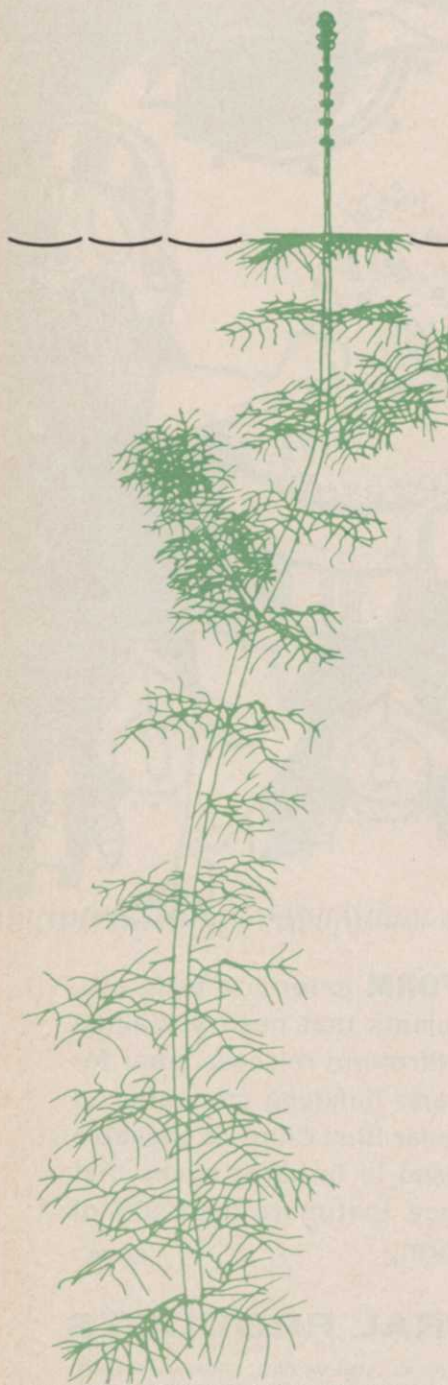


# Eurasian Watermilfoil

## Reduces Waterwa



**I**NFESTATIONS of Eurasian watermilfoil have become a serious threat to ponds, lakes, and tidewater areas by reducing their use for recreation, as well as hampering navigation and commercial shellfishing operations. This weed, *Muriophyllum spicatum*, has also diminished the size of open waterfowl feeding areas and reduced the value of waterfront real estate.

The persistence of this aquatic pest is indicated in the tidewater area of Maryland where it inhabits an estimated 100,000 acres. Since 1961, watermilfoil has doubled its water surface coverage in the Maryland tidewater area. Heavy concentrations of this weed also have been found in the waters of New Jersey, New York, North Carolina, Alabama, Indiana, Ohio, California, and Texas. In the Tennessee Valley Authority watershed, infestations of the weed have demanded major control programs.

### **Milfoil Grows from Seeds, Rhizomes, or Stems**

First found in this country in 1902, Eurasian watermilfoil is a successful invader primarily be-

cause it reproduces three ways. It can sprout from seeds, creeping rhizomes, or even from a simple broken stem part having a single joint or node. Such plant segments are spread by water currents and carried by propellers and hulls of boats. Seeds are so hardy that they remain alive even after passing through the digestive tract of migratory waterfowl. In any one or all of these ways, single plants can develop into a new bed of watermilfoil within a few years.

### **Control by Cutting is Temporary**

Watermilfoil is difficult to control because, to halt the weed and its power to reproduce, the entire plant must be eliminated down to its roots. Limited control is accomplished with mechanical "harvesting" equipment which cuts off the upper part of the plants a few feet below the water surface. Water areas cleaned out in this manner have been reclaimed for limited recreational uses such as swimming, boating, and water skiing. Fishing and shellfish dredging operations, however, remain seriously

Use



**Hand-held granule spreaders** are used to apply herbicide to small areas infested with submersed aquatic weeds. Granular fertilizer spreaders are sometimes mounted to boat sterns when large areas are treated.

hampered by the growth left under the water surface. Also, within a short time, watermilfoil grows back and soon brings a halt to the surface sports.

#### **TVA Dries Watermilfoil**

Successful mechanical control was achieved on some Tennessee Valley Authority waters by de-watering and drying the plant. Results from "Studies on the Biology and Control of Eurasian Watermilfoil in the Tennessee Valley," conducted by Reservoir Ecology Branch, Division of Health and Safety, TVA, Muscle

Shoals, Ala., indicate that water manipulation has limitations. Necessity of maintaining a 9-foot navigation channel, water intake structures, and adequate flow for power production restricts this mechanical control method on TVA waters.

#### **Chemicals Offer Continuous Control**

In pools, slow-flowing channels, and tidelands, weed control chemicals are successfully used. Owners of commercial marinas, boat docks, beaches, and supervisors of watershed prop-

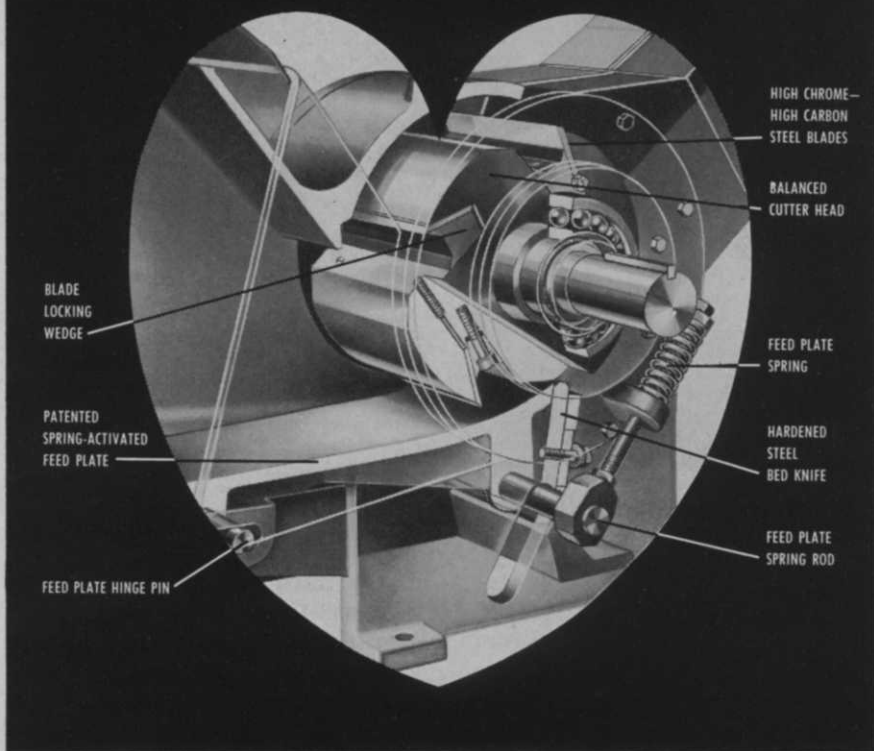
erties have tested, with much success, the effectiveness of granular butoxyethanol esters of the chemical herbicide, 2,4-D. One product, labeled Aqua-Kleen, incorporates this compound which is impregnated into specially hardened, 8/15-mesh attaclay particles. These granules contain 20% active ingredient by weight. After sinking to the base of the weed beds, they release the herbicide in the root zone area. A toxic concentration is produced and gives a maximum kill of watermilfoil. Waterlilies, stargrass, spatterdock, and other aquatic plants have also been controlled by this granular product. In some large-scale applications, 18-month control has been achieved.

Herbicides and herbicidal combinations found most effective against the aquatic plant in the TVA studies include Aqua-Kleen, as well as propylene glycol butyl ether ester of 2,4-D, liquid and granular potassium



**Recreational use of waters** is seriously hampered by infestations of Eurasian watermilfoil. New beds of watermilfoil start from broken parts as well as from creeping rhizomes and seeds.

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silvex, and propylene glycol butyl ester of silvex.

Aqualin, a hydrocarbon acrolein, introduced by Shell Chemical Corp., has also been found effective against Eurasian water-milfoil. Shell reports Aqualin reacts with vital enzyme systems of the plant cells and causes treated vegetation to become flaccid and disintegrate within a few hours. Temperature is an important factor in application of the chemical. Warmth makes the compound work much faster (at 60° F the dosage must be double that used at 80° F).

Other factors influencing Aqualin application include amount of water flow, water temperature, velocity of flow, and density of weed growth. For temperatures above 70° F, ½ to 2 gal. of Aqualin per acre ft. are said effective (1.5 to 6 ppm). Below 70° F, 1 to 3 gal. (3 to 9 ppm) per acre are recommended.

### **Uniform Application: Critical in Small Areas**

Conventional cyclone spreaders and fertilizer applicators, either hand-held or mounted on the stern of boats, are used to apply herbicide granules. When treating large areas, diffusion of the chemical in water compensates for slight inaccuracies during application. In small areas, however, uniform application over the entire infested area is important to prevent skips and watermilfoil regrowth. When using many granular products, volume of the water involved is not a factor in computing rates. Surface area can be used and easily determined to assure the correct dosage.

### **Aquatic Weed Clinics Set**

How to eliminate bothersome aquatic weeds in lakes and ponds will be the subject of a series of weed control clinics given this spring by the Pennsalt Chemicals Corp. Over 50 group presentations will be held in Central and Northeastern sections of the U. S.

Readers interested in these clinics should write to Pennsalt Chemicals Corp., 309 Graham Bldg., Aurora, Ill. 60504.