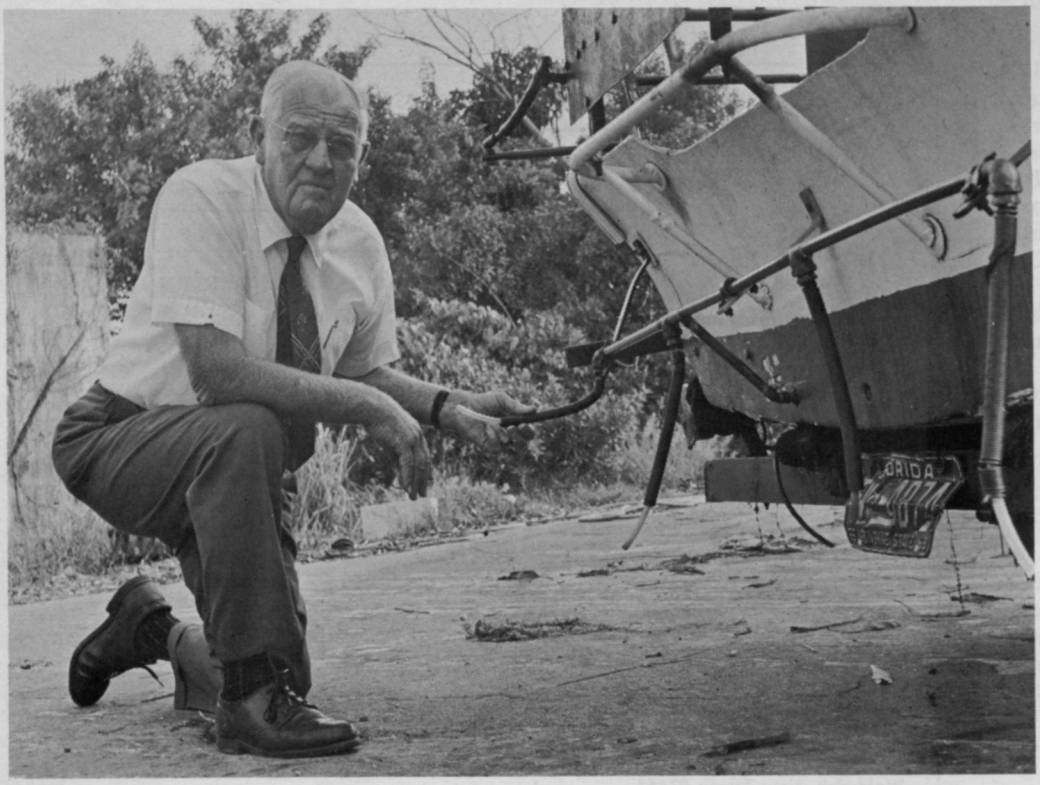
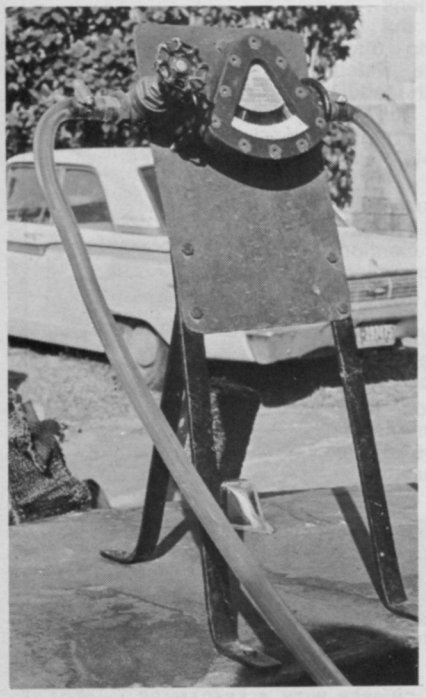


Florida's Charlie Johnson shows his airboat's flexible, plastic downspouts through which acrolien is released into lakes and canals. Spouts are wrapped in springs to keep them pointed downward.

'CREEPING CHARLIE' Uses Aqualin to Kill Aquatic Weeds

BIG VOLUME business awaits the weed control contractor who can do aquatic weed work. This is the opinion of Charlie P. Johnson, owner of a Miami, Fla., lawn spraying firm and a pioneer in Florida in weed control contracting.



This flow meter, which shows how much herbicide is entering the water, is in the operator's constant view at the front of the airboat.

Johnson has demonstrated his confidence in the future of aquatic weed control contracting by assembling a $12,000 combination of airboat, trailer and truck, specially designed for combatting aquatic weeds.

The airboat, named "Creeping Charlie," is equipped primarily for the application of aqualin, manufactured by Shell Chemical Company. It is used to reach submerged weeds, but Johnson also finds it effective against all forms of algae. The unit replaces an earlier experimental airboat which was a regular boat powered by an aircraft engine.

The airboat hull, of a type favored by Florida hunters and fishermen, is 12 feet long, 5½ feet wide and made of fiberglass. At low speed and loaded, it pulls about eight inches of water. Because of the hull design, Creeping Charlie can maneuver well in lakes or canals which are clogged with weed growth. Like all airboats, it simply skims over the top.

Lycoming Power Plant

Power plant for the airboat is a Lycoming aircraft engine generating 120 horsepower. In the center of the hull are twin tanks. One contains acrolein in a 53-gallon pressure cylinder which can be exchanged for another cylinder when exhausted. This exchange of tanks is the only handling required for the chemical supply. The second tank at the center of the boat contains carbon dioxide, which is used as a propellant to force acrolein through the flow regulator and the line which supplies chemical to a rear-mounted dispensing boom. Flow regulator is mounted at the front of the boat, under the eye of the operator. The herbicide moves from its cylinder tank through the flow meter in plastic tubing, then into

½-inch copper pipe at the floor of the boat.

This pipe carries the acrolein through the transom and on to the six-foot copper boom at the rear. The boom has four downspouts of ½-inch plastic tubing. These extend about eight inches below the surface of the water for expulsion of the acrolein gas. Tubing is flexible in case of an obstruction. Downspouts are encircled with steel springs to keep them aimed into the surface unless bent by an obstruction.

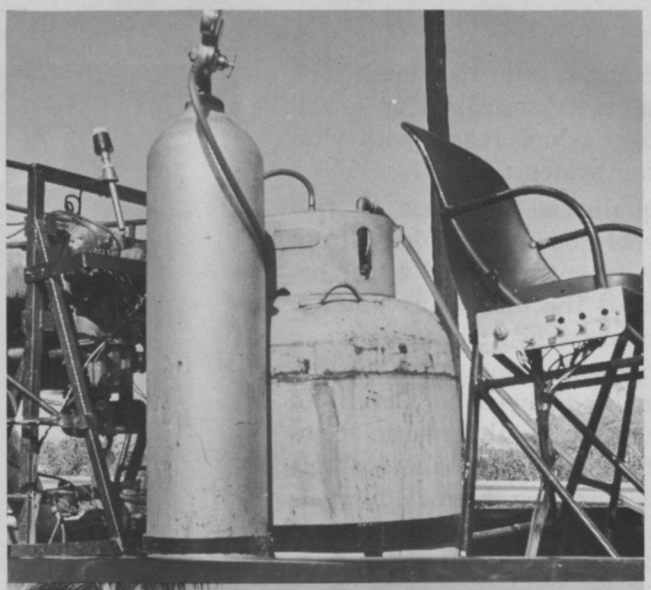
"At six miles an hour we get excellent coverage and there is just enough wake to fold in the acrolein," Johnson states. The boat makes a 6-foot swath on each pass but chemical covers an additional three feet on either side. Thus, each pass actually covers 12 feet in width.

Johnson uses this applicator system to treat elodea, hydrilla, chara, pond weed, Southern naiad, cabomba, and all forms of algae. It is not used for water hyacinths or for weeds emerging above the surface. While the airboat system is designed for one particular method of application, it is adaptable to spraying on or near the surface with other chemicals and for broadcasting dry chemicals.

No Fish Kill

In a recent lake-clearing program for a home owner's association, Johnson reported a complete absence of fish kill. This was accomplished by strip treating. He first treated only half the lake. Fish moved out of the section being treated and a few days later, he was able to treat the remaining half. In this instance, home owners wanted the lake cleared of weeds so they could again boat, ski, fish, and swim.

One characteristic of acrolein, according to Johnson, is that the chemical causes treated weeds to sink to the bottom and decompose. No mass of vegetation must



Squatty 53-gallon holds acrolein; taller cylinder at left is for carbon dioxide, which forces herbicide through feed line into the water. High seat for operator is at right of photo.

Johnson directs his driver in the launching of "Creeping Charlie" into the man-made lake being cleared of aquatic weeds.

An engine and propeller made for a light airplane power Johnson's airboat. Guardrail keeps riders from getting too close to propeller.

"Creeping Charlie," releasing herbicide underwater, skims over lake's surface.

be removed after treatment. The chemical is described as a cell toxicant which reacts with vital enzyme systems.

Aqualin is not toxic to fish after 24 hours. Animals will not drink recently treated water because of the obnoxious quality. There are dangers in application, an example being when treated water is allowed to flow into crop areas. For this reason Johnson feels legislation should limit use of this type chemical to qualified and licensed contractors or applicators.

Only Two Contractors Licensed

At present, Southern Mill Creek Products, which distributes aqualin in Florida, has licensed only two contractors to apply the herbicide, along with governmental agencies.

Part of the application system being used by Johnson includes a trailer to transport the airboat from one site to another, and a one-ton pickup truck, complete with four-wheel drive and snow tires.

Training is needed for job estimating, job planning, and in treating, Johnson says. Acrolein is being applied at rates of five to seven ppm of water. Thus, a careful analysis is needed regarding inflow and outflow of water, turbulence, and other factors.

Johnson works closely with the Hyacinth Control Society, Inc., which serves as a training agency, through regular meetings. This Society serves commercial applicators, flood control personnel, U. S. Army Engineers, mosquito control agencies, county and state officials and others. Research on aquatic weed control materials and procedures receives high priority at the U. S. Department of Agriculture field laboratory at Plantation, Fla., staffed by Dr. Lyle W. Weldon, research agronomist; Robert Blackburn, botanist; and Dr. Carey Stewart, plant physiologist.

Beautiful it was along this Waukegan, Mich., street in this News-Sun photo on Aug. 3, 1962...

It's Freers Elm Arrester

FREERS ELM Arrester, a new product developed by Charles R. Freers, Muscatine, Ia., has been granted USDA registration on a regional basis. It is being marketed in Illinois, Iowa, Indiana, and Missouri.

According to Freers, extensive testing has shown that the new chemical compound will arrest the fungus of Dutch elm disease, after the tree has been partially affected. Freers says the product is applied by direct injection into the trunk of infected elms. Its function is to arrest the disease, and prevent spread of the fungus throughout the rest of the tree. In tests over a 9-year period, Freer reports that many trees have continued to live.

In a healthy elm, Freers reports, injection of the chemical will prevent DED from developing even though the elm bark beetle has carried the fungus to the tree. The product, he states, has been found to be most effective when booster injections are given about every two years. Elm trees which are heavily infected, however, cannot be saved. The chemical compound, being sold as Freers Elm Arrester, is not phytotoxic, nor does it adversely affect the beetle. Instead, according to Freers' report, the chemical is selective in destroying the fungus which is carried by the elm bark beetle.

Effective spraying and good tree sanitation, as a preventive program, have protected many elms. This has been possible where the beetle has been controlled. But, once the tree has been infected with the fungus, survival is seldom the case. No treatments are in use which will control the fungus. This control has been the goal of Freers in development of his treatment.

Another case in point which Freers believes his new product can solve is infection of trees by root graft. Many elms, he believes, contract the disease as a result of transmission via the root system when roots of infected elms and healthy trees form root grafts underground. In such cases, spraying for the beetle is ineffective. But, Freers states, injection of Freers Elm Arrester can save the tree.

Evidence of DED in a tree such as "flagging" is a signal to use the new product, according to Freers. He believes that it no longer need be a sign that the tree is doomed.

Freers has been an arborist for more than 30 years and has operated the Freers Tree Service of Muscatine. He spent almost a decade in development of the product and in experimental work and testing. The last three years, he states, have been most important. It was during this period—on a federal test plot and following the USDA requirements for evaluating the effectiveness of products claiming use in the