Use of Aquatic Dyes in Ponds

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Healthy "plankton blooms (populations of microscopic plants and animals)," established early in the spring, can turn pond water a green or brown color which will help inhibit the development of rooted aquatic vegetation and filamentous algae. Proper pond liming (if necessary), fertilization, or fish feeding programs will insure the development of these plankton blooms. If plankton blooms do not develop after repeated attempts, are not desired, or are not practical to produce; the use of an aquatic dye may help prevent unwanted plant growth.

Typically, dyes would be used in golf course, ornamental, recreational, fish production and fee fishing ponds. Aquatic dyes are used to impart a blue or blue-green color to water when added to ponds. Aquatic dyes may also be added to decorative fountains, industrial cooling towers, and industrial ponds which have little or no water exchange. Dyes should not be applied directly to natural bodies of water. Aquatic dyes are supposed to "shade" the aquatic plants from sunlight while producing a more aesthetically pleasing color. According to product manufactures and some researchers, these dyes reduce sunlight penetration into the water column and reduce plant growth by inhibiting photosynthesis.

Aquashade* is the only aquatic dye registered with the U.S. Environmental Protection Agency for the use in commercial aquaculture production ponds. Water treated with this dye should not be consumed by humans, but is safe to use for irrigation and swimming following proper dispersal (chlorine may remove the dye's color) and will not harm livestock. The dye consists of approximately 26% food dyes (acid blue, 23.63% and acid yellow #23, 2.39%) and 74% water. This product is designed to screen the red-orange and blue-violet light rays which the plants and algae require for growth. Aquashade* is applied from the container to the pond's surface at the rate of 1 mg/l (1 ppm), or 1 gallon of dye to 4 acre feet of water.

According to the manufacturer, this concentration should prevent the development of pondweeds, chara, naiads, water milfoil, or filamentous and blue green algae. A 2 mg/l dye application is recommended to prevent Eurasian milfoil and hydrilla. Application of dye during the winter or spring may help prevent the establishment of unwanted plant growth during the summer. This product may be applied to a frozen pond by pouring the dye onto the ice in a 1 yard diameter circle. The dye will attract sunlight and melt through the ice and then spread beneath it. Aquashade* may also be added to ponds during the summer in an effort to control established plant growth. Dye treatments may remain effective for 4 weeks or longer. The dye is less effective in pond areas where the depth is less than 2 feet (Aquashade Specimen Label and Fact Sheet, 1992).

Researchers at Auburn University found that Aquashade* did not reduce

phytoplankton (microscopic plants) blooms or underwater weed growth in channel catfish production ponds (Boyd and Noor, 1982). Dyes have not been used extensively for weed control in aquaculture ponds and more research will be required to determine their effectiveness (Boyd, 1990). However, the aesthetic value of dyes for recreational and ornamental ponds should not be overlooked. Amusement areas and fee fishing facilities could benefit from increased customer perception of an enhanced pond environment. Increased customer satisfaction may lead to increased profitability.

The cost of Aquashade* is approximately $50.00 per gallon. Cost of the chemical may restrict applications to smaller ponds where water volumes exchange 10 times or less during the year. In southern watershed ponds, dye applications may be most practical in the late summer and early fall months. These months typically receive the least rainfall.

* The Kentucky State University Cooperative Extension Program does not endorse Aquashade or any product. There is no intention to exclude other similar products.

References

Aquashade Specimen Label and Fact Sheet, 1992. Applied Biochemists, INC. Milwaukee, Wisconsin

Boyd, C. E. 1990. Water Quality in Ponds for Aquaculture. Alabama Experiment Station, Auburn University, Auburn, Alabama.

Boyd, C. E. and M. H. M. Noor. 1982. Aquashade Treatment of Channel Catfish Ponds. North American Journal of Fisheries Management., 2: 193-196.