Some kinds of blue-green algae produce toxins. These toxins are produced inside the cells and stay there as long as the cells are alive. When cells die and break down, toxins can be released into the water. If animals drink from algae-infested water, they can ingest the toxins, which can poison and possibly kill them.

Toxic blue-green algae can produce nerve toxins called anatoxins, liver toxins called microcystins, and other toxins. If animals ingest a large dose of anatoxin, their muscles twitch

and lose coordination, and they can die within minutes to hours from respiratory arrest. Large doses of microcystin can cause convulsions, liver swelling and death.

## Can I get rid of a bloom?

If the bloom is made up of stringy green algae, it is possible to control it in a small pond. Because the algae is made up of long strands, you can pick it up with a pitchfork or a rake, then lay it out on the ground and let it dry out and die.

Other kinds of algae, like blue-green algae, can't be controlled this way because you can't pick them up easily.

## How does this affect farm animals?

If their only source of drinking water is contaminated by blue-green algae, animals can be poisoned or killed by blue-green algae toxins. Keep an eye on your animals' water source, fence them off from any water that has an algae bloom, and have an alternate water source available.

Most animals, from sheep to humans to goldfish, are susceptible to blue-green algae toxins. The larger the animal, the more toxin it needs to consume to get a lethal dose. If the dose is high enough, even a large animal like a calf can die within a few minutes of ingesting the toxin. Because these toxins can act very quickly, it is important to PREVENT a problem.

## Can I help prevent algae blooms?

Algae blooms grow larger and last longer when nutrients are abundant. Phosphorus and nitrogen are very important to algal growth, and those nutrients are common in runoff. By decreasing the runoff that goes into ponds and streams, you can help protect the animals that drink that water. Some simple things you can do are:

- Prevent soil erosion. Phosphorus binds to soil particles, so soil erosion increases phosphorus concentrations.
- Maintain or plant vegetation along stream banks. These plants will help filter runoff.
- Don't let animals defecate in or near waterways. Their nutrient-rich feces will make algae problems worse.

## How can I tell if blue-green algae are present in a bloom?

Blue-green algae blooms may appear thick like pea soup, or look like green paint or grass clippings on the water. They are mostly green, although they can also be brown or purple. In

contrast, if you pick up algae and it is stringy, made up of long bright grass-green strands that feel either slimy or cottony, it is not blue-green algae, but harmless green algae. When a blue-green algae bloom washes up on shore, it can form a thick mat or a foam there.

## If there is an algae bloom, when will it go away?

Generally, cooler weather, rainfall, and reduced sunshine will lead to the collapse of an algal bloom. Some blooms die off after a few weeks, while others persist for a few months, depending on environmental conditions.

## Who should I contact for more information or to report a bloom?

Peter Galbraith, State Epidemiologist  
Vermont Department of Health  
108 Cherry Street, Burlington, VT 05402  
(802) 863-7240

Barry Rosen, Ph.D (USDA-NRCS)  
Angela Shambaugh  
UVM School of Natural Resources  
(802) 656-4057 / (802)859-3086

Doug Burnham  
VT DEC, WQ  
103 S Main St, 10 North  
Waterbury, VT 05671  
(802) 241-3784

## Related Internet Sites

<http://www.ohd.hr.state.or.us/esc/docs/mafact.htm>

<http://splash.metrokc.gov/wlr/waterres/lakes/bloom.htm>