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For More Details Circle (147) on Reply Card
The fertilizer situation especially phosphorus appears to be tight. While production is running at full capacity, several factors have made supplies to growers shorter than usual this year. According to Dr. William C. White, vice president member services, The Fertilizer Institute, fertilizer exports have been running heavy. In addition, reduced rail capacity to transport bulk fertilizer from the producer to the distributor has been limited. White says that producers have not increased production for the past several years due to overproduction. Current plans call for expansion, but results will not be seen much before 1975. Supplies of fertilizer are not short, notes White. There is just less being transported through the pipeline. Some manufacturers have attempted to use barges on major waterways. However, this has been less than successful with heavy flood situations in the central U. S. Order early, says White. It will help in getting fertilizer when you need it.

ANSI Z-133.1 report on the safety requirement for tree pruning, trimming, repairing, or removal is now available. This standard is the first to be endorsed by the American National Standards Institute. It was prepared in cooperation with the International Shade Tree Conference and the National Arborist Association along with other interested manufacturers and organizations. If your business is involved in tree care, it would be advisable to secure a copy of this standard. Write to American National Standards Institute, Inc., 1430 Broadway, New York, N. Y.

Do you want to know the latest status of any bill before Congress? Then call (202) 225-1772. That's the hot-line number for an immediate computer read out, according to the USDA Office of Information. When calling, state the title or number of the bill.

The Environmental Protection Agency has proposed new rules governing hearing procedures for the regulation of pesticide products under FEPCA. The purpose of the rules is to insure that all parties adversely affected by EPA decisions will have a clearly defined avenue for seeking redress. The EPA Administrator may call a hearing to consider all information concerning a questionable pesticide, without the necessity of a cancellation, suspension or change of classification action. Additionally, in the case of a product suspension due to imminent hazard to the public, the new rules would accelerate the hearing process and thereby provide greater protection for the public. Other sections in the proposed procedures include: subpoena power given to EPA's administrative law judge in hearings; incorporation of the scientific advisory committee into the hearing procedure; and the right of the administrative law judge to make "initial decisions" which may become final where there is no appeal within a stated period of time.

The Environmental Protection Agency has granted registration to International Minerals & Chemical Corporation for the aerial application of Thuricide HPC in the control of gypsy moth. The product is a biological compound that was used widely by ground applicators last year to control this pest in forests, residential and public properties.
Any one of these can spoil your chances for repeat business.

The one industrial herbicide that kills all of them

KROVAR® I

KROVAR I gives you the kind of performance that keeps customers satisfied. That spreads good rumors about your work. And that brings in new business every year.

The dual solubility of KROVAR I provides effective control in any weather. Only a little moisture is needed to activate it. In high moisture, it dissipates less rapidly than straight bromacils. And it gets to the roots faster than straight diurons. It's safer for nearby vegetation, because it washes less than straight bromacils. And it's non-flammable.

Just 5 to 15 pounds per acre gives season-long seedling control. You'll be ahead of the game with KROVAR I. It's good business to specify it in your custom-application contracts.

Get all the weeds and grasses. Use KROVAR I. And get all the business.

When using any chemical, follow labeling instructions and warnings carefully.

For More Details Circle (153) on Reply Card
Alligatorweed not only choked the waterways but encroached on the turfgrass areas in the city of Whittier. Here the weed is thriving on dry ground along a private residential parkway.

Looking from the top of the Whittier Dam into the Rio Hondo basin reveals a sea of alligatorweed. This weed displaces a great amount of storage water and fragments are often carried away by the public.

There goes a "start of another plant." This floater was found on the Rio Hondo River. Alligatorweed propagates through the spread of plant nodes. Seed is seldom if ever found in the United States.

ALLIGATORWEED, a real southerner from South America, has been choking North American waterways for nearly 85 years. Literally millions of dollars have been spent on research and control methods to eradicate this weed from waterways throughout the southern states.

More recently, this pest which produces no viable seeds in the United States, has been reported in other sections of the country, and more particularly in southern California. As early as 1946, a University of Southern California botanist recorded the presence of the weed along the Rio Hondo River north of the Whittier Narrows Dam.

Ten years later plants were observed along a five-mile segment of the river. Subsequent investigation showed spot infestations in the concrete bottom of the Los Angeles River. Heavy mats of the weed extended out over the edge of the flowing Rio Hondo River where the bottom was unimproved dirt. In the basin behind the Whittier Narrows Dam, alligator weed had increased to solidly cover an area of forty acres. This represented the largest single find of plants.

In the San Gabriel River, alligatorweed was found in numerous places, especially along ten miles of unlined river bed. Additionally, a total of 19 satellite infestations have been located on private and public property in Los Angeles County from 1966 to the present. In almost every case, the origin of these finds can be traced to alligatorweed infested soils removed from the site of the parent infestation.

In Tulare County, the situation was somewhat different. Alligatorweed was first found in December 1965 near Porterville and Visalia. Concern was expressed about the rapidity of infestation because two large flood control and recreation lakes had just been completed only a few miles from both findings. Game and pan fish could be endangered by reduction in oxygen supplies. Many of the desired fish would then be killed and predatory fish populations would begin to rise.

Also, researchers were worried about decaying mats of Alligatorweed which produce hydrogen sulfide, a gas toxic to fish and other organisms. Recreations in other ways could be hampered.

Of prime interest though was agriculture's dependency on water throughout the San Joaquin Valley. Alligatorweed infestations were reported to reduce delivery (continued on page 52)
Eradication
California Waterways
Analysis And Control
By WILLIAM R. CLARK
Deputy Agricultural Commissioner
Weed and Vertebrate Pests
Tulare County, Calif.

THE CONTROL of alligatorweed has proven to be quite a complex operation. Even with several years of successful control and eradication in Tulare County and more recently in Los Angeles county, we cannot hope to let down our guard against this formidable aquatic weed.

The actual methods of control are becoming more sophisticated as our knowledge about the effectiveness of various environmental protection chemicals increases.

When the urgency of needed action was determined in 1966, the California department of agriculture and the Tulare county agricultural commissioner's office launched a concentrated offensive to eradicate the weed. With an Eradication Agreement formulated, our job was to conduct field trials and find a solution to the problem. Public and private awareness of the problem was in our favor. In short order, everyone concerned with alligatorweed was soon helping in test plots, contributing time and talent, making access roads, shifting water schedules and anything else needed to further enhance testing. All told, local, district, state, Federal, private and public individuals, organizations and corporations joined in the program.

To date over 350 field test plots with various chemicals and combinations thereof have been tested. Almost every chemical and method of control have been tried.

Foremost in our minds was the need for materials that would be safe in the water and safe to apply. It should be pointed out that tests conducted in Tulare and Los Angeles counties were made taking into account all environmental relationships. The fish and game commission as well as the bureau of chemistry for the State of California were deeply involved in securing the label deviation and subsequent registration on the product use. Additionally, our present method of control has been approved by the state. This does not mean that the product use may be adopted by other states without first checking with that state's officials.

Our initial thinking was that environmental protection chemicals would play a major role in the eradication program. Those with longer residual activity should be likely candidates. However, this was not necessarily the case.

The bare ground materials were all investigated with sodium-chlorate at 1200 pounds per acre showing the best results. Karmex diuron at over 100 pounds per acre (continued on page 53)
You don't have to buy more machine than you need to get a torque converter and a hydraulic reverser.

Our 44 hp 500C crawler has them both.

**Torque converter.** Automatically adjusts ground speed to the work load, delivering almost double the push power when you need it the most. Yet you still have all the hydraulic response you need to reposition the blade. Load shocks are absorbed long before they reach the engine, transmission or the rear end components. The power keeps coming, the dirt stays on the blade, and the job stays on schedule.

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**Steering system.** So responsive you don't even need extra-cost power assist. And the big 10" clutches give you positive steering and positive drive at all times.

**Maintenance.** You can get to the steering units without breaking the tracks. The grill snaps out in two seconds. The oil cooler cover comes off in two minutes. You can replace an entire steering clutch in ⅓ the time of competitors. And you don't have to pull the pump to change a belt.

But the big story is the work our 500C does. And the work is on your job site. Get in touch with your International dealer and arrange a demonstration.

We keep getting better at our business to get more of your business. And keep it.

International Harvester, Chicago, Ill. 60611
Aquatic Weed Control
"Identification Is The First Step"

By DR. ROBERT M. STERN
President and Director of Research
Great Lakes Biochemical Co., Inc.

Editor's Note: This article was adapted from material used by the author in determining treatment for algae and aquatic weed problems. One of the biggest problems in aquatic weed control is problem identification. Managers of bodies of water must be able to identify weed and algae species before a satisfactory treatment can be recommended. Dr. Stern has devoted much time in helping others help themselves. This article is designed around this goal.

AQUATIC weeds and algae in ponds, lakes and lagoons and other bodies of water are a big problem. There is no single "magic" formula, chemical, or method that will control all types of aquatic vegetation. Each problem waterway should be surveyed and from the information obtained, a treatment program formulated.

It is possible and economically feasible to chemically control algae and weeds in golf course irrigation areas, lagoons, lakes, and other waterways without adversely affecting humans, killing fish, animals or rendering the treated water unsuitable for irrigation purposes.

The first step in solving an aquatic nuisance problem is to identify properly the algae and weeds present. The accompanying chart on page 42 has been developed to more clearly understand what is necessary in identifying algae and establishing control procedures. A similar chart can be easily produced for other aquatic vegetation.

Algae are small primitive plants. They do not have true leaves or flowers, but reproduce by means of minute spores or by continued vegetative growth. They can be found floating or attached to submerged surfaces in most lakes, ponds, and streams. Depending upon the nutritive value of the water, algae reproduce very rapidly, especially in hot weather.

Three types of algae are generally found in most lakes, ponds and streams. These are filamentous algae, unattached or planktonic algae, and branching algae.

1. Filamentous Algae are commonly referred to as pond scum and consist of growths of long stringy, hairlike strands. Most of the green and brown scums are slimy or cottony in appearance. Some of the common types are:
   - Cladophora — usually bright to light green in color and appear as cotton-like wads which often rise from the bottom of the pond.
   - Pithophora — dark green in color. They have a coarse texture and often feel like tough horsehair in the hand.
   - Spirogyra — also called "frog spit." It usually appears as slimy bright-green which grow in strands along pond bottoms. As it matures, the strands loosen and rise to the surface.
   - Hydrodictyon — a filamentous type which is commonly referred to as the "water net" type. Found in deeper water and often float to the surface.

2. Unattached or Planktonic Algae cause green or reddish-brown water color and are more or less "free-floating." In the decomposition stage, these organisms give off a foul odor in water. They are normally found at or near the surface of the water where there is sufficient light intensity to permit them to grow luxuriously. Strains called Anacystis, Anabeana and Ophoponemon usually produce green water while Oscillatoria species produce reddish-brown water.

3. Branching Algae are the most advanced forms of algae. They grow from the lake bottom with stems and branches and have a gritty feel. Chara and Nitella are the principle types of branched algae. Chara has a musky odor and is usually found growing in hard water, in shallow water and on a gravelly bottom. Chara and Nitella are often mistaken for underwater weeds such as coontail or milfoil. These algae are sometimes difficult to control, even when the proper management practices have been used.

AQUATIC WEED CLASSIFICATIONS

Most aquatic plants can be classified into five categories, floating plants, emerged plants, submersed plants, ditchbank or marginal plants and ditchbank woody plants.

1. Floating Plants include those that are not attached. They float freely on the surface of the water. Water hyacinths are one example of this type weed which has plagued southern waterways for many years. In other areas duckweed and watermeal form a green blanket on the water surface. Duckweed has tiny leaves called fronds with rootlets that hang down in the water. Watermeal appears as tiny green grains or granules floating on the surface of the water. Both are commonly found growing together. Duckweed is difficult to control be-

(continued on page 41)
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New liquid SEVIMOL 4 is a free-flowing liquid featuring the unique combination of dependable proven SEVIN insecticide and molasses. The sticking power of molasses provides resistance to washoff by rainfall, watering or dew. This means longer lasting effectiveness.

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Free Customer Service Booklet
Because you’re a pro in the spraying business, we figure you know all about the low toxicity and the complete biodegradability of SEVIN. But your customers probably don’t. So we’ve prepared a little quick-facts booklet to help you get right to the point . . . and to the sale.

New Liquid SEVIMOL 4 insecticide offers the type of “good neighbor” pest control your customers are looking for.

SEVIN Carbaryl has a record of effective control of target pests. An objective look at benefits vs. risks favors the use of SEVIN due to its biodegradability and low hazard to people, birds, fish and wildlife.

As with all insecticides, be sure to read the product label and follow directions for use carefully.

Make sure you’re using new Liquid SEVIMOL this year!

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The sensible way to get tough.

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A Growing Business In Aquatic Weed Control

Nuisance weeds and algae, combined with public demand for clean, clear recreational waters, are helping a small industrial weed control firm expand its business rapidly.

Control Services, Inc., a young Iowa-based company, is growing by filling the need for aquatic weed control in parts of Missouri, Minnesota and Iowa. Headquartered at Marion, Iowa, the firm already does 30 percent of its business in the aquatic line and its owners expect that segment to increase dramatically over the next few years.

Company founder Herbert O. Hoover expects that aquatic weed control could become an equal share of his growing business as the public demand for clean water grows.

“Foot-long plastic hoses fastened over the spray nozzles insure that the application is made into the water and not over the surface,” explains Hoover. “We haven’t backed away from anything yet, and we guarantee our treatments.”

This one year guarantee also goes with all industrial weed control (IWC) applications. Most of that work involves weed control along fence lines, in storage areas and along rail spurs.

“Our industrial customers want results and service,” Hoover says. “We use Princep and Pramitol to achieve bare ground weed control for a season. We check the results of applications and live up to our guarantee because a happy customer is what counts.”

For IWC, Control Services aimed

(continued on page 45)
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