

CLAY

Advantages:

1. Doesn't blow.
2. You may dormant seed.
3. Good water-holding capacity.
4. Holds plant food for longer periods.
5. You can load trucks in the field.

Disadvantages:

1. Slow for root development.
2. Sod, when wet, is heavy.
3. Subject to cracking during drought.
4. Hard to work.
5. Water penetration is slow when dry.

Soil-Type Characteristics

MUCK OR PEAT

Advantages:

1. Sod grows like crazy.
2. Good water-holding capacity.
3. Holds plant food well.
4. Sales appeal.
5. Lightweight sod.

Disadvantages:

1. Blows.
2. Can't load in the field.
3. Subject to flood conditions.

SANDY LOAM

Advantages:

1. Easy to work.
2. Doesn't crack.
3. Enables good root development.
4. Absorbs water easily
5. Can load trucks in the field.

Disadvantages:

1. Blows.
2. Doesn't hold fertilizer.
3. Doesn't hold water well.
4. More susceptible to disease.

1000 gallons per minute for every 160 acres.

Consider drainage. This is almost as important as water itself. You must be able to get rid of excess water before extensive damage is done.

One of the major growers reported \$450,000 flood damage not too many years ago.

There are several ways to drain land—natural drainage, field tile, ditches, or pumps.

Last on my list of site requirements is soil type. Sod can be grown on almost any type of soil and in most cases successfully.

I would recommend that you choose a soil relatively free of stones.

There are three soil types I am familiar with—Clay, sandy loam, and muck or peat type. My personal reactions on each are described in the chart.

Resources

Concerning resources, a major grower told me this story several years ago: They had just sold their first yard of sod off a particular 200-acre plot. He figured this yard of sod cost about \$250,000 above capital investment (land and equipment).

After 10 years of inflation, I would estimate the same 200 acres would cost upward of \$300,000.

Add that amount to your first two years of living expenses while you're waiting to market yard No. 1 and you'll come close to your financial needs.

With some of this money, you must buy equipment... which I look upon as a necessary evil. Because our business is seasonal, the invested dollar in equipment is at the

bottom according to its return when compared with other expenses.

Steel mills work 24 hours a day, seven days a week just to make equipment pay. I just can't get excited over owning a lot of equipment, especially if I can lease it cheaper and write it off as expense.

We do own all the equipment we feel we need to function properly, but we still take off the plow to put on the disk.

Proper servicing of your machinery can double its life, and I'm a great believer in this. Don't misunderstand. We mechanize whenever and wherever we can profitably.

Incidentally, we hire all of our trucking.

When you're investing, spend some of that money for good men—ones that you can train to do your kind of job. Most of my men have shifted into their own niches automatically; those that haven't, don't stay. With diversified duties, each man can share responsibility, yet be a part of a team effort.

For about 600 acres, I have seven full-time men (pay ranges from \$700 to \$1300 per month, with hos-

pitalization and income protection furnished) for an 11 to 11½ month year. We use about 15 seasonal employees. For migrant workers, we furnish modern housing, stoves, refrigerators, hot water, showers, laundry rooms with washers. We pay above average salaries for the industry.

Another note: The best return for your dollar spent is on a good accountant.

In summary, what makes a good sod farm?

GOOD LOCATION: Within 50 miles of several large cities, on a state highway, flat, square, well-drained, with water supply (and preferably on muck).

SPECIAL EQUIPMENT: Wheel-move irrigation is our answer to proper watering. It's time-saving, labor-saving and does the job right. Mechanized harvesting is a must for survival. We have cut, rolled, and loaded mechanically for five years; and whenever we find a better way, we'll switch.

GOOD PRODUCT: Don't knock it! Nothing sells like a good product. It's worth more time, more money, more effort.

AMERICAN SOD PRODUCERS ASSOCIATION

invites your participation

If you are a Sod Grower you should be a member of ASPA.

Keep in touch with progress.

Allied Industries are welcome.

For More Details Circle (106) on Reply Card

Representing
Weed and Pest
Control Company

Brazilians Visit



Alder Americano da Costa and Pedro Pieroni Neto

Two representatives of a large Brazilian weed and pest control organization were visitors in the office of WEEDS TREES and TURF magazine in mid-July.

They had come to the U.S. for a two-month study of this country's weed and pest control industries and to make contacts with a number of chemical suppliers.

Weed and pest control in Brazil is relatively new, flourishing, and almost totally reliant upon imported chemicals, primarily from the U.S.

That was the report from Drs. Pedro Pieroni Neto and Alder Americano da Costa. Their organization is MOSCA—Controle de Pragas e Saneamento Ltda., headquartered at Sao Paulo. Da Costa is the administrative manager and agronomist.

The two men hoped to establish new contacts, broaden the number of products their organization distributes and to learn ways to improve communications with their

customers. To help achieve the latter goal, the Brazilian firm will distribute WEEDS TREES and TURF magazine to its customers beginning with the August issue.

MOSCA was founded 10 years ago and has branches in a number of different regions in Brazil. There are several familiar words among the names of Brazilian companies that are MOSCA customers — General Motors, Ford, Squibb, Olivetti and Firestone.

Types of weed control work have included soil sterilization around industrial sites and right-of-way and utility line clearing. The MOSCA officials expect sizable contracts in the near future with several cities.

In addition to membership in three Brazilian weed and pest control associations, MOSCA is a member of the U.S. National Pest Control Association and has applied for membership in the Weed Society of America and The European Weed Research Council.

MSU Grass Plots Ready For First Field Day Sept. 10

The first Michigan State University Sod Producers' Field Day is Sept. 10 at the MSU Muck Experimental Farm, accessible by M-78 from East Lansing to Upton Road.

Registration will begin at 9:30 a.m., followed by field trials on 30 Kentucky bluegrass and several red fescue varieties, 11 bluegrass-red fescue mixtures, 11 blends from six varieties, comparison of seeding rates, sod heating, sod rooting, fertilizer studies, and the extent of soil loss from continuous sod harvest.

For further information, contact David Martin, Department of Crop and Soil Science, Michigan State University, East Lansing 48823.

St. Louis Botanical Garden Nears Fund-Drive Goal

The Missouri Botanical Garden, St. Louis, has reached the two-thirds mark in its campaign for \$3 million, according to Harry E. Wuerstenbaeher, Jr., campaign chairman and president of the Garden's Board of Trustees.

The funds are earmarked for research at Shaw's Garden into environmental problems caused by air pollution and natural resources waste, construction of new buildings to house the library, herbariums, educational displays, and restoration of display greenhouses.

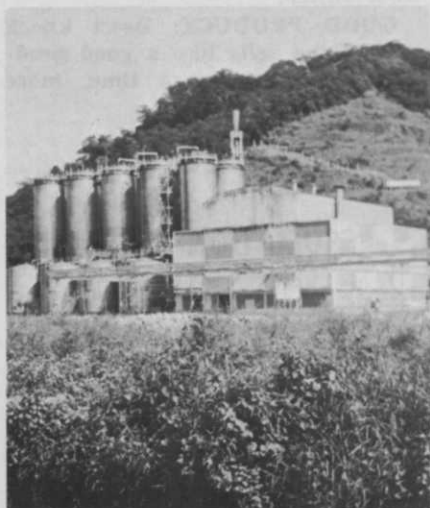
The Garden ranks along with the New York Botanical Garden as one of the two greatest research-oriented botanical institutions in the United States, Wuerstenbaeher maintains.

Ohio Bulletin Published On Mite, Insect Control

A 24-page circular with detailed recommendations for controlling insects and mites on ornamentals has been published by Ohio State University.

The publication tells how to detect infestation, where to get help, and what to do to eliminate the problem. Charts in the back of the booklet list the ornamental, pest, recommended pesticide, formulation that can be bought, mixture ratio, and when to treat.

For information about obtaining copies, ask for Bulletin 504, Cooperative Extension Service, Ohio State University, Columbus 43210.



Bromacil and Diuron herbicides produced this result for one of MOSCA's customers, the Refinaria Presidente Bernardes.

Meeting Dates



Dates for this column need to reach the editor's desk by the 10th of the month preceding the date of publication.

American Sod Producers Association, Third Annual Field Days, College of Agriculture and Environmental Science, Rutgers University, New Brunswick, N.J., and Princeton Turf Farms, Cranbury, N.J., Aug. 4-5.

Turfgrass Field Day, U.S. Department of Agriculture, at the Agricultural Research Center, Beltsville, Md., Aug. 6.

45th International Shade Tree Conference, Hilton Hotel, Portland, Ore., Aug. 10-15.

Ohio Nurserymen's Association summer meeting, Hueston Woods State Park, near Oxford, Ohio, Aug. 12-14.

National Fertilizer Solutions Association, Round-Up Program, Marriott Motor Inn, Atlanta, Ga., Aug. 13-14.

Golf Course Superintendents Field Day, University of Rhode Island, Kingston, R.I., Aug. 20.

Lawn and Utility Turf Field Day, University of Rhode Island, Kingston, R.I., Aug. 21.

Turfgrass Management Conference, Hawaii Turfgrass Association, East West Center, University of Hawaii, Honolulu, Hawaii, Aug. 27-29.

Virginia Polytechnic Institute Turfgrass Field Days, V.P.I. Experimental Plots, Blacksburg, Va., Sept. 3-4.

Annual Turfgrass Field Day, Michigan State University, East Lansing, Sept. 4.

Lawn and Ornamental Days, The Ohio Agricultural Research and Development Center, Wooster, Sept. 9-10.

Michigan State University Sod Producers' first field day at the Muck Experimental Farm northeast of East Lansing, Sept. 10.

Illinois Turfgrass Foundation, Inc., field day and open house, South Lincoln Avenue turf plots, Urbana, Ill., Sept. 12.

Virginia Cultivated Turfgrass Association sod field day at the Kidwell farm near Remington, Va., just off U.S. 29, Sept. 14.

Pacific Northwest Pesticide Applicators Association, Annual Meeting, Renton Inn, Renton, Wash., Sept. 19-20.

Midwest Regional Turf Foundation field day, Purdue University, Lafayette, Ind., Sept. 29.

Central Plains Turf Conference, Kansas State University, Ramada Inn, Manhattan, Kan., Oct. 15-17.

National Fertilizer Solutions Association, National Convention and Equipment Exhibition, Cincinnati Convention Center, Cincinnati, Ohio, Nov. 9-13.

Ohio Turfgrass Conference and Show, Sheraton-Cleveland Hotel, Cleveland, Ohio, Dec. 1-3.

National Aerial Applicators Association, Third Annual Conference, Roosevelt Hotel, New Orleans, La., Dec. 7-10.



Another Asplundh first... aerosol inhibitor tree paint.

For fast year-round applications try Asplundh's inhibitor fortified tree paint. Using the *newly developed one percent NAA formulation*, it is now packaged in a proven all-weather aerosol applicator. This spray method will greatly increase production compared to old-fashioned brush-on applications thus reducing unit cost. So when you look for reliability, economy and beauty look to Asplundh.

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For More Details Circle (120) on Reply Card

Noxious Aquatic Weed Control

Must Be National Goal, Says Southeast U. S. Group

Control of noxious aquatic weeds has become a national concern. Little is being done to pull together effective methods and chemicals for control work, except efforts of the Hyacinth Control Society, which is mostly a group located in the Southeastern United States.

This Society was formed several years ago for the express purpose of developing more effective control methods for water hyacinths. At the time, the hyacinth problem was the big one, especially in Florida.

Since, however, hydrilla, elodea, and several other aquatic plants have become as important or more so in the fight to preserve and clean up inland water. The Society, then and now, despite its limiting name, is dedicated to control of all types of noxious aquatic weeds.

The need for control, however, is not now and really never has been

limited to Florida and adjacent areas. Aquatics are a problem throughout the country and more industry weed control people are seeking answers than ever before. This likely accounts for the fact that representatives from five nations and 17 states attended the ninth annual meeting of the Society at West Palm Beach, Fla., June 15-18. Almost 200 applicators and company representatives of a total membership of 244 were on hand.

Such a high percentage of membership on hand at the annual meeting reflects the many problems of aquatic control—both those of actual weed control and those centering on permissive use of pesticides in public waters. It further demonstrates that the Society has a reputation for living up to its original goals, which included bringing together all possible information on

methods of aquatic weed control.

Each year more and more persons outside the area concerned with this type weed problem attend Society sessions. To the end that the problems centering on aquatics are extensive, the Society membership this year voted to hold its 10th annual meeting next July at Huntsville, Ala. This will be the first such annual meeting at a location outside the state of Florida. Aquatic weed problems and controls in the Tennessee Valley Authority will be visited.

Aquatic Weed Control Outlook

Frank Wilson, president of the Society for this past year, and director of the Polk County, Fla., Mosquito Control Department, opened the 1969 formal program with an outline of current aquatic weed problem. He offered some well

Stanley C. Abramson, newly elected secretary of the Hyacinth Control Society and technical representative of Southern Mill Creek Products Co., Inc., (center with ribbon), opens the field demonstrations.



founded ideas on the direction of such control during the coming years.

Our way of life, he said, has increased the amount of waste water produced by each person. All waste waters, such as sewage and industrial effluents, storm drainage, runoff from fertilized areas, etc., have one factor in common. Each type of waste or runoff contains plant food elements such as nitrogen, phosphorus, potassium and others. These nutrients add fertility to inland waters—a process called Eutrophication.

Besides enhancing the production of native plants which create weed problems, runoff also fertilizes major pest plants which have been introduced from other parts of the world. These as well as native plants grow at fantastic rates in well-fertilized water, Wilson pointed out, and thus constitute major aquatic weed problems.

More Regulation Coming

As to the direction of aquatic weed control, Wilson told Society members that they could be sure of only one thing—that of change. Op-

erations, Wilson said, cannot remain static. In fact Wilson predicted that 20 years hence, the group will likely look back to the relatively simple control problems of the '60s. He expects far more technical and complex problems in the '70s and '80s.

One change, Wilson pointed to, is that weed control operators can look forward to a much greater degree of supervision by regulatory agencies. Operations and methods, Wilson believes, will be closely supervised and all commercial applicators will be licensed. Because solving weed control problems may create problems for others, a director of any type weed control can plan on spending more time in liaison with the various agencies and groups which may be involved.

Wilson pointed out that for many years conservation has taken a back seat. As a nation, the dollar has taken precedence. In some cases, wildlife and natural resources have suffered. The country, Wilson said, is entering a period when emphasis is being shifted to conservation. With this shift will come an increase in interest aimed at biological controls. Stringent regulations will be de-

veloped further concerning use of pesticides in water. Research will point more toward chemicals and methods which are highly selective. The use of broad spectrum herbicides will be discouraged.

Even so, Wilson believes, aquatic weed control will become even more important in the economy. Water-front real estate values will depend more and more on the degree of infestation present of submerged aquatic weeds.

Wilson also feels that labor problems will further beset the industry. He believes operators will use more, better, and possibly bigger equipment. Use of aircraft will increase. Wilson said that use of the helicopter in aquatic weed control operations will become commonplace.

Methods and Costs Discussed

During the 4-day program, numerous types of chemical and mechanical control methods and costs were discussed. Typical of reports was that of Robert J. Gates, superintendent of maintenance at the Southwest Florida Water Management District at Brooksville.

Gates revealed costs and chemi-

Andy Price, at the controls, demonstrates the Pennwalt weed control service during the field demonstrations.





Officers and directors elected for the coming year, from the left, are: Paul R. Cohee, Hercules, Inc., Birmingham, Ala., president; Frank Wilson, Polk County Mosquito Control, Eaton Park, Fla., outgoing president and director; Stanley C. Abramson, Southern Mill Creek Products, Tampa, Fla.,

secretary; Robert Blackburn, ARS, USDA, Fort Lauderdale, Fla., editor; Dr. Lyle Weldon, ARS, USDA, Fort Lauderdale, Fla., vice-president; Andy Price, Pennwalt, Orlando, Fla., director; and Jay L. Blanchard, Winter Park, Fla., director.

cals on control of hydrilla, elodea and Eurasian watermilfoil on local rivers in the areas of his district. These weeds are often rapidly spread, he said, by motor boat movements, waterfowl flights, and hurricanes. Cleanup on three local rivers in mid-April, 1969, was handled in five days.

Because of many climatology variables that had to be considered as well as manpower, herbicides had to be carefully selected, Gates said. This responsibility had to be given to staff people of two agencies working on this operation. Because of heavy spring flows in the Crystal and the Homosassa rivers, plus tidal fluctuations, ranging from 1 to 3½ feet, four herbicides were selected. Use was based entirely on position of the tide, and location of the area

to be treated; and the amount needed for the depth and flow of water.

Herbicides selected were: (1) Copper Sulfate — medium course crystals, a product of Copper Hill Tennessee Corp. This material was applied by spin disk applicator and air-boat. It had enough density to carry the herbicide to the bottom of the rivers and canals, having a high flow of water; (2) 20% of 2-4-D Granules, a product of Amchem Corp; (3) Aquathol-Plus, a Pennwalt Corp. product, both of these materials being systemic type herbicides; and (4) Hydrothol-191 was used in three small canals, also a Pennwalt Corporation product. These canals were completely clogged with "hydrilla" growth, which, Gates said, adversely affected values of the water front prop-

erty. A small fish kill was experienced, he stated, because of dense weed growth, in this case attributed to the oxygen sag caused by rapid decomposition of the elodea plant.

Cost of treatment with the combination of herbicides used based on surface acre cost, are as follows:

Crystal River—Treated 172 acres. Cost per surface acre: \$38.21.

Homosassa River — Treated 115 acres. Cost per surface acre: \$44.85.

Chassahowitzka River — Treated 30 acres. Cost per surface acre: \$26.80.

Except for some small spot treating, Gates believes that control will exist until early August, when a conservative rate of application should keep down infestations. Cost ratio benefit for this operation was at least 6 to 1 for dollars spent.



Herbert J. Friedman, president, Southern Mill Creek Products, Inc., Tampa, Fla., and Donald E. Seymour, president, Marine Biochemists, Inc., Waukesha, Wis., discuss technical materials available on aquatic weed control from the Society.

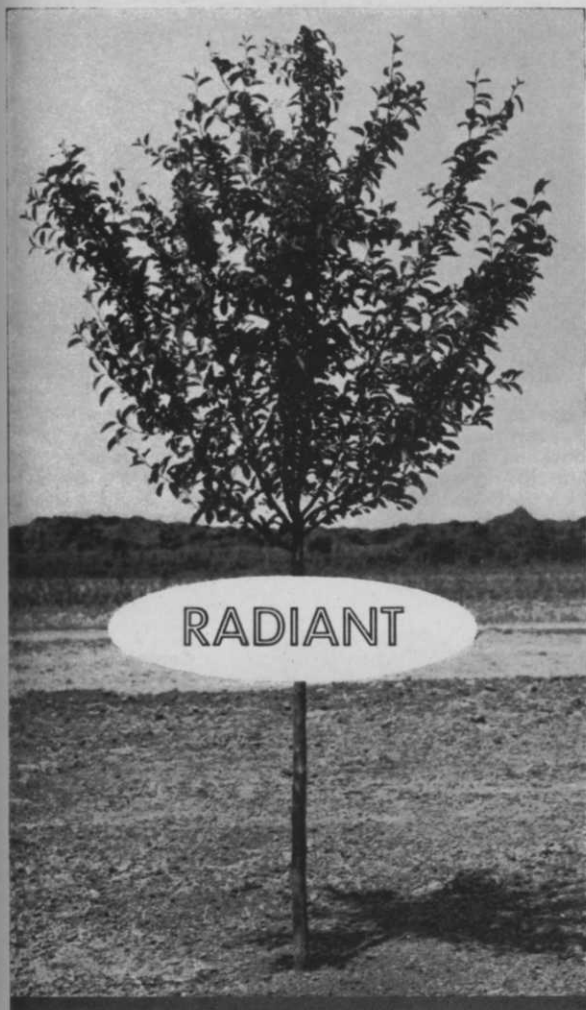


Visiting during break in program of Society are, from the left: John Gallagher, aquatic weed research specialist, Amchem Products, Inc., Ambler, Pa.; Mrs. Robert Blackburn, Fort Lauderdale, Fla.; Robert P. Blakely, Old Plantation Flood District, Plantation, Fla.; and Zeb C. Grant, Florida Flood Control District, West Palm Beach, Fla.

2 New Flowering Beauties from Cole

Colorful new Crabapples developed for modern style and three-season beauty in today's landscape architecture . . .

Cole is headquarters for the widest selection available of the finest varieties of flowering crabapples in wholesale quantities. Many years of careful selection, development and testing, plus the modern, mechanized methods employed in our 1000-acre nurseries make Cole your best source of healthy, strong-rooted trees that will grow and flourish in your planting. Write for our catalog or a special quotation on your needs.



RADIANT is an exceptionally hardy variety introduced by the University of Minnesota. Its deep red buds open to a profusion of deep pink blossoms. Early foliage has a reddish coloring, maturing to a rich green. The small, bright red $\frac{1}{2}$ -inch fruit persists into winter. A perfect tree for locations where a maximum height of 18 feet is desired.



SNOWDRIFT is Cole's first introduction of a new flowering crabapple, now offered for the first time. It is a prolific mass of pink buds and pure white blossoms during a long blooming season. Heavy-textured summer foliage has a clean green color. The tiny $\frac{3}{8}$ -inch fruit matures to a glossy orange-red. Growing to a mature height of 20 to 25 feet, Snowdrift is ideal for colorful street and highway plantings, and for commercial, industrial, park, cemetery, golf course and home landscaping.

THE COLE NURSERY CO.

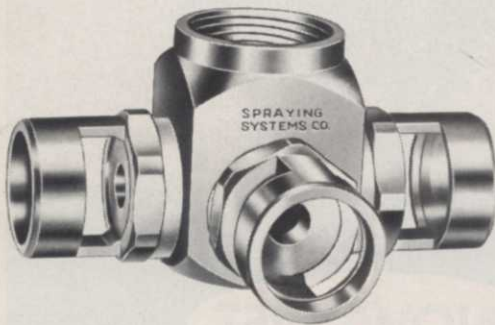
R. D. No. 1, Circleville, Ohio 43113

Phone: A/C 614-474-7531

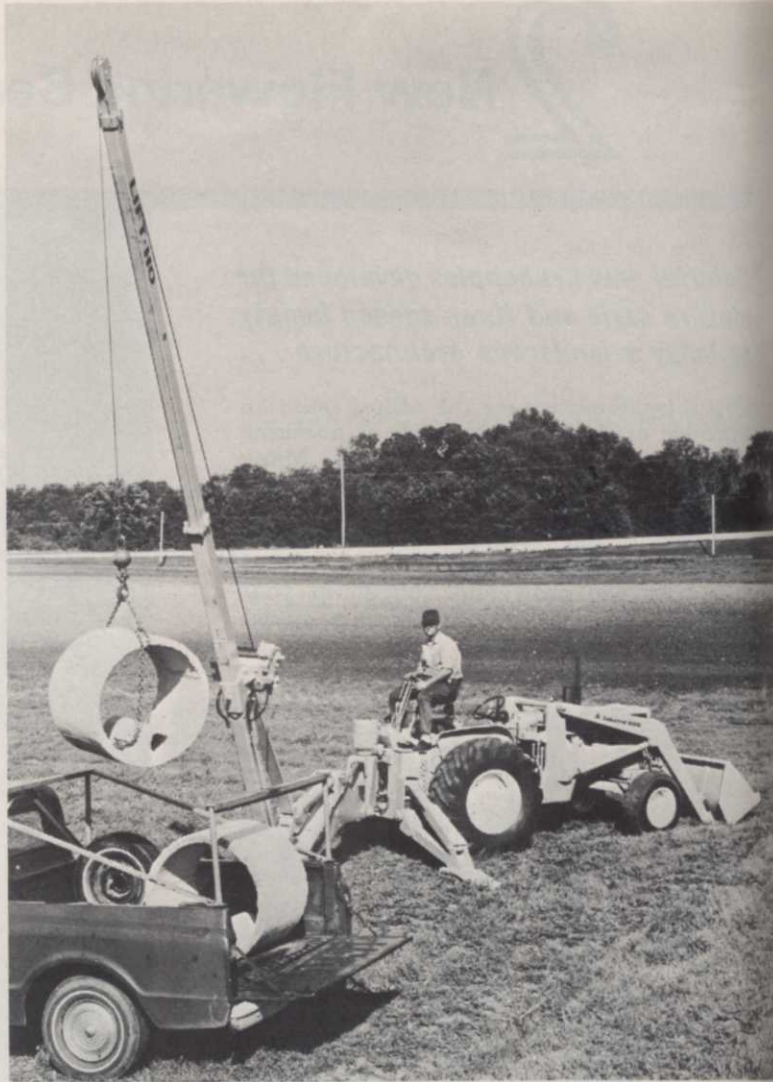
Originators of Plant Specialties Since 1881

New Products

for the Tree Care Industry



Spraying Systems Co., Bellwood, Ill., introduces large-capacity No. 1238155-SC jet agitators to provide turbulence to keep wettable powders in uniform suspension. As liquid streams from agitator outlets, surrounding liquid is drawn through open side ports of the siphon caps, causing agitation. The brass or stainless steel units, in four capacities, feature a $\frac{3}{4}$ " NPT female inlet connection. For more details, circle (701) on reply card.



Allis-Chalmers, Topeka, Kan., adds its new Model 631 crane boom for use with its I-600 loader-backhoe industrial tractor. The telescoping boom mounts on the backhoe in place of the bucket and dipper arm. It has a 2000-lb. maximum lifting capacity at a 12-ft. radius from the backhoe center point. When fully extended, the three-position boom has a 31-ft. maximum reach; a 25-ft. mid-point reach and a 19-ft. fully retracted reach. For more details, circle (702) on reply card.



Utility Equipment Co., Inc., Brookfield, Wis., has developed 30" x 30" and 48" x 48" warning signs and matching standards for roadways where maintenance and construction are being done. Holders are available to accommodate both signs. Constructed of welded steel tubing and formed steel channel, both holders fold to a storage size of about 9" x 40". When unfolded, the holders' springloaded legs are automatically pulled to the center staff, where they lock. Various signs are available. For details, circle (703) on reply card.



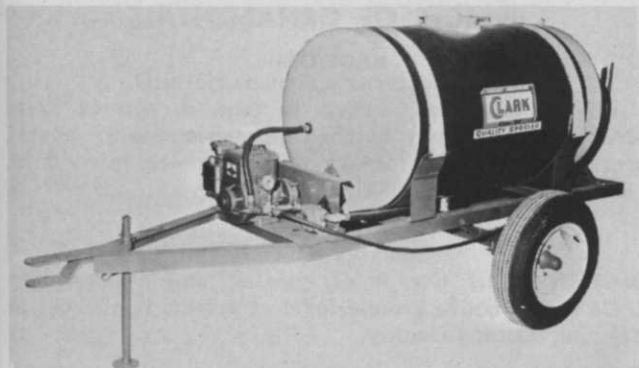
A. J. Gerrard and Company, Des Plaines, Ill., introduces a safety-designed, Model 1775 Beltbinder Unit for limb support. It consists of an adjustable belt which supports a cutter holster, pouch for strap applying tool and seals, and provides a harness to hold strapping material. Manufacturer claims that, when used with Gerrard cartoned-strap coils, product virtually eliminates strap tangle. For more details, circle (704) on reply card.



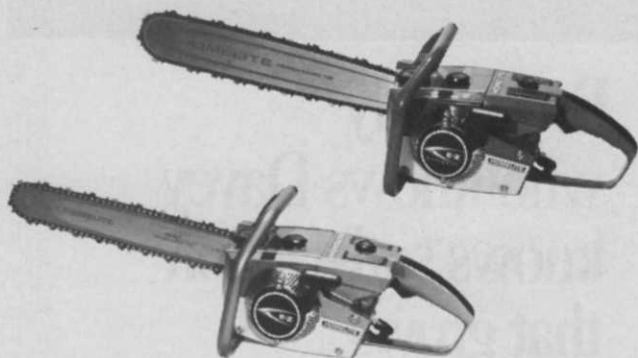
Hermeier Manufacturing Co., Pella, Ia., announces its new Model TS-66T Tree Spade, similar to Models TS-44A and TS-30 tree spades introduced last year. The TS-66T is a truck-mounted machine that digs, transports and transplants trees up to 8" diameter, by using the truck's power take-off. Four hydraulically operated high tensile steel spades penetrate the soil to form a maximum-size tree ball 66" in diameter and 48" deep. Tree and dirt ball are then lifted into transport position. For more details, circle (705) on reply card.



Howard C. Green Manufacturing Co., Portland, N. Y., announces a platform mountable on any three-point hook-up tractor which operates from the tractor's hydraulic system. Other features include operator's reach of as high as 18 feet from the ground, 8' x 15' lateral coverage, three-minute hook-up time, vertical and horizontal extension and retraction by one conveniently located lever, heavy chain supports to tractor axle, and safety rails on all three work sides. For more details, circle (706) on reply card.



Clark Mfg. Co., Atherton, Mo., introduces a two-wheel Model "GL" trailer sprayer. The 200-gal. fiberglass tank will handle engine-driven roller pumps for low-pressure spraying, or engine-driven piston pumps for high-pressure spraying. The unit comes with trailer, 6" x 14" wheels (less tires), 50-ft. handgun hose, hose reel, 5 HP engine and choice of pumps, saddle, straps, hose and fittings. It's adaptable for spraying with a boomjet nozzle. For more details, circle (707) on reply card.



Homelite, a division of Textron, Inc., introduces two new super lightweight chain saws, the E-Z and E-Z Automatic. Weighing only 8½ and 9½ lbs. (less bar and chain), respectively, they are easy to start because of the exclusive Simplex Starting System and easy to handle. E-Z Automatic offers the most powerful chain saw engine, per pound and per cubic inch, ever developed. Felling, cutting, limbing and pruning are all easily done. For more details, circle (708) on reply card.



The Rinchem Co., Phoenix, Ariz., announces an ultraviolet lamp, Chek-Lite, and a fluorescent dye, Glo-Chek. Made to complement each other, both lamp and dye facilitate the determination of spray coverage and uniformity, droplet size and density, and swath overlap. The lamp weighs 1½ lbs. and includes a recharger which operates on 115V. AC. For more details, circle (709) on reply card.



General Electric Co., Lynchburg, Va., introduces its MASTR Progress Line Personal Series hand-held FM two-way radios with 8¼" high, 3 7/16" wide and 1¾" deep case dimensions. Options can be added without changing case size. UHF models come in 406-420 MHz. and 450-470 MHz. and deliver two watts. The units feature sealed circuitry and are externally constructed of Lexan® and cast aluminum. Each is equipped with one rechargeable 7½-volt, nickel-cadmium battery. For more details, circle (710) on reply card.



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Homeowners know Davey men have the professional touch, the experience, and the equipment, backed up by continuous research, to keep residential trees, shrubs and lawns flourishing in health and beauty.

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For More Details Circle (117) on Reply Card



Insect Report

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



TURF INSECTS

BLUEGRASS BILLBUG

(*Sphenophorus parvulus*)

UTAH: Heavy in 3 new lawns in Salt Lake and Holladay area of Salt Lake County.

BRONZED CUTWORM

(*Nephelodes emmedonius*)

IOWA: Larvae damaged bluegrass pasture in Decatur County. Ranged 4-5 brown spots per square foot of sod. Also reported at Ottumway, Wapello County.

A DELPHACID PLANTHOPPER

(*Delphacodes nigrifacies* Muir)

FLORIDA: Adults on Bahia grass, *Paspalum notatum*, at Belle Glade, Palm Beach County. This is a new United States record. This neotropical species is recorded from Costa Rica, Guyana, and Martinique.

INSECTS OF ORNAMENTALS

BAGWORM

(*Thyridopteryx ephemeraeformis*)

ILLINOIS: Hatched; begun to feed in central area.

MARYLAND: Newly hatched on evergreens in several areas. OKLAHOMA: Heavy on evergreens in most of Oklahoma City area, Oklahoma County.

FIR ENGRAVER

(*Scolytus ventralis*)

WASHINGTON: Completely girdled some mugho pines 18-24 inches above ground level at several residences in Yakima, Yakima County.

TREE INSECTS

AN OLETHREUTID MOTH

(*Pseudexentera improbana*)

PENNSYLVANIA: One of the heaviest outbreaks in Clinton County and western Lycoming County; visible from State Highway 44 north of Haneyville and State Highway 144 south of Renovo. Affected predominantly white oak and chestnut oak at higher elevations. Involved at least 200,000 acres; completely stripped majority of trees. Third year of heavy defoliation in these areas, but much more widespread this year. Some trees died fall of 1968; heavy mortality later this summer. Similar infestations in Districts 7 and 19 collapsed this year. Active in Schuylkill County; 80 percent defoliation on 200+ acres west of Morgantown, Lancaster County.

GEOMETRID MOTHS

PENNSYLVANIA: First *Erannis tiliaria* infestations in state since 1962 at several locations. Defoliated several thousand acres of oaks near Cornwall on Lebanon and Lancaster County line; many completely stripped. Defoliation 50-90 percent of several hundred acres near Pine Grove Furnace, Cumberland County.

PINK-STRIPED OAKWORM

(*Anisota virginiensis*)

WISCONSIN: Adults numerous on 500 acres of northern pin oaks June 12 in Douglas County; eggs plentiful on undersides of leaves. Spent and mating moths present. Trees defoliated in 1968 less vigorous than trees not defoliated in 1968.