

Commercial Aquatic Weed Control In The Southeastern United States

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Among the many beautiful lakes which dot Central Florida an increasingly greater number now have no use other than as hazards or as water storage, but which, with proper aquatic weed control could be returned to useful recreational facilities. Weed control could greatly increase the utility of others which now have broader use, but still are not realizing full potential.

The benefits of removal of aquatic weeds are many. The first is increased water capacity. Heavy weed growth can reduce water holding capacity in a lake by as much as 30%.

Removal of weeds will make swimming possible in many lakes, plus the added factors of increasing the value of property along the lake fronts, and increasing values for the sports fisherman and boat rental operators.

A number of deaths have occurred in 1966 due to swimmers becoming entangled in dense mats of weeds such as elodea. Another problem which has come to our attention is *Schistome Cercariae Dermatitis* commonly called "swimmers itch". Many home owners attempting to drag mats of elodea from their canals and beachfronts have developed this painful malady.

Many Florida residents use the lakes as a source of water to irrigate lawns, and find that aquatic weeds can become a costly source of delays and expense when intake valves become clogged. The same feature holds true for commercial electrical power companies who have their turbines stopped from choked intake valves.

To assist lake and pond owners, the Pennsalt Chemicals Corporation has in 1966 opened its Southeastern Branch of the Aquatic Application Service, to serve customers in North and South Carolina, Georgia, Florida, Alabama, Mississippi, and Tennessee.

We have assured lake owners that materials used will be products which have passed USDA requirements and been so labeled for use in aquatic weed control. Products which are most effective in controlling specific weeds under specific conditions and locations. This means we will use products of our own manufacture or those of other firms so long as they meet the standards and are best suited for that particular job. We stress bio-degradable products—Hydrothol 191 and Potassium Endothall.

The reason is apparent when we state that we are living by the data contained upon our labels (and the labels of other firms whose products we use) and will re-treat an area at no additional cost, if the original treatment does not meet our specifications on the contract.

A brief list of products which we used successfully this season follows:

In Florida, we are using Diquat for control of water hyacinth, wherever, there may be the slightest hazard from drift to lawns, shrubs, or flowers. This is particularly true in residential and truck crop areas. Although the product Diquat is more expensive than 2,4-D for general water hyacinth control, it has a built in safety factor for use in populated areas.

The basic compound of most Pennsalt products is Endothall—1,2-dicarboxy-3,6-endoxocyclohexane or 7-Oxabicycle) 2.2.1) heptance-2,3-dicarboxylic acid. Hereafter, referred to as Endothall or salts or its expressed as trade names.

Endothall is related to cantharidic acid, a chemical found in nature, and unlike almost all other pesticide chemicals it contains only carbon, hydrogen, and oxygen. Endothall is not employed as the free acid but is converted to one of its sodium, potassium, or long chain fatty amine salts in water.

For aquatic use the endothall salts are supplied as water concentrates or as active deposits on inert clay granules and they bear the trade names of "Aquathol (sodium and potassium salts) and Hydrothol (fatty amine salts).

Hydrothol—Mono (N,N-dimethylalkylamine) salt of Endothall alkyl groups as derived from coconut oil. Hereafter referred to as Hydrothol 191.

In large scale commercial application of Hydrothol 191 this year in areas ranging from Miami's flowing, turbid, tidal affected canals, to lakes of north Florida, we have successfully used this material to completely control elodea. In practice, we inject liquid Hydrothol 191 into the affected area, starting from the shoreline and moving outward. With granular forms of Hydrothol 191, we are obtaining equal control of elodea but additional time is required due to the slower release of active material.

It has been demonstrated that fish can detect presence of Hydrothol 191 and move from areas treated with this material. If higher concentrations have to be employed and recommendations on the label are followed, i.e., "To treat only marginal or sectional rather than overall bodies of water" and "To not treat more than 1/10 of the lake at one time with doses in excess of 1 ppm, use of Hydrothol 191 will not cause kill of fish.

CONCLUSION

Hydrothol 191 can be used practically to control algae and aquatic weeds without harmful effect to fish providing that it is applied in accordance with label recommendations. Treatment of bodies of water with endothall and control of aquatic weeds does not result in the decrease of bottom dwelling fish food organisms but rather in an increase, especially those organisms used for food of desirable species of fish.

No adverse effects were noticed with 10 ppm and in some cases with 25 ppm. of endothall on fertilized eggs, larvae, and growth of oysters, and clams.

It has been mentioned that there is a definite need for an ideal chemical which could be used in water to control aquatic weeds and algae without adversely affecting in any respect humans, fish, wildlife, domestic animals, or any other desirable organisms. We feel we now have such a candidate and the means to provide its correct application.