

— industry people on the move —

DOUG ROBSON and **PAUL GREENWALT**, appointed district sales manager for southeast and northwest area, respectively, for Wayne Manufacturing Co., Pomona, Calif.

* * *

RODGER L. CLARK, joined Bolens Div., FMC Corp, as district sales manager for southeastern U.S. Was formerly with Jack Dayton & Son, Springfield, Ohio.

* * *

ROBERT A. LEFFEL, appointed area manager for the eastern U. S. for Kohler Co. He succeeds **DOUGLAS G. S. COOK** who has been assigned to new O.E.M. sales responsibilities at the home office in Wisc.

* * *

IRV TERRY, former president of Wilkins Regulator Co., a division of Zurn Industries, Inc., assumes expanded duties as a Zurn vice president. Will coordinate various sales programs among Zurn divisions engaged in marketing water supply and wastewater controls.

* * *

KENNETH R. WEISHAAPT, becomes technical specialist at Niagara Chemical Division of FMC Corp. for Pyrenone products, a synergized pyrethrum insecticide.

* * *

PATRICIA ANN WEIS, appointed area consultant for the National Golf Foundation. She is currently associate professor in the department of physical instructions at the University of Texas at Austin.

* * *

BILL J. WARREN, named southwest regional sales manager for the Weather-matic division of Telsco Industries.

* * *

JAMES M. JENNISON, elected vice president of The Leisure Group, Inc. He will continue as general manager of lawn and garden products which include sprinkling and irrigation systems, spray guns and indoor plant care products.

* * *

BILL TAVENER, **GARY McELVANEY**, **JERRY GOULD** are new ProTurf technical representatives of O. M. Scotts & Sons' nationwide program for servicing golf courses and other large turfgrass areas.

* * *

HAROLD E. W. PROST, named manager of materials for the Allis-Chalmers Corp. outdoor and leisure products, **LARRY L. KUBIK**, named manager of merchandising for this product line.

* * *

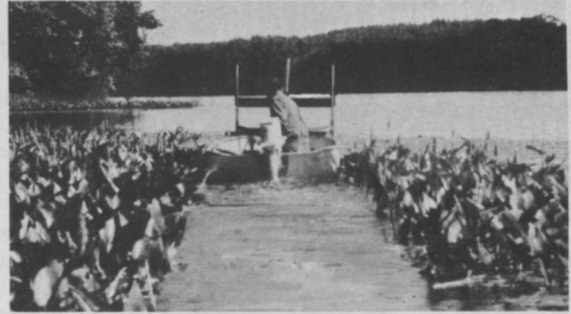
WILLIAM A. MEYER, appointed to the newly created position of director or research for Warren's Turf Nursery. He will direct the development of new strains of grasses now under study.

* * *

GEORGE A. LAWRENCE and **MARTIN C. HEISELE**, promoted to marketing and sales manager for domestic and international sales and operations manager of the agricultural chemicals division, respectively, for Diamond Shamrock Chemical Co.

* * *

JOHN C. NORTON named group vice president of The Toro Company. He will oversee the distributing division which includes company owned distributorships in southern California, metropolitan New York, Chicago and Atlanta.



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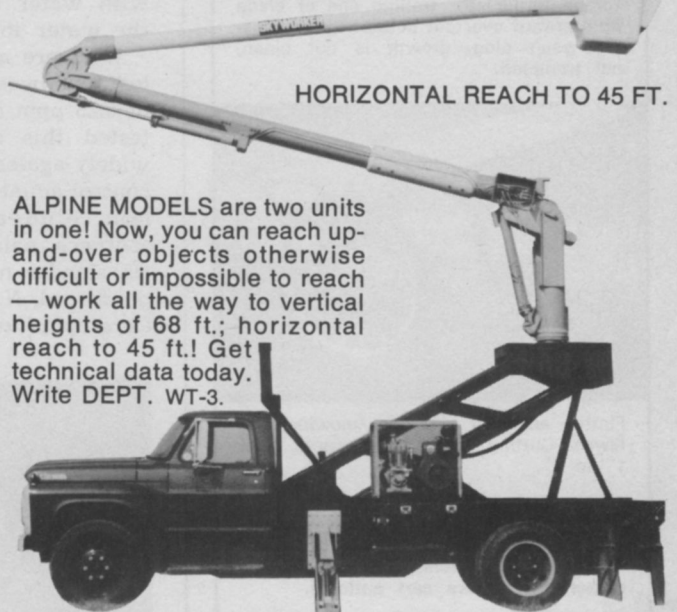
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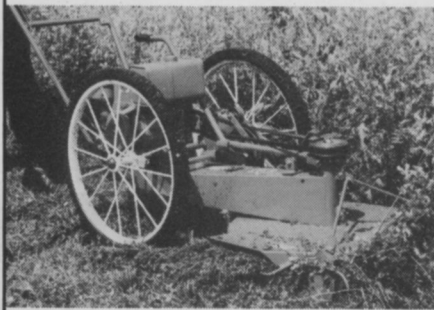
Cuts Heavy Growth, Weeds 2-3 Feet High, With Enclosed Blade!

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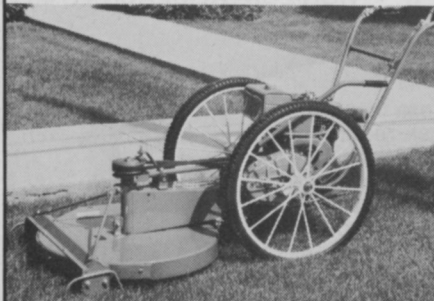
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ILLINOIS RESEARCH (from page 30)

and blooms in central Illinois in late July or early August. An extensive stand may not be visible in the water in June, which makes the evaluation of the effects difficult, and the 12 weeks covers most of the growing season.

Rechecking data of previous experiments indicated a suppression or retardation of the growth of cabomba apparently has occurred. Thus, if the control of cabomba is desired, an application of 200 to 300 lb of granular 2,4-D per surface acre, of a formulation containing 20 lb of 2,4-D acid per 100 lb, may suppress the growth of cabomba.

Some aquatic plant control investigators observed that a diquat-copper sulfate combination was useful when neither herbicide alone was effective. They tested the diquat-copper sulfate combination on aquatic plants susceptible to diquat and found that the diquat-copper complex was very effective and that lower rates of diquat could be used.

The volume of the diquat-copper sulfate mixture was determined by first estimating the necessary amount of diquat to treat a given area of *Potamogeton* spp. at the rate of 0.5 ppm, then taking $\frac{1}{2}$ the necessary amount of diquat and mixing it with an equal volume of Cutrine (a copper sulfate triethanolamine formulation distributed by Applied Biochemists, Inc., Mequon, Wisconsin) finally diluting the complex with water and applying it under the water in the usual manner.

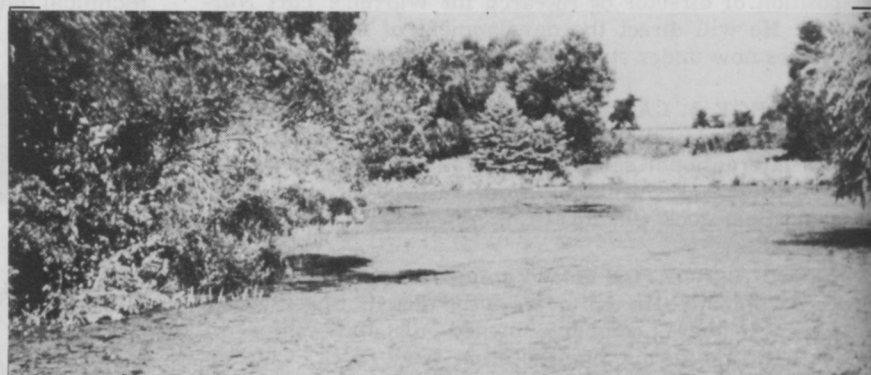
We were able to eliminate curly-leaf pondweed *P. crispus* at a rate of 0.25 ppm of diquat. We have not tested this diquat-copper complex widely against the more-difficult-to-control aquatic plants such as American elodea, *Elodea canadensis*, southern naiad, *Najas quadalupensis*, slender naiad, *N. flexilis*, bushy pondweed, *N. gracillima* or coontail, *Ceratophyllum demersum*. For the

control of these plants, a rate of 1 ppm of diquat cation (Diquat) is required.

Hydrothol-47 a product of the Penwalt Corporation has been recommended as an aquatic herbicide, primarily as an algaecide. Hydrothol-47 is toxic to fish and has had very limited use for the control of submersed aquatic plants. Recently in southern Indiana, 100 lb of granular Hydrothol-47 per surface acre of water with a minimum average depth of 4 feet and maximum average depth of 6 feet, gave very good control of several potamogetons. No loss of fish was reported.

During 1971 we applied 100 lb of granular Hydrothol-47 to a one acre pond containing a mixed stand of potamogetons, a relatively heavy stand of filamentous algae and some chara, *Chara vulgaris*. Leafy pondweed, *P. foliosus* was severely damaged in 3 days and small pondweed, *P. pusillus* was eliminated in 5 days. Four days after application heavy rains caused an influx of water, resulting in a one-foot increase in water depth. Sago pondweed, *P. pectinatus*, was not damaged and the stand of filamentous algae was reduced. There was not sufficient chara to obtain an adequate evaluation of the effect of this rate of application of Hydrothol-47 against it. (Note—I have been advised that in southern Indiana experiments, stands of sago pondweed, chara and filamentous algae were eliminated by this rate of application of Hydrothol-47.)

In previous experiments we had found that liquid Hydrothol-47 was effective against southern naiad, and chara, but at rates of 2 ppm endothall content. Should Hydrothol-47 be effective against the *Najas* spp and chara, it should give an additional aquatic herbicide for use in the control of these very abundant aquatic plants.



Filamentous algae covering a pond used for irrigation.

Copper Sulfate Not Harmful To Fish, Study Shows

Reports on the fate of nearly one and one-half million pounds of copper sulfate to control algae over the past 50 years fail to show any concentrations toxic to fish.

This is the conclusion of G. Fred Lee and Isaac Sanchez of the University of Wisconsin's department of civil and environmental engineering. The study concerned sampling water of Lake Monona at Madison, Wisc.

According to the researchers, the concentrations found in Lake Monona water are considerably less than the most stringent copper standards proposed by Federal or state regulatory agencies for protection of water quality.

The ban on the use of chemicals in the Madison lakes, passed last year, was made primarily on "emotional considerations," Lee said, "rather than technical evidence that copper sulfate was harmful to the lake's fisheries."

He said that in lakes such as Monona the nutrient supply is primarily from street runoff and other sources which are now almost im-

possible to control. In these situations, use of chemicals such as copper sulfate provides a method of improving water quality at very little risk to the ecosystem.

Lee suggests that a proper policy would be to have a qualified board of experts review any proposed chemical additions to Madison lakes to prevent excessive or improper use of chemicals for water quality control. He urged that as a part of any chemical use program for control of algae, weeds, or undesirable fish, more studies be done on the subtle effects of chemicals on organisms other than those the chemicals are designed to control.

Rapid Algal Growth Promoted by Herbicides

Growth of Algae is enhanced when herbicides are used to control weeds in lakes, says a University of Wisconsin researcher.

G. V. Simsiman, research assistant, reports that after herbicidal treatment, nutrients released by dead weeds promoted rapid algal growth.

Simsiman said he did not feel the

use of herbicides should be discontinued as they are the most effective weed control means available today. He advocated, however, additional research into use and effects of herbicides and their possible substitutes.

The researcher is currently studying how long herbicides remain in a water system after application.

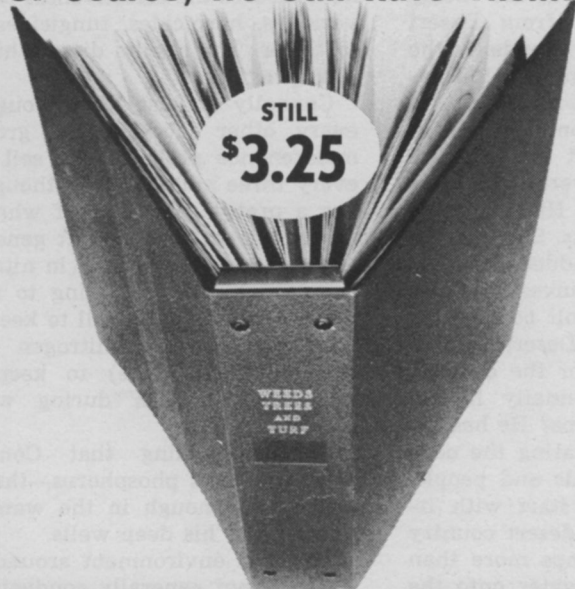
Connecticut Entomologist Ends 43 Year Career

John C. Schread, one of the most widely known entomologists in the northeast, has retired after nearly 43 years on the staff of The Connecticut Agricultural Experiment Station.

He is widely known for his work with nurserymen, greenskeepers, and other professionals in the field of entomology. He has addressed turf association meetings in California, Philadelphia, Washington, Montreal and throughout the northeast.

He is an honorary member of the Connecticut Association of Golf Course Superintendents Association of America.

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LAS VEGAS (from page 18)

isn't much rainfall in southern Nevada. An inch or two a year is about normal, and that usually comes all at once. It is a longer shot than getting the jackpot in the casinos. "It is a great germinating ground for crabgrass, goosegrass, and any other kind of weeds that like dry weather and heavy traffic on the course," observes Connally. It all adds up to a challenge for golfers, grass and the superintendent.

But the odds against Jim Connally do not end here. Desert Inn is host to a variety of tournaments. Biggest of them all, as a superintendent sees it, are the nationally known Gold Cup Tournaments. Groups from golf clubs all over the country come to match their swings against each other. These tournaments run every week from September to June. There is a big final playoff at the end of June. The prize for the winning club is a \$50,000 gold cup which travels from club to club. Individual winners get a smaller gold cup—worth about \$1,400 — which they can keep. During this nine month period the traffic on the course often exceeds 250 a day.

Between Gold Cup competitions, the Desert Inn course plays host to major professional competition. The Tournament of Champions has been played there. In 1971 the Sealy LPGA was televised from Desert Inn. Every golf superintendent who has ever hosted a major tournament knows what that involves.

Just one more complication at Desert Inn is the fact that the Inn and the golf course were one of the early purchases of Hughes Tool Company in Las Vegas. Some of the hotels and casinos added later to the Howard Hughes investments in Las Vegas have no golf courses. So the guests come to Desert Inn. It means more traffic for the course.

How does Jim Connally handle these multiple problems? He has become an expert in beating the odds against weather, weeds and people.

For example, let's start with irrigation. In the high desert country of Las Vegas, he pumps more than a million gallons of water onto the course every 24 hours during the hot months of July and August. He applies up to 200,000 gallons a day during the rest of the year. The water comes from three 1,100-foot wells on the course. It is pumped into the small lakes and ponds which provide the course's water hazards. From there, it is pumped to the fairways and greens, mostly at night, by an automatic electric-

powered underground system.

The best grass Connally has found to beat Nevada's weather extremes on the fairways is common Bermuda. He over-seeds each fall with a ryegrass variety. His greens are sowed with Penncross Bent.

Weed control is a major problem. The dry climate and the heavy player traffic on the course provide ideal germinating and growing conditions for a variety of noxious weeds. Crabgrass and goosegrass are the worst. Years ago, Connally started using Dacthal, a broad-spectrum herbicide. It has worked for him.

He spreads Dacthal G-5, a five percent granular formulation, twice a year — in January and in March — at rates varying from 160 to 180 pounds per acre. Using a Larson broadcaster with a 30 foot throw, he travels about 8 mph and manages to keep about one hole ahead of a four-some. He likes the granular form because it stays close to the surface where the weeds germinate in the high desert soil. In addition, the granular product doesn't leach, even during periods of heavy irrigation.

However, Connally is not the kind of a customer that a careless salesman can count on. There is a corner of the Desert Inn course where he maintains a special test plot. Here, he measures the effectiveness of turf varieties, herbicides, fungicides and fertilizer. The results dictate his future programs.

Connally is just as thorough in every other facet of his grounds maintenance program. He soil tests every three months, even though he has a pretty good idea of what his desert soil will require. It generally calls for a fertilizer high in nitrogen and potash—in the spring to make the turf grow, in the fall to keep the color. He counts on nitrogen (urea and calcium nitrate) to keep the fairways green during winter periods.

The one thing that Connally doesn't need is phosphorus—there is more than enough in the water he draws from his deep wells.

The arid environment around Las Vegas is not generally conducive to turf diseases. But on those rare occasions when the humidity is high, he applies Daconil 2787, a broad spectrum fungicide that has activity against many major turf diseases.

Connally doesn't have much time for tillage. The year-round playing season and the daily crowds on the course make it next to impossible. However, he does aerate the fairways and remove thatch. Addition-

ally, he schedules 4-5 aerations of the greens each year.

Desert Inn presents still another problem which doesn't exactly involve the playing areas. It is trees. Southern Nevada is not a big forest area, but the Club boasts some of the oldest trees in the state. The olive trees are estimated to be up to 100 years old. There are also elms, cottonwoods, Arizona cypress and ash, and weeping willows. Connally maintains them with the same thoroughness that he attends to the greens and fairways. They are hydrospaded with liquid fertilizer each spring and fall. Once a year, professional tree surgeons come to prune and trim the trees. They add to the beauty—and hazards—of the course.

Connally's 20-man maintenance crew work round the clock. Mowing is done at dawn. Aerifying, watering, topdressing are accomplished while the guests are asleep, or at the gaming tables. After all, Las Vegas is a 24-hour town. Only the golfers wait until daylight. So the work on the course has to be done when course traffic is light.

Despite his year-around battle with the climate and the crowds, Jim Connally maintains a keen sense of humor about the things that go on around him.

One of his favorite stories involves a player who walked into the maintenance yard and asked for a ladder. "Why a ladder?" asked Connally.

"I blew a shot on the 17th fairway, right under that big cottonwood tree" said the golfer. "I got so mad I threw the club up in the air. It stuck in a branch. I threw one, and then another club up to get the first one back, and they stuck. I'd leave the clubs and give up this game . . . except that clubs are rented. I have to get them back to the pro shop."

Connally found a ladder.

One time, owner Howard Hughes stopped by the Desert Inn just before a major tournament. Several television relay towers had been erected. "What are those?" demanded Mr. Hughes. Their purpose was explained. "Take them down. They spoil the beauty of the course," was the order. It took fast teamwork to remove the towers and lay ground cables overnight to get the game on the air.

It is all in a day's work for Jim Connally. And while others gamble fortunes, he invests in sound maintenance programs that pay off handsomely in quality turf at Desert Inn. For Connally has found that even in Las Vegas, you can't gamble with turf.

Protective Clothing

Safety Conference Topic

One hundred and thirty authorities from government, industry, and science recently met on progress and problems related to providing adequate protective clothing and equipment for workers using pesticides.

The conference, sponsored by the Federal Working Group on Pest Management, was held at the Center for Disease Control in Atlanta. Its purpose as stated by Dr. Fred H. Tschirley, chairman of the Working Group, was to assess the current success of clothing and equipment in providing protection; technological progress to date; government regulations affecting clothing and equipment; and the acceptance and use of protective devices by pesticide applicators.

Among the goals of the conference were the identification of deficiencies in the practical use of protective equipment and the development of guidelines for the more effective use of protective clothing.

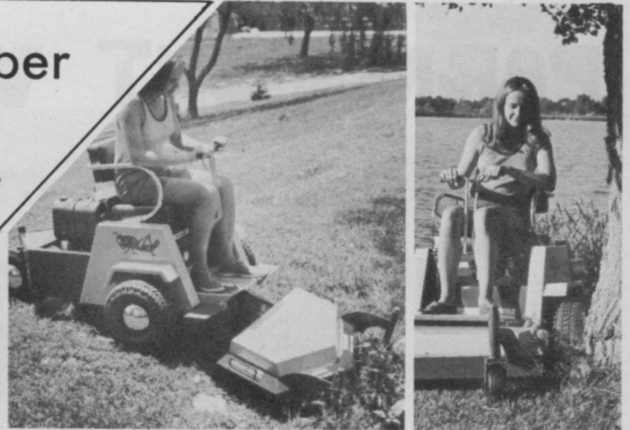
Many authorities presented papers at the conference. Dr. John Davies, Department of Medicine, University

of Miami, Florida, said, "It is a must that we study men in the lab as well as the food they eat as we increase our knowledge of pesticides in relation to the environment."

Dr. Howard Maibach, department of dermatology, University of California Medical School, presented results of recent research. The amount of absorption of pesticides through the human skin, he found, varies with the location on the body. The forehead absorbs seven times as much pesticide as the forearm and the scalp four times as much as the forearm and palm. Washing, he noted, is most effective within one minute of exposure but only somewhat effective within a half hour of exposure, indicating the urgent need for immediate attention following skin exposure to pesticides.

Robert Merkle, a product line manager with an equipment manufacturing company, listed the three avenues of entry of pesticides as mouth, nose and skin. He cautioned that respirators should fit individuals perfectly to be effective, that tight facial seal was essential, and that respirators should be protected from contamination inside the mask at all times.

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Plant Expansion And Backhoe Announced By Ford

The Ford Motor Company has broken ground for a more than ten-fold expansion of its Romeo, Mich. tractor and equipment plant. The plant will be expanded from its present 100,000 square feet to nearly 1.2 million square feet and provide Ford with a single base for building farm and industrial tractors for the North American market.

The expansion program calls for consolidation at Romeo of manufacturing and assembly of Ford tractors now being done in the Des Moines, Iowa, and Highland Park, Romeo and Royal Oak, Mich., plants. Ford plans to erect the first steel by October and move in the first manufacturing operations from other locations by next May.

Coupled with this announcement is the introduction of a new truck-mounted backhoe (TMB). It is the first unit of its type with all components completely engineered, tested and assembled by a single manufacturer.

"Placing a Ford backhoe on a Ford F-600 series truck represents a natural marriage between time-proven



Introduction of a new truck mounted backhoe at the Romeo tractor and equipment plant calls for a celebration. Here, Arthur V. Edwards, publisher, WEEDS TREES and TURF, holds his glass while Glenn Long of Ford's industrial sales department staff pours the champagne from a bottle which is attached to the bucket of the backhoe. Standing on the right is Robert C. Leary, general operations manager, Ford tractor and implement operations — North America.

leaders in their separate fields," said Robert C. Leary, general operations manager, Ford tractor and implement operations — North America.

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Stop Pollution



AQUATIC PLANT RESEARCH (from page 20)

ceptable in the diets of meat-producing animals? We hope to answer these and other questions through research efforts.

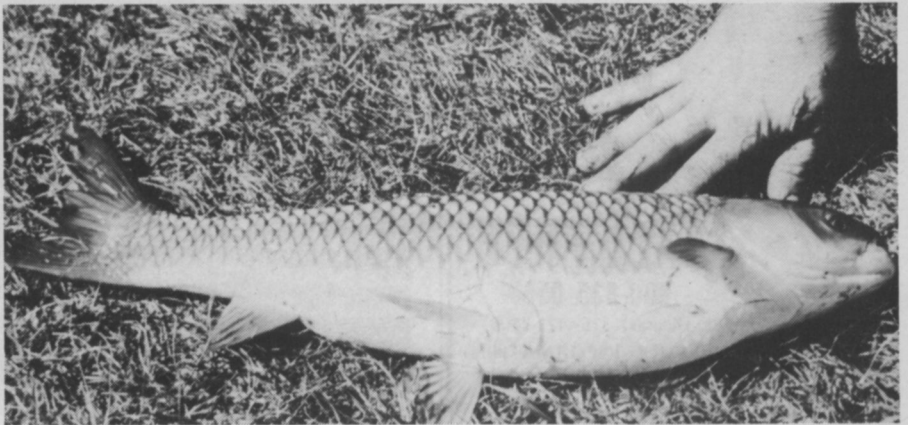
The chemical control efforts have been primarily in the area of techniques of application; particularly treatment of submersed aquatics (especially hydrilla). Evaluation of the physiological aspects of herbicides applied through the bivert is underway. In addition, we see possibilities of using growth retardants or perhaps altering the ecological factors to limit the growth of hydrilla. The use of growth retardants, their desired concentration and the effect of these regulators on water quality and other desirable organisms is under study.

In addition, some "novel" chemical techniques are being evaluated. These techniques include the possible use of ion exchange agents to deprive hydrilla of certain elements needed for growth. Can we alter basic soil or water factors needed for the growth of hydrilla? Again, these are questions we hope to answer through our research efforts. Those agencies and/or institutions presently conducting research in-

clude the U. S. Department of Agriculture, University of Florida, University of South Florida, and Florida Technological University.

Secondly, funds are allocated to aid local aquatic control programs. Any public, city, county or district agency which has an approved aquatic plant control program and meets criteria established by the Department of Natural Resources is subject to participation in matching funds. These criteria are outlined

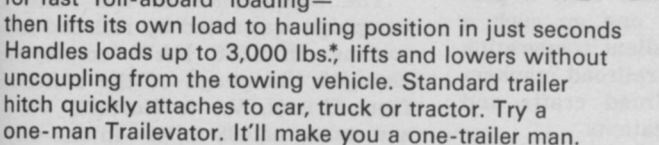
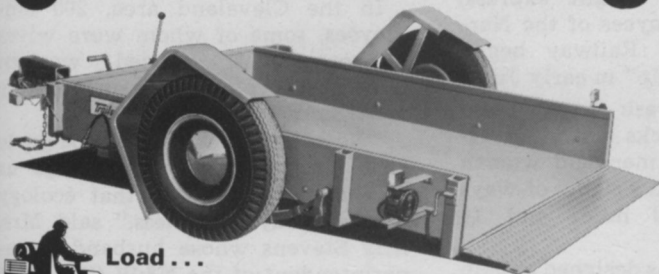
The white amur, a herbivorous fish, is promising as a biological control for aquatic plants.



in the "Guidelines for Aquatic Weed Control" available through the Bureau.

Lastly, the Bureau serves an informational function in control programs. Personnel work with the above local agencies in establishing new control programs and educating personnel in new products and techniques of applications. The number of state control crews working in the Florida Game and Fresh Water Fish Comm. has doubled. In addition, four Regional Botanists have been employed to work specifically in aquatic plant control.

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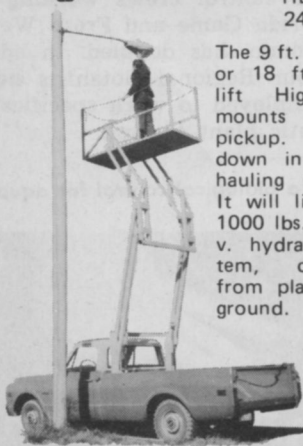


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Dressed for the occasion, Mrs. Rita Stevens of Cleveland patrols N&W tracks and rights-of-way for refuse. She was one of nearly 27,000 persons who participated in "Operation Clean Up."

Railway Cleanup Campaign Nets Tons of Refuse

With the energy of a diesel locomotive pulling a freight express, nearly 27,000 employees of the Norfolk and Western Railway began "Operation Clean Up" in early June.

Armed with trash bags, paint brushes, rakes, trucks and other assorted equipment, men and women cleaned the railroad's rights-of-ways which cover 8,000 miles and 14 states.

The campaign was designed to help improve the ecology by removing refuse, particularly in areas where N&W tracks went through cities and residential areas. One official pointed out that as far as could be determined, the N&W was the first railroad to undertake such a program — certainly one on such a massive scale. Excellent cooperation was received from railroad management, various railroad crafts and from labor organizations.

"It is a joint effort of labor and management to improve the appearance of our railroad," said John P. Fishwick, N&W president and chief executive officer. "We believe that

a united, cooperative effort by all employees can change the face of the company, especially those yards and areas that are visible to the public."

In the Cleveland area, 200 employees, some of whom were wives of employees, policed western Greater Cleveland and surrounding suburbs.

"We believe that this campaign to clean the rights-of-ways brings us to a closer realization that ecology is everybody's business," said Mrs. Rita Stevens whose husband is superintendent of the N&W Cleveland Terminal.

Results of the campaign in Cleveland totaled more than 130 tons of debris. Five railroad gondola cars were needed to remove the refuse to the disposal area.

The significance of the June 1 campaign was noted by railroad historians. In 1886 N&W employees changed the gauge of the railroad from Bristol, Va. to Norfolk, Va.—a distance of 408 miles—in one day. On that date all train traffic was halted for the day to give crews absolute freedom to accomplish the job. This year the trains operated as usual.

— meeting dates —

Ohio Chapter, International Shade Tree Conference, summer meeting, Secor Park, Metropolitan Park District, Toledo, Ohio, July 12.

American Association of Nurserymen, Statler Hilton, Washington, D.C., July 16-19.

Society for Economic Botany, 13th annual, University of Mississippi campus, University, Miss., July 30-Aug. 2.

National Golf Foundation Eastern Seminar, Pine Needles Country Club, Southern Pines, N.C., Aug. 7-11.

Rutgers Turfgrass Research Day, College of Agriculture, College Farm Road and Dudley Road, New Brunswick, N.J. August 10.

International Shade Tree Conference, Inc., 48th annual, Newporter Inn, Newport Beach, Calif., Aug. 13-17.

American Association of Nurserymen Management Seminar, Syracuse University campus, Aug. 13-18.

Canadian Parks/Recreation Association, 1972 conference, Ottawa-Chateau Laurier Hotel, Aug. 14-17.

Northern Michigan Turfgrass Field Day, Traverse City Country Club, Traverse City, Mich., Sept. 13.

International Pesticide Applicators Association, Inc., annual meeting, Thunderbird Motor Inn, Portland, Ore., Sept. 14-16.

Eastern Kentucky Turfgrass Field Day and Conference, Powell Building, Eastern Kentucky University, Richmond, Ky., Oct. 10-11.

Turfgrass Equipment and Materials Educational Exposition, 12th annual, Southern California Turfgrass Council, Brookside Park, Pasadena, Calif., Oct. 11-12.

Missouri Lawn and Turf Conference, 13th annual, Ramada Inn, Columbia, Mo., 8-9.

Nebraska Weed Control Conference, 26th annual, Holiday Inn, Kearney, Neb., Nov. 8-10.

Washington State Weed Conference, Chinook Motel and Tower, Yakima Wash., Nov. 15-17.

Nebraska Turfgrass Conference, Kellogg Center, University of Nebraska, Lincoln, Nebr., Nov. 20-22.

Ohio Turfgrass Conference and Show, Franklin County Memorial Building, Columbus, Ohio, Dec. 12-14.

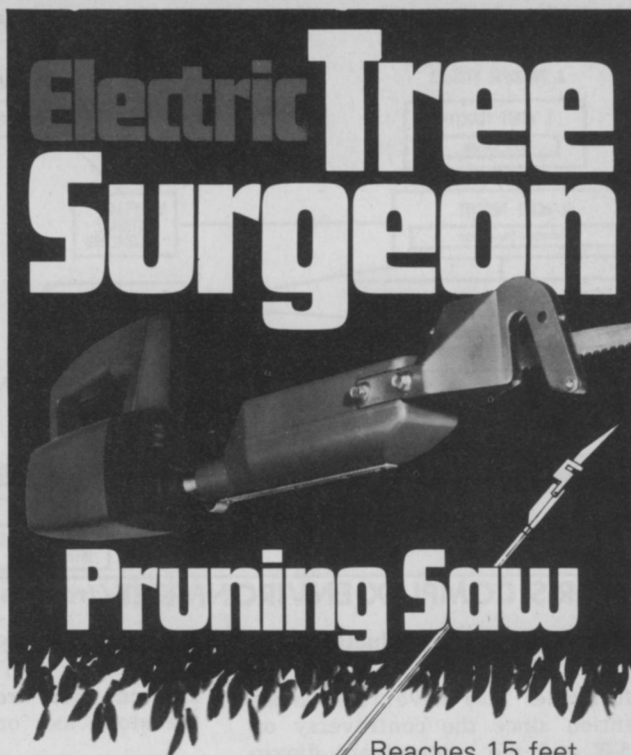
Golf Course Superintendents Association of America, 44th annual International Turfgrass Conference and Show, Boston, Mass., Jan. 7-12.

California Weed Conference, 25th annual, Disneyland Hotel, Anaheim, Calif., Jan. 15-17.

Michigan Turfgrass Conference, 43rd annual, Kellogg Center, Michigan State University, E. Lansing, Mich., Jan. 16-17.

Southern Weed Science Society, 26th annual meeting, Jung Hotel, New Orleans, La., Jan. 16-18.

Virginia Turfgrass Conference, Sheraton Motor Lodge, Fredericksburg, Va., Jan. 30-31.



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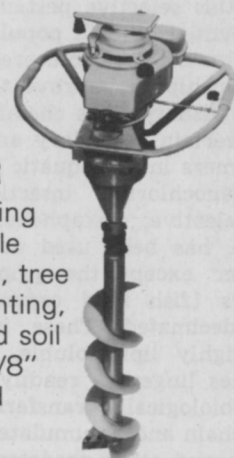


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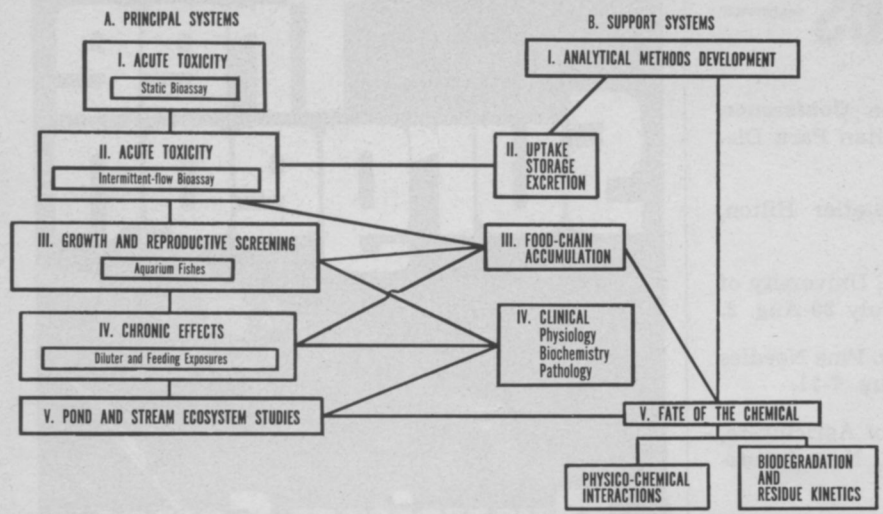


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Table 1. The Organization of Research Activities at the Fish-Pesticide Research Laboratory.



WATER'S COMPLEX ENVIRONMENT (from page 24)

teratogenicity or reproductive failure.

Herbicides also have rated more attention since the controversy on 2,4,5-T and the contaminant dioxin induced abnormal fetuses in special strains of mice. Since some herbicides are used directly in water for control of aquatic plants to enhance fish production and the sport fishery, our investigations center on the fate of herbicide residues and effects on fish, fish-food organisms, and other aquatic organisms.

We have studied the effects of certain pesticides on the aquatic ecosystem in relation to maximizing production of sport fish populations. Antimycin, a potent fish toxicant that is a short-lived and non-residue producing chemical, has been used effectively to alter the structure of bass-bluegill populations. We have used this selective pesticide to thin out stunted bluegill populations and reinstitute a desirable predator-prey relationship to improve the quality of the fishery. This chemical affects only certain secondary and tertiary consumers in the aquatic ecosystem.

Organochlorine insecticides are non-selective; toxaphene, for example, has been used in a similar manner except the primary consumers (fish food organisms) are also decimated. These insecticides are highly lipid-soluble, and their residues linger — readily available to be biologically transferred up the food chain and accumulate in tissues of fish and other predators.

Herbicides are generally short-lived but have a much more subtle effect on the aquatic ecosystem. The aquatic plants or primary producer organisms are directly affected, as is the objective of the management biologists, although

very frankly I feel that we are still in the "cave man era" and our management tools are often as crude as the stone axe or use of fire. The

changes induced, however, are transferred all the way up the food chain and dramatically alter the flow of energy.

For example, sodium endothall is selectively toxic to certain submersed rooted plants and eliminates them from the habitat — releases these stored nutrients and energy to decomposer organisms (bacteria, etc.) which in turn feed diatoms, rotifers, protozoans, etc. (Figure 2)

This also changes some of the physical features of the habitat — weed clinging insect larvae and protective cover for the invertebrates and small fish are now more vulnerable to predation. Turbidity from the plankton is sharply increased but does not adversely affect feeding by predator-size fishes at the secondary and tertiary trophic level. The net result is a more efficient system for benefiting the desirable sport fishes. Removal of excessive plant growth redirects energy flow and

(continued on page 51)

Table 2. Before and After Effects of 0.5 ppm disodium endothall on the species composition and production of biomass in a 0.25 A pond ecosystem.

