



A full 100 yards of sod, supported by the wax-impregnated cardboard, is lifted from the truck and moved to the site in a simple one-man operation. The wood pallets stay on the truck.

2. eliminating the return trip to pick up pallets,
3. unloading the sod off the truck without using manual labor.

To get a full load per shipment, Emerald Valley designed a 48" x 58" pallet which allows 12 rolls per tier and three on top, for a full 100 yards. An ingenious stacking arrangement uses sod as its own stabilizing tie. This is accomplished by unrolling two rolls of sod per tier, which will cover the whole pallet.

The pallet itself was created of reverse ribbed, wax coated cardboard and is inexpensive and *disposable*. A wood pallet with open fork pockets on both ends was designed. This remains on the truck and, should it be needed for ordinary use, it is simply turned over. The cardboard pallets of stacked sod are placed on them rather than the trailer bed and, because of the open fork pockets, are easily removed. This method ended the need for these expensive return-to-the-job-site trips.

To solve the problem of unloading the truck without use of manual labor, Emerald Valley turned to Otis Material Handling, Otis Elevator

Company. The Baker-York division of Otis manufactures an all-terrain, completely towable fork lift truck. Called a UT (Utility Towable), the truck is easily attached by one man to the trailer and may be towed at legal highway speeds to the job site. Articulated axles allow it to operate safely on rough or rolling terrain with full load. Loads can be spotted strategically on the job site.

Emerald Valley investigated using booms but ruled them out for a number of reasons. Booms cost \$6,500 to \$8,500 each. One would be needed on each of six trailers in the

Emerald Valley fleet. Booms would also limit delivery. Shipping space on the trailer would be lost because of the room taken up by the boom.

Four Baker-Yorks could easily service six trailers and three tractors and at a much lower cost to benefit ratio. The plus factor was unloading flexibility.

Before the final decision was made to change to what actually constituted a whole new method of growing, handling, shipping and unloading, Emerald Valley carefully considered every cost factor. When costs were determined, they were compared with anticipated benefits from the proposed new capital commitment, expressed in terms of return investment. For the size of its operation, a figure of \$129,000 would have to be committed. That figure included cost of four Baker-York lift trucks, new field equipment, cost of pallets and the new disposable pallets, and the cost of abandoning equipment that had not been fully depreciated.

Costs were projected against anticipated future business and a feasibility point, expressed in yards sold, established. In this manner, Emerald Valley could account for variables within its 33-week season and still arrive at a cost-benefit ratio that, in the light of its experience, was reliable.

The decision was made to proceed with the new system and preliminary figures indicate handling costs have been cut 50% or 1.3 cents a yard. With favorable weather-market conditions, that cost savings could reach 70%.

Barry Stumm, vice-president and manager of Emerald Valley's Cleveland office, states that, "one man, with the Baker-York, is doing the work of three in one-third the former time. The labor headache is also gone. We used to need 10 men to handle our shipments from the farm and, in order to get 10, you had to call 15 and pray that enough would

## AMERICAN SOD PRODUCERS ASSOCIATION

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For More Details Circle (101) on Reply Card



With the lift, Emerald Valley Sod is strategically stock-piled on the job site. Installers have learned this service cuts "travel time" by two-thirds on the average front home lawn.

show up so we could operate. Our customers can now expect on-time delivery."

Add to these benefits the economies effected by "volunteer growth" production.

Another benefit to Emerald Valley is the unique selling proposition that all-terrain, lift-truck delivery has provided. Landscapers are realizing a definite labor time savings because pallets can be spotted around the job site. Emerald Valley calculates that, based on an average 400-square yard front lawn, one man carrying 14 yards of sod in a wheelbarrow travels 3,600 feet to complete handling. With strategic spot servicing with the lift truck, a man carry-

ing two rolls at a time travels only 1,200 feet, or two-thirds less time and energy in moving the material. On back lawns, the savings is far greater.

Such easily demonstrable benefits not only have gained many new customers for Emerald Valley, but also have allowed it to maintain a responsible price structure in a market prone to price cutting.

Some landscapers report that their installers insist on Emerald Valley lift truck delivery.

The wax-impregnated cardboard pallets have also found some unique uses. Landscapers offer them to customers as auto drip protectors on garage floors and installers use them

as kneelers and as portable walkways on wet ground. Many installers return them to the Emerald Valley local office. They can be used several times without losing their residual strength.

Emerald Valley is now enjoying the benefit of its creative use of management's winter time. Complete cost control data was the catalyst that started what turned out to be an important breakthrough in cutting sod handling costs. Because the firm broke out costs on each segment of turf operation, it was able to not only pinpoint areas where such costs were getting out of line, but to work toward solutions that would have multiple benefits.



The Baker-York lift is towable at highway speeds.

## Meeting Dates

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

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

**Louisiana Turfgrass Conference** at the Ira Nelson Horticulture Center, University of Southwestern Louisiana, Lafayette, Dec. 9-10.

**24th Annual North Central Weed Control Conference**, Sioux Falls, S.D., Dec. 9-11.

**80th Annual Western Association of Nurserymen** convention at the Hotel Continental, Kansas City, Mo., Jan. 4-6.

**Indiana Arborist Association, Inc.**, 21st annual mid-winter conference, Stouffer's Indianapolis Inn, Jan. 6-8.

**Northeast Weed Control Conference**, 24th annual meeting, Hotel Commodore, New York City, Jan. 7-9.

**Georgia Golf Course Superintendent's Association** annual meeting, Savannah Inn & Country Club, Wilmington Island, Ga., Jan. 11-13.

**22nd Annual Helicopter Association of America** convention at the Stardust Hotel, Las Vegas, Nev., Jan. 11-14.

**North Carolina State University Pesticide-Fertilizer School**, Hotel Sir Walter, Raleigh, N.C., Jan. 12-13.

**4th Annual Park Symposium, New Jersey Recreation and Park Association**, Lewis M. Herrmann Labor Education Center, Rutgers University, New Brunswick, N.J. 10 a.m. Jan. 14.

**22nd California Weed Conference** at the Grand Hotel, Anaheim, Calif., Jan. 19, 20, 21.

**Associated Landscape Contractors of America**, Statler-Hilton, Orlando, Fla., Jan. 19-23.

**Purdue University landscape maintenance workshop**, University campus, West Lafayette, Ind., Jan. 20-21.

**Southern Weed Science Society** annual meeting, Sheraton-Biltmore Hotel, Atlanta, Ga., Jan. 20-22.

**Ohio Chapter, International Shade Tree Conference**, annual meeting, Hotel Sheraton-Columbus, Columbus, Jan. 25-26.

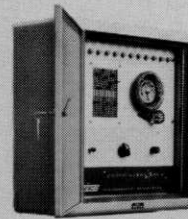
**41st Ohio State University** short course for arborists, turf management specialists, landscape contractors, garden center operators, and nurserymen, Hotel Sheraton-Columbus, Columbus, Jan. 25-29.

**Annual Virginia Turfgrass Conference**, Sheraton Motor Inn, Fredericksburg, Va., Jan. 27-28.

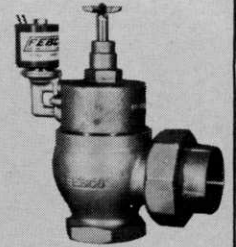
**40th Annual Michigan Turfgrass Conference** at the Kellogg Center of Michigan State University, East Lansing, Jan. 27-28.



98 Sprinklers  
1/2" - 1-1/2"



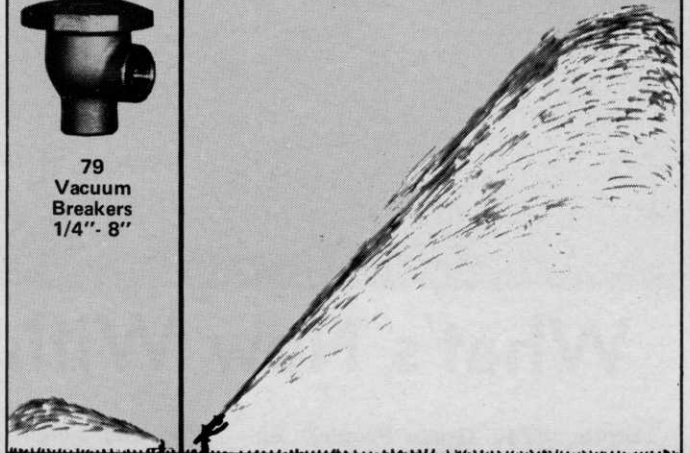
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For More Details Circle (117) on Reply Card



## What's New With 'The Grass People'

Scotts, "The Grass People," exhibited no small measure of confidence in just scheduling a professional turf seminar at its central Ohio headquarters in the first week of supposedly winterish November.

The first of the two days, Nov. 5 and 6, was chilly and cloudy, but the grass was green.

About 30 turf specialists, mainly sod producers and golf course grounds managers, were on hand to see what's new. They came anywhere from the eastern half of the U.S., from the East Coast to Kansas.

O. M. Scott & Sons, now in its 101st year, conducts several dozen seminars every year for people with various levels of knowledge about grass, from the professionals of this seminar to small gatherings of homeowners in towns and cities where there are Scotts dealers.

Nearly everything appears new at the Scotts layout in and around Marysville. And the company claims that 75% of its volume is in products not in existence 10 years ago.

Biggest and newest is a fertilizer production plant using Scotts patented "Polyform" process that began production this summer. The essential difference of Polyform from its early "Trionized" process is that nutrients are formed into solid particles that "are self-supporting, thus eliminating the need

for, and weight of, an inert carrier material."

The Trionized process uses the carrier vermiculite, a micaceous mineral that expands with heat (ore weighs 56 lbs./cu. ft.; the expanded carrier 7 lbs./cu. ft.) Nutrients in liquid form are applied to the accordion-like structure and dried. Upon application, soil moisture again releases the nutrients from the carrier.

Scotts calls on computers to keep track of some 16,000 varieties of

bluegrasses, its resource bank for developing new varieties or improving its patented Windsor. More than 100 acres of demonstration and experimental plots surround facilities at Marysville. Forty are devoted to turf varieties, 70 to herbicide and fertilizer evaluation.

Seminar guests inspected plots showing the improved response that Scotts ProTurf fertilizer formulations in the Polyform process achieved over earlier products. They saw demonstrations of variable



As sod growers and golf turf specialists look over this fertilizer spreader, compare the difference in dress with the picture above. After a cold cloudy start, the seminar ended sun-shiny and warm.

A tour of O. M. Scott & Sons grass research plots was part of the professional turf seminar. Dave Green of the research division explains at left how herbicides are applied to strip plantings of grass varieties to get maximum evaluation data. At right, he talks about a project under way to determine if quail feeding on pesticide-treated grass are affected. A humorous aspect of research problems, Green reported, is the difficulty in growing quack grass and keeping chinch bugs alive — for test purposes, naturally.



rates of herbicide applications combined with various mowing heights on all major turf varieties marketed.

Herbicide and pesticide residues are getting particular attention. A covey of quail is feeding on treated grass. The birds are moved each day for 21 days, conforming with government pesticide evaluation procedure. At the end of the feeding period, egg quantity, hatchability and shell thickness will be evaluated. Chemical residue and run-off are being checked under controlled conditions. Turf is being grown in cement tanks which permit sampling and evaluation of water run-off from artificially induced or natural rainfall.

One greenhouse is devoted to growth regulation research. An outside plot mowed and treated in late summer showed excellent control up to six weeks.

Paul Florence, who heads up Scotts sod-marketing division, discussed patent infringement with sod growers, in view of the difficulty in distinguishing Windsor from similar varieties such as Merion. Florence said closer policing will be pursued in the future. Earlier, the group was briefed on a technique of thin-layer chromatography with which Scotts' researchers can tell the difference between Merion and Windsor. In simplified terms, the process converts the plant material to a color spectrum interpretation which with consistency discloses a four-dot grouping for Windsor while

Merion exhibits two.

Bob Wilhelm, seminar manager, reviewed the major turf insects and diseases and oriented the group on the Scotts products designed to correct the various afflictions. Bill Weagly covered similar ground for weed identification and control.

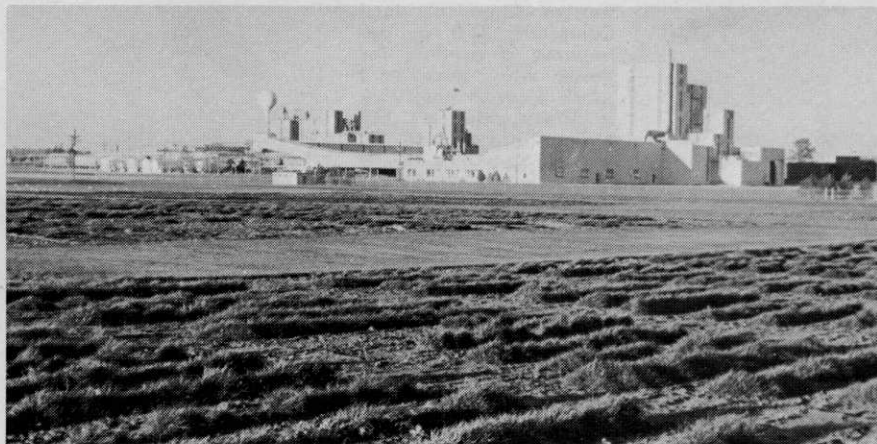
One of the more intriguing phases of the facility tours was the visit to Seed Technology, Inc., where Dale Kern instructed the group on how to interpret seed labels. A comprehensive article by Kern about seed analysis appeared in the January, 1969, issue of WEEDS TREES and TURF.

Kern warned the group that the seed label gives variety percentage by weight.

Though federal seed regulations specify the procedure, this method can grossly mislead the purchaser on the seed blend or weed content of the product he thinks he's getting, Kern said. There is a great difference in the number of seeds per pound for the many varieties of weeds and grasses, he explained.

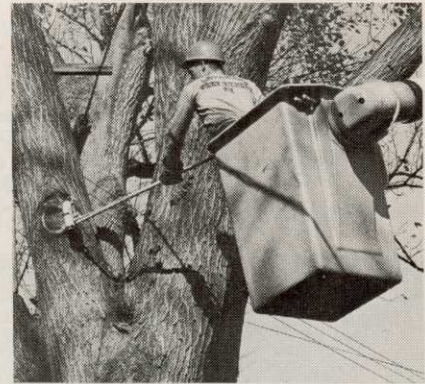
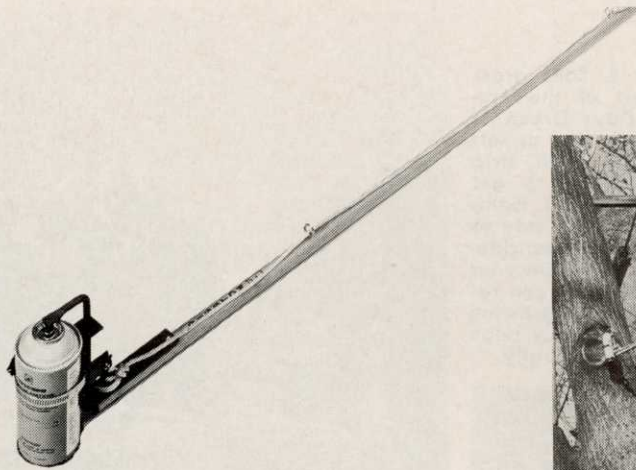
The theoretical blend, for instance, which consists of 20% each by weight of bentgrass, bluegrass, fine fescue, tall fescue and ryegrass when converted to seed numbers, becomes: 75% bentgrass, 18% bluegrass, 4% fine fescue, and 1.5% each of tall fescue and ryegrass.

Seed analysis services and fees are available by writing Kern in Marysville, Ohio 43040.

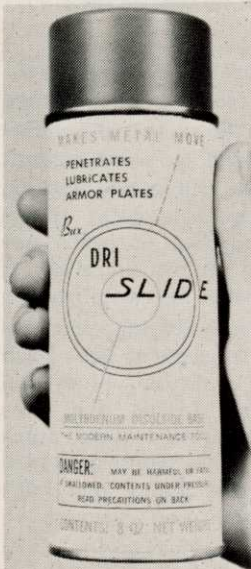


In the background of field plots of grass varieties is the O. M. Scott & Sons complex at Marysville, Ohio. The large building at right is the new Polyform chemical plant that went on stream this summer.

# New Products



**Asplundh Tree Expert Co.**, Jenkintown, Pa., announces a combination tree wound dressing and sprout growth inhibitor on an applicator pole for faster unit production. Asplundh Inhibitor-Fortified Tree Paint is a high-quality asphalt-base wound dressing containing 1% of the ethyl ester of naphthaleaneacetic acid. The formula is offered in an aerosol can, which, the company claims, aids production and reduces unit cost compared with brush-on applications. The tree paint is most effective as an inhibitor of new sprout growth; less effective as an elongation inhibitor, says Asplundh. Application may be made any time during the year. For more details, circle (701) on the reply card.



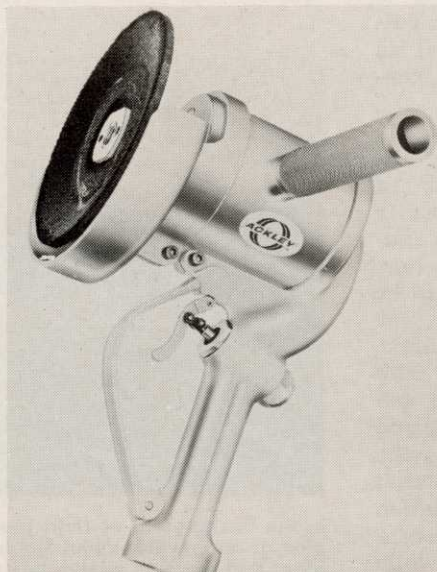
**Dri-Slide, Inc.**, Fremont, Mich., announces that Dri-Slide now comes in an 8 oz. aerosol container. Dri-slide is the penetrating - inhibiting dry-film reaction lubricant that is applied wet, forcing "revitalization" of frozen mechanisms and parts. Operating pressures leave treated surfaces "plated" with a dry slick film impervious to water, steam, chemicals, alkalis and most acid. Boundary film reduces friction coefficient to about .02 with 100,000 PSI film strength. Reaction product imparts monomolecular corrosion inhibiting characteristics. For details, circle (704) on the reply card.



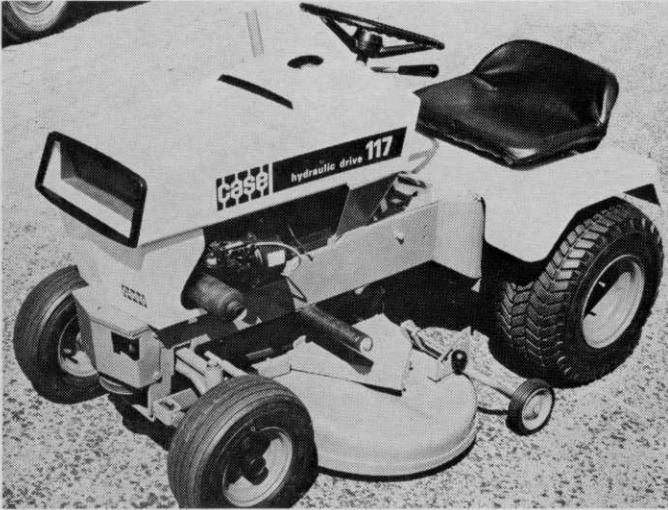
**Vermeer Manufacturing Co.**, Pella, Ia., offers a new portable service line cable layer designed primarily for use on yards and finished areas. The new CL-15, a compact 12 hp machine, will bury cable about 15" deep (standard) and is easily transported to and from job sites by a pickup trailer or van. The unit is specifically designed for plowing in telephone cable, underground wiring for street lights, commercial and residential services - gas lines to yard lights and permanent grills, lawn irrigation piping, etc. No backfilling or re-landscaping is necessary. High flotation tires, individual drive wheel control and variable speed hydraulic power combine to provide simple and efficient operation and handling. For more details, circle (705) on reply card.



**Nutro Turf & Garden Products**, division of Borden Chemical, Inc., Columbus, Ohio, announces a product for those who wouldn't touch a wasp nest with a 10-ft. pole. It's the new Nutro Hornet & Wasp Bomb that shoots a narrow jet stream of wasp-lethal insecticide up to 12 feet. The aerosol dispenser (15½ oz.) permits on-target aiming. Suggested time of application is early morning or late evening when wasps are hovering at their nests. Wasps suffering direct hit fall in two or three seconds. Bomb sells for \$1.95. For more details, circle (708) on reply card.



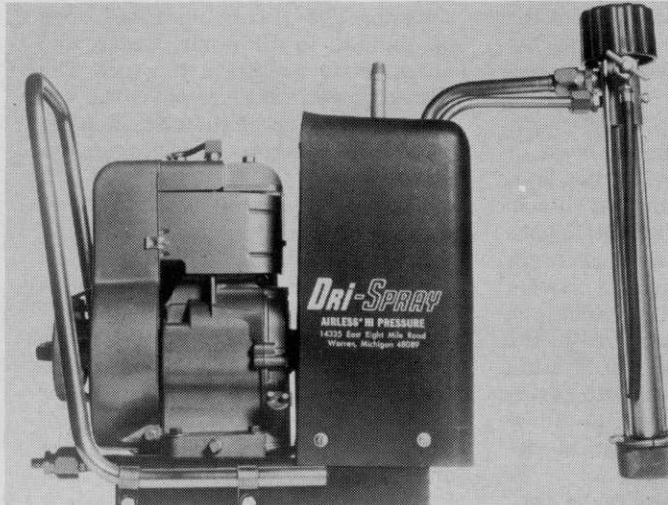
**Ackley Manufacturing Co.**, Clackamas, Ore., has developed a portable, lightweight, hydraulic-powered grinder, capable of operating smoothly at high speeds. Power rating is 4 to 6 hp. It weighs 14 lbs., has standard 5/8" shaft that accommodates 7" grinding wheel, wire brush, cut-off wheel and other high-speed attachments. There are two models for above water use, 24H open center and 24H-CC closed center and two for under-water use, 24HS open center and 24HS-CC closed center. For more details, circle (709) on reply card.



J. I. Case Co., Racine, Wis., introduces for 1970 a 7 hp compact tractor that features simplified, quick-change attachments for all-season use. Model 117 utilizes a hydraulic drive system with single lever travel control. Attachments include a 34-inch mower, 32-inch snowcaster, and 38-inch dozer blade. Its "snap-fast" system enables anyone, without use of tools, to install or remove attachments within two minutes. For more details, circle (702) on reply card.



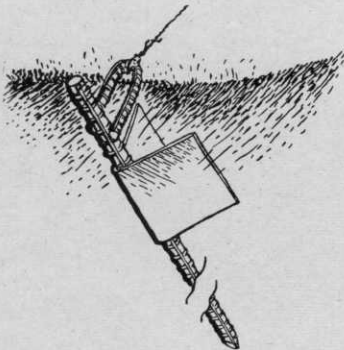
Allis-Chalmers, Milwaukee, Wis., calls "maneuverability" the key word for its Model B-208, eight hp riding tractor. Its two-section frame, joined just forward of the operator seat, allows the forward half of the unit to follow ground contour independent of the rear section, facilitating mowing around uneven terrain and obstacles. Free-floating mower design prevents scalping. Three speeds forward to 5.6 mph; one reverse at 2.9 mph. For more details, circle (703) on reply card.



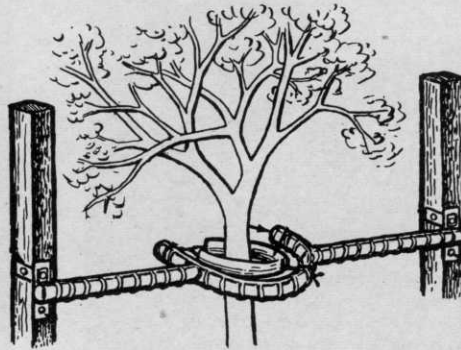
Dri-Spray, a division of Equipment Development, Inc., Warren, Mich., announces the development and marketing of its Model 816-A airless paint sprayer. Features option of converting to either gasoline engine or electric motor as power source at anytime. Choice of spray tips available. Atomizes pressurized paint directly from conventional one- and five-gallon containers, spraying at rates up to 2 gallons per minute. For more details, circle (706) on reply card.



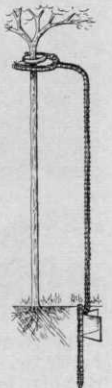
Portable Elevator Manufacturing Co., Bloomington, Ill., has added electric hoists to its Glencoe line for light-medium duty dumping conversions. The electric models permit conversion of any type of body, including standard pick-up boxes, flatbeds and utility bodies, to a dumping body. Recommended for occasional dumping (6 times per hour, or less). Electric unit operates directly from truck's 12-volt battery, eliminating the cost, weight and bulk of PTO operations. For more details, circle (707) on reply card.

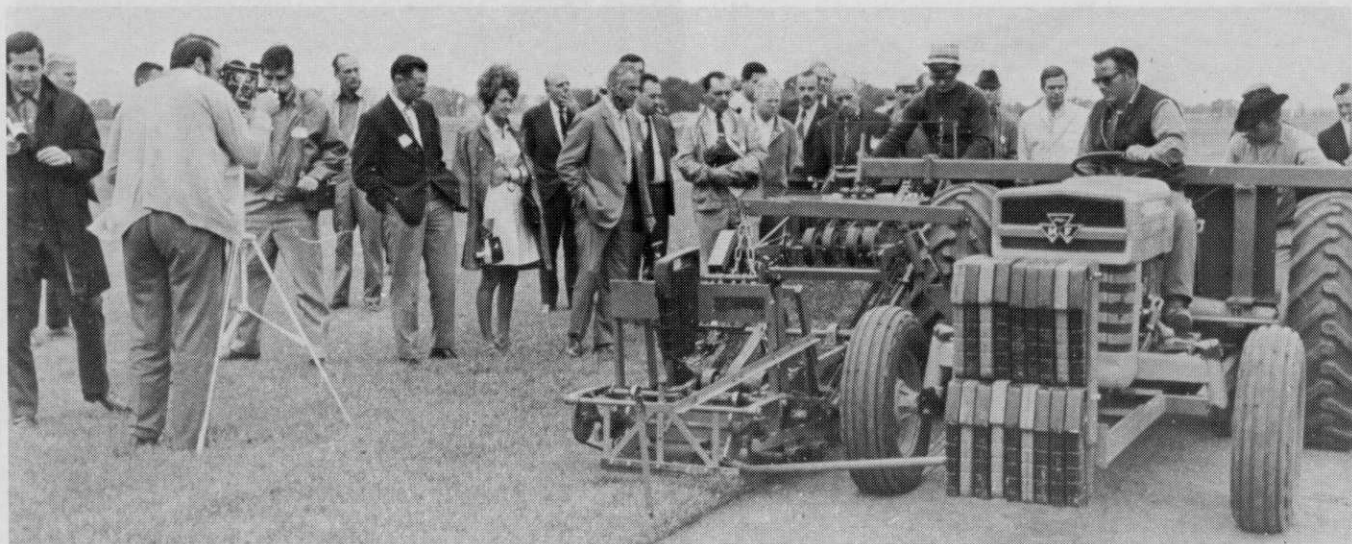


Maxwell Steel Company, Santa Fe Springs, Calif., offers a line of young-tree supports made of solid steel. Design prevents turning after placement. Connections arc-welded. Estimated life 25 years. Guaranteed for 10 years. Made in  $\frac{5}{8}$ " and  $\frac{3}{4}$ " diameters



ters in heights in increments of 6" from 4'0" to 6'. Special lengths on order. Only tools needed for installation are heavy hammer and pliers. For more details, circle (710) on reply card.





Harvesting sod, which used to require 10- to 12-man crews, now can be done with three or four men and this Ryan harvester, European visitors were told.

## Europeans Tour Ryan Facilities

Thirty-five European turfgrass specialists toured the U.S. in September under the auspices of the Ryan Equipment Co., St. Paul, Minn.

Representing 15 European countries, the group consisted of turfgrass equipment distributors and turfgrass experts. The men, with their tour guides and interpreters, attended seminars, lectures and new product demonstrations at the Ryan plant in St. Paul. The distributors

in the group sell and service turf-care equipment for Ryan.

The turfgrass industry is in the midst of a worldwide revolution, believes Russell Rose, Ryan sales representative.

"Years ago, it was a fairly simple matter to care for a home lawn or golf course fairway. Nowadays, along with the sophisticated hybrid grasses developed by agronomists, chemically produced fertilizers are being strongly promoted to make grass grow faster and thicker," he said. "Man is tampering with the balance of nature by accelerating grass growth and killing off earthworms which aerate soil to allow moisture to seep through to the roots."

Much of Ryan's products, he con-

tinued, are designed primarily to restore this imbalance in nature. Aerating and slicing machines open up the soil to allow air, water, and nutrients to penetrate the turf. The firm's power rakes remove the excessive build-up of thatch which results from the grass growing faster and thicker.

Though improving, the image of the U.S. golf course superintendent, formerly "greenskeeper," has not attained the position enjoyed in European countries, the visitors agreed.

Ernest Duerr, a representative from Orag Inter Ltd., Baden, Switzerland, who speaks five languages fluently, said people in charge of turf in Europe are highly regarded and rewarded, compared with their U.S. counterparts.



A close look at the tractor-drawn Ryan Renovair is taken here by, from left, Francis Craninx, from Usines Ed. St. Hubert, in Tienen, Belgium; Eugene Gateau, from Rochland SA, in Coex, France; and Michael Goetzmann from Ph. Goetzmann SA in Lingelsheim, France.



Ryan President Earl Nystrom describes sod production techniques to representatives from 15 European countries. The St. Paul firm's officials learned that sod farming is big business in Europe, also.



Duerr said a European golf course superintendent is extremely well trained. He must study agronomy, turf-care diagnosis and treatment for three years before he is allowed to serve as an apprentice on a golf club staff. After completing his training, he is greatly sought after and highly paid by competing foreign clubs.

Most of the Europeans agreed that, although golf courses play a big role in their work, they devote much effort in turf care of lawns around schools, hospitals, sports arenas, hotels, spas and sanitoriums.

Michael Van der Lienden, who owns a distribution firm in DeBilt, The Netherlands, said the bulk of his business is done in the school and university markets. His country has 12 golf courses to which he sells equipment and services.

In Spain, the golf course market is growing swiftly, according to Francisco Rein, a representative of Coprima Ltda., Madrid. This is because of tourism, Rein stated, which accounts for 60% of Spain's income. The government, with tourists' dollars in mind, provides low-interest loans to entrepreneurs who develop golf courses in Spain. Today there are lush, green golf courses located in areas where arid sand dunes once stood vulnerable to the hot basque winds. Because of irrigation systems, which keep bermudagrass thriving in Spain, this country now offers tourists a fine selection of superbly kept golf courses.

## New Management Announced For Landscape Contractors

Thomas O. Lied, president of the Associated Landscape Contractors of America has announced the selection of Executives Consultant, Inc., Washington, D.C., to manage the 300-member national trade organization.

The newly appointed executive director of ALCA is Walter M. Kiplinger, Jr., an ECI partner and former public information director for the National Recreation and Park Association and editor of *PARKS & RECREATION* magazine.

Executive Consultants, Inc., currently manages six national trade associations, among them the American Society of Landscape Architects.

ALCA will maintain offices in Washington's Southern Building until the first of the year. Headquarters will then move into ECI facilities at 2011 Eye Street, N.W., Washington, D.C.

# Scientist Assails DDT Myths

The supposed worldwide distribution of DDT raises some questions of credibility, according to University of Minnesota soil scientist Russell Adams, Jr.

"Pesticides such as DDT are normally used over limited areas," Adams says. "For them to be distributed all over the globe would require some means of transport, either by atmospheric or water routes.

"Most pesticides used eventually reach the soil through direct application or they are washed from plants by rain. Much of the pesticide reaching the soil is then broken down by micro-organisms or it reacts chemically with soil moisture.

"Under the right conditions, DDT may bind itself to soil particles. But because DDT doesn't dissolve easily in water or cling to soil particles too readily, it often escapes into the air as a vapor. Once it reaches the atmosphere, DDT is often destroyed by the sun's ultraviolet rays."

"If DDT is truly present in the Antarctic snowcap, the only way it could have arrived there is through the atmosphere. But neither the mechanisms of atmospheric distribution nor the stability of pesticides in the atmosphere has been studied well enough outside the laboratory to make any firm conclusions," he says.

Adams feels that most of the current confusion over pesticide residues may be directly connected with the development of sophisticated sensing devices. Instruments such as the gas chromatograph can easily detect the presence of DDT in a substance, even though the amount may be as small as one part per trillion.

"This is like sorting through 1,280,000 bushels of wheat for one kernel of smutty grain," he says.

"Even scientists who are familiar with methods used to measure pesticides find it difficult to interpret how important these small amounts are. Also, there are many naturally occurring compounds, and some synthetic

organic compounds being added to our environment that look like pesticides when they pass through the gas chromatograph.

"Carrots, for example, may contain natural compounds, which mimic aldrin and dieldrin, two chemical relatives of DDT. Gas chromatographs are sometimes unable to single out and measure natural compounds when the man-made chemicals are also present. This fact has been known for years. Yet some pesticide analysts still appear to be unaware of it.

"A number of other compounds that are easily confused with DDT have been detected in birds and fish. These compounds are commonly used in petroleum products, rubber, coolants, and several other materials. They are reported to be toxic to wildlife and they affect the calcium metabolism of birds. Yet DDT continues to receive all the blame.

"Since these compounds resist chemical breakdown and are used extensively, some early findings that pointed to widespread DDT contamination are open to question."



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## Central Plains Turfgrass Report

# Zoysia Fine On Kansas Golf Course

An experiment of using zoysia for tees and fairways at the Alvamar public golf course in Lawrence, Kan., is proving popular with golfers, course maintenance personnel and club managers. The superintendent and part-owner of the course reported this experience at the 20th Central Plains Turfgrass Conference at Kansas State University, Manhattan.

Mel Anderson, reporting on his club's use of zoysia, said golfers particularly like the way the upright zoysia fairways "tee up" the ball better than other grasses. The zoysia on the Lawrence course also has demonstrated winter hardiness and excellent resistance to disease.

The Lawrence Alvamar course is the only complete zoysia golf course in this area and possibly in the country, Anderson said.

Anderson and his partners planted 62 acres of the zoysia tees and fairways in 1967. The course has been open for play since May 15, 1968, providing two full seasons of activity on the new grass. "So far we are very pleased with the results," Anderson said.

Other subjects discussed during the golf course session included automatic irrigation and the activities and duties of professional superintendents.

In another session of the turfgrass professionals, a panel of three university professors discussed a variety of topics. Dr. William Lobenstein, University of Missouri, spoke on dew, guttation and inoculation of turfgrasses; Dr. David Whitney, Kansas State University, spoke of nitrogen in the soil; and Dr. A. E. Dudeck, University of Nebraska, discussed roadside and highway turf.

One hundred and thirty-five persons registered for the conference.



Cedric Johnson, center, superintendent of the park and recreation maintenance for the Wichita Board of Park Commissioners, is the newly elected president of the Central Plains Turfgrass Foundation. D. W. Adams, right, superintendent of the Topeka Country Club, is vice-president, and Ray Keen, Kansas State University horticulturist, is the re-elected secretary. The men were selected at the organization's recent conference on the KSU campus.

### Atlas Computes Free Data For Pesticide Formulators

Pesticide formulators now can have their data calculated rapidly, accurately, and free of charge, thanks to Atlas Chemical Industries, Inc.

Through a cooperative agreement between Atlas technical service experts and a shared-time computer firm, a customer can have his formulations done by filling out a formula sheet provided by Atlas. After listing the ingredients he plans to use, such as toxicants and solvents,

the customer telephones this data to the Atlas product development laboratories, where it is checked before being teletyped to the computer center. Inside of two minutes, the complete formulation is being printed out in usable form on the Atlas teletype machine.

### New Fact Sheets Available From Diamond Shamrock

A completely new set of quick-reference fact sheets on its line of agricultural proprietary chemical products has been issued by the Diamond Shamrock Chemical Company, Cleveland, Ohio.

Each of the new fact sheets includes a complete specimen label for the chemical.

Included on each new fact sheet are illustrations of uses and effects of the chemical, a listing of its advantages, and a full specimen label which gives mixing and application procedures, crop clearances and weeds or organisms controlled by the material.

The new fact sheets, printed in color, are available singly or in sets by writing to the Biochemicals Division, Diamond Shamrock Chemical Company, 300 Union Commerce Building, Cleveland, Ohio 44115.



"If I don't sell a job soon, I'm fired."