

Barley Straw for Algae Control

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The use of barley straw for algae control in lakes, ponds and lagoons has received a lot of publicity in recent years. There have been several studies conducted by researchers both in the US and the UK, trying to unlock the mysteries of how barley straw controls the growth of algae. Let's take a look at how barley straw works and how you can apply it to your lake, pond, or lagoon.

Excessive levels or "blooms" of algae occur when nutrients, especially phosphorous, are abundant in source water. Water temperature and sunlight are also important factors in algae growth. When algae die and decompose, they can leave behind organic compounds that produce offensive tastes and odors that usually lead to customer complaints. Many of these organic compounds are considered disinfection byproduct precursors, and when combined with chlorine, can produce harmful disinfection byproducts.

Taking steps to reduce the amount of nutrients entering a lake can control algae blooms. Proper watershed management techniques and best management practices can help reduce nutrient loading. However, in a large watershed this may be very difficult and it may be desirable to control the algae growth directly. Traditionally, chemicals such as copper sulfate have been used for controlling algae growth. These chemical treatments are effective short-term controls for algae, but they are also toxic to non-target organisms that are important food sources for fish, such as zooplankton and insect larvae. Re-application of these chemicals is usually necessary several times each year and the long-term buildup of copper in the lake sediments is an environmental and health concern. These chemicals (algicides) are now classified as pesticides, and have certain storage, handling and dosage requirements. They also require special training and certification for the applicator.

The technique for using barley straw for algae control was developed in the early 1990's in England, where it is widely used in many bodies of water, including large reservoirs and canals. In general, it is thought that fungi decomposes the barley in water, which causes chemicals to be released that prevent the growth of algae. Decomposition of barley in oxygen and sunlight is the key. The specific chemical(s) has not been identified yet and it is not clear whether the chemical is exuded from the barley itself or if it is a metabolic product produced by the fungi. The activity of barley straw is usually described as being algistatic (prevents new growth of algae), rather than algicidal (kills already

existing algae). In other words barley straw does not kill existing algae, but it does prevent the growth of new algae. Also, barley straw does not reduce the growth of other aquatic plants.

Although the decomposition of barley straw produces chemicals which are added to the water, these chemicals are naturally occurring and have not resulted in any documented ill effects to fish, waterfowl, or humans. Another advantage is that the slow decomposition process provides for long-term algae control. Chemical algicides, such as copper sulfate, provide short-term control and may need to be applied several times over the course of a summer.

When do you apply the straw? The decomposition process is temperature dependent and occurs faster in warm water. When the water temperature is below 50oF, it takes approximately six to eight weeks for the decomposing straw to produce enough of the growth-inhibiting chemical to effectively control algae. However, it may take only one to two weeks when the water temperature is above 70oF. Once the straw begins to produce sufficient amounts of the chemical, it is likely to control algae for four to six months. Therefore, barley straw should be applied in the spring (April) in order to control summer algae growth.

How much straw should you apply? The amount of straw required depends on the surface area of your lake. Most researchers agree that lakes with a history of algae problems should be treated at a rate of approximately 225 lbs of barley straw per surface acre of water. Lower dosages can be tried, but doses below 90 lbs per surface acre have little effect.

How should you apply the straw? The straw bales must be broken apart to allow adequate water and oxygen movement through the straw. The loose straw should be placed in some form of netting or cages. Some folks recommend using the tube type netting used for wrapping Christmas trees, or wrapping the straw lengthwise in plastic snow fencing and making long booms. You can also use loose woven sacks, such as onion or potato sacks.



You must use some type of floats to suspend the straw filled netting near the surface of the lake. Water movement near the surface will keep the straw

well oxygenated and distribute the growth-inhibiting chemical throughout the upper portion of the lake. Floats can be



inserted in the netting while packing the straw (milk jugs with the caps sealed with silicone work well). The netting should then be anchored with a rope to keep the straw in place

and prevent drifting with the wind. You can also use barley straw in tributary streams, by placing it in the water along streambanks.

Where can you get barley straw? Finding local suppliers of barley straw can sometimes be difficult. You might consult with private and government agencies that work with local farmers, or even farm supply companies. Soil and Water Conservation



Districts and the Cornell Cooperative Extension may also be helpful in finding a supplier.

One important note: It is unlawful to sell barley straw if the seller claims that barley straw “controls algae”. This is because the words “controls algae” makes barley straw a pesticide from a legal perspective according to EPA, and is therefore subjected to all the rules associated with unregistered pesticides. Certified commercial applicators, lake management companies, and garden/nursery companies cannot legally sell barley straw if algae control claims are made. Using barley straw in privately owned bodies of water is a different situation; barley straw then qualifies as a “home remedy” and does not come under EPA authority.

If you are considering using barley straw, you should first consult with your Local Health Department representative and the DEC before using it in any publicly owned lake, pond or stream, to avoid any legal ramifications. Otherwise, bundle it, float it, and watch it rot!

Photos courtesy of Steve McComas, Blue Water Science, St. Paul, MN. ♪