

FEBRUARY, 1969

WEEDS TREES and TURF

News

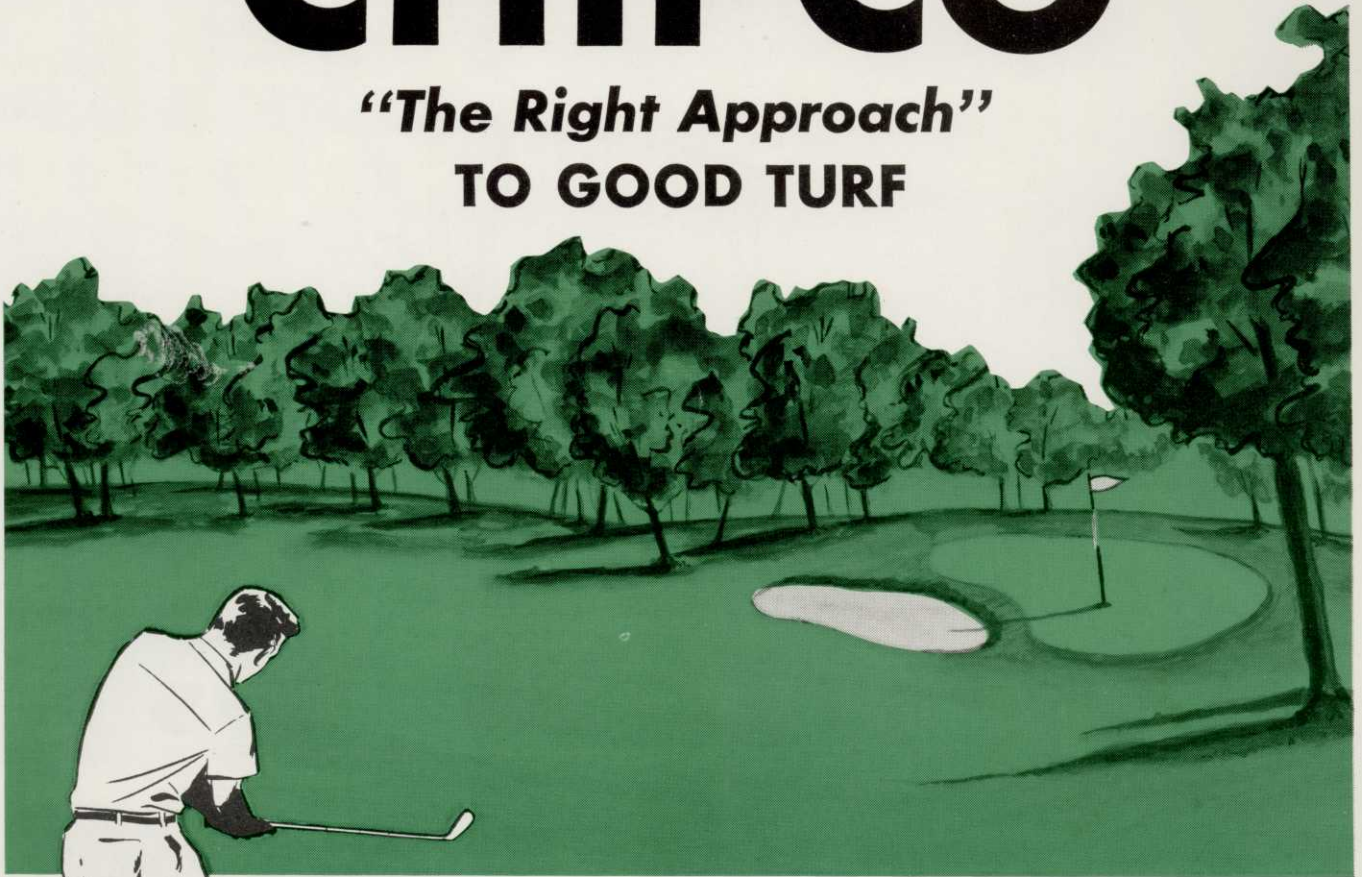


Industrial Weed Control
Pesticide Regulatory Practices
Microfoil Boom

special weed control issue

CHIPCO®

**"The Right Approach"
TO GOOD TURF**



HERBICIDES • INSECTICIDES • FUNGICIDES

MICRONUTRIENTS • WETTING AGENTS

Most Complete Line Under One Label . . .

Why bother with buying various brands of pesticides for your turf problems? CHIPCO brand offers the most complete line available for controlling weeds, insects and diseases.

CHIPCO products are specially formulated for golf courses and other fine turf areas. Poa annua restriction, broadleaf weed control, dollar spot control . . . you name it and there is a CHIPCO product to do the job.

Include CHIPCO products in your maintenance program. Contact your supplier or RHODIA INC., CHIPMAN DIVISION, Dept. T 120 Jersey Ave., New Brunswick, N.J. 08903



TELL ME MORE

This page is provided for your convenience. To obtain additional information on new products, trade literature and advertised products in this issue, simply circle the corresponding number on the perforated card below, fill in your name, business address and mail the card. No postage is required.

FOR MORE INFORMATION FILL OUT AND MAIL TODAY!

ADVERTISED PRODUCTS

101 102 103 104 105 106 107 108 109
110 111 112 113 114 115 116 117 118
119 120 121 122 123 124 125 126 127
128 129 130 131 132 133 134 135 136
137 138 139 140 141 142 143 144 145

NEW PRODUCTS

700 701 702 703 704 705 706 707 708
709 710 711 712 713 714 715 716 717
718 719 720 721 722 723 724 725 726
727 728 729 730 731 732 733 734 735

Please send more information on items circled
(Please type or print)

2/69

Name

Position

Company

Street

City

State Zip Code

Please describe your type of business

Note: Inquiries serviced until April 20, 1969 A

Use this convenient card if you wish to receive further information on products and services advertised or described in this issue.



BUSINESS REPLY MAIL

NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

postage will be paid by

WEEDS TREES AND TURF

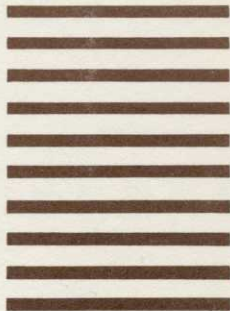
BOX 1100

DULUTH, MINNESOTA 55802

FIRST CLASS

Permit No. 665

DULUTH MINNESOTA



The Cover



Oil well site pictured on cover is located just south of the state capital building at Oklahoma City, Okla. Well pulls oil from directly beneath capital dome; the well shaft is angled to reach the pool. Sprayman is Claude Abbott. Oil well sites in urban areas as well as outlying oil fields typify the type of industrial weed control handled by Tom Graham, veteran in the business. See his story which begins on page 12.

Georgia Pre-Tests Seeds To Abate Roadside Weeds

Georgia has recently taken steps to prevent grass seed containing noxious weed seed from being used in highway rights-of-way plantings, according to Commissioner of Agriculture Phil Campbell.

The new program, a cooperative project between the Georgia Department of Agriculture and the state's highway department, insists that all seed to be used for roadside planting must pass laboratory tests for quality higher than the minimum requirements of state law — essentially the same quality standards of certified seed.

The pre-testing is performed in the Department of Agriculture's labs. Only bags of seeds that have been tested and marked with a special seal of approval can be used in such plantings. Beneficial to highway contractors who can now save on replanting costs, the program has resulted in lower annual maintenance expenditures for the Highway Department and more attractive roadsides.

The cooperative project was initiated to remedy a problem begun some years ago when low-quality seed was used on rights-of-way plantings.

WEEDS TREES and TURF

FORMERLY WEEDS AND TURF

February 1969

Volume 8, No. 2

Features

Tom Graham's Formula For Industrial Weed Control	6
Pesticide Application Regulatory Practices	8
Florida's Super Forests by C. Winn Upchurch	12
Scientists Present New Findings At 23rd Northeast Weed Conference	18
Amchem Designs Aerial Boom For Drift-Free Spraying	26
Ohio Turf Foundation Sponsors 2nd Annual Turf Conference	30
Quality Sod Produces Ready Market For Long Island Grower	36

Departments

Editorial: DDT On Trial	4
New Products	34
Classifieds	39
Advertisers Index	39
Insect Report	40
Trimmings	40
Meeting Dates	3rd cover

President and Publisher
Hugh Chronister

Editor and Editorial
Director
Arthur V. Edwards

Managing Editor
Donald D. Miller

Editorial Assistant
Kathy S. Thomas

Vice President
Advertising
Dan M. Humphrey

Director of Circulation
Roy Bever

Advertising Production
A. J. Michel

Advertising Sales Offices:

National Headquarters — 9800 Detroit Ave., Cleveland, Ohio 44102, 216+631-6468; Chicago, Ill. 60601—333 N. Michigan Ave., 312+236-9425; Shawnee Mission (Kansas City), Kansas 66202—6811 W. 63rd St., 913+722-5900; New York City 10017—757 Third Ave., 212+421-1350; Harrisburg, Pa. 17105—2436 North Second St., 717+234-3086; Columbus, Ohio 43212—1350 W. Fifth Ave., 614+486-9638; Lansing, Mich. 48906—4415 N. Grand River, 517+372-5254; Los Angeles, Calif. 90005—The Eschen Co., 3142 Wilshire Blvd., 213+382-8391; San Francisco, Calif. 94104—The Eschen Co., 57 Post St., 415+781-7440.

BPA Application Applied For

WEEDS TREES AND TURF is published monthly by The Harvest Publishing Company. Executive, editorial: 9800 Detroit Ave., Cleveland, Ohio 44102.

Single Copy Price: 50 cents for current issue; all back issues 75 cents each. Foreign \$1.00.

Subscription Rates: WEEDS TREES AND TURF is mailed free, within the U.S. and possessions and Canada, to qualified persons engaged in the vegetation care industry and related fields in controlled circulation categories. Non-qualified subscriptions in the U.S. are \$7.00 per year; Canada and other countries, \$10.00 per year. Controlled circulation postage paid at Fostoria, Ohio 44830.

© The Harvest Publishing Company, 1969

Public clamor to ban DDT is growing. Headlines are bolder than ever. For example, consider the following which have appeared within the last several weeks: "Expert Urges Control of Pesticides"; "Research On Pesticides Criticized"; "Bill Prepared To Outlaw DDT"; and "DDT Commandos Invade State Hearing." There are more. These are simply typical.

Without trying the specific case of DDT, it can be said that such headlines are a threat to all pesticide use. Each news article tied to these many such headlines — which first trap the reader and set the tone for the article — tend to vilianize all pesticides.

Among professionals and in the industry, there is little question but that this country — to say nothing of the world — would shortly suffer widespread food shortages and loss of life without pesticides. Yet the hue and cry for more legal pesticide restrictions continues. Experience has shown again and again that public opinion, informed or otherwise, can be served regardless of the true public interest.

The time is past due that the public be informed

regarding all types of pesticides. Outspoken critics and news media cannot be blamed entirely for a failure to present the facts necessary for a true evaluation of a given pesticide — whether it be DDT or something else. Enough scientific information is not available. The industry has an obligation to supply such.

Today, there are too many voices representing the various segments of the pesticide industry. Congress and state legislatures would likely be very happy to receive a logical set of facts which did not contain conflicting opinions.

Much is at stake. This includes a viable industry and more important, the welfare of a nation. Bans on specific chemical use must be preceded by effective substitute chemicals for control, or on new methods of control. The public must have more information to understand this full picture.

DDT has saved the lives of literally thousands of people from vector-borne diseases such as malaria and encephalitis in this country alone. Compared to the possible loss of some wildlife, we have to vote for human life. Can't the industry supply citizens with the facts to seek intelligent solutions?

March

WEED & BRUSH CONTROL PLANNER



Timing is Everything

March is the time to finish dormant cane brush spraying, and to plan and budget for foliage brush work. It is

also the most effective time to apply granular soil sterilents such as Rack Granular®. Adequate moisture sets the chemical in the soil giving a good chemical seal to prevent germination of those hard-to-kill perennials.

Analyze Problems

Know the species you are fighting. Remember, the number of months of effective control is as important as cost of chemical per mile of right-of-way. \$100.00 spent this year becomes \$50.00 if you get two years control. The name of the game is greatest control at lowest cost for longest time.

What to Use in March

Think in terms of more than one chemical for maximum kill in one application. **For brush:** Complete your dormant cane applications of Dinoxol® or Trinoxol® (in 100 gallons of fuel oil). Wet canes thoroughly to ground line. Soak the root collar zone. Get good run-around on the stems. **For weeds:** Get protection against germination of hard-to-kill species. Use Fenac Industrial®.

Tip: Johnson grass and vines will soon be actively growing in the south. Plan now for sprays with Fenac Industrial® plus sodium chlorate. It's unsurpassed.

First name in herbicide research



See your Amchem representative for an individualized, month by month prescription for your weed control problems.

AMCHEM PRODUCTS, INC., AMBLER, PA.

For More Details Circle (104) on Reply Card



The Mitts & Merrill Brush Chipper . . . most efficient way to reduce branches, limbs, brush

These exclusive features:

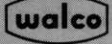
- Staggered knife pattern . . . means more cuts per revolution, smoother cutting action, smaller chips of uniform size (reusable as mulch)
- New folding feed chute extends to 60" overall length, eases maneuverability and protects cutting chamber.
- Reversible knives . . . give you twice the service between sharpenings; also self-adjusting with positive lock pin to prevent throw-out

- Heavy duty construction . . . coil spring, torsion type suspension; all tubular steel trailer frame
- Torque converter . . . available on all models

For complete information and list of specifications, contact dealer nearest you or write us direct.

mitts & merrill

SUBSIDIARY



WALCO AMERICAN CORPORATION

There's a Mitts & Merrill Brush Chipper dealer near you — ready to serve.

ARKANSAS, Little Rock
Moody Equipment & Supply Company

CALIFORNIA, Los Angeles
SABCO

CALIFORNIA, Sacramento
Action Equipment Company

COLORADO, Commerce City
Macdonald Equipment Company

CONNECTICUT, Stamford
Muench Company, Inc.

FLORIDA, Jacksonville
Florida Equipment Co. of Jacksonville

ILLINOIS, Rosemont
Illinois FWD Truck & Equipment Company

ILLINOIS, Springfield
Drake-Scruggs Equipment, Inc.

LOUISIANA, Baton Rouge
General Equipment, Inc.

MASSACHUSETTS, Needham Heights
E. J. Bleiler Equipment Co., Inc.

MICHIGAN, Detroit
Contractors Machinery Company

MICHIGAN, Franklin
Cannon Engineering and Equipment Co.

MINNESOTA, Minneapolis
Road Machinery and Supplies of Minneapolis, Inc.

NEBRASKA, Omaha
Omaha Body & Equipment Company

NEW HAMPSHIRE, S. Merrimack
Consolidated Utility Equipment Service, Inc.

NEW JERSEY, Lodi
Dianem Company

NEW YORK, Masapegua Park, Long Island
Equipment Sales & Service Co.

NEW YORK, Albany
R. B. Wing & Son Corporation

NEW YORK, Syracuse
State Equipment Company, Inc.

NORTH CAROLINA, Charlotte
Baker Equipment Engineering Company

OHIO, Massillon, Karl Kuemmerling, Inc.

OKLAHOMA, Enid
Bert Smith Road Machinery Co., Inc.

OREGON, Portland
Cal-Ore Machinery Co.

TENNESSEE, Memphis
Utilities Equipment Company, Inc.

UTAH, Salt Lake City
Truck Equipment Sales Company

VIRGINIA, Richmond
Baker Equipment Engineering Company

WASHINGTON, Seattle
Sahlberg Equipment, Inc.

WISCONSIN, Brookfield
Utility Equipment Company

CANADA, Cooksville, Ontario
A. E. Joslin Machinery & Equipment Limited

Winnipeg, Manitoba
Howard F. Powell (1963) Limited

Montreal, Quebec
Aird Equipment Limited

or contact Mitts & Merrill, Inc., 109 McCoskry St. Dept. WT-75, Saginaw, Michigan 48601

For More Details Circle (101) on Reply Card



Attractive sign and modern quarters advertise various services offered by Industrial Weed Control Company, Oklahoma City, Okla.

Tom Graham's Formula For Successful

INDUSTRIAL WEED CONTROL

QUALITY service has to be the foremost step in any successful service business. But it is by no means the only criteria for progress. Tom Graham has added several factors to this standby in building his Industrial Weed Control Company at Oklahoma City, Okla.

Graham believes a community businessman must also (1) be active in civic work, (2) make personal contacts in order to know his clients and their problems, and (3) develop and hold good employees. He's been doing industrial weed control for more than 20 years and has an additional 10 years tenure as a pest control operator.

Civic Interest

Graham is active in civic work because he enjoys coaching and

leading little league baseball and football and the numerous activities of the Oklahoma City Uptown Kiwanis Club of which he is president-elect. He finds many of his customers also participate in community ventures. A relationship logically develops with many and naturally carries over into business activities. In looking back over his 30 years as a businessman, Graham believes his interest in community affairs has been an extra plus in making his business a success.

Personal Contact

Most of Industrial Weed Control Company's contracts involve oil companies, where the big end of the work is to keep oil well sites and storage areas free of vegetation of any type. Bare

ground maintenance adjacent to wells and storage tanks is primarily a safety factor, though companies consider careful maintenance important as part of the image they project. Some selective herbicide spraying is also done on grounds adjoining well and storage sites. Prime customers for Graham's organization are major oil companies. Some rights-of-way maintenance is also done for utility companies.

In selling contracts to customers such as these, Graham relies on personal contact, a major step in his formula. He knows the oil company production superintendents well, usually on a first name basis. In most oil companies, superintendents who contract for pesticide application operate directly under district managers. No advertising as such is

done by Graham for industrial weed control, though he does make use of advertising specialties such as pocket secretaries, steel tapes and levels, and similar items.

Holds Employees

Qualified employees are needed in any business. Graham believes his long-time associates deserve much credit for the success of Industrial Weed Control Company. For example, he gives a large share of the credit for the firm's success to Paul E. Hunt. Hunt, an agricultural graduate of Oklahoma State University with majors in entomology and agronomy, has been with Graham 14 years. He serves as general manager and supervisor of all weed control and scheduling.

Graham believes employees are loyal and stay with the company as a result of good pay and a profit sharing plan. The profit sharing plan is modeled to a great extent after that developed by Sears-Roebuck and Co. Graham's plan includes depositing in a bank for investment certain funds from profits which are posted to the account of the individual employee. In addition to these company funds, an employee may also contribute additional funds, though this is optional in addition to the standard trust fund. The employee can contribute 6% of the first \$3600 of yearly salary. This is matched by the employer. Employees (he now has 19) are eligible after one year with the company.

Should an employee wish to quit, after three years with the company he can withdraw all of his own contribution plus 30 percent of that contributed by the company. After 10 years, he is entitled to the entire contributions of both himself and the company. A plan such as this or similar in nature helps develop responsible employees in the opinion of Graham.

Pest Control Operator

Graham started in business in the late 1930's as a pest control operator, a business which he continues today. World War II intervened and his wife held the business together during the mid-40's while he was overseas. Mrs. Graham still does work in the office. Following Navy service, Graham returned to the business. He started industrial weed control work in 1948 at the suggestion of DuPont Company representatives because there was a need for this type of service. Since that time, the industrial weed control area of the company has expanded to become the major segment of the

operation.

Today, Graham operates 10 trucks, most of which are equipped with 300-gallon tanks and John Bean spray pumps. Several trucks, however, carry 1000-gallon tanks. All spray pumps are operated by power take-off from the trucks. These are more expensive than gasoline engines to install, but because men often work alone and some distance from the headquarters, Graham feels the power take-off units are more trouble free.

Most herbicide applications on oil company industrial sites are

(Continued on page 17)



Sprayman Claude Abbott, left, and Tom Graham visit prior to beginning the day's work schedule. Abbott has been with the firm for nine years.

Left to right in office of Industrial Weed Control Company are: Mrs. Tom Graham, Mrs. Darrell Nelson, and Graham. Radio contact with sprayman is the rule, with all trucks being radio-controlled.



Pesticide Application

REGULATORY PRACTICES

GOVERNMENT at any level—federal, state, county, municipal—will continue to affect the use of chemicals for weed, insect, and disease control. All chemical users—ground and aerial applicators, city and park departments, golf course operators, and others who do either non-crop or crop pest control—are subject to control regulations.

No user will quarrel with the need for regulation. Practically every pesticide applicator, however, is concerned with the type of law and the enforcement which regulates his operation.

Companies who manufacture and formulate pesticides and operators who use them agree that the public good must be served. This concern is reflected by them at conferences and various meetings and conventions. They also rightfully contend that effective legislation must effect a balance between public safety on the one hand and bans plus policing on the other.

The balance today is fluid in nature. Licensing laws vary from

state to state, as do regulations. Overriding these are various federal regulatory laws and practices. Varying state use and application laws create problems for pesticide applicators who must cross state lines in their businesses. Added to this present state of affairs is continued pressure from many sources for further legislation, some of which may be helpful and other proposals which may prove unnecessarily restrictive.

Influence On Legislation

New laws are inevitable. They can be helpful to the industry and at the same time protect public concerns relating to potential injury to humans and wildlife. An important facet of any proposed legislation is the source or goals of the many proponents. No single voice exists which reflects the collective thinking of manufacturers, users, government, and the public.

Government itself offers a good example of conflicting goals. The U.S. Department of Agriculture, with almost 100 sep-

Table I. Pesticide Use Law Chart
Laws And Regulations Relating To The Use Of Pesticides Generally
July 1967

	Products Covered					Users Covered		Licenses or Permits Required		
	INSECTICIDES	FUNGICIDES	HERBICIDES	RODENTICIDES	OTHERS	AERIAL APPLICATORS*	GROUND APPLICATORS	AERIAL APPLICATORS	GROUND APPLICATORS	OTHERS
Alabama	X	X		X	3	Cu	Cu	Cu	Cu	
Arizona	X	X	X	X	1	All	Cu	All	Cu	10
Arkansas	X	X	X	X		Cu	Cu	Cu	Cu	
California	X	X	X	X		All	All	All	All	5
Colorado	X	X	X		1,6	Cu	Cu	Cu	Cu	
Connecticut	X	X	X	X	2,3	All	Cu	All	Cu	7
Florida	X	X	X	X			Cu		Cu	
Hawaii			X			All	All	All	All	4,5
Idaho	X	X	X		1	Cu	Cu	Cu	Cu	
Illinois	X	X				Cu	Cu	Cu	Cu	8
Indiana	X	X	X	X	2	All		All		
Iowa	X	X	X	X		Cu	Cu	Cu	Cu	
Kansas	X	X	X	X		All	Cu	All	Cu	
Kentucky	X	X		X			Cu		Cu	
Louisiana	X	X	X	X	1	Cu	Cu	Cu	Cu	8
Maine	X	X	X	X		All	Cu	All	Cu	
Massachusetts	X	X	X	X	9	All	All	All		9
Michigan	X	X	X	X		Cu	Cu	Cu	Cu	
Minnesota	X	X	X	X		All	Cu	All	Cu	
Mississippi	X	X	X	X	3	All	Cu	All	Cu	
Nevada	X	X	X	X	2	Cu	Cu	Cu	Cu	2
New Hampshire	X	X				Cu	Cu	Cu	Cu	
New Mexico	X	X	X	X	1	Cu	Cu	Cu	Cu	
New York			X		8,9					8,9
North Carolina	X	X	X	X		All		All		
North Dakota	X	X	X	X	2	All		All		
Ohio			X			8	8	8	8	8
Oklahoma	X	X		X	1	Cu	Cu	Cu	Cu	8
Oregon	X		X			All	All	All	All	5
Rhode Island	X	X	X	X		Cu	Cu	Cu	Cu	
South Dakota	X	X	X	X		All	Cu	All	Cu	
Tennessee	X	X		X		Cu	Cu	Cu	Cu	
Texas			X			All	All	All	All	4,5
Utah	X	X	X			All	Cu	All	Cu	
Vermont	X	X	X	X		All		All		
Washington	X	X	X	X	1,6	All	All	Cu	Cu	
Wisconsin	X					9	9	9	9	9
Puerto Rico			X			8	8	8	8	8

All—All users (those treating their own land and custom applicators)

Cu—Custom applicators only

1—Plant growth regulators and defoliants

2—Fertilizers and/or seeds

3—Sprays or methods used to improve the condition of trees

4—Manufacturers and dealers

5—Owner of land to be treated

6—Nematocides

7—Tree experts

8—Special statute relating to herbicides

9—Pertinent only to application of chemicals to water and to non-crop areas. See Statute

10—Growers and sellers

* The federal government exercises some control over use of pesticides by requiring agricultural aircraft operators to obtain certificates when engaged in spraying economic poisons. Certification is awarded by the FAA only when certain standards are met by the pilot. No pilot may, under these regulations, dispense an economic poison that is registered under FIRA (1) for a use other than that for which it is registered, (2) contrary to any safety instructions or use limitations on its label or (3) in violation of any federal law or regulation. These rules do not exempt the aerial applicator from more stringent state laws which may be in effect.

arate divisions, seeks varying controls and moneys for programs. Then there is the Department of Interior with further regulatory program goals. The Federal Aviation Agency (FAA) controls aerial applicators with special regulations regarding the spraying of economic poisons. Finally the Department of Health, Education and Welfare probably exerts more influence on regulation than any major area of government. State governments along with counties and municipalities also come in for a stake in control programs. The Council of State Governments as an association represents many facets of local government. Public educational and research groups exert further influence.

Outside government are the many associations representing segments of industry. In addition to these are organized citizen groups and individuals; Rachel Carson, prior to her death, was among the best known of the latter. All influence government, and all are influenced by government.

In brief, society represented by each group or individual will judge any risk involved and the degree or type of future pesticide control will be determined. Far more research and information is needed than is available if these decisions are to be made intelligently.

Legal control today can be tabbed as indirect and direct. Indirect control is made up of federal and state registration or labeling laws. Added to these are regulations concerning residue tolerances. Direct control is maintained by applicator licensing laws and specific rules regarding particular pesticides.

Federal Pesticide Laws

One major federal law with amendments almost sums up federal control in the non-crop

horticultural field. This is the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) which was passed in 1947. It supersedes the previous Federal Insecticide act of 1910.

In short, the FIFRA requires registration by the USDA for any "economic poison" which can be classed as an insecticide, fungicide or rodenticide. Popular definition as used to regulate chemicals is that "economic poison" means "pesticides" and the law treats it as such. The law defines an "economic poison" as:

"(1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living man or other animals, which the Secretary shall declare to be a pest, and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant."

In 1959, an amendment to the FIFRA was added. This was the Nematocide, Plant Regulator, Defoliant and Desiccant Amendment. It covers those materials named in the amendment and requires registration.

Another 1964 amendment further changed the original FIFRA. It was Public Law 80-305 and eliminated the controversial "registration under protest" rule which allowed sale of an unregistrable product when a protest was duly filed. It also required manufacturers to remove unwarranted safety claims from package labels.

A number of other bills and amendments have been passed prior to this major Act and since regarding pesticide tolerances in food. None, however, have any specific bearing except in the crop segments of pesticide use.

State Pesticide Legislation

Two types of state pesticide

laws exist. First are the registration laws which control distribution and sale of pesticides in intrastate commerce. Some states also have specific tolerance controls regarding chemicals used in agriculture. Most such state laws are modeled after the FIFRA federal act and follow the "Uniform State Pesticide Act" recommended by the Council of State Governments. Some 47 of the 50 states have adopted this or a similar law. Only Indiana, Delaware, and Alaska do not have state labeling regulations.

Most states, now about 35, have licensing provisions and specific regulations as to use of pesticides, inspection of equipment, and application practices. These are termed Custom Applicators Acts, Pest Control Operators Laws, and Aerial Application Regulations. (See Table I)

Conclusions

Improved administration of present laws and regulations is needed. In some instances, further regulation is necessary as a practical means of minimizing pesticide accidents and thereby protecting the industry against almost certain restrictive legislation should a major calamity occur. Best statement on the subject recently is that by Douglass F. Rohrman, J.D. National Communicable Disease Center, U.S. Department of Health, Education and Welfare, Atlanta, Ga. Rohrman states in the new Pesticides Program Training Guide* that "Statutory control should not only regulate, restrict and likewise even make lawful certain acts and procedures, but also, pesticide laws should serve as educational tools to inform and delineate proper activities of users, sellers and applicators. . . . Statutory language, while not necessarily explanatory per se, should be detailed enough to point out the proper means of compliance."

*Available by writing Rohrman of NCDC at Atlanta.



Assault. Sudden death to all weeds.

Spray once and Assault® begins destroying weeds and all unwanted vegetation. Clears the land in no time.

Regrowth is never a problem, either. Assault stays in the soil for up to a whole year.

Another thing. Assault is easy to use. There are no messy powders to dilute or to gum up a sprayer. Just add water to the liquid concentrate and go to it.

For details on where to get Assault, and for a free weed

identification chart (in case you're curious about what you'll be killing), write West Chemical Products, Inc., Dept. WTT-2, 42-16 West Street, Long Island City, New York 11101.



For More Details Circle (102) on Reply Card



Florida's 'Super Forests' Yield Select Seedlings

By C. Winn Upchurch

BEAUTIFICATION and conservation in Florida promises to get a big boost from a state Forest Service tree program which is just beginning to "take seed."

A planting program launched in 1959 by the state Forest Service has made Florida the tree planting leader of the 50 states for five consecutive years. State foresters hint that state commercial forests of the future may become "super forests."

Florida nurserymen, landscape architects and others will continue to benefit. They are now

buying seedlings at less than \$8 per thousand. One firm which has taken advantage of the state program is Manatee Seed & Sod Co. and its parent firm, Pursley Zoysia Grass Co., both of St. Petersburg.

The Pursley firm, owned by Walter L. Pursley, bought some 10,000 Arizona cypress, sand pine and red cedar seedlings for transplanting on its 30-acre grass farm in Manatee County, just south of St. Petersburg.

In addition, Pursley's Manatee Seed & Sod Co. transplanted 5000 sand pine and oak seedlings,

Pictured above is a Florida Forest Service orchard where trees are bred with selected stock to achieve desired qualities. Seed from this orchard will be available for nursery use within a few years.

VERSATILE VISKO-RHAP*

For effective control of weeds and brush that infest roadsides and utility rights-of-way, and choke ponds and drainage ditches, Visko-Rhap* herbicides are designed for use where conditions necessitate the utmost in drift control. Visko-Rhap invert emulsions as special formulations of 2,4-D; 2,4,5-T; and Silvex are compatible with other herbicides. They may be applied in a variety of ways to assure you a truly outstanding weed-control program.

• EFFECTIVE

—Oil-coated droplets resist evaporation and wash off . . . Because they are so drift-resistant, you control only the vegetation that you want to control.

• ECONOMICAL

—Visko-Rhap requires no pre-mixing and eliminates product waste. It allows you full utilization of equipment, manpower, and chemicals.

• EASY-TO-APPLY

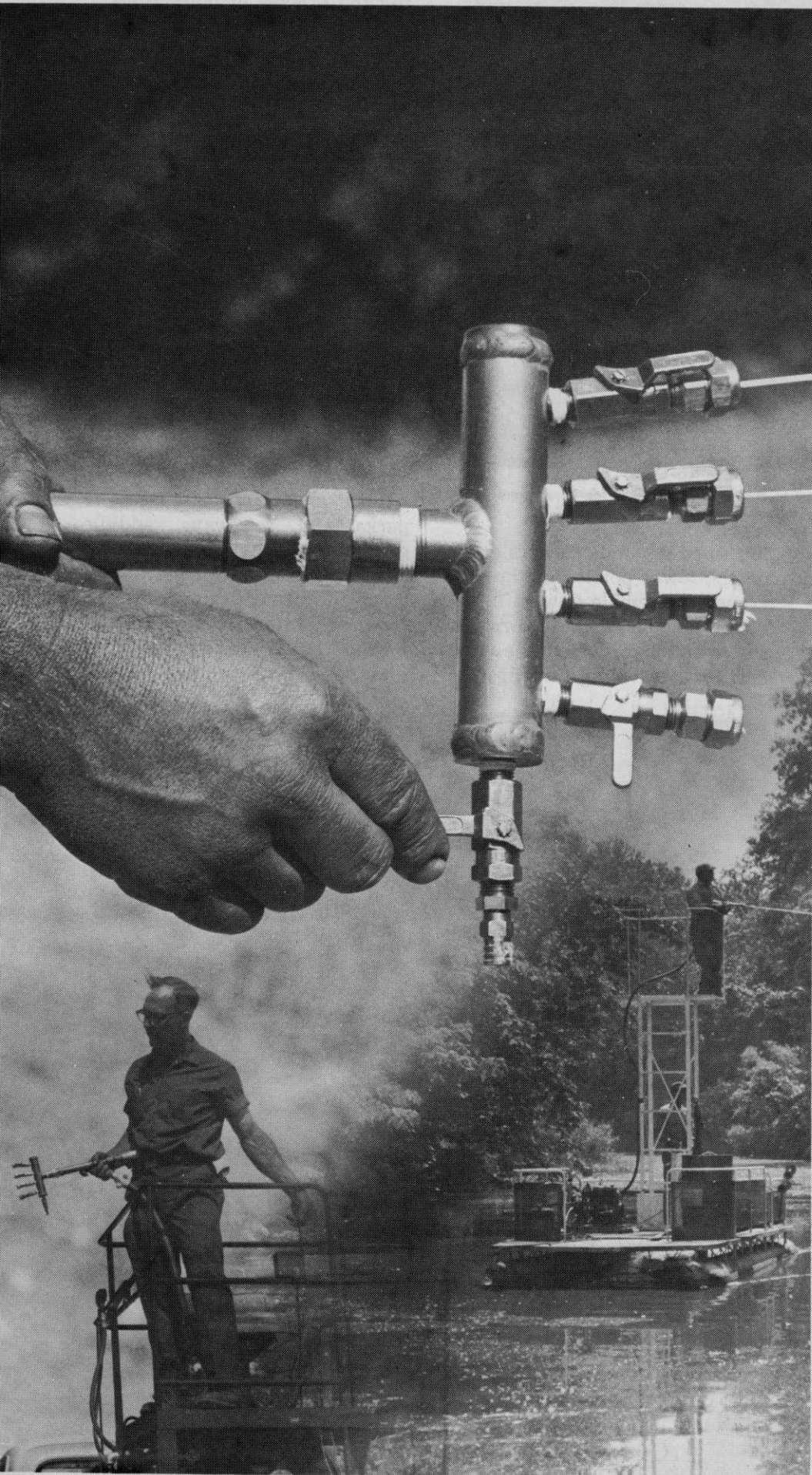
—Thick streams make accurate placement of the herbicide easy, and with Visko-Rhap you see where you've sprayed.

Information and technical assistance on Visko-Rhap is available through any of the following offices: BOSTON, MASSACHUSETTS • CHICAGO (OAK BROOK), ILLINOIS • DALLAS, TEXAS • GREENVILLE, MISSISSIPPI • KANSAS CITY (OVERLAND PARK), KANSAS • LOUISIANA, MISSOURI • MINNEAPOLIS, MINNESOTA • MONTGOMERY, ALABAMA • ORLANDO, FLORIDA • PHOENIX, ARIZONA • PORTLAND, OREGON • RALEIGH, NORTH CAROLINA • SAN FRANCISCO, CALIFORNIA. Or, write Agricultural Chemicals, Synthetics Department, Hercules Incorporated, Wilmington, Delaware 19899.



HERCULES

SP68-4





Dewinged slash pine seed, which can be kept in cold storage at 20° F for 10 or more years, is ready for planting. One slash pine cone yields 50-75 seeds on the average.

purchased from the state, in its leased beds in the Everglades, near West Palm Beach. The latter project failed, however, when a hurricane washed out the seedlings. Manatee Seed's manager, James C. Boone is not discouraged, and plans to plant more state-obtained seedlings in the Everglades beds.

Industrial Plantings

Pursley's Zoysia Grass Co. does industrial planting and golf course planning. The firm landscaped the Magnolia 18-hole golf course at New Port Richey, 35 miles north of St. Petersburg, which is Pursley owned and operated. Many of the sand pines lining the course came from Florida Forest Service seedlings harvested some years ago.

The first seed from what the Forest Service calls "improved special seed orchards" was harvested one year ago, according to R. A. Bonninghausen, Forest Service management director at Tallahassee, Fla.

The Florida seed orchards are filled with selected parent trees, all grafted with the most promising branch tips. On the parent pine stock there is little inbreed-

ing since the male flowers occur on the lower portion of the tree crown, the female flowers in the upper portion of the crown. As the pollen is dispersed, the wind currents traveling among the

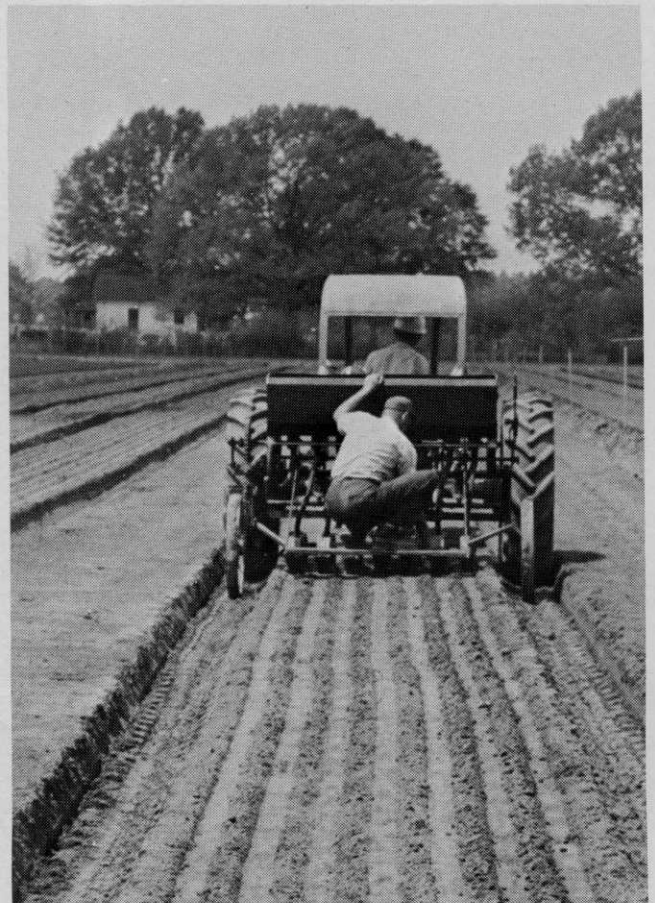
trees carry it to the female flowers of other trees, completing the process of pollination.

Pine A Prime Species

Forestry officials believe the pine is one of the more beautiful species in the Sunshine State. The state Park Service last year planted 10,000 slash pine, along with several thousand longleaf and loblolly seedlings on state property.

In addition, the state road department has on numerous occasions planted pine seedlings in such areas as worked-out borrow pits, roadside parks, medians, and other areas, and is continuing to do so. Both the Park Service and the state Road Department have preserved natural stands of pine trees in parks and roadways, adding greatly to aesthetic values.

Commenting on the state's efforts at beautification, E. R. Howard, information director for the Florida Board of Forestry said: "We have on state forests



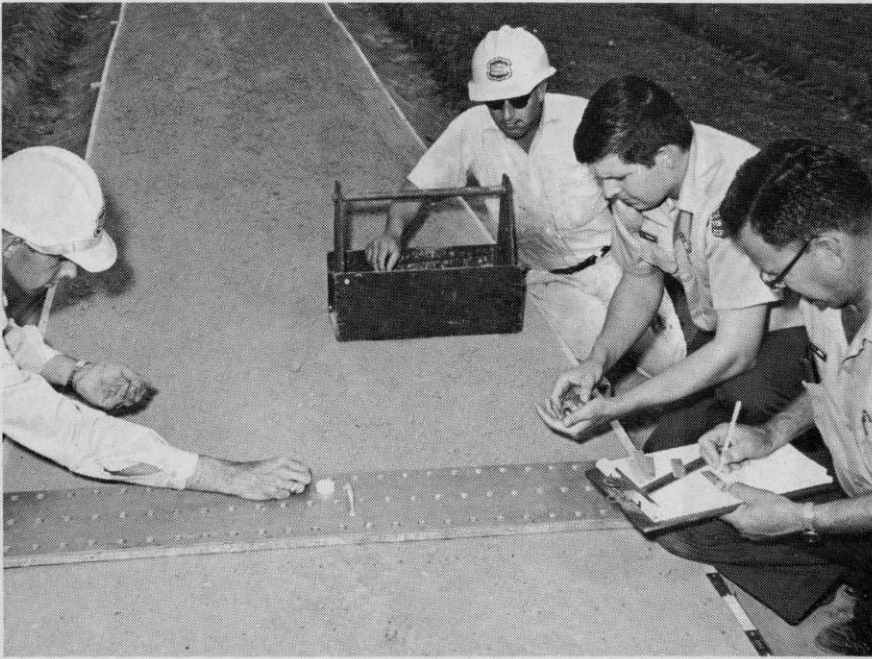
Pine seeds are not covered with soil when planted but are pressed lightly into ground. Planters sow from 1½ to 2 lbs. of seed per 100 linear feet, 7 drills per bed.

Wilt not, want not

Are you winning the war against winter kill, summer scald and transplant shock? Thousands of growers, nurserymen, grounds maintenance men, landscapers and foresters minimize wilting losses with WILT PRUF. The world's number one anti-desiccant, WILT PRUF was proved 40 to 50 times more effective in stopping excess water-loss than leading substitutes. Test details on request. *Write on your letterhead for 50-page technical manual of applications.*

WILT PRUF[®]

NURSERY SPECIALTY PRODUCTS, INC.
410 Greenwich Ave., Greenwich, Conn. 06830 / (203) 661-5840



Seed from "super forest" orchard being planted for progeny testing is placed same distance apart so that each has an equal chance of development in the seed bed. Seedlings will then be progeny tested under identical conditions at a later time; only those proven superior will remain in the orchards.

and privately-owned lands developed recreation areas in pine stands on lake and stream borders, which we think add a unique touch of natural beauty. It would be highly desirable, in our opinion, if some of the more unsightly areas such as junk car lots and the like could be bordered with pine trees."

While there are plenty of seedlings available to nurserymen and others from the state forest agency, it will be about four more years before seedlings from the "super forests" will be plentiful. R. A. Jordan, reforestation supervisor, reports it will take this period of time before sufficient seed is produced to make the super seedlings plentiful.

Even then, Jordan said, these improved-strain seedlings will be available only in limited quantity. He believes that eventually all seedlings produced in the state nurseries will be from the seed orchards and will be of genetically improved quality.

State Operated Nurseries

Tens of millions of pine seedlings come from nurseries operated by the state agency and by forest industries. As one massive crop of slash pine seed-



Preferred height of seedlings shortly before removal from beds for packing, shipping and transplanting is about 18 inches. Muriate of potash is applied in late fall to toughen the seedlings.

lings is moved out, skilled nurserymen prepare for the next, to supply the increasing demand for these "tiny trees with the big promise."

Removal of seedlings from beds starts in mid-November and continues through February. Areas in the nurseries are rotated with a cover crop being planted every other year.

Early in March, sawdust and fertilizer are applied to the

cover crop area from which seedlings are lifted. Cow peas or field corn serve equally as well, but Jordan prefers corn on the 50 acres at Munson Nursery in northwest Florida and the 80 acres at the Andrews Nursery at Chiefland, Fla. Nurseries gross \$8000 from sale of corn each year which is used against seedling production costs.

Seed bed areas are fumigated in March to control nematodes

and root rot fungi. The fumigant is allowed to remain in fallow soil from two to four weeks before the beds are prepared and seeded.

Pine seed when planted is not covered with soil. Seed is pressed into the top of the soft earth with a roller. Beds then are covered with chipped pine straw which serves as a mulch and helps to keep the seed moist and at ground temperature.

Seed Is Tested

To get the maximum number of plantable pine seedlings from the minimum linear footage of narrow beds, seed is tested for germination. Seeding is at a rate to produce 12,500 plantable trees per 100 linear feet of bed. If seedlings are planted too thick, they tend to be stunted and too spindly for commercial use. If seeded too thin, they develop large and are hard to handle. When seedlings are removed from beds for transplanting during late fall and winter, a 16 to 18-inch overall height is desirable, according to Jordan.

Once seeding starts in March or April it becomes necessary to protect new seed beds from birds. A "bird patrol" is on duty from dawn to dusk, one or two men patrolling beds constantly. A single bird may consume 400 pine seeds in less than a day, Jordan says. The bird watch keeps control by means of a 12-gauge shotgun until seeds sprout and the seed coats fall away. Normally this period is about six weeks.

When germination begins, beds are sprayed with a fungicide to keep down sporous infections. Grass in the bed is controlled chemically, as are such insect enemies as red spiders.

All Florida nursery beds are equipped with irrigation facilities. Fertilizer is applied as needed through the growing season, with formulas based on soil test recommendations. Before removal of seedlings, an application

of muriate of potash is used to "harden" the young trees. This is usually done in mid-October, to prepare the trees for lifting, grading, packing, shipping and transplanting.

Industrial Weed Control (from page 7)

made during the fall and winter, using a preemergence chemical. Spring and summer months are used for checking back on the degree of control. Two checks are made on each application site, and three checks on many. Follow-up spot treatments are made as needed. Graham operates largely in Oklahoma, northern Texas, the Texas Panhandle, Kansas, Illinois, and Kentucky.

Contract Procedure

Yearly open-end contracts (a set rate per square foot) are the rule. Graham generally charges one cent or more per square foot depending on conditions for the initial treatment. Maintenance charges for following years are one-half cent per square foot.

Besides industrial weed control business, Graham also serves as distributor for industrial chemicals and equipment. He represents DuPont, Dow, Allied, John Bean, Diamond Shamrock, and Amchem. Besides the main headquarters at Oklahoma City, he operates a branch office at Fairfax, Okla., in order to better serve outlying fields. This office is managed by Dale Lance.

Graham occasionally accepts a power line right-of-way contract but has in the past sublet these to an operator with helicopter equipment. His early jobs in the business were plant or industrial sites, farm fence rows, salvage yards, bottling works, and small airports. Once in the business, he moved into more extensive oil field contracts with major companies.

Latest phase of the business has been a growing need for aquatic weed control. Flood con-

trol dams in the area have created more lakes and ponds which develop weed problems. He has established Aqua-Trol, a water weed service, as a special division of the company. In a normal year, the company will treat 40 to 50 ponds and club lakes, many of which range from 75 acres up. A big factor in treating fishing lakes according to Graham is to strip treat over a period of time. He has found that this reduces oxidation and the threat to fish. To aid lake and pond owners and those responsible for keeping them free of weeds, Graham has published an information folder on aquatic weed control and the type service rendered by his company.

Up-to-minute Data

Keeping up with the industry requires constant effort. Graham says he depends on manufacturer representatives and individual plot work and trials for information. Most producers and formulators have their own weed control specialists who work directly with professional pesticide applicators.

In the business management area, Graham depends on a registered certified public accountant. He gets a monthly P and L statement from his CPA which has proved a great help in setting rates for service calls and application work.

Graham is a veteran in the business of industrial weed control. He has experienced the phenomenal growth in this phase of the pesticide use industry over a 20-year period. His feeling is that the non-crop areas of weed control will face increasing demands for service. People today expect more in the way of beautification and companies are image conscious. The aquatic weed control field is just beginning to open up, he believes, and promises to become a major segment of weed control throughout the country.



Awards Chairman John Gallagher, Amchem, Ambler, Pa., left, presents certificates for outstanding papers to Henry Wilson, Virginia Truck Experiment Station, Painter, Va., center, and Oscar Schubert, West Virginia University, Morgantown.

Scientists Present New Findings At 23rd Northeast Weed Conference

Chemical residue from crabgrass control efforts may also kill dandelion and chickweed. This is a finding of John A. Jagachitz, University of Rhode Island, Kingston. Speaking at the 23rd Northeast Weed Control Conference, a major weed control report session held every year at the Hotel Commodore, New York City, Jagachitz said that residues kill dandelion and chickweed plants as they grow from seed.

In his University research, he said that several chemicals were applied to the soil surface. Weed seeds which were sown in these treated soils at time intervals were killed up to eight weeks after chemical use. Establishment of dandelion and chickweed was greatly reduced. Two chemicals in general used for crabgrass control, he said, gave excellent results. These are siduron (Tupersan) and Dacthal. Another chemical which produced excellent results was picloram (Tordan). Tests are being

continued under actual lawn conditions, Jagschitz reported.

On hand for the early January Conference were 636 registrants. Eighty-three papers were presented. A new feature this year was a special program for biology teachers in the metropolitan New York area. Appealing to this group was Dr. Charles C. Drawbaught, Rutgers University.

He suggested subject matter be taught in the classroom on weeds and weed control. He pointed to the value of teaching weed science from an ecological approach through the use of scientific principles. Learning experiences, he said, could be functionally helpful to students and their families.

Dr. Boysie Day, California Ex-

Outgoing president of NEWCC, John A. Meade, Rutgers, center, visits with W. B. Ennis, Agricultural Research Service, USDA, Beltsville, Md., left, and Mason W. Gross, president, Rutgers University, New Brunswick, N.J.



periment Station and president of the Weed Science Society of America, challenged opponents of herbicide use to examine the facts. Dr. Day stated that the public is unduly alarmed over use of herbicides. Popular generalities are not based on fact, he stated; the only thing that all herbicides have in common is that they kill weeds. Those that are toxic to anything else are few and little used, he said.

Careful Herbicide Use

Herbert J. Cran, Jr., landscape architect for The Connecticut Light and Power Company, reported that his company had contributed to a clearer understanding of the need for the judicious use of pesticides and herbicides in utility operations.

He said that CL&P conserves desirable low-growing woody plants along its rights of way and is now placing 242 acres of red pine trees around its hydroelectric generating stations in the northwestern part of the state under a forest management

program. Under this program, he stated, undesirable deciduous plants are being controlled by the use of selective oil basal herbicides.

Desirable plants, such as mountain laurel, members of the dogwood, viburnum and berry species, juniper, witch hazel, shadbush and native azaleas are preserved since they are good colonizers, provide refuge and food for wildlife and blanket out the growth of trees potentially harmful to power lines, Cran said. He told the group that CL&P's operations cover about 75 percent of the state's area and that the company maintains more than 11,500 miles of pole lines.

Charles J. Slatt, Bonneville Power Administration, agreed with Cran that there are some very worthwhile and special benefits from "esthetic right-of-way clearing."

Slatt said that some of the benefits from BPA's esthetic right-of-way clearing include (1) the amount of land taken out of use-

ful timber production is considerably decreased, (2) the efforts against erosion and stream pollution due to sudden periodic run-off are dramatically improved, (3) the areas that have to be treated with herbicides are reduced, (4) situations where irreparable damage is done at the time of original construction are avoided.

Slatt said that selective herbicidal treatment properly programmed and managed offers the most promise with respect to initial and future brush control measures. "We believe there is real merit in this matter of appearance," he stated, "and that it is truly significant when treated as a total concept. We are a utility dedicated not only to serving the region's low cost power requirements, but we are also dedicated to the conservation of natural resources."

Brush Control

Both liquid and pelleted herbicides, applied to low-grade white oak trees, are effective in

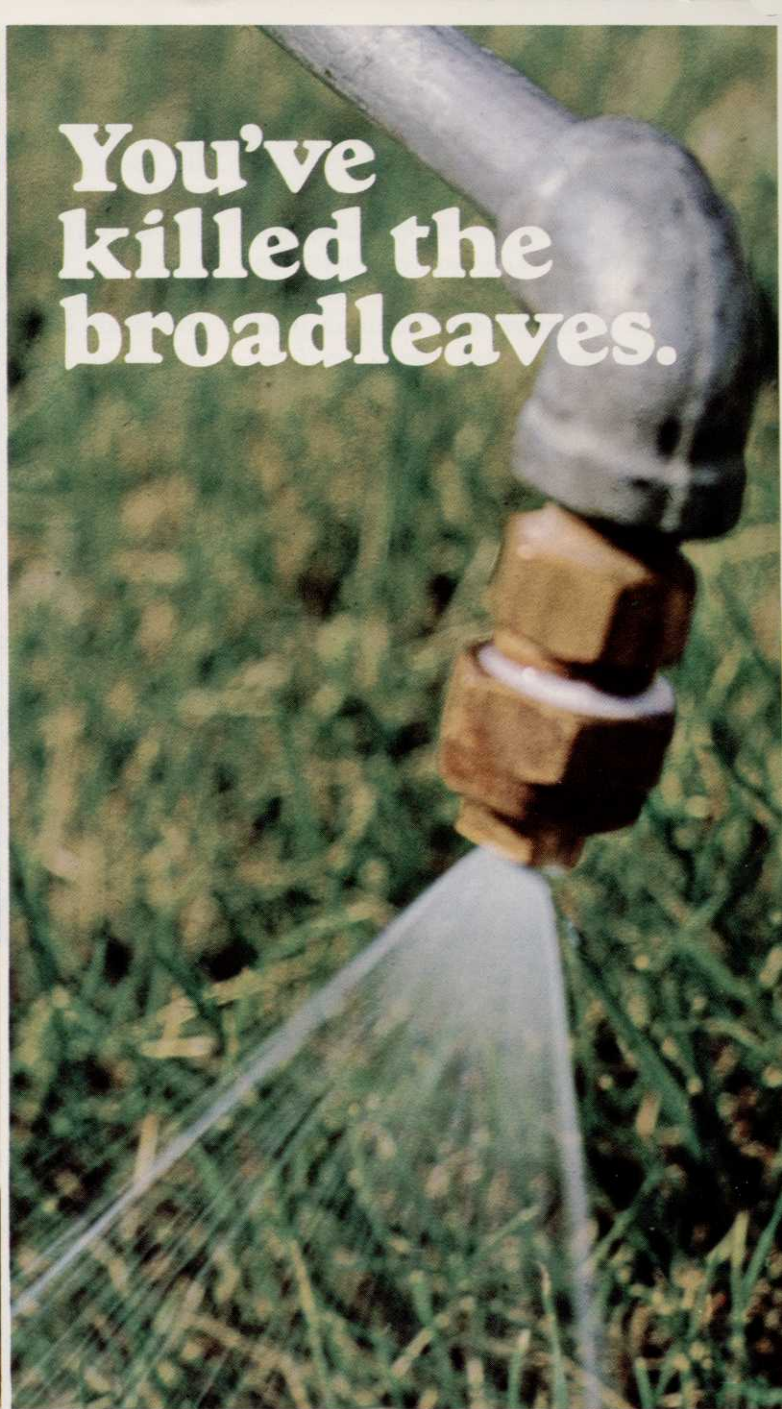
Officers and executive committee chairman for 1969 for the Northeastern Weed Control Conference, left to right: Joe Cialone, Rutgers, program committee; Richard Otten, Amchem, education committee; Charles Middleton, Asplundh, sustaining committee member; John Ahrens, Univ. of Connecticut, vice-president; Homer LeBaron, Geigy, president; John Meade, Rutgers, outgoing president; Richard Feeny, American Cyanamid, publication relations committee; Richard Schwartzbeck, Gulf, representative to Weed Science Society; Arthur Bing, Cornell, secretary-treasurer; and George Bayer, Agway, research coordinator.



**You've
fertilized.**

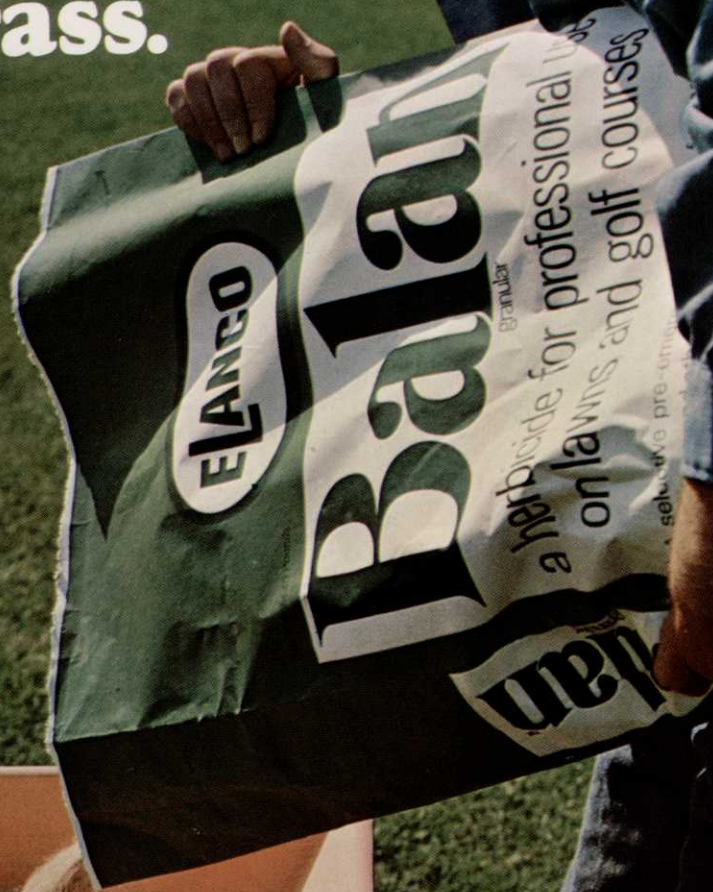


**You've
killed the
broadleaves.**



**Include Balan pre-emergence crabgrass killer
in your program. You're spending time
and money to get good turf. It won't require
much more to take the third key
step in turf care.**

Now eliminate crabgrass.



THE CRABGRASS PROBLEM. Crabgrass and other annual weedgrasses just don't belong in your desirable turf. They'll ruin its appearance. Even close mowing won't keep crabgrass from looking uneven and being an unsightly summer problem. Worse yet, it browns out and dies come fall. This leaves bare spots next spring to be filled in by more crabgrass. It's a vicious circle.

THE CRABGRASS SOLUTION. You're ready for the third step in professional turf management. Complete your turf care program with pre-emergence Balan Granular. Applied to established turf in the spring, anytime before annual weedgrasses sprout, it kills the seeds as they germinate. Weedgrasses can't brown out, can't leave bare spots. Because they don't show up, to begin with.

REASONABLY PRICED. With Balan, all-season annual weedgrass control costs as little as

\$15-\$30 an acre, depending on your climatic zone. (For southern, warm season turfs, two applications may be required because of the longer growing season.) Balan's economy fits even a modest grounds maintenance budget.

DEPENDABLE PERFORMANCE. Balan can be counted on to control crabgrass and other annual weedgrasses even when there are heavy rains or repeated irrigations. Waterproof Balan clings to soil particles and stays put to do its job for you. More than likely your local university has tested Balan and recommends it. Top golf courses in your area know Balan. (And who'd have a greater appreciation of its performance?)

You'll like Balan's convenient granular formulation, too. It's easy to handle and easy to apply with your present equipment. Ask your turf supply and equipment distributor about Balan this week.



(Balan™—benefin, Elanco)

One of Elanco's
dependable
weed-control
crew.

Your first 100 sq. feet are on Elanco!



Free sample! A 4½ ounce shaker tube of Balan Granular. Enough to keep 100 square feet of turf clean of weedgrasses for months.

Return the postage-paid card for full details on Balan, along with the name of your nearest distributor, plus your free sample. Then shake out the sample evenly over an area approximately 10' x 10'. Do this shortly before crabgrass and other weedgrasses germinate. Or weeks before. See how your turf grows thicker, healthier without having to compete with weedgrasses for sunlight and moisture. Balan makes the difference.

OTHER MEMBERS OF ELANCO'S DEPENDABLE WEED CONTROL CREW:

TREFLAN®—dependable, long-lasting pre-emergence herbicide to control weeds and grasses in nursery stock or established ornamental shrubbery and flower beds.

DYMID®—versatile pre-emergence herbicide to control weeds and grasses in ornamentals, dichondra, or ice plant ground covers. Particularly effective against certain winter-germinating weeds.



(BALAN™—benefin, Elanco)



ELANCO PRODUCTS COMPANY
A division of Eli Lilly and Company
Indianapolis, Ind. 46206, U.S.A.



(Balan™—benefin, Elanco)

**MAIL THIS
COUPON TODAY!
WE PAY
THE POSTAGE!**



ELANCO PRODUCTS COMPANY

I'd like to know more about Balan Granular pre-emergence herbicide. Please send me the free sample and complete information, including where to buy it.

I'm interested in treating a total area of _____ acres.

I presently do do not
use a pre-emergence herbicide.

NAME _____ TITLE _____

ESTABLISHMENT _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

**MAIL THIS
COUPON TODAY!
WE PAY
THE POSTAGE!**



FIRST CLASS
PERMIT NO.
723
Indianapolis, Ind.

BUSINESS REPLY CARD

No postage necessary if mailed in the United States

postage will be paid by

ELANCO PRODUCTS COMPANY

P.O. Box 1968

Indianapolis, Indiana 46205

Attn: Dept. E-455

killing such unwanted "weed" trees in central Pennsylvania forests according to Dr. Robert D. Shipman, Pennsylvania State University.

Dr. Shipman described methods and costs for removing undesirable trees. He claimed removal of low-grade "weed" trees will increase the growth and vigor of desirable hardwoods. The most effective herbicide, he said, measured in terms of total defoliation at least cost, was liquid 2,4,5-T plus 2,4-D, he reported. Although pelleted fenuron killed trees equally well as 2,4,5-T (87 percent), the average cost per tree was five times greater with the fenuron. Bromacil pellets and liquid picloram produced 67 and 66 percent kill, respectively.

Pelleted herbicides were applied by hand to the soil surface at the base of each tree. The liquid chemicals were injected directly into the tree bole using a tree injector tool. Herbicides were applied in June, 1968, and were evaluated about three months after treatment.

All four herbicides used in these trials, when applied according to the manufacturer's recommendations leave only slight soil and plant residues. "In fact," Dr. Shipman stated, "they are capable of being 'tailored' to specific soil, water, plant and wildlife situations with negligible contamination in our forests."

Dr. Arthur Bing, Cornell, New York reported on some of the methods he found to be safe and effective for controlling annual weeds in ground cover plantings. Granules of trifluralin (Treflan) raked into the soil before planting Carpet bugle (*Ajuga*), English Ivy, Japanese spurge (*Pachysandra*), myrtle (*Vinca*), and stonecrop (*Sedum*) gave good control of annual weeds, he said. Treatment after planting with granules of diphenamid plus simazine is also very effective



Panel on pesticide registration policies and trends, left to right, are: Warren C. Shaw, ARS, USDA; Robert E. Hamman, Geigy; Fred H. Dale, Div. Pesticides Registration, Dept. of Interior; L. L. Ramsey, Bureau of Science, Food and Drug Administration; and H. W. Hays, ARS, USDA.

for controlling annual weeds.

Quackgrass Kill

Oscar S. Johnson, Massachusetts County Agent-Manager and Regional Nursery Agent reported that experimental plot work at three nurseries in Massachusetts, controlled quackgrass in certain established plants for one year or more through an application of Dichlobenil (Casoron).

Six pounds per acre of actual ingredient (150 lbs. of 4% granules) applied just prior to freeze up in early winter on the weed stubble, on established nursery stock, gave control. No injury to any of the nursery species tested was observed. Grower applications on large acreages have been equally successful, Johnson said.

Two scientists from the National Marine Water Quality Laboratory, West Kingston, Rhode Island, reported that it is unlikely that sulphate, phosphate or nitrate in seawater normally limit winter blooms of *Skeletonema costatum*, the most abundant unicellular algae of North American coastal and estuarine waters.

Drs. J. C. Prager and R. L. Steele demonstrated that by us-

ing pure laboratory cultures grown in chemically synthetic seawater, these microscopic plants responded to less nitrate and phosphate than is present normally in inshore waters.

The Federal scientists believe that more subtle chemical factors, such as the activity of trace metal ions in seawater, play a more important role in determining whether nuisance algae or species beneficial as food organisms for fisheries will dominate a bay or estuary. Their studies are part of a Federal program to identify and measure chemical factors which govern the abundance and distribution of important plankton species in normal and polluted inshore marine environments.

The West Kingston Laboratory, a newly established Department of Interior—Federal Water Pollution Control Administration research station, is responsible for gathering information which can be used to set water quality criteria for the protection of fish and other aquatic life in the marine environment. The West Kingston Laboratory is staffed by some 40 biologists, chemists, biochemists and technicians.

Drift-Free Spraying

Amchem Products, Inc., Ambler, Pa., has taken a giant step toward total drift prevention by producing a unique helicopter spray boom called the Microfoil.

The new boom, designed to spray uniform droplets with a minimum of hazardous satellites (fines), uses conventional carriers such as water, oil or emulsions of the two. Thickening agents or invert emulsions are not needed. In one case concerning a public utility, straight herbicide concentrate at 3 gallons per acre was used — a far cry from the 15 to 24-gallon per acre applications common today — and resulted in excellent brush kill.

The Microfoil's length can be varied from 10 to 26 feet, accomplished by bolting 3 or 5-foot boom sections together to achieve the desired length. The boom — its nozzles shaped like airfoils — is similar to the wing of an airplane. This design provides a minimum of air turbulence directly behind the nozzles — where the droplets are formed.

Fifty-two 6-inch nozzles are mounted along a 26-foot boom, and 60 hypodermic-like needles protrude from the trailing edge of each nozzle. Therefore, the total number of orifices on a 26-foot boom amounts to no less than 3120. From these openings, the tiny streams of liquid chemicals are emitted. (At the present time, droplets with mass mean diameters of 800 and 1700 microns are produced). Properly trimmed in flight, the Microfoil produces a pattern much like a white sheet.

The manner in which droplets are formed and introduced into an air stream is the key to their



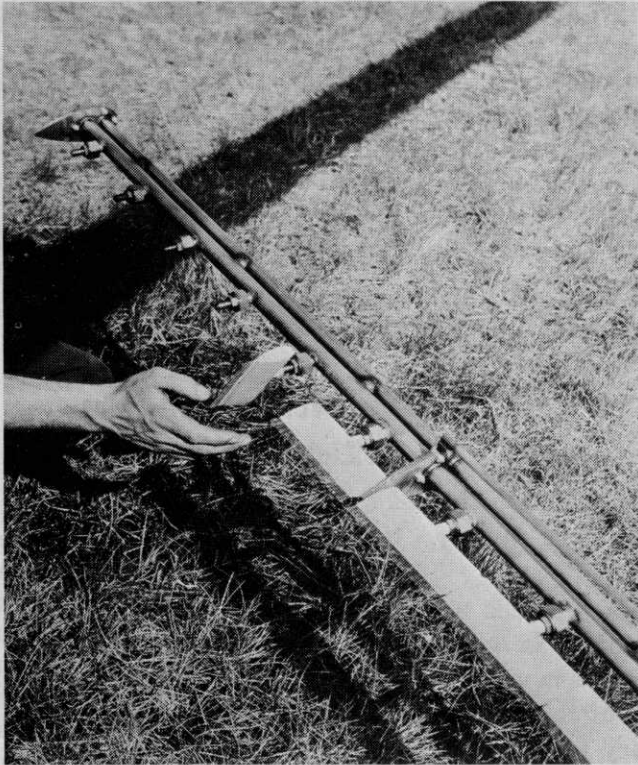
John Kirch, marketing manager, industrial chemicals, Amchem, Ambler, Pa., left, and J. H. Henley, Aerial Agricultural Services, McAlester, Okla., check Microfoil boom at Las Vegas, Nev., demonstration.

uniformity and stability. By keeping liquid pressures low and positioning the nozzles directly into the airstream as the helicopter moves forward, uniform droplets are produced. When droplets in a spray pattern are the same size, their lateral drift per foot of fall in winds of any velocity can be predicted . . . a factor impossible to calculate before the Microfoil. Amchem is confident, therefore, that its new boom offers the pesticide industry its first real opportunity to accurately place aerially applied chemicals on target.

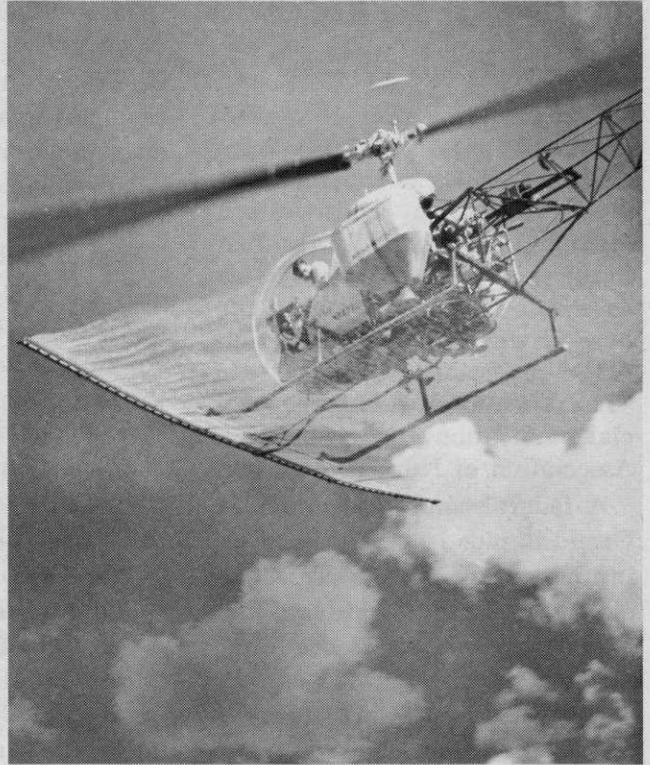
Potentials of the Microfoil are many and varied, according to Amchem. With drift control as

the boom's primary advantage, the need for state and federal restrictions on pesticides could be eliminated. The invention also greatly increases the utility of aircraft, especially the helicopter. Longer flying hours, safer and cleaner flight operations and no need to thicken or invert pesticide carriers have already made the Microfoil popular with spray pilots, says Amchem.

Its potential in the field of brush control is great. On utility, pipeline, railroad and highway rights-of-way the advantages of controlling drift, using conventional carriers and holding volumes down to 10 gallons or less per acre are obvious.



Each microfoil nozzle is six inches long and contains 60 needle-like orifices which protrude from the trailing edge.



Microfoil properly trimmed in flight produces pattern above with appearance of a white sheet. Shot taken at Winter Park, Fla.

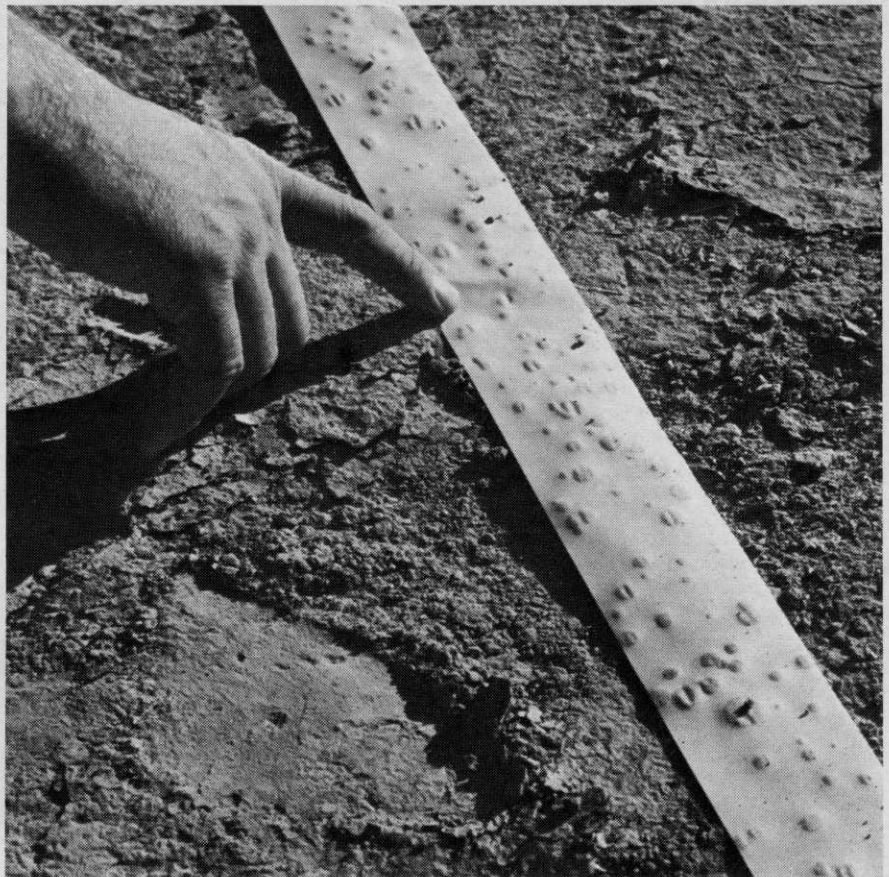
Federal agencies involved in water hyacinth control have reported favorably on the boom's performance. Citrus growers have found the boom to be the best solution to their miles of cattail-infested drainage ditches. By shortening the boom to 10 feet and flying 15 feet above ground, a 12-foot swath of spray was applied directly on the weeds with no deposit outside the ditches, Amchem revealed.

Drainage canals throughout the Mississippi, Missouri and Ohio River Water sheds also offers a tremendous market for the Microfoil. Foresters, too, feel that the helicopter-Microfoil combination has done an outstanding job in conifer release work.

Only a limited amount of work has been done to introduce the boom into the field of pesticide application to crops. This area will, however, be intensively investigated this year, Amchem said. Research into other areas where drift is a problem will also be continued.

The company plans to lease a number of the Microfoil units to qualified aerial applicators during 1969.

Spray droplet pattern from microfoil delivers series of droplets which are nearly uniform in size.



Anti-Pesticide Suit Reaps Need For Double Dieldrin

Court action to prevent the Department of Agriculture from using pesticides to control Japanese beetles in southwestern Michigan has ironically resulted in the present need to treat twice as much land with double the dose of dieldrin that was originally prescribed, according to "The Voice of M.A.N.," the official publication of the Michigan Association of Nurserymen, Inc.

A federal court decision from Grand Rapids last fall denied an injunction against the use of dieldrin but came too late to allow 2800 acres of Japanese beetle-infested Berrien County—one of the nation's largest producers of fruit, vegetables and nursery stock—to be treated with 2½ tons of the granular soil residual insecticide.

This fall, reports "The Voice of M.A.N.," court action started in Wisconsin and transferred to Michigan again failed to produce an injunction, but this time the decision came in time to permit the treatment of 4800 acres with 5 tons of dieldrin.

This doubling of land and insecticide could have been avoided, say department officials, if the lesser amount on the smaller acreage could have been applied last year. Due to lack of control agents, the beetle population in the infested Michigan area grew considerably.

The infested area includes a great deal of brushland as well as residential properties in wooded terrain. Control of the infestation was necessary to prevent the beetles from spreading to adjoining agricultural lands. Aerial spraying covered over 4200 acres

of infested land, while more than 500 acres were treated by hand.

Opposition to the spraying by an out-of-state group stemmed from the fear of endangering wildlife and adding to the contamination of Lake Michigan. The dieldrin treatment was finally approved, however, because it was the only way to effectively control the destructive beetles.

Van Wormer Gives Tips On Lightning Protection

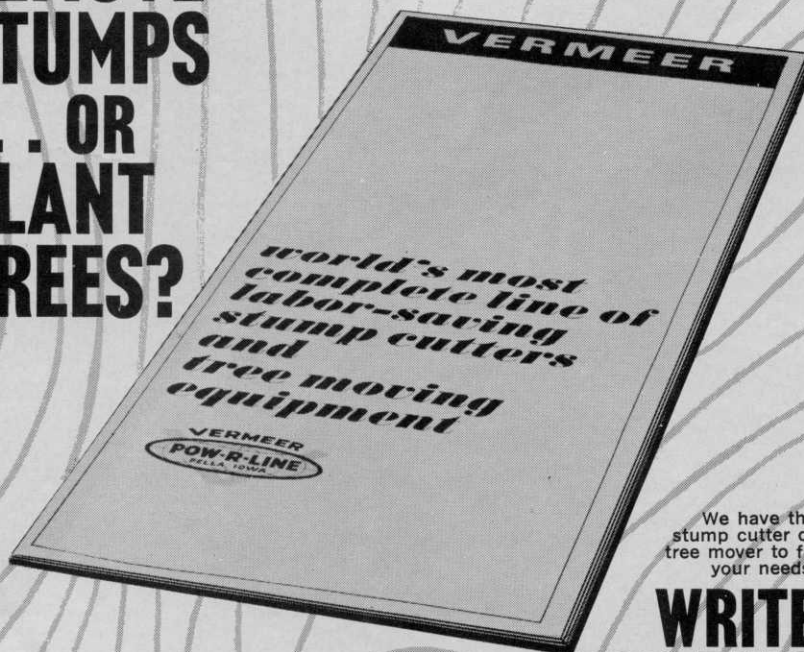
Concern regarding the importance of lightning rods to trees and the potential danger of underground wires leading from homes to driveway lamp posts has been voiced by H. M. Van Wormer of the Van Wormer Tree Service Co., Richmond, Va.

Van Wormer reports that lightning seems to follow a well-defined pattern. One seldom-mentioned occurrence, he says, is the tree-to-lamp post-to-underground wiring cycle. Any tree that is at least 40 feet tall and within 50 feet of a lamp post should be rodded, he believes.

He cites five cases in one summer alone in which lightning, after striking a tree, jumped the distance to the light fixture and then entered the underground wiring system, burning out a good deal of the house wiring. A strike last summer, he reveals, involved lightning that struck a pine growing close to a house. After damaging 20 feet of the pine's top, it jumped over the house and traveled down one of a cluster of oaks. Several of these trees, connected by plastic clothes lines, were damaged. From there the lightning went into the inside wiring of the garage.

"On a recent restoration job," Van Wormer reports, "I made a survey of the trees that had been struck along a driveway one mile long, or two miles of trees. Evidence of strikes was

WANT TO REMOVE STUMPS . . . OR PLANT TREES?



We have the stump cutter or tree mover to fit your needs.

WRITE FOR THIS FOLDER



VERMEER MFG. CO.
7202 W. Washington, Pella, Iowa 50219

For More Details Circle (111) on Reply Card

found in 17 trees. Over the estate, 29 trees were wired for protection; yet, where the power line, coming from the rear meadows went underground, a large walnut, 100 feet beyond the pole, was severely damaged. This was in a hollow and was the continuation of the built-up charge going straight beyond the last pole."

John Bean Puts Out New Sprayer-Duster Catalog

Eleven small power sprayers and thirteen models of hand sprayers and dusters are illustrated and described in a new 8-page catalog available from John Bean Division, FMC Corporation.

The small compressed air sprayers and dusters are offered in popular sizes and capacities for a wide range of home or nursery application tasks, says John Bean. The brochure also features the division's new Viking 20-gallon economy sprayer that delivers 1½ g.p.m. at up to 200 lbs. pressure.

Write for Brochure S-04, John Bean Div., 516 Dearborn St., Tipton, Ind. 46072.

Oak Wilt Control Looks Promising, Says Nair

University of Wisconsin plant pathologist V. M. G. Nair recently revealed that a well-known weed chemical looks promising as a control of oak wilt — a fungus disease that kills forest and ornamental oaks by causing water vessels to plug.

Nair's technique involves injecting an oak with TCPA — a "growth regulator" that changes the type of wood cells — before the tree has been infested with the wilt fungus. Use of herbicides rather than fungicides to control plant diseases is a fairly new concept.

Oaks treated with TCPA don't develop normal xylem or water-

conducting vessels; instead other cells are formed and take over the water transport in the tree. Treated oaks, having no water vessels to become plugged, are not affected by the fungus, says Nair.

The treatment, he explains, does not stop the wilt fungus from entering the tree but restricts its spread and prevents a lethal response by the tree. The oak lays down new sapwood, which buries the fungus and isolates it in the tree.

Cytokinins have also prevented disease development in infected oaks, according to Nair. In this case, he explains, systemic trunk infections arrest the plugging of water-conducting vessels; therefore, water transport continues through the infected tree, and it is able to survive the disease.

New Seed Packaging Plant

Pacific Supply Cooperative has opened a new grass seed packaging plant in Tangent, Ore., that will mix and package several million pounds of seed annually. Fenn Emerson, manager of the operation, estimates that 98 percent of the packaging will involve seed for lawn grass. The new facility will serve growers of the Willamette Valley in particular, Pacific Northwest people in general.

Britain Has New Seeder

A mobile tanker unit developed by Colman and Co. (Industrial) of Sudbury, Suffolk, England, quickly and efficiently seeds land along highways. Inside the tanks, which hold from 700 to 2000 gallons the water/seed mixture is constantly agitated to ensure even coverage, according to the company. Although the unit is normally supplied as a trailer, it can also be built as a self-propelled spraying unit.

Find out how little it really costs for quality saw chain



ASK YOUR DEALER FOR

SABRE

when you replace saw chain!

THE PROFESSIONAL-QUALITY CHAIN! SABRE is the chain that gives you true economy—it costs you less when you buy it, and gives you long life on the job. It is a tough, precision-made saw chain for all popular saws. Sabre is the *only* saw chain with a no-time-limit warranty.

SABRE

the saw chain people



SABRE SAW CHAIN, INC.,
840 SENECA ST.,
LEWISTON, N.Y. 14092

Write Dept. P for complete literature about Sabre Saw Chain and accessories for your saw.

For More Details Circle (107) on Reply Card

KEEP AMERICA BEAUTIFUL



"The Pioneer in Foliar Feeding"

Honored by American Horticultural Council "for demonstrating in a practical way that plants could be fertilized through their leaves; for being the first to develop and market an effective plant food for foliar feeding; and for opening the way to a new cultural practice in horticulture."

RAPID-GRO



Key speakers at Turf Conference educational sessions were Dr. Ray A. Keen, Kansas State University, Manhattan, left, and Dale Kern, president, Seed Technology, Inc., Marysville, Ohio.

◀ New officers for 1969 are: Robert Rieman, Ohio Line Co., Woodville, O., president, seated; and left to right, standing, Gene Probasco, Lakeshore Dist. Co., Columbus, O., treasurer; Charles Tadge, Mayfield Country Club, South Euclid, O., past president; and Richard Craig, Chemargo Country Club, Cincinnati, O., 1st vice-president.

Ohio Turf Foundation Sponsors

2nd Annual Turf Conference

Ohio's Turfgrass Foundation staged its second annual show and conference in early December. Though it is a state event, it has been developed to serve the industry on a national basis. The initial show last year brought in 870 participants from across the country. Attendance was up this year to 950 despite the flu epidemic at the time.

Robert W. Miller, Ohio State University agronomist and executive-secretary for the group, reports that the golf course superintendents, sod producers, landscape contractors, nurserymen, turf specialists and others attending represented 22 states and Canada.

The conference is jointly sponsored by the University, its experiment station, and the Foundation. The 22 speakers were from industries and university research departments in Ohio, Pennsylvania, Michigan, Virgin-

ia, Illinois, Indiana, Wisconsin, Kansas, and Minnesota. Extra booth space was made available this year and 124 exhibit booths filled. Last year some would-be exhibitors failed to get space since only 100 were available.

Six Ohio State University turf majors all from Ohio were awarded scholarships by the Foundation as follows: F. Alan Garten, Cincinnati; Michael J. Nicora, Youngstown; Thomas A. Urbansky, Wellington; Tommy

Visiting during Conference session are: Dr. William H. Daniel, Purdue University, left, and Dr. J. R. Watson, Toro, Minneapolis, Minn.



L. Wentz, Wauseon; Paul L. Jacquemin, Hamilton; and Brian J. Thrasher, Westlake.

Use of Fertilizers

Typical of information on the educational program was that presented by Dr. Donald V. Waddington, soil technologist at Pennsylvania State University. He discussed the various types of turf fertilizers and pointed out the need to check closely on the physical conditions of fertilizers before applying them to turf. Too many operators, he said, see poor results and then ask themselves what was in the bag.

Waddington believes that the physical condition of fertilizers is extremely important. This, he said, influences the ease of application and the uniformity of coverage. Particle size of fertilizers is important. Large particles which clog spreader openings or bend agitators need to be avoided. Fines are bad, he said,

because they affect distribution patterns and are a dust nuisance. Also, fines can burn turf more easily when compared to granules or pellets which tend to roll off grass leaves. Size will also affect the amount of fertilizer removed by mowing.

Fertilizer users need to avoid products of suppliers who commonly allow nails, bolts, pieces of wood, and other trash to be bagged with fertilizer, according to Waddington. The savings in fertilizer cost can be lost in equipment repairs when a foreign object gets caught in a spreader or is hit by a mower. He also suggested avoiding fertilizers which set up and harden and thereby create problems.

Poor distribution patterns may be due to faulty equipment, the operator, the fertilizer, or a combination of these factors, Waddington continued. Overlaps and skips are usually the fault of the operator. Poor physical con-

dition of fertilizers, he said, has often been the cause of non-uniform applications when centrifugal type spreaders have been used. Coarse particles are thrown farther than fines, and fertilizers containing a lot of fines may give a pattern of heavier application close to the path of travel than that obtained farther away. This pattern seems to be a particular problem in dry mixtures of fine natural organics and the larger and heavier chemical fertilizers. If poor fertilization patterns are a problem, Waddington said, check the physical condition of the fertilizer. Never, he cautioned, depend too heavily on sample bags and jars for a true picture of the physical condition of a fertilizer. These may vary considerably from the product delivered.

Some turf fertilizers are called "lightweights" and have the plant nutrients impregnated or carried on lightweight materials

THE ONLY FERTILIZER PACKET SYSTEM

Unmatched for long term feeding

The fertilizer packet is a system of fertilization. It offers plant nutrients to the target plant in such a way that nutrient loss is minimized, nutrient utilization is maximized, fertilizer damage to the plant is averted, and costs of labor and supplies are reduced.

Can you imagine — no maintenance, no labor expense for 1, 3, 5, 8 years, no burning, no waste, no mixing, no measuring! You don't lift one finger, ever, for fertilizing, only one green thumb for counting your dollar profits.

WRITE FOR YOUR NEAREST DISTRIBUTOR

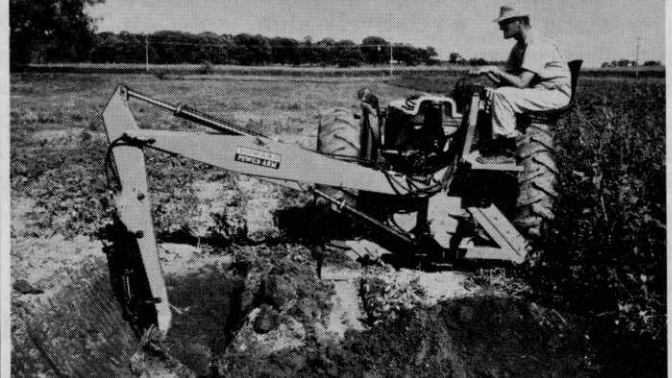
- 1 Yr. Packets** (10 grams): Florists, Greenhouses, Container Growers, Potted Plants
- 3 Yr. Packets** (1 oz.): Nurserymen, Landscape Contractors, Christmas Tree Fruit Growers, Container Growers
- 5 Yr. Packets** (2 oz.): Retailers
- 8 Yr. Packets** (4 oz.): Municipal, Parks, Golf Courses

Eesy Grow
ROOT CONTACT PACKETS

Manufactured by
S & D PRODUCTS INC.
Box 66, Prairie du Chien, Wisconsin 53821

For More Details Circle (109) on Reply Card

Want a Backhoe/Loader with Speed and Economy?



The Howard POWER-ARM helps you cut labor costs by getting more work per man hour. It has time-saving 3-point linkage. Mounts quickly! Does not tie up tractor when not in use. And its low cost and versatility make it affordable wherever there's work to be done. Two models... to fit every job and any 3-point tractor.

HOWARD POWER-ARM SEND COUPON TODAY!

Howard Rotavator Co., Inc.
BACKHOE AND LOADER Dept. 208 Harvard, Ill. 60033

Please send information on the new Howard Power-Arm

Name _____
Address _____
City _____ State _____ Zip _____

For More Details Circle (105) on Reply Card



Teeing off at Chemagro booth are Steve Begle, Ohio salesman for Chemagro, and Barbara Hendricks, Lakeshore Distributors, Cleveland, Ohio.

Dr. Butcher believes that the "natural" control offered by European predators and parasites may reduce the need for some of the costly chemical controls now being used. He already has cooperative research underway with scientists in several Western European countries.

Dr. Butcher will use part of the research grant to support the efforts of Dr. Hubert Pshorn-Walcher of the Commonwealth Institute of Biological Control, D. e. l. m. o. n. t, Switzerland. Dr. Pshorn-Walcher will coordinate a search for predators and parasites in Switzerland, Germany, Austria and Yugoslavia and return promising species to MSU. Next fall he will travel to the East Lansing campus to assist with research and to lecture on biological control.

AAN Sales Campaign Widens Nursery Industry Markets

During the past few years, the American Association of Nurserymen has been busily and thoroughly planning a new, industry-wide sales development program. Primary objective of the campaign will be to sell more people on the pleasures and benefits possible through "creative" planting of nursery goods, says AAN.

Planning the sales development program began with a good, hard look at today's nursery industry, AAN reveals. Research studies by the group's Horticultural Research Institute and the Furst Survey Research Center, Inc. in New York City disclosed motivations leading to — and objections retarding — the purchase and use of plant materials. This extensive research led to conclusions regarding "target audiences" for the new sales campaign.

Advertising will appear in media from national consumer magazines to radio and newspa-

such as vermiculite, ground corn cobs, and peat, Waddington pointed out. The lightweight carrier, along with a relatively high nitrogen content, makes it possible to fertilize a given area with a relatively small weight of fertilizer and still have enough bulk for ease of spreading. Some research at Penn State, Waddington said, indicates that these lightweights may have a built-in safety factor, and present less of a burning hazard than normal weight fertilizers containing the same amount of soluble nitrogen.

1969 Officers Announced At Louisiana Conference

New officers of the Louisiana Turfgrass Association were announced at the group's annual conference, held at the University of Southwestern Louisiana last December.

The 1969 slate includes: presi-

dent — Marvin Perry, superintendent, Metairie Country Club; vice president — Pat Ardoin, superintendent, Oakbourne Country Club, Lafayette; secretary-treasurer — Dr. Lynn Deselle, USL assistant professor; executive director — J. M. Peak, USL associate professor.

MSU's Butcher Seeks Natural Control of DED

A special research grant has been awarded to Michigan State University by the Elm Research Institute to help find parasites in Europe that might control the carriers of Dutch elm disease.

Dr. James W. Butcher, MSU entomologist directing the project, has already released one species of French parasites (*Dendroster protuberans*) in Michigan and the northeastern U.S. to find out the effect it will have on the Dutch elm bark beetle.

per to retail nursery and garden centers across the country. Two basic messages will be communicated: homeowners will be introduced to new concepts in outdoor living through creative landscaping; and the nation's corporations will be shown how "landscaping is good business."

Rather than confine its goals to just existing customers, the new program is designed to also reach those not yet in the marketplace for nursery products. Advertising will be directed at families with husband and wife between 18 and 62, whose incomes range upward from \$7500 and who live in their own homes. About 15 million American families meet these criteria and will, therefore, be the target audience of the program. If, as a result of the program, 10 per cent of these families spend as much on nursery stock next year as on color TV, industry sales would almost double, AAN projects.

Theme for the campaign will be "Plant a better place for living," with "how to enjoy it" being stressed more than "how to do it." Called the *Mood Zoned Lawn* concept, the new sales approach breaks down the home exterior into separate activity areas, such as "Tranquil Zones" — lawn areas surrounded by dense plants with space for a person to lounge in quiet beauty — and "Party Zones" — patio areas featuring festive plants.

The business and industry portion of the advertising program will be directed at about 68,000 firms employing 100 or more persons. These firms will be shown how landscaping pays off in terms of improved community relations and employee morale.

A special organization has been created to implement the national sales development program. Called "The Landscape Council," the group will be comprised of all AAN members who choose to join in the project. They will have available for their customers complete direc-

tions for the creation of Mood Zones, along with the necessary materials, equipment and assistance. They will also have at their disposal various campaign tie-in banners, posters, pamphlets, ad mats, etc. Enrollment of members in the Landscape Council will continue throughout the first several months of this year.

The sales development program itself is scheduled to begin in the early Spring of 1970, according to AAN. Wayne H. Dickson, director of the organization's public relations, has called the years of preparation for this project "a textbook study of how a trade association can help its industry grow."

Southern Cal Association Installs New Officers

New officers and directors of the Southern California Turfgrass Council for 1969 were installed on December 16, during the group's annual Christmas celebration in Burbank.

New president is Hugh G. McKay, sales manager for the Moist-O-Matic Division of Pacific Turf and Engine Co., Los Angeles. Other officers inducted were: 1st vice president — William S. Howlett, Cal-Turf, Inc.; 2nd vice president — Dave Mastroleo, Fox Hills Country Club; treasurer — Al Nobel, B. Hayman Co.

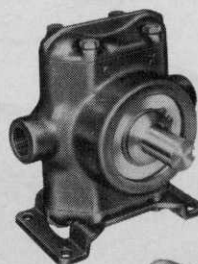
Newly installed directors were: Dr. H. Hamilton Williams, Los Angeles State and County Arboretum; Jerry Woffinden, Leisure World; and last year's Council president, Robert Scofield, Robinson Fertilizer Co.

One of the first actions taken by the new board of directors was the appointment of Mrs. Marie Trowbridge as Council Executive Secretary. Mrs. Trowbridge will serve all correspondence and be in charge of both the membership list and annual directory.

Hypro Pumps

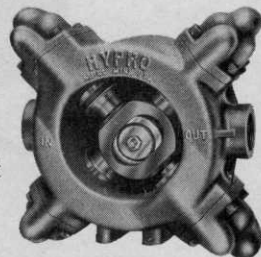
for applying
weed and turf
chemicals

PISTON PUMPS



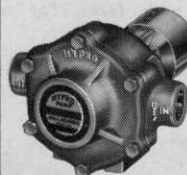
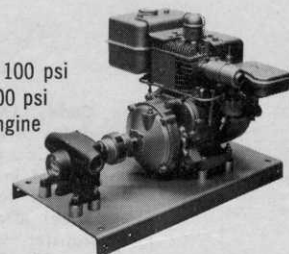
Series
C5210
BIG TWIN
10 gpm (at 600 rpm)
400 psi pressure
also available with gas engine

Series
5400
4-CYLINDER PUMP
25 gpm output
at 600 psi

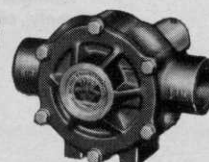


ROLLER PUMPS

Series
GN6310R
6.9 gpm at 100 psi
5 gpm at 200 psi
with 4-hp engine



Series **7560**
8-ROLLER PUMP
Output 12 gpm
(at 540 rpm)
Pressure to 300 psi.



Series **1500**
6-ROLLER PUMP
Output 30 gpm
(at 540 rpm)
Pressure to 150 psi.

Choice of rubber or nylon rollers
Write for complete pump catalog or request pump recommendation for your need



Hypro, Inc.

A subsidiary of Lear Siegler, Inc.

347 Fifth Ave. N.W., New Brighton
Saint Paul, Minnesota 55112

For More Details Circle (103) on Reply Card

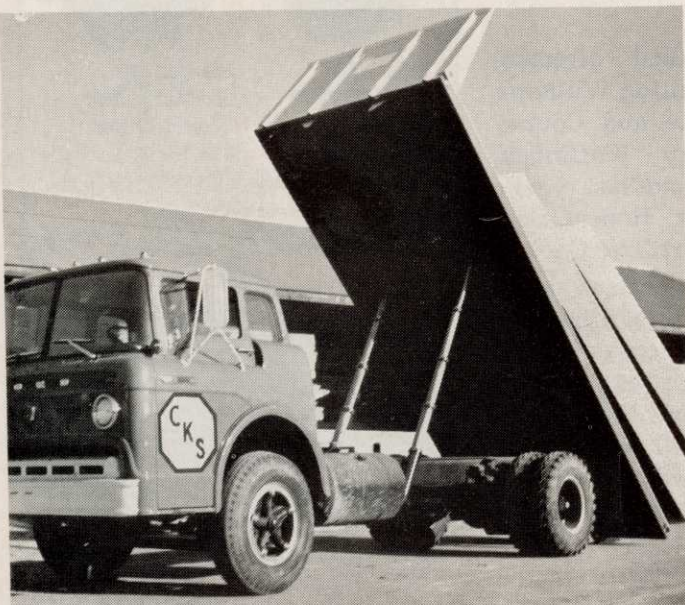
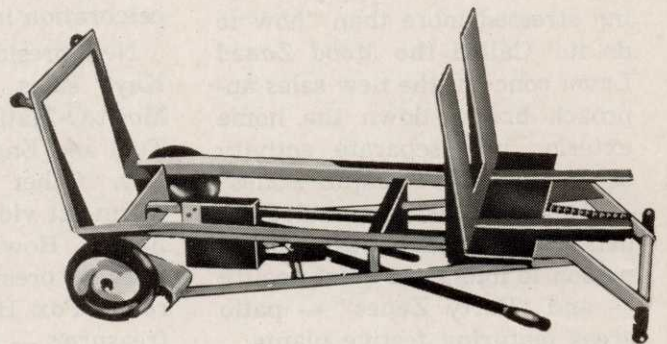
New Products . . .

Designed for the Vegetation Care Industry

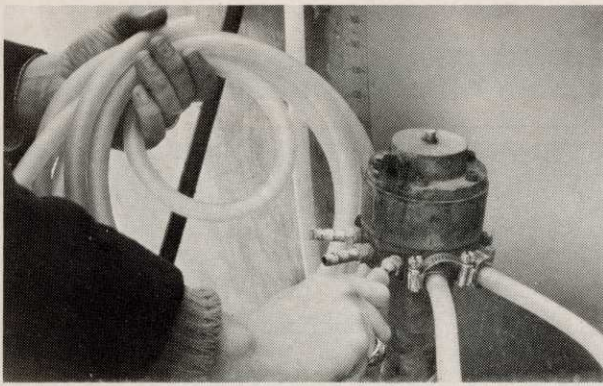


FMC Corporation's John Bean Division offers new self-contained power lawn and garden sprayer featuring extra-narrow width of 22 inches. Designed for florists, nurserymen and suburbanites, compact Trojan 3120 sprays 3 g.p.m. at up to 60 lbs. pressure, according to John Bean. The unit's 20-gal. porcelainized steel tank resists chemicals; self-lubricating fiber glass pump inside tank provides jet agitation for continuous mixing of spray chemicals, says the company. Its 3-hp engine is equipped with air cleaner, recoil starter and oil indicator. Spray can be adjusted from solid stream to fine mist. For more details circle (701) on reply card.

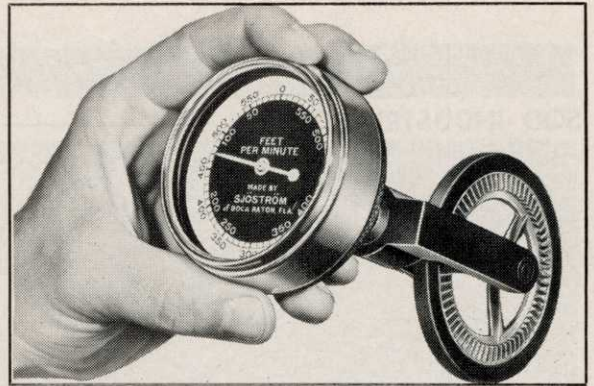
Shop Caddy 1M54—compact mobile hydraulic lifter for heavy-duty work—has been recently introduced by Grand Specialties Co., Chicago. The 1-man-operated unit lifts $\frac{1}{2}$ ton up to 54 ins. high; speed adjusts to work load, says Grand. Ideal for moving heavy equipment, the heavy-gauge steel lifter clips easily to auto bumper. Optional load transfer wheel and loading platform that interchanges with forks. For more details circle (702) on reply card.



Portable Elevator Mfg. Corp., Bloomington, Ill., has come up with hydraulic conversion hoists that save time and money by eliminating need for manual unloading. Glencoe hoists are twin telescopic arms installed between truck frame and body longills in any location, according to dumping angle desired. Special 3-way control valve enables lone operator to stop and hold hoist at any angle, to reverse it and to control lowering speed. Driver rarely needs to leave truck during unloading, says the company. Glencoe hoists can convert any truck from pickup size to tilt-bed or dump type. For more details circle (703) on reply card.



New translucent vinyl tubing developed by Swan Rubber Co., division of America Corp., Bucyrus, Ohio, is clear enough for user to check flow of fertilizer solutions to applicator nozzles. The flexible—even in sub-zero weather, says Swan—tubing comes in $\frac{3}{8}$ " and $\frac{1}{2}$ " sizes. For more details circle (704) on reply card.



Sheetmaster Corp.'s (Boca Raton, Fla.) Hand-Odometer reads 5 to 600 feet per minute instantly when measuring wheel touches any moving surface. Unaffected by temp changes or magnetic fields, meter reads in both directions, says company. For more details circle (705) on reply card.

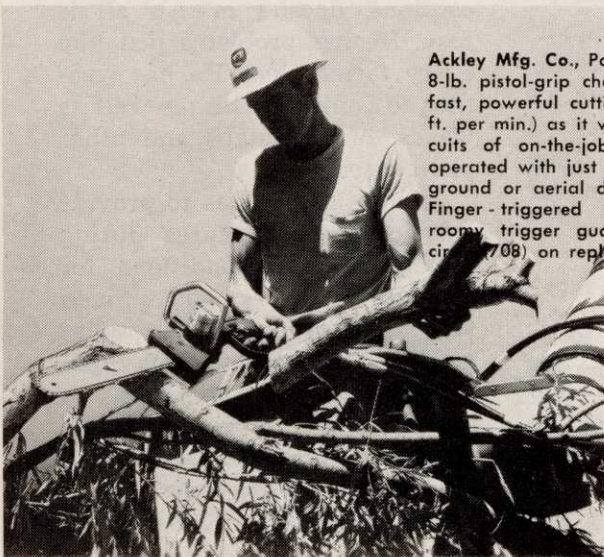
600
536
700



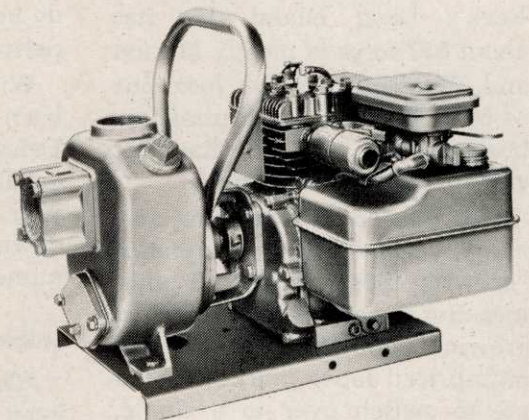
Turf Cutters, Inc., Youngstown, Ohio, has made available its Micro-steel Turf Cutter for fast professional replacement of damaged sod. Its tapered, steel blade easily slices and removes 3" replacement plug with no harm to roots, says Turf Cutters. To release plug, depress cutter and twist handle. For more details circle (707) on reply card.



Bunton Co., Inc., Louisville, Ky., is marketing its "Super Twenty-one"—a heavy-duty, self-propelled rotary power mower with 4 HP engine and 2-qt. fuel tank. Designed for extra traction and "mowability" in rough areas and on grades, Bunton's new unit offers adjustable cutting heights from 2 1/2" to 5 1/2". Features include finger-tip guiding, blade control on handles, trimming with either side, adjustable front guard, fold-down handles and belt and chain guards. Smaller model also available. For more details circle (706) on reply card.



Ackley Mfg. Co., Portland, Ore., offers an 8-lb. pistol-grip chain saw that provides fast, powerful cutting chain speed (3500 ft. per min.) as it works off hydraulic circuits of on-the-job equipment. Can be operated with just one hand; works from ground or aerial device or under water. Finger-triggered power control with roomy trigger guard. For more details circle (708) on reply card.



Universal Motors, division of Medalist Industries, Oshkosh, Wis., has introduced a liquid fertilizer self-priming centrifugal pump with a capacity of 7200 G.P.H. Rugged construction and light weight make it ideal for field use, says Universal. Mounts on pull-type applicators, nurse tanks or tank trailers. Suction and discharge outlets in 1 1/2" and 2" sizes. For more details circle (709) on reply card.



Leonard DeLalio, Long Island, N.Y., checks weed-free crop of sod.

Quality Sod Produces

Ready Market For Long Island Grower

Leonard DeLalio is a businessman in an enviable position — he has no trouble selling every bit of the product he makes, and he doesn't even have to advertise it.

DeLalio grows sod on New York's Long Island. He has about 550 acres of mostly Merion and Windsor in three locations — 50 acres near his Farmingdale headquarters, 250 in Eastport and the rest in Shoreham.

"I've farmed around here for many years," DeLalio explains, "growing mostly corn and potatoes. But the area's high taxation, growing population density and high-priced labor market forced me to switch over to a single, higher-profit crop. Now I figure a one-crop business is just a lot less headaches."

"Actually," DeLalio continues, "we're in four businesses at once. We grow the sod, sell it, truck it,

and then have to collect for it. Believe it or not, that last job is often the toughest, since we deal with many small nurserymen and gardeners." Other, larger customers include builders, landscapers, etc. DeLalio's crews do no installation — they simply deliver the sod to the installer.

With the Long Island suburban population still exploding, DeLalio has been expanding his production about 10 percent a year, but has decided to slow down expansion at this point for numerous reasons.

Stable Price

"One thing we want to do is keep the price as stable as we can," he explains, "and up to now we've been able to do this by introducing labor-saving techniques like our mechanized harvesters, palletized handling, automatic truckloading and unload-

ing, etc. "But," he adds, "and you can quote me on this — we expect a price increase will be necessary, at least by the spring of 1969. We just can't keep pace with the cost of materials, labor and machinery."

Just because he can sell every bit of sod he produces, DeLalio cautions, doesn't mean all is rosy. He has problems just like every farmer has. He has weather to contend with, as well as weeds, bugs, fungus and other plant diseases.

In addition, he has to provide various grass mixtures during certain weather conditions, for various soil types, and other varying situations. "The quality grower must keep various types of sod available at all times," he says. "Therefore, we have to keep large areas shaped up and ready to go all the time."

And shaped up they are, because DeLalio's philosophy is

never to sell anything but top-quality certified weed-free and healthy sod. One way he assures this is a constant program of fertilization, weed and disease control.

Ureaform Used

"We've been going to more expensive fertilizers that are slower releasing, and are leaning toward the chemical organics rather than the natural organics," he says. "Ureaform, for example, is giving us the more controlled response we need in turf, for a uniform product."

As to weed control, DeLalio feels a lot of his weed problems like henbit, shepherd's purse and dandelion are seed-borne, and is trying to buy weed-free seed to prevent these. Other weeds he runs up against are barnyardgrass, corngrass, and crabgrass. "You find these cropping up especially in old potato fields," he says.

"We watch the turf for weed seed production at about four to five months' growth," he says. "If there is seed production, we apply Dacthal preemergence herbicide at 12 to 12½ lbs. an acre early in the spring. The parent annual weeds will have died out over the winter, and Dacthal prevents the weed seeds from sprouting, so what we have produced is an essentially weed-free sod."

"We've had good control and never any injury to the grass from the Dacthal," DeLalio says.

The sod, which is late summer or fall seeded, is usually sold the second year following, when it is 18 to 20 months old.

"We don't often have enough of a broadleaf weed problem to require a post-emergence spray," DeLalio says, "but we do use various postemergences including 2,4-D, 2,4,5-TP and others to control dog fennel, dandelion and henbit, as well as MCP for knotweed control, as they are needed.

A high-pressure potato sprayer with a 25 to 40-foot boom is used

to apply these sprays, as well as the Dacthal.

"We fight sod webworm, aphids, fleabeetles with wettable powder pesticides wherever possible," DeLalio says. "Oil-based materials can injure grass." Among the materials he uses are DDP and Sevin, Diazanone for chinchbugs and chlordane for grubs.

"The only reason we haven't used more fungicides is because of their high cost," DeLalio says. "We've used Daconil 2787 on Windsor grass for leafspot, and various other fungicides for other diseases, but we are only in the beginning stages of an effective, economical fungus-control program.

Irrigation A Must

An integral part of his quality turf program is his irrigation system. "We irrigate every bit of our sod," DeLalio says, "with our seven deep-well turbine pump systems." Each system provides from 450 to 1000 gallons of water an hour.

If all this coddling of sod sounds costly, DeLalio admits it may be, but it's also necessary to being able to guarantee a top-quality sod, which is what is being demanded by Long Island buyers. "The chemicals alone can run 10-12 percent of the total cost of production," DeLalio says.

But it must be worth it to his customers, if he has no trouble selling every square foot he can produce!

30 Common Weeds Pictured On West Chemical Chart

West Chemical Products, Inc. recently published a new weed identification chart that features illustrations of 30 of the most common weeds plaguing American grass growers. Printed on heavy paper, the chart can be mounted on the wall for ready reference.

West recommends the use of Assault — a concentrated herbi-

cide manufactured by the firm—for eradicating the weeds. A non-selective weed killer that also serves as a soil sterilant, Assault can be used wherever plant growth causes obstructions or fire or safety hazards — including drainage ditches, power rights-of-way, airports and parking lots — according to West. For your free chart write Dept. KE, West Chemical Products, Inc., 42-16 West St., Long Island City, N.Y. 11101.

IH Man Predicts Good Year For Tractor Sales In 1969

Ben H. Warren, general manager, International Harvester Company's Farm Equipment Division, sees 1969 as a good year for producers of farm, light-industrial and lawn and garden tractors and equipment.

He predicts a continuing increase in the sales of light-industrial tractors — perhaps as much as 10 per cent over 1968. A major factor in this optimism is the expected rise in housing starts, Warren explains. Demand will also be high for lawn and garden tractors in the 7 h.p. and over class, with sales well exceeding the 1968 total of 250,000 units. Sales of riding mowers of the 6 h.p. IH Cadet 60 type will also increase, he says.

Vargas Heads Turfgrass Disease Research At MSU

Dr. Joseph M. Vargas, Jr. has recently been named head of turfgrass disease research at Michigan State University. He has been appointed to MSU's Department of Botany and Plant Pathology.

A native of New England, Dr. Vargas was awarded his B.S. from the University of Rhode Island, his M.S. from Oklahoma State University and his Ph.D. from the University of Minnesota. He has worked in the area of turfgrass pathology throughout his undergraduate and graduate education.

STIHL 041 AV *electronic*

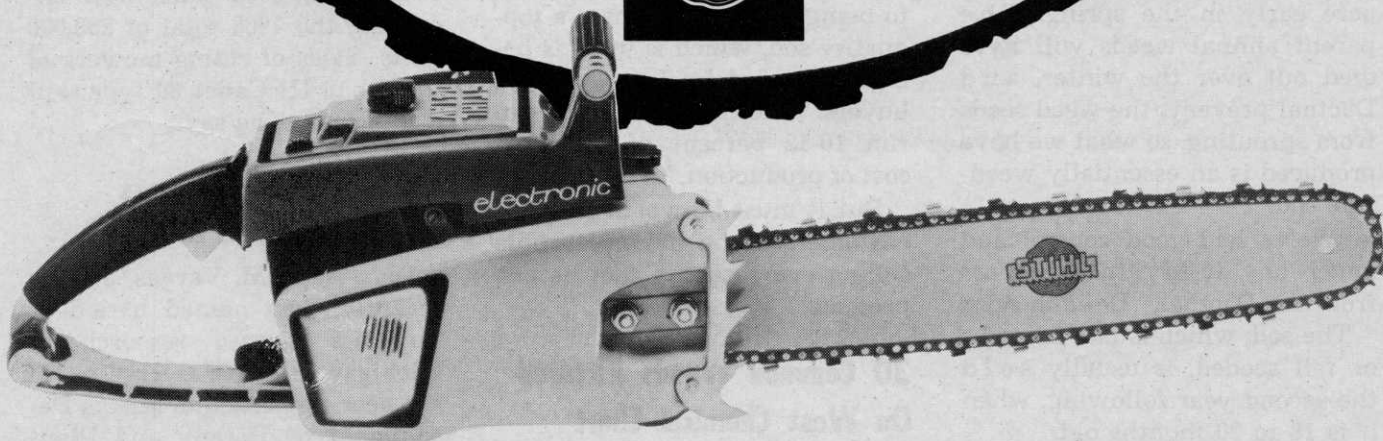
In keeping with our policy of offering the most advanced and most dependable in chain saws — we have incorporated solid state ignition into the STIHL 041 AV Electronic Saw. Other than eliminating the need for points and providing a molded circuit that is impervious to moisture, dirt, and temperature extremes — this model offers big 5 1/2 horsepower performance coupled with a light 15 1/2 pound weight and the fabulous new vibration absorbing AV handle.

STIHL American, Inc.

194 Greenwood Ave.,
Midland Park, N.J.
Phone 201-445-0890

7364 Lee Industrial Blvd.,
Mableton (Atlanta)
Georgia

2468 Teagarden Street,
San Leandro
California



new

For More Details Circle (116) on Reply Card

Classifieds

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

Rates: "Position Wanted" 10c per word, minimum \$3.00. All other classifications 20c per word, minimum \$4.00. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment. Bold-face rule box: \$25.00 per column inch, two inch minimum.

SALESMAN WANTED

SALES POSITION OPENING IN 1969

An opportunity that comes along only once or twice in a decade. The "pathfinder" of commercial turf grass growers is now accepting resumes for a commissioned salesman. "There is no salary."

We will open our books and introduce our C.P.A. Firm to establish to your satisfaction that your earnings can and will be guaranteed in the five figures. All transportation and expenses furnished.

Degree in agronomy and/or knowledge of the turf grass industry helpful but not necessary. We will require references.

Must begin full time by March 1, 1969. Season traditionally ends in December. The two months of January and February will be your own time.

Reply to: Summit Hall Turf Farm, Inc., Gaithersburg, Maryland 20760.

USED EQUIPMENT

FOR SALE or Lease — Industrial Monkey 32 foot reach, dual controls complete with truck, compressor and

tools. Cash price \$6000.00 also 9" Fitchburg chipper, trailer mounted — newly rebuilt engine, cash price \$750.00. Willing to arrange lease on either or both at attractive rates. Phone or write Darrell Emel, 5331 Erland Point Road, Bremerton, Wash. 98310. Code 206 Essex 3-2100.

WANTED — Used aerial bucket unit combination bucket and crane, with or without truck. Write, Westville, Tree & Saw Service, Westville, Illinois 61883.

HIGHEST BID by March 1, 1969.

1961 Model, 45 foot Servi-Lift aerial tower on 1961 International truck, at 1305 Black Hawk Street. Address bids to City Clerk, City of Waterloo, City Hall, 715 Mulberry Street, Waterloo, Iowa 50702.

SPRAYERS, chippers, log splitters and other equipment at large savings. Let us know your needs. Equipment Sales Company, 4744 Sunrise Highway, Massapequa Park, N. Y. 11762.

BUSINESS OPPORTUNITIES

BUSINESS FOR SALE — Long established year-round Pest Control Operator business for sale by owner who now has other interests. Write Weeds, Trees and Turf, Box 38, 9800 Detroit Ave., Cleveland, Ohio 44102.

— Advertisers —

INDEX TO ADVERTISERS

Amchem Products, Inc.	4
Chipman Div., Rhodia, Inc.	2nd Cover
Elanco Products Co.	20, 21, 22
Hercules Incorporated	13
Howard Rotavator Co., Inc.	31
Hypro, Inc.	33
Mitts & Merrill, Inc.	5
Mobile Aerial Towers, Inc.	3rd Cover
Nursery Specialty Products Co.	15
Ra-Pid-Grow Corp.	29
Ryan Equipment Co.	4th Cover
Sabre Saw Chain, Inc.	29
S & D Products	31
Stihl American, Inc.	38
Vermeer Manufacturing Co.	28
West Chemical Products Co.	11

Suppliers' Staff Changes

The Dow Chemical Company, Midland, Mich., has named Donald K. Ballman, former vice president for Marketing, Purchasing and Distribution, senior vice president of the company. The appointment of four new Dow vice presidents was also recently announced: Earle B. Barnes, general manager of the U. S. Area; Julius E. Johnson, director of research and development; G. J. Williams, commercial director of the U. S. Area; and John M. Henske, director of the Corporate Product Dept.

Other Dow promotions include R. Malcolm Barbour, newly appointed director of Bio-products in the Corporate Product Dept., and Robert E. Naegele, new Dow manager of the Agricultural Products Dept. for the U. S. Area.

Richard F. Warren has been designated Manager, Purchasing Div. for Jefferson Chemical Co., Inc., Houston, Tex. Warren joined the company in 1965 as Manager, Market Research Department.

Newly appointed Geigy Agricultural Chemicals Sales Reps are: Virgil F. Wagner, Donald L. Paulson, Jr., Larry G. Nelson, Stephen C. Bunce, Gary G. Metzger, Howard L. Early, Conrad R. Shaffer, Maurice L. Croxton, and Larry L. Baumgartle.



Insect Report

WTT's compilation of insect problems occurring in turfgrasses, trees, and ornamentals throughout the country.

Turf Insects

APHIDS

California: *Asiphonella dactylonii* and *Rhopalosiphum* sp. medium on hybrid Bermudagrass in nursery at San Gabriel, and heavy at Carson, Los Angeles County.

WHITE FRINGE BEETLE

(*Graphognathus leucoloma striatus*)

Virginia: Adult beetles collected on weeds in York and James City counties and in City of Williamsburg. Infestations were light and local in nature.

A SPRINGTAIL

(*Hypogastrura armata*)

California: Heavy in lawns at Fremont, Alameda County.

Insects of Ornamentals

BEET ARMYWORM

(*Spodoptera exigua*)

California: Larvae medium, destroying *Primula malacoides* nursery stock at Auburn, Placer County.

AN ARMORED SCALE

(*Diaspis boisduvalii*)

Florida: Adults infested 125 of 500 orchid plants in nursery at Winter Haven, Polk County.

(*Phenacaspis cockerelli*)

Florida: All stages collected on *Dipladenia* sp. at Naples, Collier County. This is a new Florida Department of Plant Industry host record.

WAX SCALE

(*Ceroplastes* sp.)

Virginia: Causing injury on a Burford Holly and magnolia in Richmond.

Tree Insects

ENGRAVER BEETLES

(*Ips* spp.)

Maryland: Killed several Virginia pines at Pasadena, Anne Arundel County.

LOCUST BORER

(*Megacyllene robiniae*)

Virginia: Severe damage to black locust trees in the John's Creek area of Jefferson National Forest. Nearly all of the old trees are damaged or dead, Craig county.

SCALES

California: *Phenacaspis pinifoliae* (pine needle scale, and *Matsuccoccus* sp. (a margarodid scale) heavy on Jeffrey pines at south Tahoe, El Do-

rado County. Developed rapidly this season in large local areas on lake shore. Much concern over infestations and needle drop in this extremely high value recreation area. *Nuculaspis pini* (black pine-leaf scale), *Physokermes* sp. (a soft scale), and *Pineus* sp. (a bark aphid) heavy on lodgepole pine in many areas.

A GALL WASP

(*Andricus fullawayi*)

California: Pupae medium on leaves of blue oaks at Alpine, San Diego County.

Compiled from information furnished by the U. S. Department of Agriculture, university staffs, and WTT readers. Turf and tree specialists are urged to send reports of insect problems noted in their areas to: Insect Reports, WEEDS TREES AND TURF, 9800 Detroit Ave., Cleveland, Ohio 44102.

Texas Tech Senior Wins Weather-matic Scholarship

Jerry Phil Berry, 23-year-old senior at Texas Technological College, Lubbock, has been named recipient of the 1968 Weather-matic Scholarship.

The \$500 stipend is presented annually to a Tech junior or senior majoring in park administration or horticulture. Weather-matic is a Dallas-based manufacturer of custom lawn sprinkler equipment.

Berry plans a career in park administration and has been employed with park departments in Lubbock and Arlington for the past several years.

Certified 'Supes' Honored At Rocky Mountain Meeting

The Rocky Mountain Golf Course Superintendents Association designated their first Certified Golf Course Superintendents: Stan Metsker (Boulder Country Club) and Ken Voorhies (Columbine Country Club).

Past presidents of the association, both men honored have been in golf course work for more than ten years and were recognized for their specialized know-how, their competence to practice and their professional attitudes.

Trimmings

Sod Garage Roof. An apartment complex recently completed in New York City was further enhanced with the installation of a McGovern Sod Farms lawn atop its 400-car, underground garage. The smartly landscaped "Water's Edge by Birchwood Park" complex — which overlooks Little Neck Bay — was rented out within 8 months after its completion.

* * *

Satisfaction Guaranteed. Elanco Products Company, a division of Eli Lilly and Co., Indianapolis, has recently come up with a new customer service idea called "Speed-Chek." As part of the company's Treflan® guarantee program for 1969, any grower who is not satisfied with its weed killer can call in his complaint or query — collect — to his area's Elanco headquarters. Within a few days, the caller will be contacted by an Elanco representative, and the problem will be talked over. After having gone through a season with their former Treflan guarantee program — during which time there were relatively few complaints — Elanco is confident a program of such potential magnitude can be put into operation successfully. Details available from Treflan dealers.

* * *

Long Island Weather. McGovern Sod Farms, Inc. of Melville, Long Island, discussed in its December '68 "Sod Report" the unpredictable weather its area experienced last year. A 2-week drought in May was followed by the wettest June in 30 years. By July — a dry month — Long Island was about 6 inches ahead of normal precipitation for the area. Between rains, temperatures climbed to 90-95° for prolonged periods, drying sod fields to a depth of 1½ inches and forming a hard surface crust, McGovern reported. This called for irrigation — which seemed strange, in view of all the previous rain. Autumn brought with its turning colors some fungus problems, an unusual situation for Long Island. Heavy rains and high humidity caused McGovern to put preventive fungicidal spray programs into operation. November brought more rain and temp variations from 30° to 60°. As of mid-December, frost had not yet arrived in the area. A most unusual year, McGovern concluded.

**FOR MORE FACTS
USE THE
POSTAGE FREE CARD**

You are invited to use the Reader Service card provided to obtain further information on equipment, materials or supplies appearing in this issue. This card is preaddressed and postage paid.

Your inquiry will be forwarded to the manufacturers in whose products you are interested.

**FOR MORE FACTS
USE THE
POSTAGE FREE CARD**

You are invited to use the Reader Service card provided to obtain further information on equipment, materials or supplies appearing in this issue. This card is preaddressed and postage paid.

Your inquiry will be forwarded to the manufacturers in whose products you are interested.

Meeting Dates



Pennsylvania Nurserymen's Association, Annual Meeting and Nursery Conference, Holiday Inn, State College, Penn., Feb. 4-7.

National Arborist Association, Annual Convention, Sheraton Hotel, Fort Lauderdale Beach, Fla., Feb. 8-13.

Weed Science Society of America Annual Meeting, Caesars Palace, Las Vegas, Nev., Feb. 10-14.

California Farm Equipment Show, Tulare County Fairgrounds, Tulare, Calif., Feb. 11-13.

Nebraska Aerial Applicators, Annual Meeting, Quality Courts, Lincoln, Neb., Evening of Feb. 12.

Nebraska Aerial Applicators, Short Course, Quality Courts, Lincoln, Neb., 13-14.

Lawn and Utility Turf Growers Course, Rutgers University, College of Agriculture and Environmental Science Campus, New Brunswick, N.J., Feb. 17-19.

Maryland Arborists Day, University Center of Adult Education, College Park, Md., Feb. 18.

Maryland Nurserymen Day, University Center of Adult Education, College Park, Md., Feb. 19.

Golf and Fine Turf Growers Course, Rutgers University, College of Agricultural and Environmental Science Campus, New Brunswick, N.J., Feb. 19-21.

Maryland Florists Day, University Center of Adult Education, College Park, Md., Feb. 20.

Southern Turfgrass Association, Annual Conference, Sheraton - Peabody Hotel, Memphis, Tenn., Mar. 3-4.

Midwest Regional Turf Conference, Purdue University, Lafayette, Ind., Mar. 3-5.

Maryland Sod Conference, University of Maryland, College Park, Md., Mar. 5.

Annual Fine Turf Conference, University of Massachusetts, High Point Motor Inn, Chicopee, Mass., Mar. 5-7.

Iowa Turfgrass Conference, Annual Conference, Roosevelt Hotel, Cedar Rapids, Ia., Mar. 10-12.

Michigan Turfgrass Conference, 39th Annual, Kellogg Center, Michigan State University, East Lansing, Mich., March 12-13.

Midwinter Turf Conference, University of Maine, Steer Inn Motor Lodge, South Portland, Me., Mar. 19-20.

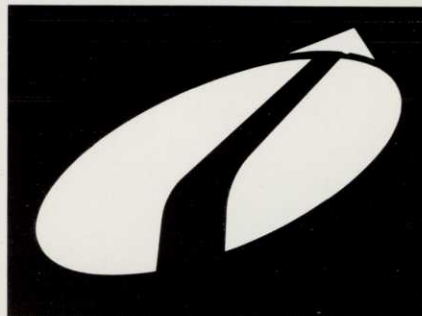
Regional Lawn & Garden Retailers Day, New York Cooperative Extension Service, Holiday Inn, Fishkill, N.Y., Mar. 5.

Northern California Turfgrass Exposition, 5th Annual, Pavilion Building, Santa Clara County Fairgrounds, San Jose, Calif., Mar. 19-20.

Turfgrass Growers Seminar, Rhode Island Annual, Memorial Union, University of Rhode Island, Kingston, R.I., Mar. 21.

Note: Dates for this column need to reach the editor's desk by the 10th of the month preceding the date of publication in order to make the printing deadline.

HI-RANGER



HI-RANGER® IS

... your most productive, safest aerial platform for fastest, easiest tree service. Self-leveling bucket with one-hand, "3D" all-direction control enables one or two men to maneuver while operating tools.

YOU ARE

... assured of maximum work accomplished by happy crews who appreciate the safety inherent in HI-RANGER® insulated bucket and upper boom. Available with "all-day" chipbox. HI-RANGER's Series 5TD is most popular with tree men. Get all the facts now.

ASK
FOR
4D-5TD
DATA

MOBILE AERIAL TOWERS, INC.
DEPT. N 2314 BOWSER AVENUE
FORT WAYNE, INDIANA 46803

For More Details Circle (106) on Reply Card



Untouched by human hands...



New Ryan "Sulky Roller" attaches to Ryan Sod Cutter . . . rolls over 10,000 yards per day.

This is NEW from Ryan. The new Ryan Sulky Roller makes your Ryan Sod Cutter the most versatile, labor-saving machine you can own. The Sulky Roller attachment allows one operator to ride, cut, mark to any length, roll and turn rolls from the cutting path . . . ALL IN ONE EASY OPERATION.

The Ryan Sulky Roller attaches quickly and

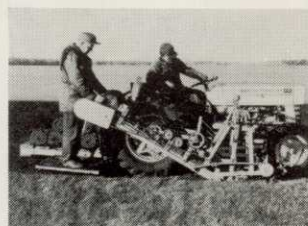
easily to your Ryan heavy duty Sod Cutter with six bolts into six existing holes. It operates efficiently in all soil conditions. The single operator can harvest over ten thousand yards of sod per day.

The price of the new Ryan Sulky Roller attachment is less than \$800. It is fully guaranteed and covered under the warranty of your Ryan Sod Cutter.

Boost your sod production



AUTOMATIC SOD ROLLER produced by Ryan rolls sod forward and lays it to either side for easy pick-up.



RYAN SOD HARVESTER enables two men to cut, roll and palletize thousands of yards of sod per day.



TURF EQUIPMENT

2055 White Bear Avenue
St. Paul, Minnesota 55109