

WEEDS TREES and TURF

SEPTEMBER, 1968



Helicopter Sprayman Perdue
ISTC 44th Roundup
ASPA 2nd Annual

when your season rolls around...



be ready to roll with a NU nes sod harvester

PATENT APPLIED FOR



NU nes Slab Sod Harvester . . .

lifts, cuts, and conveys slabbed sod to loading platform. Handlers can load directly on to pallet as tractor moves.

- With a NU nes Sod Harvester and three men you can lift, cut, roll and palletize up to 1200 square yards of sod per hour.
- The harvester, developed at Cal-Turf Farms in California, is designed to handle any length of rolled or slabbed sod.
- Field grading of sod is done by the tractor operator, who has clear visibility at all times.
- Hydraulic controls permit quick and easy adjustment for all conditions.
- The sod harvester travels alongside, never on the turf, during harvesting and can pick up and roll sod at any time your tractor can operate in your field.
- Sod can be cut with any type of sod cutter. The long ribbons can then be lifted and cut to any desired length from 24" to 90", size depending on thickness of sod.
- Loaded pallets can be spotted for later field removal and be clear of the next harvest run. If direct truck loading is desired, a conveyor extension is available.
- The basic power train is a Ford LLG-2110 wheel tractor. The sod harvester can travel at speeds up to 17 MPH for quick transportation between plots.
- The efficiency of this all-mechanical operation has been proven on Cal-Turf Farms in Patterson, California, and it can solve the problem of quick and economical harvesting of sod for all turf farmers.

For more information please contact:

THE JOHN NUNES MECHANICAL HARVESTING CO.

2006 Loquot Avenue, Patterson, California 95363, Phone (209) 892-6311



For More Details Circle (101) on Reply Card

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

103	104	105	106	107	108	109
112	113	114	115	116	117	118
121	122	123	124	125	126	127
130	131	132	133	134	135	136
139	140	141	142	143	144	145
148	149	150	151	152	153	154
157	158	159	160	161	162	163

UNADVERTISED PRODUCTS

702	703	704	705	706	707	708
711	712	713	714	715	716	717
720	721	722	723	724	725	726
729	730	731	732	733	734	735
738	739	740	741	742	743	744

Please send more information on items circled

(Please type or print)

9/68

Name

Position

Company

Street

City

State Zip Code

Please describe your type of business

Note: Inquiries serviced until Nov. 20, 1968

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

OJIBWAY BUILDING
DULUTH, MINNESOTA 55802

FIRST CLASS

Permit No. 665

DULUTH MINNESOTA



The Cover

Weed control by helicopter has become practical for large segments of the vegetation control industry. This month

WEEDS TREES AND TURF magazine features the experience of a pioneer helicopter sprayman, William J. Perdue, Lake Wales, Fla., and his ideas of how the industry can make the best use of this type of aerial application. The cover picture features Perdue spraying a drainage ditch infested with aquatic weeds, most in this instance being water hyacinths. Perdue's story begins on page 6.

Non-leaching Treflan® Disappears from Soil

Extensive studies have indicated that the herbicide Treflan® does not accumulate in the soil with repeated annual applications, reported S. J. Parka of Eli Lilly and Co., Indianapolis.

The disappearance of Treflan from the soil cannot be attributed to any single factor, says Parka; microbial and chemical degradation, volatility and photo decomposition all seem to contribute.

Data on the use of Treflan during the past five years involving 26 crops covering over 23 million acres has substantiated the recommendation that the chemical be incorporated immediately after application to a depth of 2 to 3 inches.

Treflan will not interfere with the seed germination of those crops for which it is cleared for use, Parka assures.

WEEDS TREES and TURF

September 1968

Volume 7, No. 9

FORMERLY WEEDS AND TURF

Features:

Industry's Stake In Helicopter Spraying	6
Turf Quality Begins At the Farm Level	10
44th ISTC Report: Tree Care	14
St. Louis Hosted AAN	24
Second Field Day of ASPA Is Action Spectacular	30

Departments:

Editorial: Special to Sod Producers	4
Meeting Dates	23
Know Your Species	36
Classifieds	37
Advertisers Index	37
Trimming	38
Insect Report	3rd cover

President and Publisher
James Milholland, Jr.

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; Rosemont, Pa. 19010—1062 Lancaster Ave., 215+525-1874; 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, 1968

CHIP-CAL

GRANULAR

The Best Approach to Poa Annua Control



Start Your Poa Annua Restriction Program

THIS FALL

Poa annua need not be a problem. Economical applications of Chip-Cal Granular will gradually eliminate it. Desirable grasses fill in and take over completely. No bare spots are left to mar the beauty of your turf.

Start your Poa annua elimination program this fall. Treatments also prevent crabgrass and control chickweed.

Many golf course superintendents and other turf management specialists have experienced excellent results with Chip-Cal Granular.

Ask your dealer or

chipman
WEED CONTROL

RHODIA INC.
CHIPMAN DIVISION

Dept. WT, Box 2009
New Brunswick, N.J. 08903

For More Details Circle (102) on Reply Card

Special To Sod Producers

Instant lawns are becoming commonplace. Sod installations are now a standard practice among many builders. In short the business, though it varies at times, is booming.

Yet the same cannot be said for the membership drive of the American Sod Producers Association. Membership still remains at about 100.

In light of the excellent national field day staged July 30 at Shamrock Turf Nurseries near Hanna, Ind., this lack of membership is a disgrace. Well over 400 growers and equipment suppliers attended this field day. They came from all parts of the country. Demonstrations bordered on the spectacular. Every grower—whether a member or not—was made welcome.

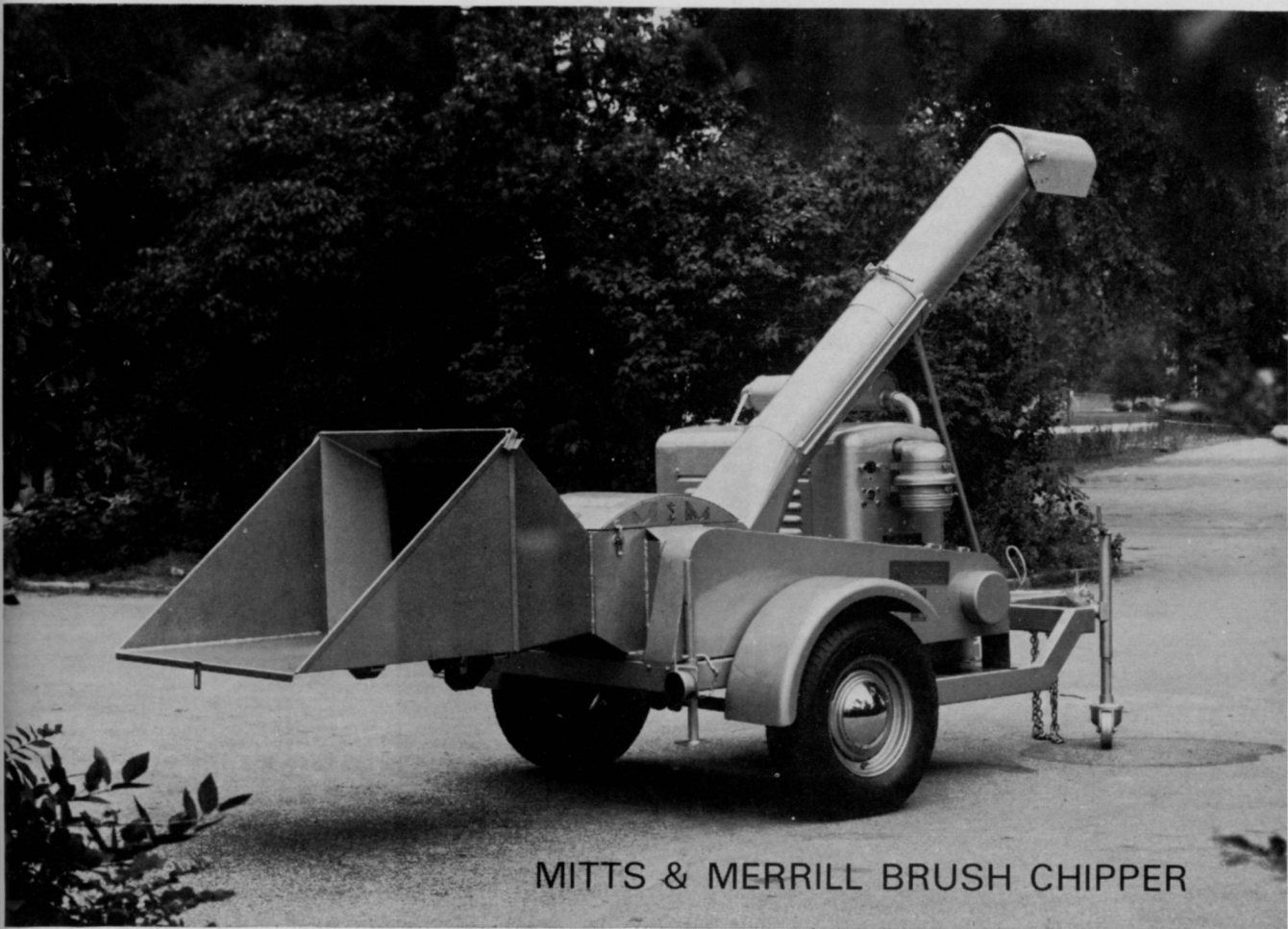
We believe that the dollars you as a grower are being asked to spend on membership will prove to be among the shrewdest expenditures of money you make. The leadership of the ASPA, despite the lack of support by many growers, staged their second successful annual field day. They were able to attract equipment makers and suppliers—and growers to see machinery in action.

No association can function without majority backing of the persons who make up the industry. In the case of ASPA, these persons are you who produce sod.

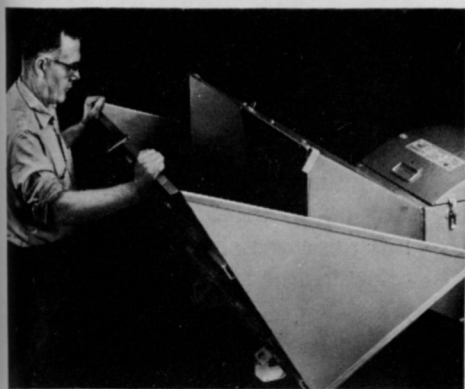
As observers, we believe that support by way of the membership fee can offer excellent returns to you as an individual grower. Tips on markets, pricing methods, cultural practices, blends, new varieties, research, equipment, costs of operation, labor, and other timely factors which affect the business are but a few of the association benefits. The opportunity to get together with other growers at field days and the winter annual meeting is worth the price of your membership fee.

We hope you as an independent sod grower will join your association. The industry needs you and your individual support as much as it needs your membership fee. Write Executive Secretary George Hammond today for details, or send your \$50 check to him at 71 East State Street, Columbus, Ohio 43215.

WEEDS TREES AND TURF is the national monthly magazine of urban/industrial vegetation maintenance, including turf management, weed and brush control, and tree care. Readers include "contract applicators," arborists, nurserymen, sod growers, and supervisory personnel with highway departments, railways, utilities, golf courses, and similar areas where vegetation must be enhanced or controlled.

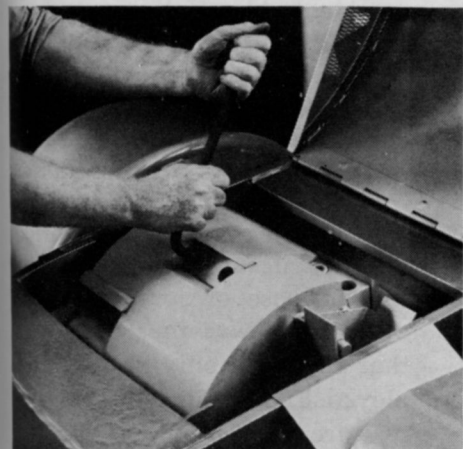


MITTS & MERRILL BRUSH CHIPPER



Folding feed chute

Staggered knife design



Improved to do all jobs faster with years of trouble-free service

The Mitts & Merrill Brush Chipper can do more jobs for you more efficiently. Featuring an exclusive staggered knife pattern—short knives spaced about the rotating cylinder—this chipper shaves material rather than chopping it, producing a smoother cutting action. This means lower horsepower requirements, lower operating costs and minimum maintenance. Another feature: the double-edged knives allow twice the service between sharpenings and permit quick knife reversal wherever the chipper is on the job.

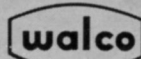
More features for greater efficiency and ease of operation... new folding feed chute extends to 60" overall length, eases maneuverability and protects cutting chamber... heavy duty construction throughout, including coil spring, torsion type suspension; all tubular steel trailer frame... telescoping discharge chute with adjustable bonnet... torque converter available on all models.

Choose the chipper that's first choice from coast to coast. There's a Mitts & Merrill Brush Chipper dealer near you. He'll be happy to supply complete information. Or contact us direct.

NEW BULLETIN includes complete data, model descriptions, check list to help you write Brush Chipper specifications. Write today: Mitts & Merrill, Inc., Dept. WT-70, 109 McCoskry, Saginaw, Mich. 48601.

mitts & merrill

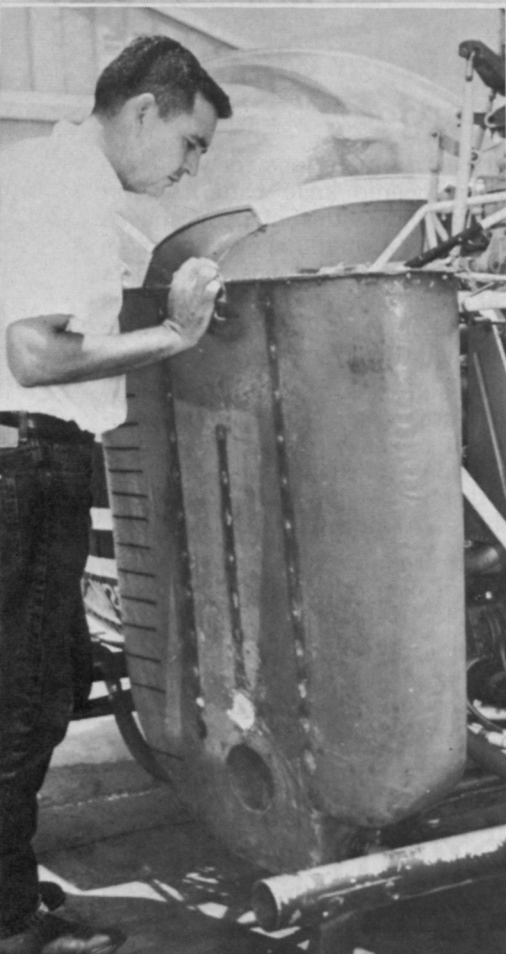
SUBSIDIARY



WALCO AMERICAN CORPORATION



Industry's Stake In Helicopter Spraying



WEEED control by the helicopter sprayman is becoming a vital segment of the industry. This relatively new method of applying herbicides is on the upswing for a number of practical reasons, a major one being the efficiency with which application of chemicals can be made in hard-to-reach areas.

Equipment is being designed especially for the use of this aerial mobile platform, chemicals and drift control agents are formulated especially for its use, and pilots are getting the training and experience needed to make best use of the package.

Putting all the needed pluses together becomes a technical operation, one in which many in the chemical weed control industry have a big stake. Those with a big responsibility in this respect include the customers

who hire custom helicopter applicators, chemical suppliers, equipment manufacturers, pilots, insurance carriers and others—including the citizenry in general. The image of pesticide use hinges to a great degree on how well aerially applied chemicals can be handled, a facet of the business which good helicopter operators keep in mind at all times.

Typical of such pilots who have pioneered helicopter herbicide application is owner-operator William J. Perdue, vice-president, Alco Helicopters, Inc., at Lake Wales, Fla. A navy man during World War II, Perdue joined the army reserves after the war, became an army aviator, and later flew helicopters for the army. He was the first helicopter pilot employed in Florida by a citrus cooperative for the sole purpose of spraying citrus crops. This was in 1961 and at that time the only ship so employed. Today, almost 20 helicopters are owned and operated by

Pat Gray, pilot, left, and Jim Anderson, in charge of nurse truck and tanks, top photo, handle maintenance at hangar. William Perdue, Alco Vice-President, lower photo, checks herbicide level in fiberglass tank.

citrus companies for this type spraying.

Since, Perdue has piloted helicopters for spraying power line rights-of-way, and purchased his own ships and operated his own business, both individually and as a partner. He has broad experience in using herbicides for weed control, particularly on aquatics.

Busy Equipment

Alco, Inc., besides Perdue, consists of Consolidated Financial Corporation and Alico Land Development Co. This group owns and operates 3 ships under the management of Perdue. They keep equipment busy by diversifying their spray operations to include citrus, farm land, rights-of-way, pasture, canal, and drainage spraying. This continuous operation, of course, is a prime factor in an efficient helicopter operation.

Perdue's experience as pilot and businessman leads him to point up the industry's need for a responsible spray program. A helicopter with spray equipment plus chemicals, and a pilot who can fly it do not always guarantee weed control. Pilots need training and owners need experience. Customers who hire them need to know that they are capable of doing a responsible job. Liability cases settled both in and out of court prove Perdue's point.

Depending on the damage caused by spraying and the circumstances surrounding a particular case, liability can reach almost any person or company even remotely akin to the operation. Among those who might prove to be accountable are the makers of the spray and/or equipment, formulator of the chemical, owner of the ship, pilot, and finally, the customer who hires the work done.

The customer may be held accountable for resulting damage



Alco helicopter pilot Pat Gray.

for any number of reasons. Among customer responsibilities are care in determining the qualification of the custom sprayer. In many states, the customer or land owner cannot delegate responsibility to others for any damage which may result from use of chemicals. Because careless aerial spraying can result in drift problems (2,4-D drift lawsuits have been instigated on damage more than a dozen miles from the spraying site), it is mandatory that cus-

tomers find themselves in trouble and a liability problem to face.

Perdue points out that experienced spray pilots are in short supply. The future appears brighter because of the many capable pilots being trained by the armed services. However, these pilots, though adept at handling the ship, need comprehensive training in spray techniques and in handling of chemicals. In the opinion of Perdue, too few operators give pilots enough thorough training.

duced they move to the vertical. In any event, they create an undesirable area in which to introduce the herbicide spray. Many operators use the vortices to an advantage to increase swath width when applying insecticides. But herbicides cannot be applied by this method.

Another point is based on the helicopter's ability to reverse its direction. It can make a spray turn in as little as 5 seconds. But if this is done there is the possibility that small particles of spray still suspended from the initial spray run will be kicked by the blast of the main rotors. This leads to complicated drift problems. Here again, Perdue stresses pilot experience and the need to: "Know your pilot. Know his boss."

Inversion

Inversion is another weather condition which exists only locally as a rule. It is seldom noticeable except to a pilot. An inversion, Perdue points out, takes place when the cool evening air spills into low lying areas and causes the warm moist air to be displaced above it. In an inversion, particles of spray are caught up in the warm moist air to be displaced above it (20 to 30 feet above the ground) and can be carried several miles before release. Again, the experienced pilot will recognize the inversion and cease spraying until normal weather prevails.

Safety in application is mandatory as is safety in operation of the helicopter itself. Perdue believes careful maintenance can reduce the hazard in aerial spray work. He states that operational costs are unusually high in Florida because of sand particles. Helicopters in operation for Alco, Inc., are cleaned daily. Epoxy paint is used at intervals, and both ship and accessory equipment are sprayed daily



Spraying herbicides on aquatic weeds to keep canals and drainage ditches open, especially in low lying areas, has proved a job made to order for the helicopter. Above, Perdue sprays hyacinths in drainage canal.

tomers check references before hiring a custom applicator. Perdue's original statement is: "Know your pilot. Know his boss."

Experience Needed

Factors besides experience also account for troublesome spray problems. Because of lack of experience, or lack of judgement, applicators will spray during windy conditions. They may take a chance because they have bid a job too low. In any case, they

As an example of pilot training needed, so that the new pilot can do a successful job and not jeopardize the industry image, Perdue speaks of the need to avoid the vortex. The aerodynamic characteristics of the helicopter's rotor system creates "blade tip vortices." These small tornado-shaped wind tunnels trail aft of the ship's main rotor blade tips. As the forward speed of the helicopter increases, the vortices tend to become more horizontal. When speed is re-

with a formulation of diesel oil and oil.

Perdue believes and practices careful business management. He will not spray nor permit his pilots to operate if there is even a slight chance of drift because of unsatisfactory weather conditions. He frankly admits that success of his and similar operations is based on repeat business. Thus, every job is carefully bid and spraying done as conditions permit. He prefers to bid by job rather than by hour. When handling a job by the hour, there may be pressure from the customer to push the operation when weather is questionable.

Clock Recorder Used

Perdue uses Bell 47 G-5 ships and has for a number of years. He keeps accurate records of running time by using a 36-hour Servis clock recorder. This clock logs loads and time for each load. The clock is also very valuable in providing a check of ground time for loading. Anytime this is excessive, a check of loading procedures is in or-

Perdue looks on as Charles J. Fox, technical representative of Hercules, Charlotte, N. C., makes viscosity test of Vis-ko-Rhap.

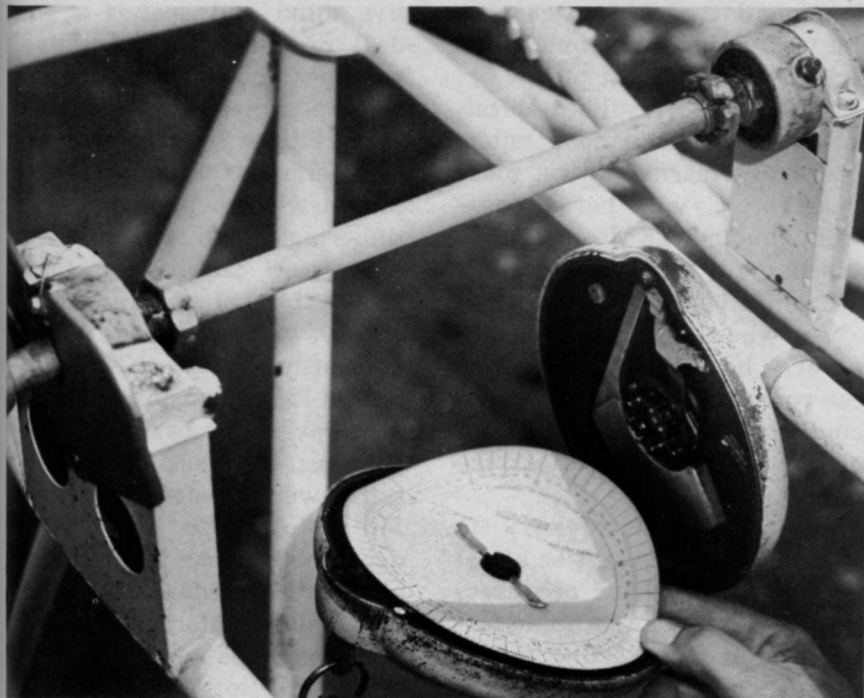


der. No ship is operated with more than 800 hours on the engine, and engines are usually changed at 600 hours. Again, Perdue points out that this is a practical safety factor.

Growth of helicopter spraying for both crop and non-crop weed control, particularly aquatics, has been great during the past decade. Perdue expects the method to grow even more for several reasons. Helicopters can work in more congested areas than can fixed wing aircraft. They can land closer to the spraying site in congested areas where air strips for fixed wing aircraft are not available, thus reducing ferrying time. Also, the helicopter is excellent for precision application and for inspection and survey work prior to spraying. Costs are comparable to other types of spraying when all factors are considered.

With leading manufacturers and formulators of chemicals providing new thickeners and invert emulsions, and more precise spray nozzles and booms, Perdue sees only growth for this phase of the industry. He stresses, however, that responsibility by everyone concerned with this type spray program will continue to be needed to assure growth.

Accurate records of helicopter running time are kept by use of a 36-hour Servis clock recorder. This clock logs loads and time for each load, also furnishes a check of ground time during loading.





Turf Quality

begins at the farm level

SOME people buy Falcons; some buy Thunderbirds. Probably fewer purchase the higher priced automobile than the other, but those who *do* are seeking quality. *And they are willing to pay for it!*

The same principle holds true in the sod industry. At least, according to John Nunes, President, NUNes Turfgrass Nurseries, Patterson, California, and he's aiming for the "Thunderbird" market.

"Anyone can raise sod—anyone can raise hay," Nunes states. "But quality and service has been the basic concept of this nursery since it started. And I feel that in the long run it's the only way to win out."

In striving for quality, Nunes, the first sod producer in Northern California, emphasizes several important practices in his

nursery: deep well irrigation rather than open water to eliminate foreign seeds; soil fumigation; regular mowing, sweeping and vacuuming; electronic moisture control; and test plots.

To check the resultant spiraling costs as much as possible, Nunes has learned to be more conservative in other areas—mainly manpower. He constantly searches for new methods of mechanization.

"Anywhere one can cut manpower," he states, "make one less run across a field, one less handling of sod, less laying and moving of pipe, he has cut the cost of operation."

Mechanizing efficiently to meet their needs might be a real problem for some sod producers as there are few major manufacturers of sod harvesting equipment as such.

But here NUNes Turfgrass Nurseries have an asset. Nunes is well-equipped with an inventive mind and spends a great deal of time tinkering in his welding shop, developing his own specialized equipment.

The NUNes Sod Harvester, now commercially produced right in the nursery, is one result of that tinkering. With the harvester, three men can harvest 100,000 square feet of sod in one day easily, whereas in the earliest days of his operation Nunes employed 15 to 20 unskilled laborers on a day-to-day basis.

Nunes also has developed a self-powered vacuum sweeper for his own use. This sweeper does three times the work of commercial pieces, and requires only one operator. Additionally, he has adapted a pipe mover and a sprinkler setter to fit his nur-

sery's particular needs. All are manpower saving features.

"To be successful in the sod industry you *must* mechanize," Nunes stresses.

In the matter of service, all NUnes Turf is delivered in the nursery's own trucks.

"This is extremely important," Nunes said. "You're dealing with a perishable, and your product is only as good as your service. You can have the best product in the world and if you can't service it, what value is it?"

NUnes Turf truck drivers are highly skilled, not only in delivery and handling, but in all phases of the sod growing operation. Often, they are the only contact between NUnes Turf and the contractor, and must be able to answer most any question asked of them.

To foster a good first impression in the customers' minds—and a lasting one—Nunes insists on a strict code of dress for his truck drivers.

"They arrive in white shirts and clean slacks, with shoes polished. Even though they might not return that way, the customer will remember us as a professional outfit rather than a ratty one," Nunes insists.

The truck driver is responsible for unloading the material, too. He tows a forklift—equipped with wide flotation wheels to prevent grade damage—behind the delivery truck to the unloading site. He spots the pallets for the customer, thus rendering further service, and sod protection.

Nunes's entrance into the sod industry was a deliberate one. His nursery is ideally situated in the Central San Joaquin Valley, 90 miles distant from 4 large cities—San Francisco, Sacramento, San Jose, and Fresno. Also, at the nursery location the soil is good sandy loam, Nunes has a 200-foot well for irrigation.

Previously, he farmed very specialized vegetables for seed and market here. But regardless

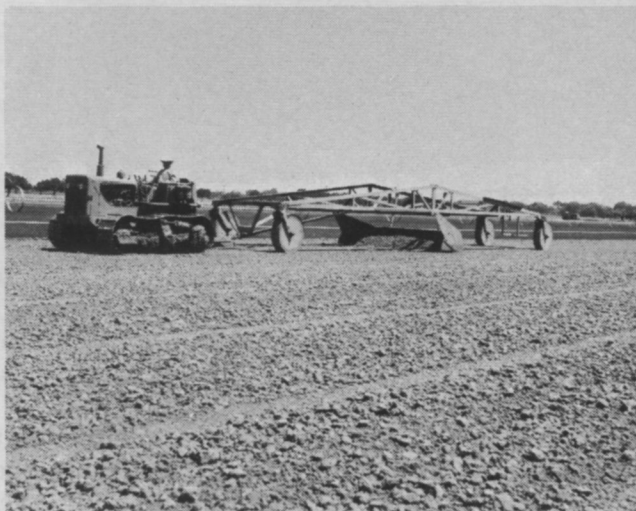
of quality, he always found himself at the mercy of the buyer, forced to accept what was offered for his product.

He determined to get into something where he could have more say-so over his margin of profit, and learn the overall business—market, cultural practices, and sales.

He felt sod growing was the answer. For here was a new industry, specialized, one few growers might attempt, and with good management, it conceivably would offer more profit and reasonable control.

Nunes made his first planting in June 1962, putting 18 acres into bluegrass, 3 varieties of hy-

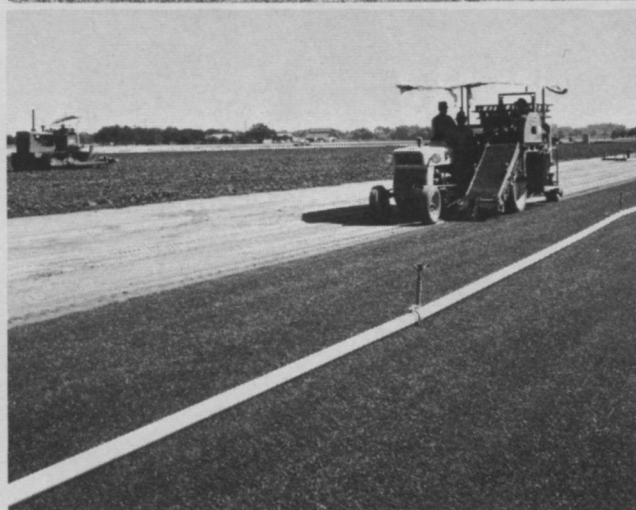
Land leveler is used to float soil base, knocking off the high spots and filling low areas for level seed-bed.



Special vacuum sweeper developed by Nunes is equipped with flotation wheels and own power plant for hydraulic and vacuum.



NUnes sod harvester is produced for sale. Developed by John Nunes, it allows three men to harvest 8000 square feet per hour.





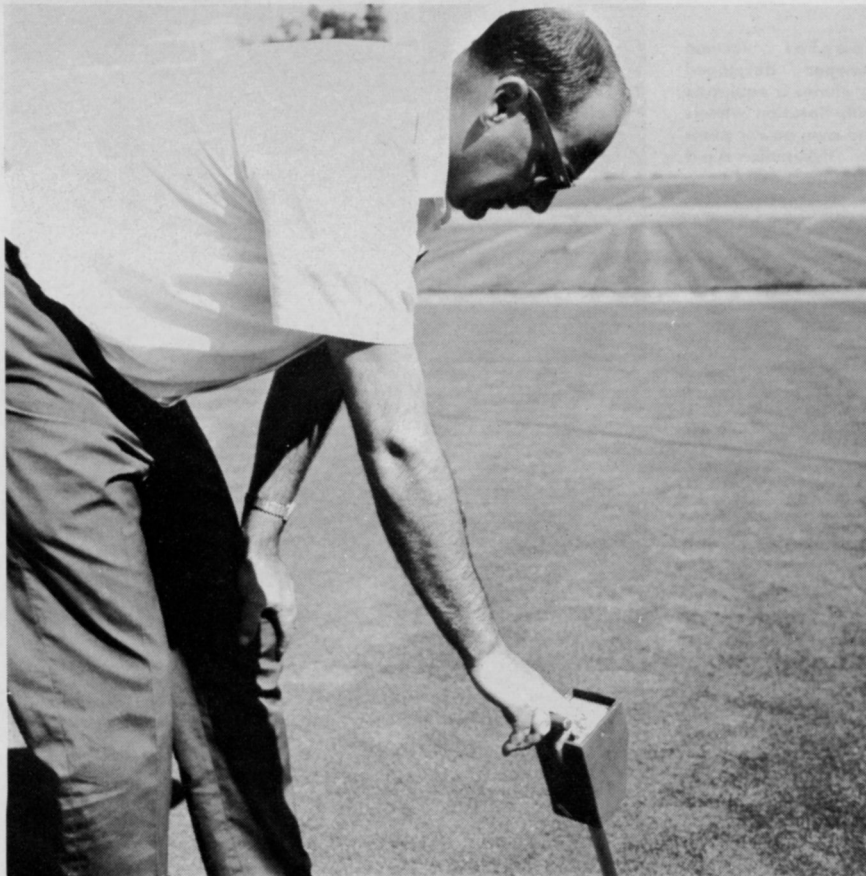
Turbine booster pump is one of three used by Nunes. Sprinkling system opens off 8-inch mainline with 3- and 4-inch laterals.

brid bermudas, bentgrass, and dichondra.

Today, besides still maintaining his vegetables and orchards, he is cultivating 160 acres planted in bluegrass mixtures, hybrid bermudas, and dichondra.

This diversification is unusual compared to some nurseries that grow straight bluegrass or other varieties. But California's climatic changes, ranging from coastal, to mountainous, to inter-vallies, necessitate it.

John Nunes, below, keeps constant check on sod moisture with electronic Aquatron Moisture Meter. Precise irrigation saves water, and helps produce quality turf.



NUnes Turfgrass Nurseries operate 5 diesel delivery trucks and maintain a stable work force of 35, including office staff, a sure measure of Nunes's conviction that the sod industry will grow.

He has one constant competitor, though, which bids to keep him in check—the weather. California's mild, year-round growing season encourages homeowners and prospective contractors to plant their own seed.

"Practically anyone can buy a package of lawn seed and plant it here almost any day of the year and get something green," Ed Mutoza, Sales Manager and Vice President of NUnes Turfgrass Nurseries states. "And that's my job—to educate the public on the benefits of sod, and increase our sales."

In doing this, Mutoza, who joined Nunes in 1963, and previously spent 16½ years in agriculture banking, travels many miles, speaking at public meetings, attending conventions, participating in county fairs, trade shows, extolling the virtues of instant sod.

In addition, never taking sod sales for granted, NUnes Turf employs a public relations firm on a retainer basis.

"Merchandising or marketing would not be a big problem," Nunes says, "if I wanted to stay where I am at 160 acres the rest of my life. But I desire a healthy growth for my company, and the industry. And to have growth, we *must* go out and develop the market."

The greatest percentage of NUnes Turf sod is sold direct to professional landscape contractors. NUnes Turf does no installations itself.

"If we did," Nunes explains, "we'd be competing with our biggest customers."

Credit problems? A few. Again Ed's job. All new orders are C.O.D. until credit is checked, then accounts are followed closely even after credit is established.



Tony Mello, left, and John Nunes demonstrate two manpower saving features of Nunes operation. Mower, of standard carrier design is equipped with 17-foot cut to eliminate mowing time, and to relieve compaction. Pipe mover efficiently shifts pipe ahead of mower.

Although his acreage is small compared to some Eastern sod farms, Nunes is quick to point out his dollar value is that of a 1,000-acre farm.

The year-round growing season has its benefits as well as drawbacks. Nunes gets double use from his land. He can harvest a crop every 12 months, compared to 18 to 24 months in some areas. And by planting at the proper time, he can sometimes even make good sod in 9 months.

To achieve this, Nunes Turf must push their crop heavily with fertilizers. They use some organics, a lot of nitrogen, phosphate, and some potash, programming them upon the type of sod and growing season.

This heavy fertilizing produces an abundant upright growth. Mowing must be done regularly every 5 days, and clippings are cleaned up each time with the special self-powered sweeper Nunes has developed. If clippings were left lay, the turf would smother, and the customer would end up with a thatchy sod.

Regular sweeping also gives

better penetration for nutrients and moisture, and aids in disease prevention. There is little room for fungus breeding in clean turf.

While Nunes has eliminated fungus problems, he still has an insect one. Crews spray regularly in the summertime to control sod web moths. A commercial chemical is applied with a ground spray boom.

Weed control is taken care of before all seeding. Crews fumigate every square foot of the sod ground. Menthyl bromide is injected into the soil under controlled moisture and temperature conditions with a Tri-Cal fumigator. The soil is then covered with a plastic tarp and left a minimum of 48 hours. Fumes kill all fungus, weed seeds, anything that might be in the soil.

Fumigating is an expensive operation—\$400 an acre—but again

(Continued on page 38)



Moving irrigation line allows mowing and maintenance. Sod here is Windsor Blue. John Nunes developed pipe mover.

Tree Care

Business and Beautification

PLAUDITS are due the Chicago group who hosted the 44th International Shade Tree Conference. Chairman Noel B. Wysong, Golconda, Ill., and his co-chairman, Leonard Hammerstone, Rite Landscape Co., Crystal Lake, Ill., with their committees helped make this an efficient and pleasant session for members.

Despite an intense heat wave, the field trip at Morton Arboretum generated more than normal interest among arborists. Luncheon featured a professionally done beef barbecue followed by roast corn and cold drinks during the afternoon field demonstrations. Equipment exhibited by suppliers completely encircled an open field demonstration area. A tent with chairs provided shade for guests but exhibitors braved the heat and kept their equipment working.

ISTC officials were somewhat dismayed that registration was down noticeably this year, with only about 500 persons on hand. Especially noticeable was the lack of wives and children in attendance. Though little discussion was to be had on the subject, the current wave of civil unrest in Chicago and similar cities may have been a prime factor in fewer attending the Conference.

The smaller attendance, however, did not affect what proved to be an excellent educational program. Facilities were excellent for the sessions and the host

committees produced a well organized event.

In fact, as is usual at an ISTC event, the program resembled a 3-ring circus. The National Arborists Association, the municip-

pal and utility arborists, and the consulting arborists, all had their formal and educational sessions as a part of the Conference. Educational programs included management, cultural practices,



technical information, research, and numerous experiences on practices in the industry.

Mayor Daly On Hand

Mayor Richard J. Daly, Chicago, welcomed the group with a message direct to the ISTC. He said that trees make every neighborhood a better community. Daly stated that the City of Chicago was making a major effort to plant trees in the city, even to the urging of residents to add trees to their backyards. He said the City has planted trees around the city hall. Further, the City, he said, works to encourage private industry to include trees in plans for new buildings and grounds. Tree filled plaza areas are becoming a vital phase of new construction in the City, according to Daly. The Mayor said he found nothing



Mott Corporation's territory manager, Joe Berdyct, left, discusses Mott's super heavy duty Model 74 at ISTC field demonstration with Richard Scrymiger, WTT representative.

his home area near Bath, Canada, where few trees can be grown. Allen congratulated ISTC'ers on

their selection of Montreal, Canada, for the 1971 Conference.

Wood Chips As Compost

Compost from wood chips and excess topsoil have furnished the city of Los Angeles, Calif., about 80,000 cubic yards of plant propagation and landscaping material. This single program alone has been worth almost a million dollars to the city over the 10-year period.

Basing figures on today's costs, Raleigh E. Dowell, Principal Park Foreman for Los Angeles, said that previously dumped wood chips and topsoil are stock-piled separately. Chips are left undisturbed for two years and then watered for about 12 hours, three times during the summer.

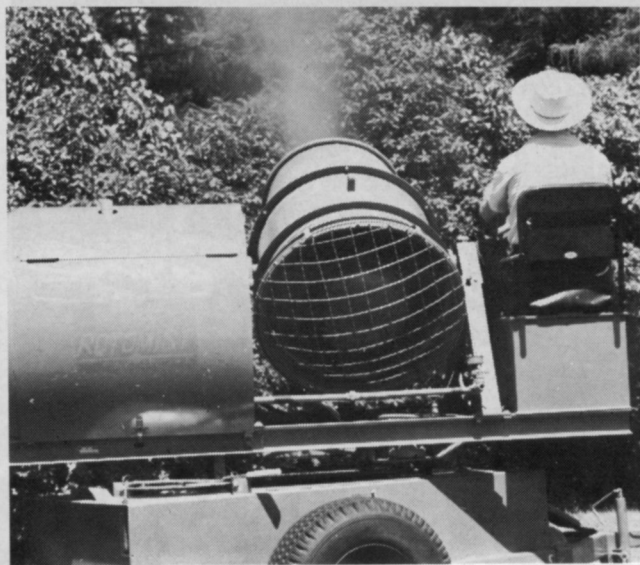


ISTC leadership, represented by Keith L. Davey, San Francisco, Calif., new president for 1969, left; Dr. L. C. Chadwick, Columbus, O., executive director, center; and Freeman L. Parr, Hicksville, N.Y., outgoing president. President-Elect for the coming year is Richard E. Abbott, Canton, O.

ing more relaxing than spending time in the shade of trees with family loved ones.

Stephen Allen, Consulate of Canada, speaking informally to the group following Mayor Daly, spoke of the unique beauty of Chicago and of his personal "wholesome respect and admiration for a group such as the ISTC who helps Mother Nature." His appreciation, he said, stems from

Rotomist demonstrated by John Bean Division, FMC Corp., Lansing, Mich.





Mitts and Merrill's new model chipper and Baker Equipment Manufacturing Co. job-matched truck and boom.



Chain saws in action by McCulloch Corp., Los Angeles, Calif.



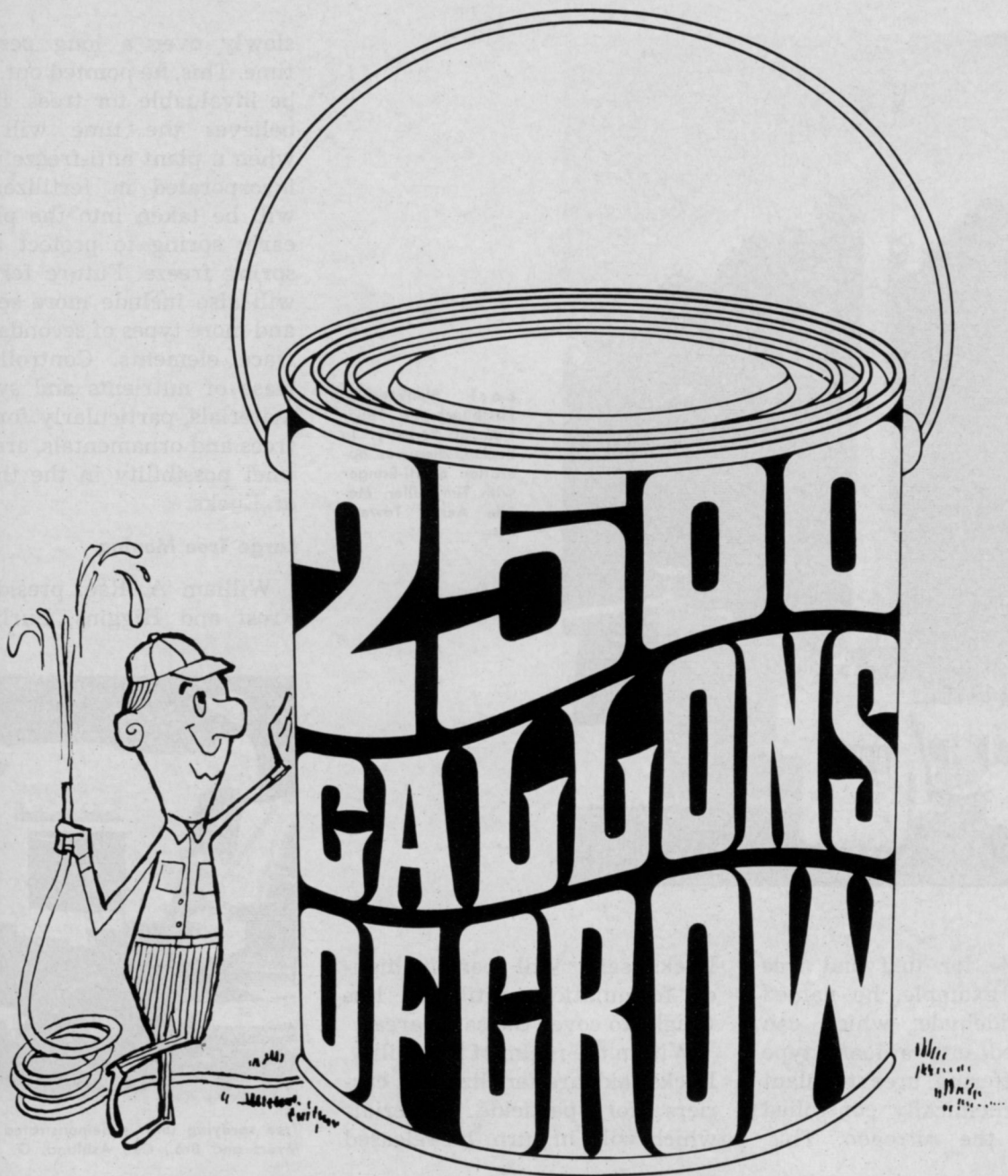
Fairmont Hydraulic power tools, Fairmont, Minn., a division of Fairmont Railway Motors, Inc.

The pile is turned with equipment and 150 cubic yards of cow manure added for each 10,000 cubic yards of chips. Chips are again turned the third year and 300 gallons of liquid fish fertilizer added. At the end of the fourth year, chips are again turned and one ton of ammonia sulphate added. Chips are allowed to compost the fifth year and then used. By this time, Dowell says, an original pile of 10,000 cubic yards will have shrunk to one-third, or 3333 cubic yards. But the value is now \$10 per cubic yard of the residue. Total cost to the City has been \$611 for fertilizer and \$552 for bulldozer use. Net gain to the city has been more than \$32,000. When projected over a 10-year period the quarter-million yards of composted material has been worth \$800,000, and more than \$187,000 in dumping charges have been saved.

Fertilizer Future

Looking at the future of the fertilizer industry, Hartl Lucks, Smith-Douglas Div., The Borden Co., Columbus, O., said that basic raw materials are about as purified as possible. Coming trends will be in areas other than increasing the nutrient content. There will be some increase in nutrient content, he said, but users can assume that present plant nutrient levels will be maintained in the immediate future.

Even with massive tank cars and storage facilities, bottlenecks in delivery of fertilizer still occur, Lucks said. He foresees cross-country pipelines which will carry nitrogen solutions directly from the point of production to the communities where they will be used. Lucks also expects more application of fertilizer by air, especially on forested areas. More than 500 million acres, he stated, was treated by air last season. Lucks also said that both new physical and chemical forms of plant nutrient material will



Add water to this 50-pound pail of concentrated Heller-gro paste . . . and you get 2500 gallons of a quality lawn / tree fertilizer packed with grow power! Clean, odorless and easy to use in any type of sprayer, Heller-gro fertilizer provides a balanced diet for lawns, trees and landscape plantings . . . develops sturdy root systems and luxuriant foliage . . . won't burn ever! And, because it's highly concentrated, Heller-gro is easy to carry and store . . . costs just 2¢ a gallon! When you need grow power, buy it by the pail . . . Heller-gro!



Heller-gro

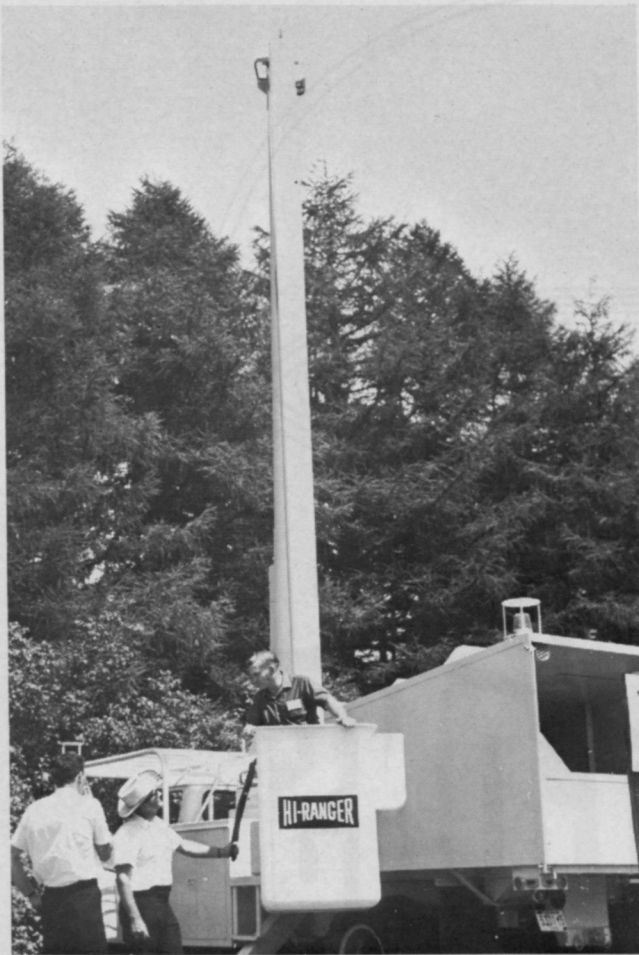
Distributed to the landscape and nursery trade by

KNOWLES TREE SERVICE

1081 Burkhart Ave., San Leandro, Calif. 94579

Phone (415) 483-3052

For More Details Circle (104) on Reply Card



Earl Blenkenship, Pittsburgh, Pa., division of Forestry, in bucket, discusses operation of Hi-Ranger with Tim Miller, Mobile Aerial Towers, Inc.

slowly over a long period of time. This, he pointed out, would be invaluable for trees. He also believes the time will come when a plant anti-freeze will be incorporated in fertilizers and will be taken into the plant in early spring to protect against spring freeze. Future fertilizers will also include more selective and more types of secondary and trace elements. Controlled release of nutrients and systemic materials, particularly for shade trees and ornamentals, are a distinct possibility in the thinking of Lucks.

Large Tree Moving

William A. Rae, president of Frost and Higgins, Burlington,



Tree spraying unit is demonstrated by F. E. Myers and Bro., Co., Ashland, O.

be available for turf and tree work. For example, he named urea-formaldehyde, which can be produced into a foam type material offering urea to plant life with chemically controlled release of the nitrogen. This,

Lucks said, will permit higher formulations, utilizing less weight to cover the same area.

Within the realm of possibility, Lucks said, are fertilizers as carriers for pesticide materials which will, in turn, be released

John Seubert, Seubert Tree Expert Co., Sioux City, Ia., demonstrates Stihl chain saw. ISTC guests watching proceedings at the left are Roy Stewart and Mr. and Mrs. Eugene K. Nyland, all of Smith Tree Service, Inc., Cleveland, O.



Alex Wynstra, Jr., left, city forester at Columbus, O., discusses tree root fertilization with Dr. and Mrs. M. M. Shihata of Prairie du Chien, Wis. Dr. Shihata handles S & D Products, a line of patented plant food products.



Mass., discussed large tree moving by using the frozen root ball method. Speaking on an NAA panel his definition of a frozen root ball is one that is not frozen solid, but has 4 to 6 inches of frost around the outer edge. Rae said that he believes that the deeper the frost penetrates, the more harmful the effect on the tree will be. Freezing of the tree roots, he said, can be harmful, especially so since one effect of freezing is drying. In elaborating on the advantages and disadvantages of this method of tree moving, Rae said that selection of the tree is important. Soft rooted trees, he said, do not usually survive frozen root balls. Trees which have a poor survival rate in the experience of Rae are Tulip, oak (especially red oak), dogwood, hemlock, sycamore, sweet gum, birch, and magnolia. Good risks, he stated, are maple, both white and red scotch pine, honeylocust, elm, linden, and crab. He says his company has also been successful in moving beech by the frozen root ball method, though this tree is known to be a high risk venture.

Rae pointed out that salt used for ice control on highways is harmful to trees. Salt, he said, absorbs moisture and if allowed to get on the tree during the transporting, can absorb the moisture from the tree, especially from buds and smaller branches. This can also happen to established trees, Rae stated.

In one instance of winter planting, Rae related, his company lost nine 5-inch caliper English elms. These had been tagged for the company by a landscape architect and then transported 900 miles. During the trip by open trailer, the driver experienced snow, sleet and slippery roads. Truck and trees alike were white with salt spray on arrival. Planting conditions were also poor at the time because of a November 15 storm in Rae's area. Result was that

the trees completely dried out and were dead this spring.

Another factor important in frozen root ball moving is the amount of moisture in the soil when frost sets in. According to Rae, if the soil is dry the tree is more likely to be harmed by frost. Further, if the tree has had plenty of moisture and has heavy new growth, an early frost or cold snap in October or November can be harmful.

Biggest helps for moving trees by the frozen root ball method, according to a summation by Rae, are proper planning, experienced men, good equipment, good after-care and common sense. These are as important with winter tree moving as with trees moving during other seasons.

Contract Tree Moving

Also on the NAA panel for large tree moving was H. M. Van Wormer. He reviewed his company's step by step methods and also cautioned against bidding on large tree moving jobs. Negotiated tree moving contracts offer the only sound procedures, he said. He also suggested that the availability of consulting arborists on a fee basis offers a method for a purchaser to guarantee that each phase of the work will be successful.

Reviewing practices of moving and planting, Van Wormer said that he disagreed with some architects' specifications which call for using formulated soil for backfill. If the tree planting site is original soil, Van Wormer crews tap it securely around the base up to four inches from the bottom of the ball. Van Wormer prefers that they use clay for this strata because tree roots at this depth enjoy strong and rigid pressures. These, he said, are not true feeding roots, but are anchor and moisture securing types of root structure. Also, Van Wormer stated, no fertilizer is used in the backfill. No water is applied until the entire ball has been completed and ringed. An

HI-RANGER



... 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 (105) on Reply Card

Name the size of your job, the size of your budget!

International can custom-fit a mower/tractor team for you from 108 combinations

How *much* of your mowing and equipment budget can you save? Here's where International shines. With 108 mower/tractor combinations, we can custom-fit tractor power and mower size to your job and your budget. This is the surest way to reduce your purchase and operating costs. Check with your International dealer. He might come up with some combination you haven't thought about—to cut initial cost, labor and fuel dollars. He has "pay as you mow" finance plans for mowing tractors from 7 to 75 hp . . . and mowers like these . . . for 36-inch to over 20-foot-wide swathing:

Tops for safety—70 flail mower. Won't throw cans, sticks, stones. Knife action sends objects straight down to ground. Extra protection with heavy rubber safety curtain. Tiny cuttings sift down into cut grass. No windrows or smothered grass. 5- and 7-foot models.

Special duty reel mowers. Finish cut for putting-green smoothness. Available in several ganged arrangements.

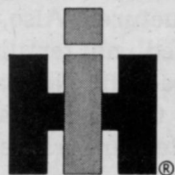
All-purpose rotary mowers. Versatility to take on fine grass, weeds, even thick brush. Eight models—38 to 94-inch cutting widths. And check the powerful rotary cutters. Cleave through trees up to 5 inches thick. Shred saplings, brush, heavy growth anywhere you want to go. 60 to 84-inch cutting widths.

Balanced-head cutter bar mower. Light and heavy-duty mowing of weeds, high grass, brush. No bunching or tearing on steep banks, mild slopes or on the level.

INDUSTRIAL EQUIPMENT

Wheel and crawler tractors • loaders • backhoes
dozers • forklifts • mowers • special duty tools

International is a registered trademark of International Harvester Company, Chicago 60611.



International Lo-Boy[®]
tractor and rotary mower





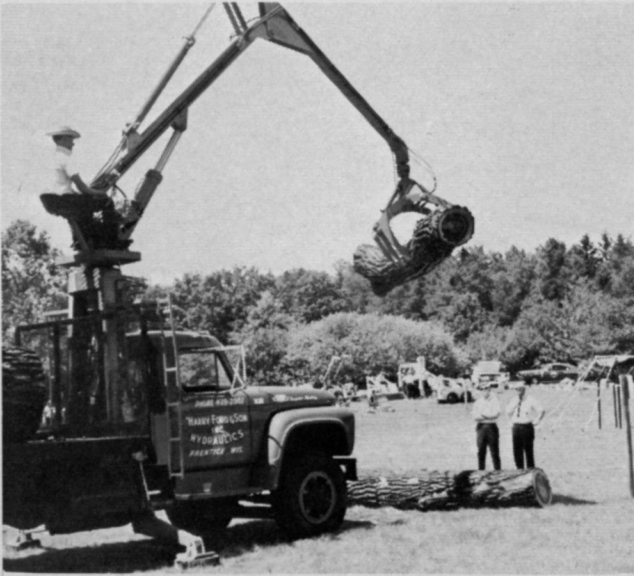
International 2444 tractor with 70 flail mower

International Cub Cadet® with 5-gang reel mower



International 2656 tractor with 110 cutter bar mower





Log handling equipment was demonstrated by Omark Prentice Hydraulics, Inc., Prentice, Wis.



Melroe Bobcat for heavy tree work was operated for ISTC'ers by B. Haney & Sons, Franklin Park, Ill.



Chain saw exhibition above was sponsored by Pioneer Chain Saws Division, Gale Products, Galesburg, Ill.

open hose is then used for filling the saucer and refilled again each week throughout the summer. During original planting, rigid tamping of soil is done by experienced men.

Van Wormer continued by emphasizing that since the backfill consists of strata of soil, water does not penetrate too rapidly to the extreme base of the ball roots. At this level the root should callus partially, he said.

Also, according to Van Wormer, all newly planted large trees

need to be liquid fed under pressure. This needs to be applied directly to the ball twice, at 30-day intervals. This automatically gives the tree the many trace elements needed for quick root recovery. Within 30 days, he said, the tree should be expanding dormant leaf buds in the nodes above or below the existing leaf structure.

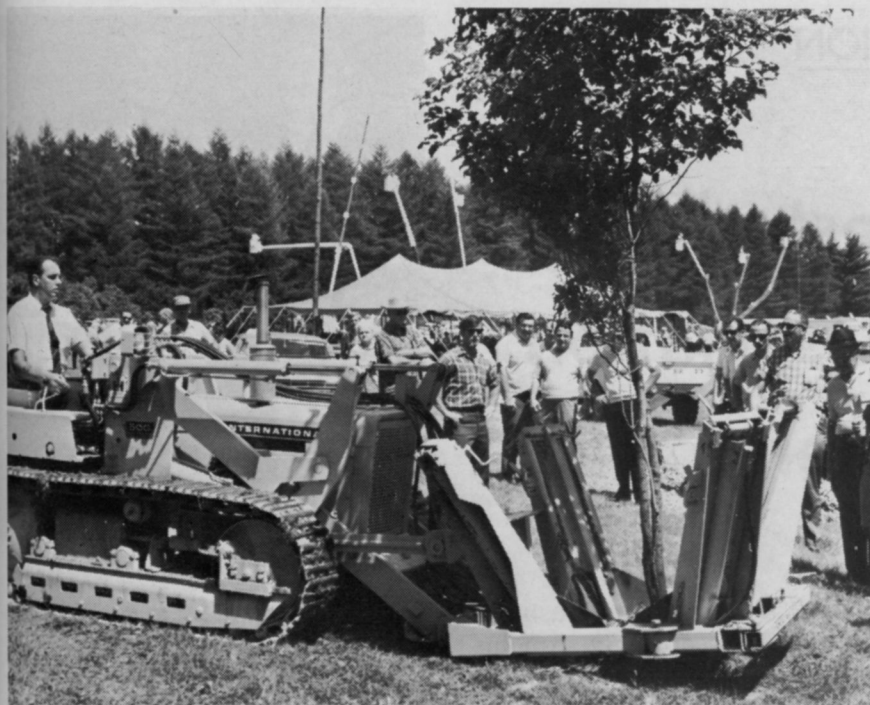
Awards made at the ISTC at the Thursday night annual banquet are as follows: Honorary Membership, Dr. Malcom Mc-

Asplundh Equipment Co., Jenkintown, Pa., and Asplundh Chipper Co., Chalfont, Pa., combined forces in exhibiting chipper and boom and truck unit.



Fitchburg chipper was kept in action at Morton Arboretum by Wright Tree Service.





Vermeer Manufacturing Co., Pella, Ia., demonstrated complete line of products designed for tree care companies. Above is Vermeer's new automatic tree spade.

Kenzie, Amherst, Mass.; Honorary Life Membership, Dr. A. C. Hildreth, Denver, Colo., Russell R. Whitten, Worthington, O., Horace Bosworth, Sacramento, Calif., Freeman L. Parr, Hicksville, N. Y.; Award of Merit, Dr. Spencer H. Davis, Jr., New Brunswick, N. J., F. Earle Martin, Toronto, Ont., Can., S. Elmer Lee, Los Angeles, Calif.; Authors

Citation, Dr. Paul E. Tilford, Wooster, O., Dr. Ray R. Hirt, Syracuse, N. Y., H. Gleason Mattoon, Yarmouth Port, Mass., Brian O. Mulligan, Seattle, Wash., Dr. L. C. Chadwick, Columbus, O., Noel B. Wysong, Golcaonda, Ill.; and Special Awards, Dr. and Mrs. L. C. Chadwick, Columbus, O., B. G. Pratt, Jr., Patterson, N. J.

Davey Tree Expert Co., Kent, O., exhibited the new Davey tree digger. Machine trenches circle completely around tree for standard moving process.



Meeting Dates



Western Street Tree Symposium, 11th Annual, University of California, Santa Cruz, Calif., Sept. 11.

Spray-O-Rama '68, 7th Annual Conference, Pacific N.W. Spraymen's Association, Portland, Ore., Sept. 13-14.

Northwest Turfgrass Conference, Washington State University and Northwest Turfgrass Association, Alderbrook Inn, Union, Wash., Sept. 25-27.

Midwest Turf Fall Field Day, Midwest Regional Turf Foundation and Purdue University, Purdue Agronomy Farm and Experimental Green, Lafayette, Ind., Sept. 30.

Turf Conference, New York State Federation of Golf Course Superintendents, Nevele Country Club, Ellenville, N. Y., October 8-9.

Turfgrass Management Conference, Florida Turfgrass Association, Ramada Inn, Gainesville, Fla., Oct. 8-10.

Southern California Equipment and Materials Educational Exposition, City Park, Lynwood, Calif., Oct. 16-17.

Central Plains Turfgrass Conference, Central Plains Turfgrass Association, USGA Green Section and Kansas State Univ., K-State Campus, Manhattan, Kan., Oct. 16-18.

Industrial Weed Control Conference, 3rd Annual, Texas A&M University, Memorial Student Center, College Station, Tex., Oct. 20-22.

American Society of Agronomy, 1968 Annual National Meeting, Jung and Roosevelt Hotels, New Orleans, La., Nov. 10-15.

National Aerial Applicators Association, Annual Meeting, Dunes Hotel, Las Vegas, Nev., Dec. 1-4.

Illinois Turfgrass Conference, Illinois Turfgrass Foundation, Inc., Building Auditorium, University of Illinois, Urbana, Ill., Dec. 5-6.

40th International Turfgrass Conference and Show, Golf Course Superintendents Association of America, Fountainebleau Hotel, Miami Beach, Fla., Jan. 19-24.

American Sod Producers Association Annual Meeting, Fountainebleau Hotel, Miami Beach, Fla., Jan. 22.

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

St. Louis Hosted American Association of Nurserymen

The 1500 nurserymen and their families attending this year's American Association of Nurserymen's convention in St. Louis, July 13-17, were treated to a well-balanced program of business and pleasure.

For the first time in its 93-year history, the AAN has gone beyond the 1600 mark in membership. Matching this growth in membership is a growth in the association's influence on the American scene. AAN President J. E. (Ted) Korves, president of Plumfield Nurseries, Inc., Fremont, Neb., stressed in his address before the board of governors that all nurserymen support the AAN and begin to consider themselves as national businessmen with a new, important role.

In reviewing the association's 1967-8 achievements, Mr. Korves reported that the Horticultural Research Institute, the group's own industry-oriented program, is aiding nursery retailers through its research on what people really think of nurserymen, their products and landscaping in general. He also discussed the proposal presently before the HRI concerning "demographic studies," which — if adopted — will enable retailers to answer questions such as who and where customers are, what they're interested in, how their interests are changing and

whether the retailer's business is changing accordingly. Among this year's AAN publications, Mr. Korves cited a 12-page booklet entitled "Landscape Beauty Depends on People" as being particularly effective in promoting the use of the nurseryman's products to the public.

A highlight of the convention was the naming of William Flemer, Jr., president of Princeton Nurseries, Inc., N. J., as the 1968 recipient of the Nurserymen's Hall of Fame award. Mr. Flemer's long list of activities in the horticultural field includes having been: a founder of the New Jersey Nurserymen's Assn.; president of the Ornamental Growers Assn.; president of the AAN (the youngest ever) in 1928; and a founder of the Eastern Nurserymen's Assn., incorporated in 1923 to help nurseries in the eastern Atlantic states survive certain severe U. S. Dept. of Agriculture Quarantine Board regulations. During World War II he was appointed to a special committee — along with Missouri's Governor Lloyd C. Stark, last year's Hall of Fame recipient — to work with the War Department in army camouflage activities. Currently he is responsible for the development and expansion of his business, one of the largest in the East.

Presented with the AAN's Norman Jay Colman Award

for outstanding contribution to horticultural progress through his research was Henry T. Skinner, director of the U. S. National Arboretum in Washington, D. C. Born in East Sutton, England, he came to this country in 1927. He earned his B.S. and M.S. degrees at Cornell University, his Ph.D from the University of Pennsylvania. He was president of the American Assn. of Botanic Gardens and Arboreta and is a member of such organizations as the International Society of Horticultural Science, Botanical Society of America, and the American Society of Horticultural Science. He was also a member of the White House Conference on Natural Beauty. To date, Mr. Skinner has published no fewer than 83 scientific papers and articles.

Art Kozelka, 1968 recipient of the AAN's Garden Writer's Award, has been garden editor of the Chicago Tribune since 1953. He writes a daily home garden column for the Trib and "This Week in the Garden" for the Sunday edition. Having had a lifelong interest in gardening, especially that pertaining to roses (he has 300 of them in his home garden), he majored in botany and agricultural journalism at the University of Nebraska. His interest in combining

(Continued on page 38)





Receiving their AAN Retail Advertising Awards are, from the left: (front row) Lloyd Marshall, Marshall Nurseries, Arlington, Neb.; Alfred H. Hicks, Hicks Nurseries, Inc., Westbury, L. I., N. Y.; Henry H. Chase, Jr., Chase Nursery Company, Chase, Ala.; Itsuo Uenaka, Cupertino Nursery, Cupertino, Calif.; Clarence Seefert, Seefert's Hudson Road Nursery, St. Paul, Minn.; (back row) Edmond G. Greene, Greene Nursery & Landscape Co., Memphis, Tenn.; Merten Natorp, the Wm. A. Natorp Co., Cincinnati, Ohio; James W. Hosking, James S. Hosking Nursery, Watertown, Conn.; John D. Siebenthaler, The Siebenthaler Co., Dayton, Ohio; and Louis Hillenmeyer, Jr., Hillenmeyer Nurseries, Lexington, Ky.



William Flemer, Jr., (left) president of Princeton Nurseries, Princeton, N. J., receives this year's Nurserymen's Hall of Fame testimonial — the highest honor any nurseryman can receive — from President Korves during the Past President's Banquet.



Chicago Trib garden editor Art Kozelka (left) receives 1968 Garden Writer's Award from AAN President Korves.

1968-69 AAN Board of Directors are, from the left: (front row) Harold R. Nickel, Treasurer and Director, Region V, Greenleaf Nursery Co., Muskogee, Okla.; Hoskins A. Shadow, President, Tennessee Valley Nursery, Inc., Winchester, Tenn.; William Flemer, III, Vice President and Director, Region I, Princeton Nurseries, Princeton, N. J.; J. E. (Ted) Korves, Director at Large, Plumfield Nurseries, Inc., Fremont, Neb.; (back row) Kenneth Altorfer, Director, Region III, McKay Nursery Co., Waterloo, Wisc.; Joseph H. Klupenger, Director, Region VI, Klupenger's Nursery & Greenhouses, Inc., Aurora, Ore.; Louis Hillenmeyer, Jr., Director, Region II, Hillenmeyer Nurseries, Lexington, Ky.; and Harold S. Crawford, Director, Region IV, Willis Nursery Co., Ottawa, Kans. Not shown is Allied Associate Director John H. Powell, Economy Label Sales Co., Inc., Daytona Beach, Fla.



Henry T. Skinner, director of the U.S. National Arboretum, is shown with Norman Jay Colman Award presented to him by the AAN for his outstanding contribution to horticultural progress through research.

Grass Identification Is Key to Proper Care

Correct identification of your grass is the first important step toward controlling or encouraging its growth, says University of Maryland turf specialist, Elwyn E. Deal. Using the wrong method will not give you desirable results and may even injure your turf.

To help you determine the type of grass you have, Deal has provided the following list of characteristics of some of the most commonly-used grasses:

Annual bluegrass (*Poa annua*)—shallow-rooted, easy-to-pull-up, relatively small plants; light green with few to abundant seed heads that are pale green to white with a prominent ligule (white membrane-like growth at base of blade next to main shoot). Germinates in fall and early spring; dies during the first hot, dry spell in late spring.

Kentucky bluegrass—opposite of most *Poa annua* characteristics, including a permanent turf with only occasional seed heads that are dark green. Rhizomes (underground creeping stems) emerge from the soil a few inches from the mother plant and produce new plants.

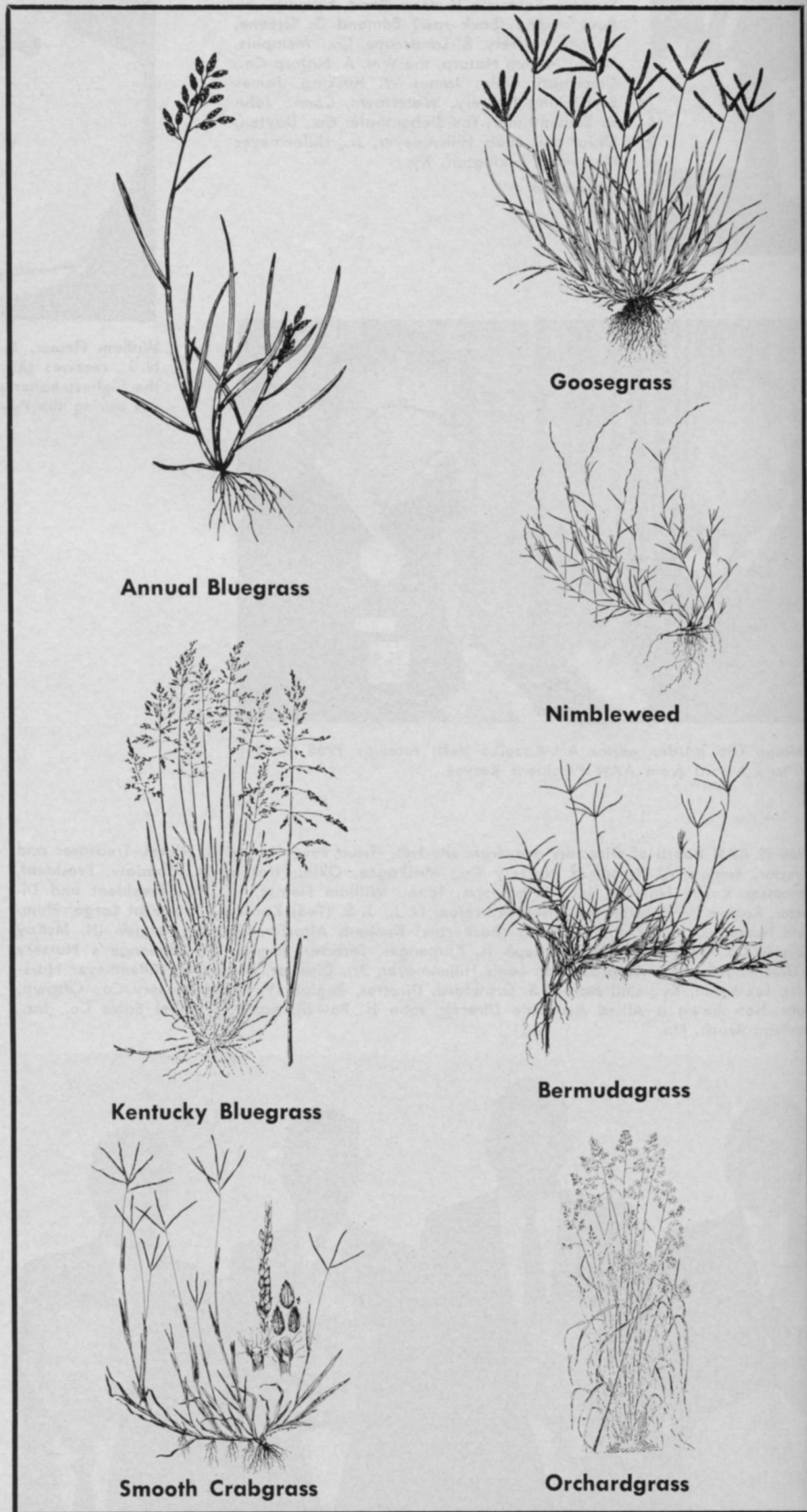
Crabgrass—germinates in mid to late spring (grows only from seed) and dies every fall with first heavy frost. Usually light green plants with shallow roots; found in thin, low-cut turf areas. Main root system easy to find; a few "runners" may develop. Its wide, flat leaves seem papery compared to many turfgrasses. Plants usually produce a loose, open turf.

Tall Fescue, orchardgrass, and timothy—deep rooted and hard to pull up, grow in clumps, live the year 'round. Few or no creeping stems; long, broad leaves that tend to lie down near the ground and are hard to mow with a reel-type mower.

Bermudagrass (wiregrass) — turns brown with first heavy frost but comes back the next

spring from the same plants. Long creeping stems above ground (stolons) and below ground (rhizomes) can be several inches to feet long and produce new plants. Main root sys-

tem cannot be found; plants hard to pull up. New shoots emerge in April and grow rapidly throughout summer. On the seed head, all branches originate from the top of the seed stalk, whereas



in crabgrass they may originate from several places along the seed stalk.

Bentgrass and nimbleweed — occasionally confused with crabgrass but don't turn brown with frost. Grow luxuriously in spring and fall but may turn off-color in summer. Patches usually solid and uniform in texture; leaves small compared to many other grasses. Some types with stolons; thatch usually abundant in bentgrasses.

Several annual grasses (goosegrass, foxtail, witchgrass, etc.) are similar to crabgrass in both appearance and control measures; therefore, even if mistaken for crabgrass, no harm is done, according to Deal.

If you are not sure of the type of grass with which you are working, call on your Extension Agent or other knowledgeable persons in your area to correctly identify it for you, Deal suggests. It could save you a lot of time, money and work.

MSU's Rieke Provides Lawn Establishment Tips

Whether seeding or sodding a lawn, according to Dr. Paul Rieke, Michigan State University soil scientist, preparing the proper seedbed is critical.

If soil conditions are too sandy or high in clay, topsoil might be worked into the soil to improve its physical properties, says Rieke.

Fine textured soil requires surface drainage, which can be achieved by sloping the turf site, says Rieke. He cites the example of football fields, which are often 18 inches higher in the center than at the sidelines to help reduce problems of a soggy turf.

With soil structure in good shape, fertilizing comes next. Rieke recommends, as a good rule of thumb, application of

5-20-20 fertilizer at the rate of 10 to 20 lbs. per 1000 sq. ft. for seeded turf; 20 to 40 lbs. for sodded turf.

If the soil is acid (below a pH of 5.5), lime may be required.

Next, smooth the soil surface and complete the contour. Apply seed and rake it lightly so that the seed is not buried. Then roll or firm the soil to insure maximum germination by providing good contact between seed and soil.

Also vital to good seedbed establishment is mulching, adds Rieke. MSU studies show that straw, excelsior and processed wood chips work best. Mulches help keep soil moisture and temperature at more optimum levels and discourage competition from weeds. They also help keep soil moist during both cool and hot weather, he says.

"A good practice is to check the soil daily, at noon, and to water then to keep the soil moist," Rieke concludes.

Modifying Tractors Can Cause Problems

Before deciding to modify a diesel tractor, effects on tractor life and maintenance costs need to be considered, cautions Thomas H. Williams, extension engineer at the University of Delaware.

Overfueling, perhaps the most popular method of squeezing more power from a diesel, is fast, easy, and cheap . . . but is extremely hard on engines.

Oil contamination caused by excess fuel washes off cylinder walls causing scuffed pistons, carbon buildup in the oil and fouled seals. Excess heat from burning more fuel leads to higher valve temperatures and shorter engine life.

Overfueling also causes injector and injection pump failures to rise sharply and may increase

combustion pressure to the point where head gasket leakage and bearing and crankshaft failure become a chronic problem, Williams points out.

Undue strain on the transmission and final drive caused by extra power may shorten gear, bearing and shaft life.

Overfueling by no more than 10% is enough to bring on these problems, according to Williams; at a 20% power increase, they become critical.

Grass Is Best Organic Soil Conditioner

Elwyn E. Deal, University of Maryland turf specialist, reports on benefits vs. cost of using organic materials as soil conditioners.

Organic materials benefit turf by increasing both water- and nutrient-holding capacities, improving soil composition and adding nutrients.

However, adding organics to large areas is not feasible, says Deal. An acre of soil 6 $\frac{2}{3}$ ins. deep weighs about 2 million pounds; to increase its organic content 1% would require 10 tons (oven dry weight) of organic material. Costs can run high for purchasing, shipping and incorporating the material.

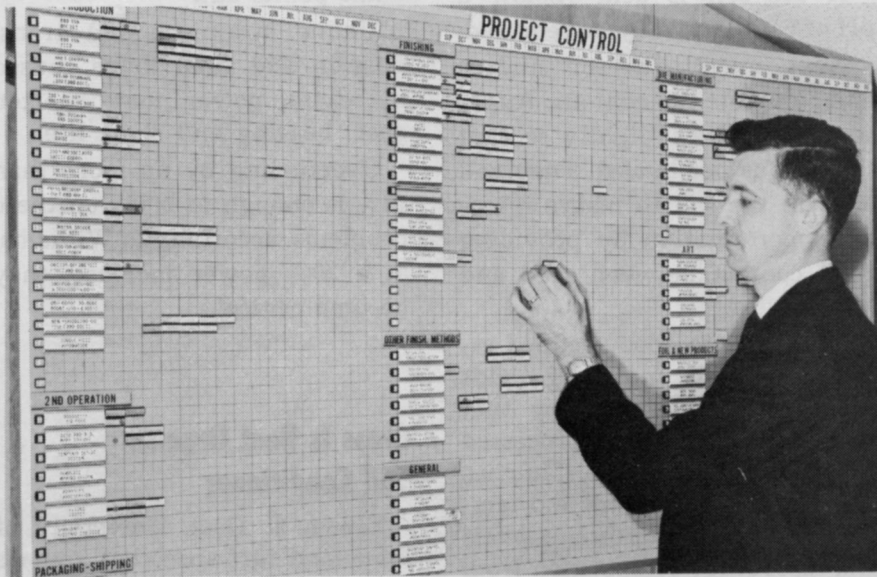
Established grasses, according to Deal, are the best soil conditioners. Their roots decompose rapidly and add large amounts of organic matter to the root zone in short periods of time.

The most critical period is the establishment stage; therefore, organics are most beneficial at the time of and during the first few months after the planting of the grass, says Deal. Once grasses are established, they furnish their own organic materials.

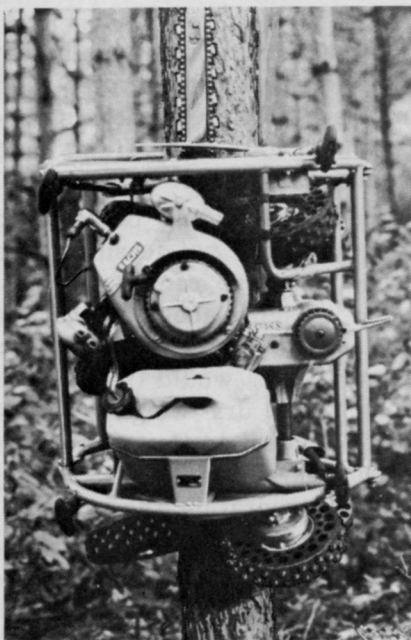
Deal also points out that certain organics used as a mulch (wheat, barley, straw) at the time of seeding are very helpful.

New Products . . .

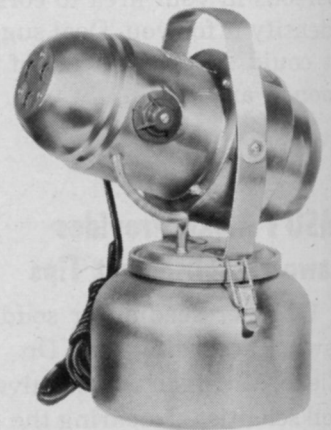
Designed for the Vegetation Control Industry



Methods Research Corp., 105 Willow Ave., Staten Island, N. Y., 10305, now offers a simple yet efficient method of scheduling, controlling and keeping track of various facets of your business. Neat, concise and easy to read, their new Magnetic Visual Control System can be used 71 ways, says the company, from keeping track of equipment and salesmen to showing how far a certain job has progressed. Illustrated is a system installed to increase efficiency of an entire engineering and research department. Projects are listed under sub-heads. Easily moved magnetic card holders indicate the various steps through which a project passes. This system simplifies planning personnel work loads plus enables the chief engineer to tell at a glance the full status of his department. No erasing or rewriting; easy to keep up to date. For details write the company for a free 28-page catalog price list. For more details circle (701) on reply card.



Forestry Service Products, Inc.'s self-propelled "Tree Monkey," through a combination of climbing wheels, crawls up tree trunks by itself automatically pruning branches as it goes. With preset pruning height (maximum 50 ft.) and automatic reverse, it returns by spiraling back down the trunk. Prunes trees in the 4 to 9" DBH range and takes only 4 minutes for a 33 ft. height, says the co. The "Monkey" weighs just 105 lbs., has a 2.7 HP engine and clipper type saw chain that's oiled automatically. Write the company, P. O. Box 229, Wheaton, Ill. 60187. For more details circle (702) on reply card.

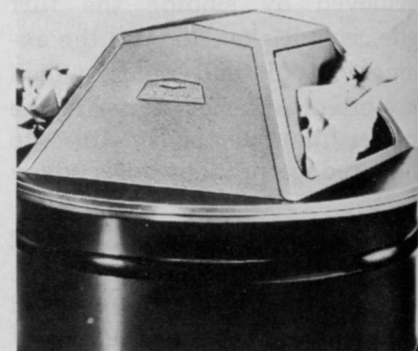


Hub States Corp., 2002 N. Illinois St., Indianapolis, Ind., has introduced a new odor-killing team: Hubsco 431 deodorant and Hubsco Portable Electric Fogger. Hubsco 431 leaves a fresh scent but no residue, won't interfere with antiseptics in hospitals, is safe around foods, says Hub States. The fogger creates a "tornadoic" whirl that reduces deodorant particles to 14 mass microns, enabling the "cold, dry" fog to reach every odoriferous area says the company. For more details circle (703) on reply card.



◆ Magna Sales Co., 1555 W. Howard St., Chicago, Ill. 60626, has made available a lightweight binocular magnifier, left, SIGHT-MASTER (\$6.95). Protects the eyes, magnifies over 2½ times. Polished prismatic lenses. For more details circle (704) on reply card.

General Scientific Equipment Co., P. O. Box 3038, Philadelphia, Pa. 19150, introduces #1711 CONVERT-A-DRUM, right, an adjustable self-closing lid for 15, 30 and 55 gal. drums. Made of heavy fire-proof steel; rust-proof finish, 2 free-swinging doors. For more details circle (705) on reply card.



Ferguson Resigns U. S. Golf Assn. Position

Dr. Marvin H. Ferguson, Mid-Continent Director and Research coordinator for the United States Golf Association Green Section has resigned, effective at the end of the month, to engage in private business as president of Agri-Systems of Texas, Inc.

Agri-Systems of Texas, Inc. will provide a variety of services to turf and to agriculture in general. Areas of activity will include golf course design and construction supervision, irrigation systems design and installation, laboratory services for physical analyses of soils, sod production and sales, and consultation services for the turf-grass industry and for agriculture. Offices and laboratory of Agri-Systems of Texas, Inc. are located at 1200 Villa Maria Road, P. O. Box 3757, Bryan, Texas 77801.

Stripe Smut Is Difficult To Control, Says Partyka

Stripe smut, a serious problem on Merion bluegrass, is caused by a fungus that grows best during cool temperatures of early spring and late fall, according to R. E. Partyka, Extension plant pathologist at The Ohio State University.

Infected plants are often stunted and pale green to yellow in color. As the disease advances, the leaf blades curl; gray to black stripes, from which a soot-like dust can be rubbed, appear. In advanced stages the leaves twist, curl and split from the tip downward, leaving the turf looking gray and ragged.

The fungus grows in the plant tissue; once a plant is injected, the fungus remains there until the plant dies, says Partyka. Spores or seeds produced by infected plants can infest the soil. Upon germinating, the spores will invade grass seedlings or young tillers of older plants.

There is no sure-fire control program for the disease. Since it is inside the plants, sprays normally used in controlling turf diseases have not proved satisfactory.

If stripe smut is detected early—and is not too severe—some degree of control can be obtained by applying nabam at 2½ pts. of 22% active material per 1000 sq. ft. of turf in sufficient water to wet the soil to a 2-in. depth. Application should be made in early spring or late fall.

Proper fertilization and irrigation practices will help to overcome some of the disease symptoms, says Partyka, and may help the turf to make a faster recovery.

Central Nebraska Tech Has Horticulture Course

The Agriculture-Related Department at Central Nebraska Tech now offers a two-year program in Horticulture Technology.

Opportunities in landscaping, turf and park management and floral and nursery plant culture and sales are plentiful for graduates, according to the school. Specific positions include golf superintendents, landscape or nursery foremen, arborists, greenhouse growers and foresters.

Included in the course's objectives are: understanding the principles of basic soils and fertilizers; understanding problems relating to the general field of horticulture; developing the ability to supply needed information concerning turf management, weed and insect problems, disease problems, pruning and maintenance practices, landscaping practices and floriculture; developing the ability to communicate effectively; learning to operate and maintain equipment; familiarizing students with management practices of turf grass, trees, shrubs and greens.

Contact Morland Rucker, Cen-

tral Nebraska Tech, Box 1024, Hastings, Neb., for more information.

Sodding Provides Best Turf Success in Summer

Sodding is the only reliable way of establishing turf in the summer, according to Elwyn E. Deal, University of Maryland turf specialist.

For good sod, Deal says to be sure it is free of off-type perennial grasses, such as tall fescue, nimbleweed and timothy; crabgrass, goosegrass, foxtail and annual bluegrass should be avoided, too, as should broadleaf weeds, poison ivy and thistles. Never buy sod without seeing it first, Deal recommends.

Turfgrass varieties and/or species are of utmost importance, he says. Use only those varieties which have proven successful in your area.

Be on the lookout for mixtures designed for shady areas. In full sunlight, red fescue—the primary grass for use in shady spots—is not a good competitor with Kentucky bluegrasses.

Soil preparation before sodding is as important to successful establishment of sod as it is to seed, says Deal. The same methods and procedures should be followed for both with one exception: fertilizer ratio for sodding should be about 1-1-1, whereas in seeding it is usually 1-2-1 or 1-2-2.

New Folder Explains Uses of Vapam® Soil Fumigant

The Stauffer Chemical Company has recently made available a six-page folder (A-1037) describing the various uses of its Vapam® soil fumigant. Weeds and soil-borne disease organisms controlled by Vapam and pre- and post-application methods are also discussed. Write the company's Agricultural Division, 299 Park Ave., New York, N. Y. 10017.



SOD INDUSTRY SECTION

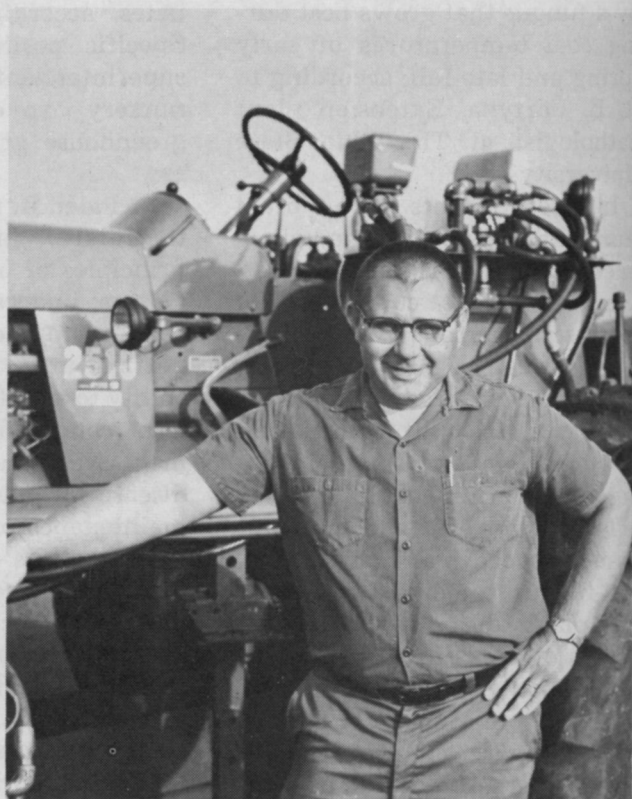


Second Field Day of ASPA Is An Action Spectacular

Few national organizations in their early days have matched the progress of the year-old American Sod Producers Association. Organized formally in mid-July of last year, this group has staged 2 major national summer field days and one winter annual meeting.

Their first big field demonstration was in July, 1967, at Lansing, Mich. The latest, held July 30 at Shamrock Turf Nurseries, Hanna, Ind., was a major production. Practically every builder or supplier of sod production equipment was on hand to demonstrate available equipment for the industry. Well over 400 growers and commercial representatives attended. Don Morrill, president of Shamrock, served as host and Dr. William Daniel, Purdue University, as emcee. Rain threatened during the

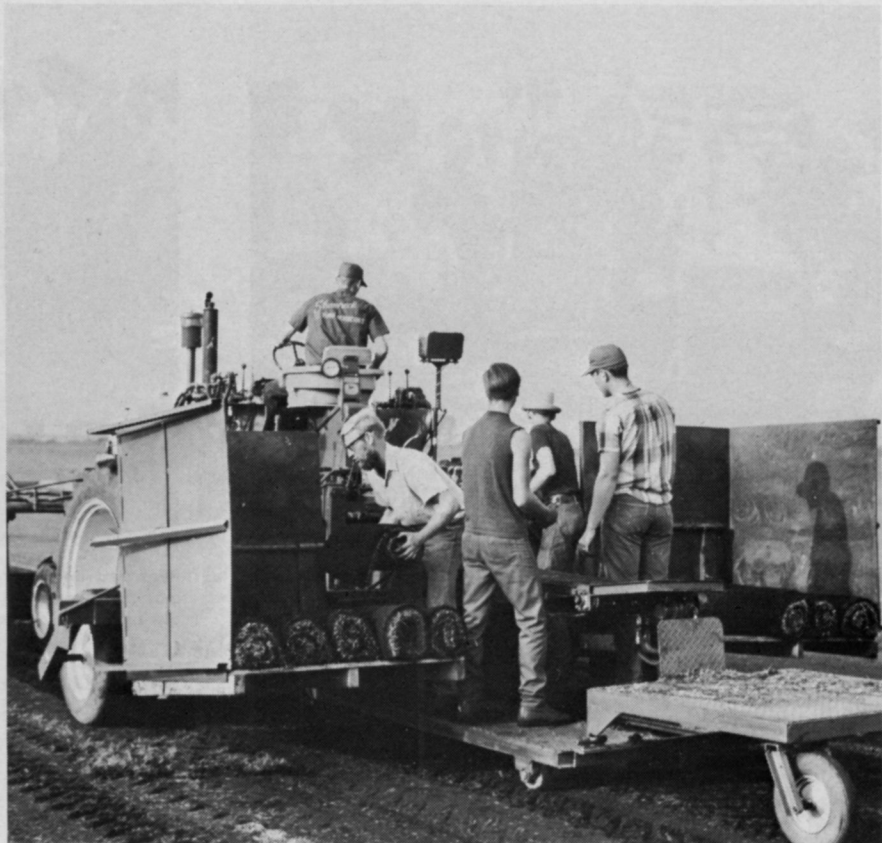
Don Morrill, president of Shamrock Turf Nurseries, Hanna, Ind., served as host for the 2nd ASPA national field day.



morning and a rain shower just after lunch dampened spirits but sunshine prevailed for the equipment demonstrations which proved to be the highlight of the event.

President of the group, Ben O. Warren, Warren Turf Nurseries, Inc., Palos Park, Ill., called officers and directors together for a short business meeting early in the day. Biggest concern apparently is how to enroll more growers as members of the new national organization. Membership at present is just more than 100 and more are needed to support new activities which are planned for ASPA (see WTT editorial, page 4).

The Shamrock operation which is a model for production of quality sod features acreage leveled



Sod roller was designed and built by Don Morrill for use on Shamrock Turf farm. Unit as yet is not commercially available.



GET A HEAD START
ON
GROUND MAINTENANCE

with **OREGON GROWN** fine leaf
RED
FESCUE

- FINE TEXTURED—Companionable with other grasses.
- DURABLE—Resist heavy traffic.
- WIDELY ADAPTED—More tolerant to adverse conditions.
- PRODUCE DENSE SOD—Inhibits weed growth.
- DEEP ROOTED—Drought resistant.
- ECONOMICALLY MAINTAINED—Slow growing.
- LESS DEMANDING—On fertilizer requirements.

Information & Sample Packets
Available on Request.

OREGON FINE LEAF FESCUE
COMMISSION
605 Weatherly Bldg. Portland, Ore. 97214

For More Details Circle (107) on Reply Card



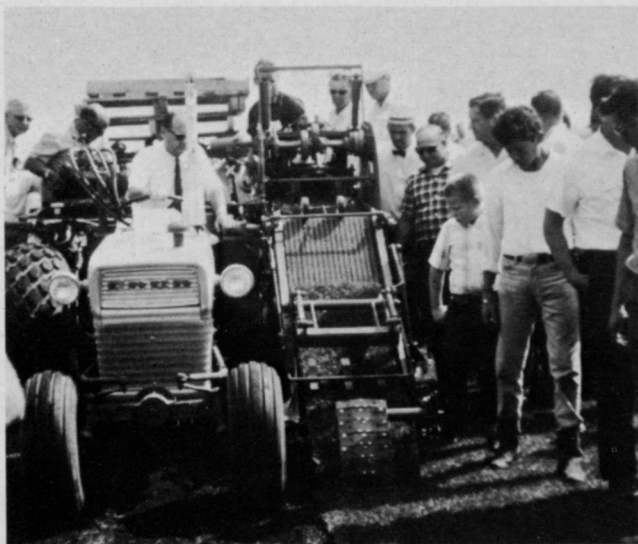
HADFIELD AUTOMATIC SOD ROLLER PATENTED

"Invented by G. HADFIELD, seated"

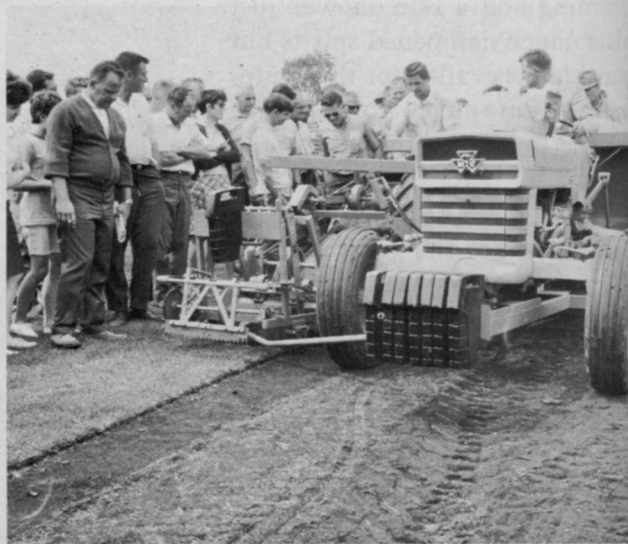
1. Attaches to any Ryan sod cutter
2. Sod plows will turn heavy mineral soil rolls easily to side as they have a pickup and roll action, and will not pull your cutter sideways
3. Reel to roll sod is ground driven so roll does not get ahead of reel
4. Remove sulky and roll sod by walking where fields are wet or short runs.

HADFIELD SOD ROLLER COMPANY
4643 Sherwood, Oxford, Michigan 48051 Phone 313-628-2000

For More Details Circle (108) on Reply Card



John Nunes demonstrates NUnes sod harvester. This unit will handle either rolls or slabbed sod and has capacity for up to 1200 square yards per hour.



Ryan sod harvester demonstrated at ASPA field day is designed for major sod growers who use pallet method. Ryan also exhibited complete line of sod equipment.



Newest piece of sod equipment on display was Ryan sulky, roller attachment for standard Ryan cutter.



Side view of Don Morrill's sod harvester. Unit is designed to roll sod for pallets.

for drainage, complete wheel-move irrigation system, and a comprehensive marketing program. Morrill who is president and general manager of Shamrock has been active in ASPA since its inception and made a significant contribution in making sod acreage available for the national field day demonstrations.

Attendance was greater than expected by the officer and director group. They were encouraged by the interest of growers from 12 states, representing all sections of the country. In addition, more than 30 growers from Canada were on hand.

Next major event of the ASPA, according to Executive Secretary George Hammond will be the winter annual meeting. This session is scheduled for Miami Beach, Fla., January 19-24, in conjunction with the 40th International Turfgrass Conference and Show which is sponsored by the Golf Course Superintendents Association of America. Headquarters will be the Hotel Fontainebleau.

Davey Seeks Variance On State Safety Code

The Davey Tree Expert Co. is seeking a variance from New York's industrial safety code to permit employes to "ride the hook" at the end of a crane.

Section 23 of the state's industrial Code prohibits "riding the hook" which means that a man cannot ride atop a load being swung by a crane, or cannot himself be suspended from the hook.

Raymond Smith, district manager of the tree company in Lancaster, testified at a hearing that his firm felled 20,000 diseased elm trees in Buffalo, N. Y. without a single injury to employes who "rode the hook."

The firm was cited as being in violation of the code last February. The hearing in the State Office Building was conducted by William C. Levis, the hearing officer for the Labor Department's Bureau of Standards and Appeals.

Smith told Levis that Davey Tree Expert Co., a national operation based in Kent, Ohio, had found that riding the hook was the safest method for felling diseased trees.

The method involves suspending a man wearing a safety harness from the end of a crane hook and lowering him into a position where he can attach a crane cable to a limb. The man then slides down a safety line to the ground, the limb is cut by a chain saw and the crane lowers the severed limb slowly to earth.

Smith testified that the method is far more safe than having a man climb a diseased tree and crawl out on a limb that is in danger of cracking, in order to attach a cable.

The Davey firm was supported in its request for a variance by representatives of the New York State Arborists Association, a competitor, and by Niagara Mohawk Power Corporation. The utility company often finds itself trimming or removing trees that interfere with power lines.

Levis said that if the variance is granted by the board, it will apply to limited conditions such as tree removal or trimming and will not make riding the hook permissible in industry. He added that "the need for safety will be paramount in any determination made by the board."

Merion Bluegrass Meeting Drew Large Attendance

President Arden Jacklin of Jacklin Seed Co., Dishman, Wash., presided over the 15th Annual Meeting of the Merion Bluegrass Association, one of the best attended sessions in the group's history, held recently at Coeur d'Alene, Idaho.

Among the various topics discussed was the present status of Merion. Dick Bailey of W. R. Grace & Co. Rudy-Patrick Division reported that his findings from a recent tour showed Merion is the main grass used in extensive sod areas.

Arden Jacklin reported on research grants at Oregon State University and Rutgers University, both optimistic about obtaining a satisfactory control for stripe smut.

The hydro, "Miss Merion Bluegrass," winner of the Englehard Palladium Perpetual Trophy at the International Grand Prix in Miami, attracted a great deal of attention during the meeting.

Tuesday was devoted to the traditional farm tour. First stop was the Coeur d'Alene U. S. Forest Service Tree Nursery, which furnishes tree stock for 16 stations.

During the tour, a radius of 25 miles was covered in the examination of various fields of not only Merion but of Pelo ryegrass, NK 100 ryegrass, 0217 Fylking Kentucky bluegrass, Canada bluegrass, A-34 shade tolerant bluegrass, Norlea ryegrass, Park Kentucky bluegrass and S-2 Kentucky bluegrass.

After a luncheon at the State Line and River Ranch of Jacklin

Seed Co., the remainder of the day was spent in the examination of the turf trial grounds and lawn plots at the Ranch and of various segments of Jacklin's expansion program.

Cornell Conference Scheduled for Winter

The Cornell Conference for Nurserymen, Arborists, Garden Center Operators, and Landscape Contractors formerly held in July has been moved to a winter time slot.

The expanded winter series will include meetings at both regional and on-campus locations to enable more ornamental horticulture businessmen to participate and will be geared to their needs as managers of production, sales and service businesses.

Regional conference workshops will consider topics in depth, supplemented with talks of general interest. The Ithaca seminars, on the other hand, will treat in considerable depth specific topics such as employee management, nursery stock harvesting and storage, garden center layout, arboriculture, and horticultural service business management.

A complete program will be available in early fall.

Bermudagrass Mite Damage Difficult to Diagnose

The bermudagrass mite, a tiny wormlike pest that can't be seen with the naked eye, has been causing increased turf damage, reports Dr. S. H. Kerr, entomologist with the University of Florida's Agricultural Experiment Stations.

Coarse, dried bermudagrass is hardest hit. Infested blades turn light green, curl up abnormally and may eventually die. Many homeowners, says Kerr, mistake these signs for damage caused by nematodes or disease. He recommends diazinon for effective control of the mites.

New ARS Technique Aids Herbicide Evaluation

Agricultural Research Service plant physiologist W. A. Gentner has developed a new technique enabling scientists to evaluate mere specks of herbicides, according to the U. S. Dept. of Agriculture.

Previously as much as 10 grams of an herbicide were required to do a similar evaluation. This could be problematic, as some experimental herbicide samples are expensive and often available only in small amounts.

With Gentner's simple device, scientists can determine exactly a plant's tolerance to a chemical. This knowledge will make possible more precise application of herbicides by drawing a sharper line between a plant's tolerance of and ill effects from an herbicide.

Glass wool that serves as a filter is placed in a test tube with a ¼-in. hole in its bottom. The tube is then filled to about 1½ ins. from the top with quartz sand, into which is planted the seed to be tested. The tube, fitted with a rubber collar, is suspended in an Erlenmeyer flask containing a nutrient solution and concentration of the herbi-

cide to be evaluated. Once a day the tube is dipped into the solution.

Gentner points out that while his apparatus gives precise data on the effect that the structure of an herbicide molecule has on the plant's activity, it does not give the complete story. Many techniques, including field studies, are necessary to completely evaluate the effects of herbicides.

Gentner's work is part of an ARS research program to improve pesticide effectiveness and avoid potential residue hazards.

Cornell University Publishes DED Leaflet

A new tree pest leaflet from Cornell University is now available. It is entitled "Municipal Decisions in Dutch Elm Disease Control," and is authored by Drs. W. A. Sinclair, W. T. Johnson and J. A. Weidhaas. Dr. Weidhaas is now an extension specialist at Virginia Polytechnic Institute, Blacksburg, Va.

The new publication gives background facts on problems which face communities seeking to establish DED control programs. The authors list the al-

ternatives of a community beset with the disease. They discuss requirements for municipal control programs along with public information and funding. They also list some reasons why programs fail.

Copies of the new publication are available from New York State College of Agriculture, Cornell University, Ithaca, N.Y. Ask for Cornell Tree-Pest Leaflet A-4.

Urban Environment Causes Problems for Plant Growth

Cultivating plants in urban communities may become extremely difficult with time, cautions F. O. Lanphear, Purdue University research horticulturist.

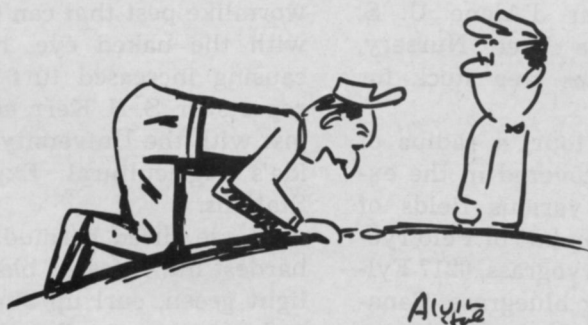
Effects from increased air pollution, salt used on highways as deicing agents and lack of sufficient area for proper root development can hamper the growth of plants trying to survive in urban environments, he says.

Some plants (such as the Austrian pine), once thought to be adaptable to city conditions, are now found to be susceptible to increased air pollution. Lanphear cites the case of a Chicago-area grower of orchids who estimates that air pollution costs him \$150,000 annually due to crop injury.

Many other species, however, continue to appear tolerant (such as sweet gum, hackberry, American elm, ginkgo, pin oak, Norway maple and ash).

Lanphear feels these injurious conditions should be remedied, as plants are capable of benefiting urban communities in many ways.

As urban temperatures generally range 10°-15° higher than those of the countryside, he notes that the use of green space (composed of various forms of vegetation) may help modify



SURE IT'S DOLLAR GRASS,
I?'S GOT "IA GOD WE TRUST"
ON IT!"

climate as well as provide recreation.

Shrubs and trees planted between sources of noise and areas where people congregate can serve as buffers.

Plants, too, are not only capable of acting like "air conditioners" by removing dust and soot from the air, but they can enrich the air with oxygen, according to Lanphear.

Furthermore, he says, the fragrant aromas of some plants help to compensate for less desirable odors that exist in the city.

Citgo Establishes New Beautification Program

Cities Service Oil Co., (CITGO), a subsidiary of Cities Service Co. of New York, has produced a film presentation depicting the visual impact of its current service station beautification program.

Entitled "More Than A Bed Of Roses," the brief film shows how CITGO stations have benefitted from using the latest in design, landscaping, lighting and merchandising methods.

In the film, CITGO emphasizes its belief that an attractive place of business is beneficial not only to the company but to the community it serves, as well.

Suppliers Staff Changes

S. E. Cook, Jr. has recently been appointed assistant district manager for agricultural chemicals in the Hercules Inc. San Francisco office.

Amchem Products, Inc. announced two staff changes: Herbert L. Groshens has rejoined the company as agricultural chemical sales representative of the mid-Atlantic district after a two-year absence; John G. Neckerman has been appointed agricultural chemical sales rep in the Pacific Northwest.

Thompson-Hayward Chemical Co., Kansas City, Kans., has appointed Mamoru Matsuzaki tech-

nical sales representative of its office in Fresno, Calif. The company also named Donald Fox director of field research and development of its North Central region.

Diamond Shamrock Chemical Co., a unit of Diamond Shamrock Corp., Cleveland, O., announced the establishment of its newly organized Bio-Chemicals Division. Dr. Melvin Hochberg has been appointed to head the new division as vice president of Diamond Shamrock Chemical Co. and Bio-Chemicals Div. general manager. M. F. Wilkerson has been designated director of marketing and sales for the new division. Harry A. Batley has been appointed president of the Nopco Chemical Division and a vice president of Diamond Shamrock Chemical Co. Warren Dusenbury has been named administrative vice president of the Nopco Division.

Duane L. Closs has been appointed Director of Sales for all single engine business, pleasure, training and agricultural aircraft marketed by the Aero Commander-Albany (Ga.) Division of North American Rockwell Corporation.

Norman Ronemus has been named Manager, Product Development of Colloidal Products Corp., Sausalito, Calif.

Barton P. Jenks III has been appointed to the law department of the J. I. Case Co., Racine, Wisc., in the capacity of assistant general counsel.

Jack Q. Miller has been named area manager at Fox Tractor Division of Koehring Co., Appleton, Wisc. The division also appointed Harold E. Bayless and Robert E. Evensen as regional sales managers. The Brady Division of Koehring Co., Des Moines, Iowa, has named Ted J. Auer its central region sales manager.

Nalco Chemical Co., Chicago, has announced several changes within its Industrial Division: R. W. Graff and E. H. Hurst have

been promoted to regional managers in Chicago; W. H. Clark will replace Grass as Michigan district manager; R. J. Menard will replace Hurst as manager of the South Atlantic district; P. J. Hallson has been promoted to district manager of the Wisconsin district; and C. A. Smith will become manager of the expanded Carolina district.

Merton W. Klemm has been designated a territory manager for the Brady Div. of Koehring Co., Des Moines, and will be responsible for farm machinery sales to dealers in southeast Wisconsin.

W. E. Kautenberg Co., a subsidiary of Furst-McNess Co., both of Freeport, Ill., has recently appointed Frank A. Rever to the post of assistant to the president. Mr. Rever's initial responsibilities will concern new product development and market expansion.

C. Kenneth Claunch has been named Product Marketing Manager for the Industrial Chemicals Div. of Mallinckrodt Chemical Works.

Nathaniel Matlin has established The Matlin Company, Inc., 21 S. Main St., Yardley, Pa., to provide marketing assistance and communications and product development service to clients in scientific, technical, medical, industrial and agricultural fields.

Dr. J. Benton Jones has joined the staff of St. Louis Testing Laboratories, Inc. as a Consulting Agronomist.

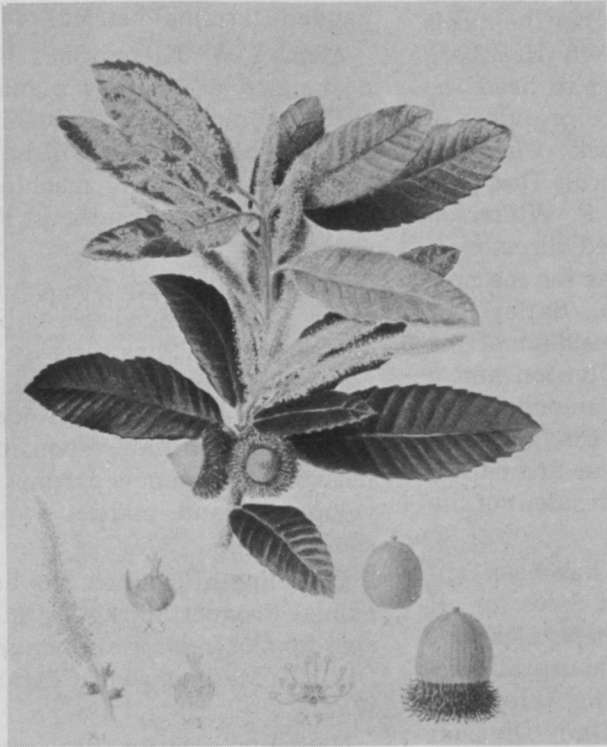
Jack T. Langley has been appointed a sales and technical representative of Retzloff Chemical Co. in their southeastern regional office at Atlanta, Ga.

John G. Messenger has joined Allis-Chalmers as manager of marketing for its farm equipment division.

Richard E. Whitson, Jr. has been designated Manager of Insecticide Clay Sales for the Oil-Dri Corporation of America, headquartered in Chicago.

TANOAK

(*Lithocarpus densiflora*)



Picture from: Murman Slide Collection, Library,
University of California at Los Angeles.

Prepared by: O. A. Leonard, Botanist, assisted by B. J. McCaskill,
Senior Herbarium Botanist, Botany Department,
University of California, Davis, California.

Although tanoak (*Lithocarpus densiflora*) is not a *Quercus*, it is closely related to and has been included in the genus in the past. There is only a single species in western North America, but there are about 300 of them in eastern and southeastern Asia and Indomalaysia. In California a dwarf variety (*L. densiflora* var. *echinoides*) also occurs. Both tanoak and members of the genus *Quercus* belong to the beech family (*Fagaceae*).

Confined to the Pacific Coast states, tanoak occurs in both coastal mountains and in the Cascades

and Sierra Nevadas. It is an evergreen tree 60 to 150 feet high with a conical crown and thick fissured bark. The oblong, leathery leaves are 1½ to 5 inches long and 1 to 1¼ inches wide with petioles approximately ½ inch long. Light-colored when young, they become almost glabrous with age. Flowers are in erect catkins 2 to 4 inches long; acorns are from 1 to 1½ inches long and are surrounded at their bases by a shallow bur-like cup with slender recurving scales. They mature the second year.

Tanoak is a common constituent of the Douglas-fir and redwood forests of the Pacific Coast. Following forest fires or logging the tanoak recovers rapidly due to its ability to develop basal sprouts. This recovery works to the disadvantage of Douglas-fir, whose young seedlings have difficulty competing against dense stands of sprouting tanoak. In the past, tanoak had been used to a small extent for lumber and its bark for tannin. Today the bark is no longer used for tannin and future prospects of using the tree for lumber are limited. The problem, then, is to control this species sufficiently to prevent the present pattern of conversion of valuable Douglas-fir forests into low-value tanoak forests by logging.

Tanoak is not only of limited value as a forest tree but also as browse for domestic livestock or big game. There is some interest in converting tanoak covered areas into range, but control of the species is difficult. However, there are methods in which herbicides can be used in forested areas for tipping the ecological balance in favor of Douglas-fir and some other coniferous species.

On sites where there is an understory of Douglas-fir, a brush killer mixture of 2,4-D and 2,4,5-T (or 2,4,5-T alone) can be sprayed by helicopter in March or April, using about 3 pounds of acid equivalent per acre. The main point is to make the applications prior to the growth of the conifers so they will not be injured. Reapplication should be planned in about 2 years and again, perhaps, after a lapse of 2 or 3 more years. In this manner, the tanoak can be suppressed, giving the conifers an opportunity to out-compete them.

It is also possible to make several types of applications with ground equipment. The understory tanoak can be sprayed with a mist blower and the larger stemmed trees can be treated with 2,4-D amine applied to cuts in the stems in winter or early spring.

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.

HELP WANTED

TREE CLIMBERS and ground men, experienced, New York City tree removals, \$5.20 hour. Write to 128-10 26th Ave., College Point, New York 11354 or Phone 939-3500.

FOR SALE

VERMONT'S Pioneer Turf Farm, 220 acres. 90 acres level tillage, light loam, 1,500,00 feet certified Merion ready to harvest. Expanding market near rapidly growing areas and ski centers, also feasible to market in out-of-state metropolitan areas. New equipment, good house, other buildings. Much valuable highway frontage, timber, water, etc. Fine opportunity. Investigate. Write or phone B. G. Day, Johnson, Vermont 05656. Phone 802 636-2580.

120 ACRE sod farm, all muck and peat. Just 1/2 mile north of East Lansing, Michigan on black top road. All seeded to Merion. Well and pond for irrigation. John Bower, R2,

Grand Ledge, Mich. 48837. Phone 627-6107.

USED EQUIPMENT

ONE BEAN SPRAYER, 35 gallons per minute, 800 pounds pressure, engine 30 horsepower, Wisconsin, 4 cylinder, 400 gallon tank, good condition. Therkiidsen's Nursery, 4830 Ames Ave., Omaha, Nebraska 68104. Phone 451-6047, James L. Therkiidsen.

New Seal Identifies Merion Bluegrass Seed

A new seal now identifies Merion bluegrass seed for Merion Bluegrass Association members who support the Merion advertising and promotion campaign.

An oval sticker, about the size of a quarter, has the notation, "Member in Good Standing," encircling the initials "MBA." It is designed for attachment to bag tags and packages.

President of the Association, Arden Jacklin, Jacklin Seed Co., Dishman, Wash., states that it

Advertisers

INDEX TO ADVERTISERS

Brillion Iron Works, Inc.	3rd Cover
Chipman Chemical Co., Inc.	4
Geigy Chemicals Corp.	4th Cover
Hadfield Sod Roller Co.	31
International Harvester Co.	20, 21
Jacklin Seed Co.	38
Knowles Tree Service, Heller-gro	17
Mitts & Merrill, Inc.	5
Mobile Aerial Towers, Inc.	19
Mott Corp.	37
John Nunes Mechanical Harvesting Co.	2nd Cover
Oregon Fine Leaf Fescue Commission	31
Robert B. Peters Co., Inc.	37

will be to the mutual advantage of both seller and purchaser if buyers insist on this identifying seal. The seal will appear on the bag, on the confirmation of the order, and on the invoice. This will serve to designate the seed source as an MBA member in good standing, and one who has paid the voluntary advertising assessment.

PETERS SPECIAL

SOLUBLE FERTILIZERS

Completely chelated all purpose feeds

Contain all necessary trace elements in a completely available form. -- Contain very effective color tracers -- Contain effective penetrating agents. --

Ideal for all types of foliar, turf and root feeding.

Compatible with all commonly used spray materials.

The finest soluble fertilizers ever made! Try them and see!

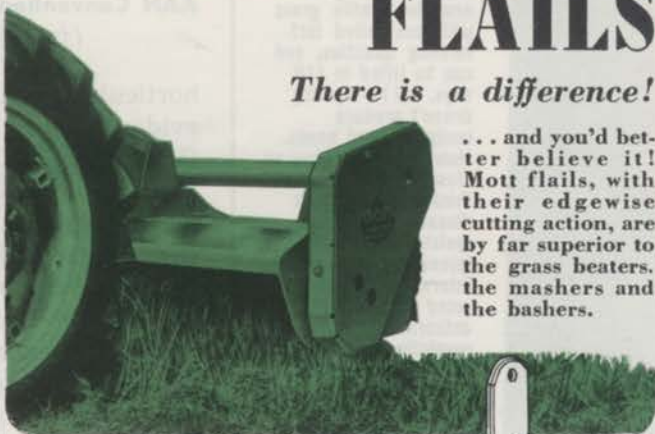
Inquire from your jobber or write direct to us for further information.

ROBERT B. PETERS CO., INC.
2833 PENNSYLVANIA ST. ALLENTOWN, PA.

For More Details Circle (109) on Reply Card

FLAILS FLAILS FLAILS

There is a difference!



... and you'd better believe it! Mott flails, with their edgewise cutting action, are by far superior to the grass beaters, the mashers and the bashers.

20 YEARS of know-how... makes the Mott for 1968 greater in cutting ability... better cutting with less power! Mott is the only Hammer Knife Flail mower — none can compare! It isn't built to beat a price line. It's engineered for longer life, greater safety and better performance for a wide range of job applications.

The patented MOTT "hammer-knife" flail blades are made in six different styles—to meet every mowing need—fine lawns, weeds, leaves or renovating. The self-cleaning feature insures continued peak performance in the most adverse mowing conditions. The lightweight construction minimizes throwing of struck objects — provides greater safety.



Get a date to see the Mott for 68—we'll demonstrate.

MOTT CORPORATION

514 Shawmut Ave. LaGrange, Ill. 60525

For More Details Circle (110) on Reply Card

this blade is causing a revolution

The blade revolutionizing the lawns of America is 0217® Brand Fylking Kentucky bluegrass (Patent Pending). A new, low-profile grass with unexcelled turf-forming qualities; sod can be lifted in 110 days. 0217® Fylking doesn't produce unsightly seed heads. Mows smooth, thrives on close cutting. Greener, thicker — the most disease, weed, wear-resistant lawn yet (proven by 10 years of international testing — rated best by turf authorities). Join the revolution. See your seed distributor. For information or names of authorized distributors, write Jacklin Seed Co., Inc., Dishman, Wash. 99213.



FYLKING KENTUCKY BLUEGRASS

For More Details Circle (111) on Reply Card

Turf Quality

(from page 13)

Nunes feels it is superior to herbicides in the production of quality sod.

Equally important in Nunes's opinion is the proper amount of irrigation water. Nunes Turfgrass crews carry an Aquatron Moisture Meter to eliminate the guesswork from this chore.

Presently, the DuMel Company, manufacturers of Aquatron equipment, is experimenting on the Nunes nursery with a new concept in controlled irrigation — an automatic aquatron programmed so the water will turn on and off at a precise percent of moisture.

Nunes holds the exclusive U.S. franchise for this device. He is excited over its future potential as well as the sod industry as a whole.

"The prospects are unlimited," he states, "but the key to the whole business is still quality and service. Everybody wants a good lawn, and few know how to get one or keep it."

AAN Convention

(from page 24)

horticulture with journalism is evident in his activities: Sigma Delta Chi, national journalism fraternity; Alpha Gamma Rho agricultural fraternity; the Chicago Regional Rose Society; the Garden Writers' Assn. of America; and the Chicago Press Club.

Also presented at the convention, for the first time, were Retail Advertising Awards to 16 garden center firms.

Aside from the National Trade Show exhibits, an advertising workshop, various committee meetings and discussions on timely horticultural matters, the convention agenda also included a tour of Grant's Farm, a trip to the Municipal Opera and to a Cardinals-Giants game, and a tour of St. Louis homes of early 1900 vintage.

Trimming

Bigger Trees For Parks. Vandals are universal in their wanton destruction of park plantings, especially newly planted trees. Theodore Haskell, of the Lansing, Mich., Parks and Recreation Commission, believes the best solution is use of bigger trees. Vandals normally don't saw or chop down a new tree, but merely snap it off. They can't do this with 4-inch trees so usually leave them alone. Heavy equipment and trained men prove their worth with a planting program which specifies the larger sized trees.

* * *

Entertainment Or For Real? A real ESP (extra sensory perception) expert entertained arborists at the recent International Shade Tree Conference at Chicago. She predicted a sure cure for Dutch elm disease within 2 years. "Not necessarily a drug," she said, "but a means of control which already exists," implying a method undergoing trial. This proved to be quite a session for ISTC'ers, with some believers. Big majority of the group we talked with seemed as skeptical as we were.

* * *

New Hercules Service. Hercules has put together a division of environmental services. The new service unit offers coordinated efforts in three segments of the water management field—process water treatment, waste water treatment, and consulting services. The idea is excellent and will be especially helpful to town and city departments who are troubled with a combination of corrosion, scale, fouling, and algae. Problems are related and service can be received for both industrial and effluent water problems. Help in the entire field has been difficult to obtain because of the many phases of technology applicable to the problem.

* * *

WTT in Growth Phase. WEEDS TREES AND TURF magazine has now surpassed the 35,000 mark in circulation. Besides 3012 tree care companies, WTT now reaches all municipal arborists, more than 7000 custom spray operators, almost 800 sod producers, 2000 aerial applicators, 2000 irrigation contractors, more than 10,000 rights-of-way maintenance, cemetery, airport, park, athletic field, hospital, college, and general vegetation care supervisors, and 6056 golf course superintendents.

**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.

Insect Report

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

Turf Insects

FALSE CINCH BUG (*Nysius ericae*)

Colorado: Numerous in all areas of Mesa County, especially around grasses in pastures and occasionally around gardens. Mostly nuisance; controls applied in some areas.

A HESPERIID MOTH (*Atalopedes campestris*)

Texas: Heavy, damaging grass in Caldwell and DeWitt Counties.

A SNAIL (*Zonitoides arboreus*)

California: Heavy on dichondra lawns in Sun City, Riverside County.

Tree Insects

ADELGIDS (*Adelges* spp.)

Michigan: *A. cooleyi* eggs of overwintering forms laid. Hatched in southern Lower Peninsula; complete hatch expected in 7 days further north in Charlevoix County.

LETTUCE ROOT APHID (*Pemphigus bursarius*)

North Carolina: Collected on Lombardy poplar at Zebulon, Wake County, July 2, 1968. This is a new State record.

ALDER FLEA BEETLE (*Altica ambiens*)

Oregon: Severely skeletonized 50 percent of alders along coast between Florence, Lane County, and Newport, Lincoln County.

ELM LEAF BEETLE (*Pyrrhalta luteola*)

Georgia: Heavily damaged elm foliage in Gwinnett County. **Oklahoma:** Adults feeding and laying eggs; hatch light with second-generation larvae feeding. **Kansas:** First-generation adults laying eggs in many areas. **Nebraska:** First-generation adults emerging in Nemaha County; emergence about 10 percent complete. Foliar damage 50-60 percent on American and Siberian elms at Auburn. **Delaware:** Larvae damaged elm leaves in several areas. **New Jersey:** Larvae active in central counties.

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*)

Infestations continue in **Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Texas.** Seasonal increases expected in most areas; already increased on Bankhead National Forest in **Alabama** and on private lands in eastern **Texas.** **Tennessee:** Scattered active spots in Loudon County.

JACK-PINE BUDWORM (*Choristoneura pinus*)

Wisconsin: Browning of jack pine severe on 5,000 to 10,000 acres in northwestern Juneau County. **Minnesota:** About 15-20 percent of last instars in pupal stage in east-central areas and 25-30 percent in north-central areas.

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.



Turf-Maker is specifically designed for professional turfmen, landscapers and sod growers.

Introducing the NEW TURF-MAKER

— the most precise grass seeder made

Brillion's new Turf-Maker is for you — if you want to seed the finest grass seeds and lawn mixtures with miserly accuracy over large areas. It crushes, seeds and rolls in one pass—enables one man to seed up to 50 acres per day without extra help, equipment or seedbed conditioning.

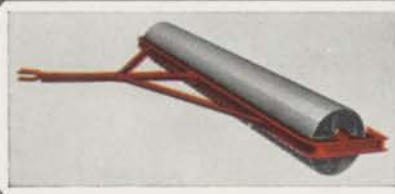
Turf-Maker gives you exclusive Micro-Meter adjustment for an infinite range of seed settings — Brillion fluted rolls, the most accurate seeding mechanism known — and the unique reversible sprockets for a dual range of rate settings. The results: Full, thick stands at up to 50% seed savings over conventional methods. It's the best for sod seeding.

You can order Turf-Maker in 8' and 10' seeding widths. Options include transport wheels for both sizes and 3-point Category II pick-up for the 8' model. Seed better — save more with Brillion. Mail coupon.



LANDSCAPE SEEDERS

— 3 sizes for heavy seeding rates — 5'4", 8' and 10'. Drawbar and 5'4" and 8' pick-up models.



SMOOTH ROLLERS

— for smoothening humps and winter heaves in established turf. Single and triple gang models, 9' to 20' widths.

Landscape Tools with a Future—for You!

BRILLION IRON WORKS, INC.

Dept. 15-59-9, Brillion, Wisconsin 54110

Please send me information on the following:

- New Turf-Maker Smooth Rollers
 Landscape Seeders Name of nearest Brillion dealer

Name.....

Address.....

City..... State..... Zip.....

LS-98

For More Details Circle (112) on Reply Card

What is there to weed control besides just killing weeds?

Maybe the area to be treated is already weed-free. Or maybe it's infested with established weeds. Perhaps the weeds are annuals. Or deep-rooted perennials that ordinarily are more difficult to control.

Could be the area is large. Or small. It may be easily accessible. Or it might be difficult to reach, either with sprays or big equipment.

These, as well as moisture availability and soil type, are just some of the conditions you have to consider before selecting a herbicide.

But whatever the weed problem, you'll find the right answer in one of the five Geigy industrial herbicides. Why? With them, you can solve just about any weed problem you might encounter.

What's more, each Geigy industrial herbicide delivers long-lasting residual control with once-a-year application. So they're most economical, too.

Geigy herbicides are easy to handle and apply. They require no special protective clothing or devices and can be applied through most application equipment.

For spraying, you can use Atrazine 80W or Simazine 80W wettable powders, or Pramitol® 25E emulsifiable solution. Where spraying is impractical, you can apply dry Pramitol® 5P or Atritol™ 8P pellets, by hand or mechanical means.

Find out more on how these Geigy industrial herbicides can solve practically all your weed problems . . . effectively and economically.

Be sure to write us today for fully descriptive literature.

Geigy Agricultural Chemicals, Division of Geigy Chemical Corporation, Saw Mill River Road, Ardsley, New York 10502.

Geigy

CREATORS OF CHEMICALS FOR MODERN AGRICULTURE