Controlling Shoreline and Emergent Vegetation in Ponds and Lakes

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An excessive growth of emergent or shoreline vegetation in ponds or small lakes often reduces the recreational value of such areas. Cattail, bulrush, promrose willow, and lotus are types of emergent vegetation. A thick growth of willow trees is a good example of undesirable shoreline vegetation. During recent years chemical treatments have been developed which are superior to mechanical procedures for the control of these plants.

Hall and Hess (2) found that 2, 4-D sprays were effective in controlling cattails, and that one pound per acre of 2, 4-D ester sprayed on lotus killed 95 to 98 percent of the plants. The use of hormone sprays for the control of emergent vegetation in ponds also has been reported by Surber (4) and Jackson (3).

RESULTS OF EXPERIMENTS

In July, 1953, a suspension of Karmex W** containing one pound of chemical in three gallons of water, was sprayed on the soil beneath a large

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** 3-(para-chlorophenyl)--1, 1-dimethylurea

number of small willow trees growing near the wet-season shoreline of two farm ponds east of Ardmore, Oklahoma. The water in these ponds had receded five to six feet from the base of most of these trees when the chemical was applied as a result of summer evaporation. The area treated around each small tree was about two feet in diameter. All of the soil was sprayed with Karmex W suspension where the willows were less than two feet apart. The rate of application was about forty pounds of chemical per acre. Leaf injury was observed three weeks after this treatment was applied. Defoliation occurred six to eight weeks later. All trees were dead in 1954. Elwell (1) has reported that lower rates per acre of Karmex W killed black jack oak and red cedar.

Lotus plants in Chickasaw Lake, northeast of Ardmore, Oklahoma, were sprayed with 2, 4-D and 2, 4-5-T on June 30, 1955. Eight plots about 30 feet square were used for this experiment. A low volatile ester of each hormone was applied. The rate of application per acre was 1.5 or 3.0 pounds of the acid form of each material diluted with water or diesel oil, using ¼ or ½ pint of the chemical in 10 gallons of liquid. More leaf injury was apparent one week after the lotus plants were sprayed with 2, 4-D as compared with plants sprayed with 2, 4-5-T. A more rapid and uniform kill of lotus plants was obtained where the hormones were applied with diesel oil as compared with the hormone-water mixtures. Oil not only adheres to lotus leaves better than water, but also forms a surface film which will collect on plant stems and leaf edges when the spray droplets fall on the water. All vegetation except a few flower stalks had disappeared when inspection of this lake was made eight weeks after the spray was applied. Roots of several lotus plants collected from mud about five feet below the surface of the water were dead. The control of lotus in ponds where these plants have been growing for several years may continue to be a problem because of young plants which may appear from seed.

A water suspension containing .5% of 2, 4-D sprayed on cattails (Typha latifolia) was as effective in killing these plants as a similar concentration of 2, 4-D in diesel oil. The growth of primrose willow (Jussiaea repens L.) also was greatly retarded when the leaves were sprayed with diesel oil containing .5% of 2, 4-D. A similar concentration of 2, 4-D in water was not as effective as 2, 4-D in diesel oil for controlling bulrush. (Scirpus acutus Muhl.)

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