

to levy a tax of up to one-fourth mill on all taxable property in the county. In addition, two agencies, the State Game and Fresh Water Fish Commission and the Central and Southern Florida Flood Control District, have agreed to supplement the District's budget with funds they normally would spend in Lee County. Each of these agencies has agreed to make available at least as much money as it has expended in our area in the past. When funds from these two agencies were added to the revenue produced by the one-fourth mill tax, the budget adopted for the fiscal year October 1, 1961, through September 30, 1962, totaled \$115,129.19.

While this is our first year of operation, we feel certain that progress will be rapid since we do have the personnel know how and plant facilities of the local mosquito control district to fall back upon. However, it is the intent of the law, and ours, that the Lee County Hyacinth Control District, as an independent agency, will operate a program which can provide adequate control of this obnoxious aquatic weed. We feel sure that our program, carried out by an autonomous taxing body, will be an effective approach to our problem, and that creation of this district marks an important step forward in local government weed control.

Hydrothol For Control Of Aquatic Weeds

By J. L. Frizzell

A number of fatty acid amine derivatives of Endothal acid have been evaluated for herbicidal activity for the last several years. These materials show an increased contact activity over Disodium Endothal. The composition of two of these materials selected for further field evaluation are as follows:

HYDROTHOL — di N, N dimethylcocoamine salt of Endothal.

Herbicide 191 — MONO N, N dimethylcocoamine salt of Endothal.

HYDROTHOL and Herbicide 191 are available as a liquid concentrate (soluble in water) and as a granular product. They are highly effective aquatic herbicides and algicides for use in irrigation and drainage canals, lakes, ponds and other problem areas to control the following weeds and algae:

Najas, Elodea, Coontail, Milfoil, Pondweeds, Water Star-grass, Cobamba, Cattail, Bur Reed, Algae and Chara.

In 1960 and 1961 extensive laboratory evaluations of HYDROTHOL were made. Still water tests indicated that this material was extremely active on Southern Naiad, Elodea and Coontail. Laboratory evaluations in 1961 indicated that the material required relatively short exposure time, which made it suitable for use in slow moving water.

A large experiment was initiated in the Spring of 1961, using HYDROTHOL at the rate of 3 ppm and 5 ppm in small farm canals. HYDROTHOL gave 100% control of Southern Naiad at both rates and little regrowth occurred at the end of nine months.

In June of 1961, HYDROTHOL was applied at 3 ppm and 5 ppm in a canal for the control of Southern Naiad and Coontail. HYDROTHOL was mixed with water and was applied from a boat with a gasoline-driven pump at a pressure of 60 psi. The solution was injected below the water surface. Again, good control was obtained.

In September of 1961, a drainage district field crew applied HYDROTHOL to farm canals one-mile long at the rate of 3 ppm. Complete control of Southern Naiad and Coontail was obtained within seventy-two hours after application of HYDROTHOL. In this same experiment, Herbicide 191 was applied to one-half mile of canal. Observations showed no difference in control obtained with the two chemicals. Numerous other field experiments have confirmed that there is no difference in performance of HYDROTHOL and Herbicide 191.

Extensive field tests for weed control and residue studies have been completed by the Missouri Conservation Commission. These tests were made to determine the herbicidal effectiveness and ecological aspects of the chemical treatment using HYDROTHOL. The field experiments for tracing the degradation of HYDROTHOL were performed in a farm pond located on the University of Missouri Ashland Wildlife Area. Seven enclosures, made by installing plastic curtains in this pond, were subjected to various dosage rates of the commercial formulation

of HYDROTHOL. Applications of 0.1, 0.3, 0.6, 1.0, 3.0, 6.0, and 10.0 ppm by weight were made in the enclosures. Water and bottom fauna samples were collected prior to the introduction of the chemical. Water samples were taken daily from each of the enclosures and the control area for a period of twenty-seven days. Bottom fauna samples were collected three weeks following application. All samples were transported to the laboratory for analysis on the day they were collected. Analysis of these samples treated with HYDROTHOL showed that residues were found to be of short duration. Degradation studies of water residues indicated the rate of disappearance to be a function of time and concentration. The lower application rates of 0.1 to 3.0 ppm broke down rapidly within the first week, while higher concentrations of 6.0 to 10.0 ppm took up to twenty-five days. The analysis of fish flesh revealed negative absorption of HYDROTHOL at sub-lethal concentrations. Under field conditions, bottom dwelling fish food organisms increased in abundance and changed in species composition following treatment of vegetation. Bottom fauna showed some up-take of herbicide residues, but little or none was absorbed by fish.

Studies of the degradation of herbicide residues in water indicated that persistence is of short duration, with the rate of disappearance being a function of time and concentration.

In December of 1961, applications of water treated with HYDROTHOL at a rate of five and 10 ppm were made to growing tomato plants, onions, radishes, lettuce and peas. These tests were replicated twice with the soil being saturated to one-hundred percent with both 5 and 10 ppm. Analysis of the crops treated with 10 ppm showed a residue of 9.75 ppm and the 5 ppm showed a residue of 0.18 ppm. With the difference of .18 ppm and 0.75 ppm for 5 and 10 ppm, we certainly do not expect any residue when treated at 3 ppm.

There was no plant phytotoxicity at these high rates. Preliminary results indicate that treated water can be used safely for irrigation purposes without crop injury or residue of HYDROTHOL.

Animal toxicity studies are nearing completion at this time. So far, no ill effects have been detected.

Other uses of HYDROTHOL includes Algae control for ponds and lakes. Tests in 1960 and 1961 indicated that Cladophora and Pithophora can be controlled with dosages of 0.25 to 0.5 ppm acid equivalent applied both as a liquid or a granular.

Tests have shown that Algae in cooling towers, and other circulating systems, that an initial treatment of 3 ppm is sufficient under most conditions for control. Repeat treatments of 0.5 to 1.0 ppm at weekly intervals is suggested.

History Of Water Hyacinth Control In Louisiana

U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS

It happened in New Orleans, Louisiana, in 1884. The water hyacinth (*Eichornia Crassipes*) was introduced for the first time in this country as a horticultural exhibit from the tropics. Its beauty and free-floating characteristics made it a great favorite with the public.

Since its growth was prolific, there was no hesitancy in giving sample plants to those who wished to beautify their ponds and to others who thought that the new plant might be an answer to some of their livestock feeding problems. And thus was born the problem which was to cause hardships to thousands and cost millions to control.

Within ten years after its introduction, the water hyacinth was a serious problem in some areas in Louisiana and was spreading elsewhere throughout the Gulf States. The first trouble spots in Louisiana were reported in the streams of St. Tammany Parish entering Lake Pontchartrain, in Bayou Plaquemine not far downstream from the old lock and in the Mermentau River in western Louisiana.

The water hyacinth problem had reached such proportions by 1898 that Congress was asked to assist and shortly thereafter the Corps of Engineers was given the mission of removing the water hyacinth from the navigable waterways of Louisiana whenever it became a hindrance to navigation.

An early survey disclosed the seriousness of the problem and