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WEEDS

TREES

and TURF

A TRADE MAGAZINES, INC. PUBLICATION

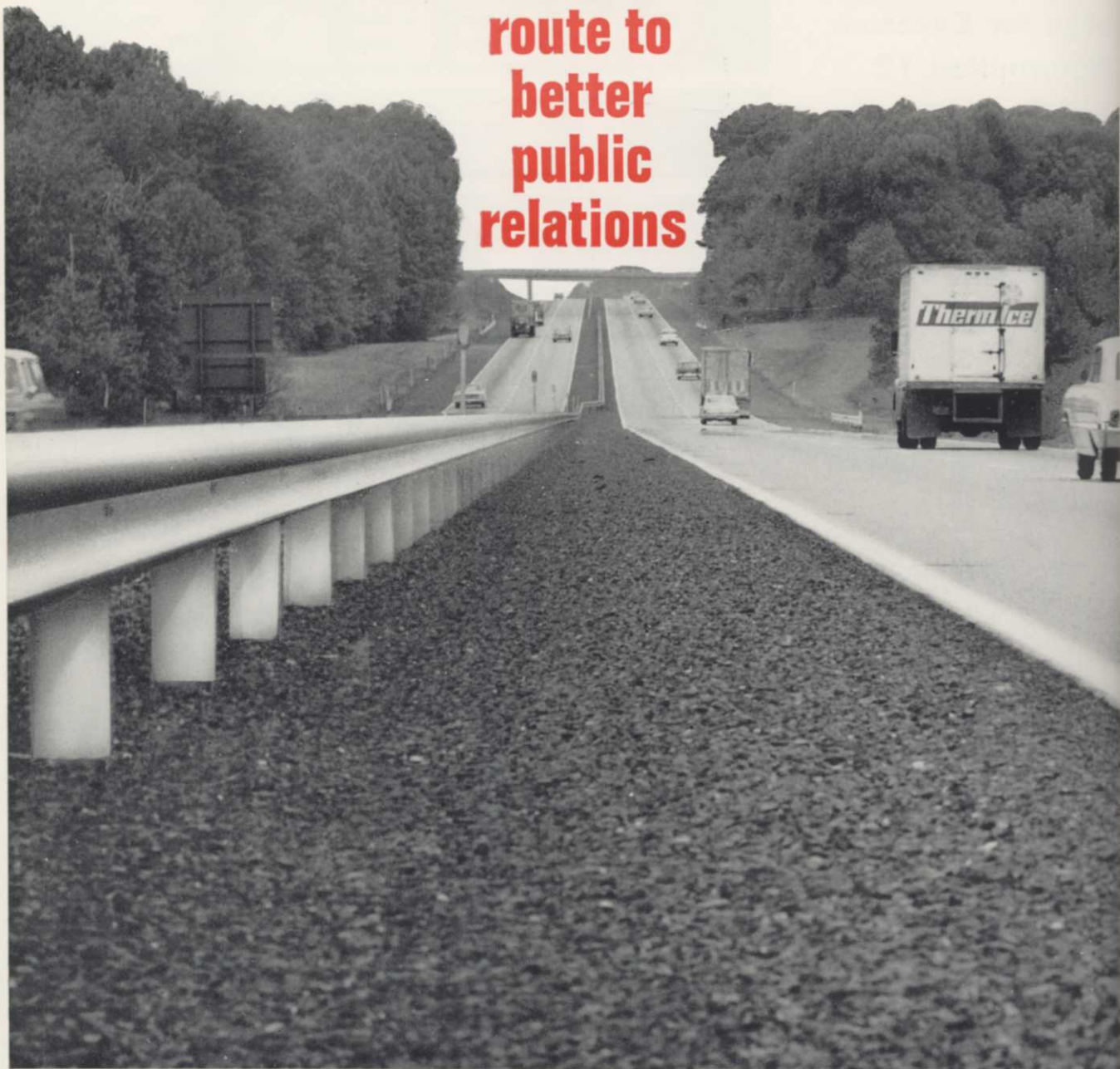
June 1966



A hydraulic land leveler prepares a new field at Summit Hall's Potomac Valley Turf Farm. This field is part of the more than 1000-acre farm under development in southwestern Maryland. Story on pg. 27.

Monthly magazine of methods, chemicals and
equipment for vegetation maintenance and control

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Frank Svehla, well-known New Jersey golf course superintendent, holds chunk of turf aerated with Ryan Equipment. Note deep, healthy growth of roots filling in holes.

WEEDS TREES and TURF

June 1966

Volume 5, No. 6

FORMERLY WEEDS AND TURF

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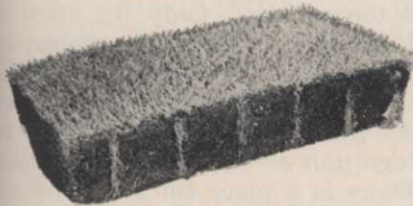
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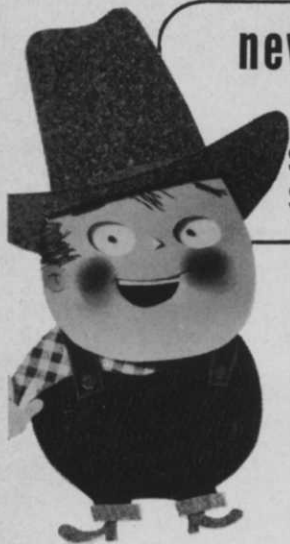
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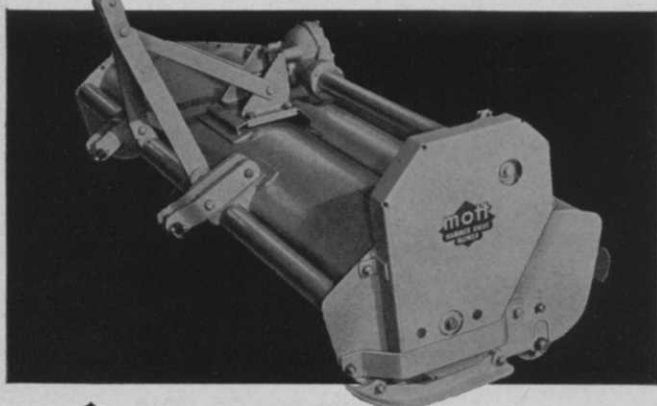


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What's Happened?

"What's happened to the National Association of Spraymen?" Many have asked this question. Apparently, the answer is "nothing."

Last fall a group of contract applicators met in Cleveland at *Weeds Trees and Turf's* offices to evaluate accomplishments and to decide the further steps needed to charter the association. It was agreed a membership drive should be undertaken and that an organizational convention would be held in 1966. The fall meeting was attended by the NAS acting secretary-treasurer Craig Anderson of Ft. Lauderdale, Fla., and board members Carl Ripper of West Des Moines, Ia., Jim Omura of Denver, and WTT's editor. By telephone NAS acting president Larry Nipp of Ft. Lauderdale, and Bill Owen of Clackamas, Ore., joined in the discussions. All were enthusiastic over how the association would strengthen the industry nationally. WTT pledged the full support of its editorial pages. A report of the Cleveland meeting and a membership application blank were included in our October issue.

Since then, however, there has been no agreement on a time or place for the convention to adopt a constitution and officially elect officers. Nor have there been any communications from the association on developments since the meeting in Cleveland. Board members have expressed their amazement at the "blackout" of information and some have suggested dues be returned if the organization is not going to become a reality.

In our January editorial about NAS we recognized that all industry men have many obligations, the first being to the welfare of their own businesses, and so development of the association could expectedly be slow. But, when membership funds are solicited, isn't there also an obligation to let contributors know what has been accomplished?

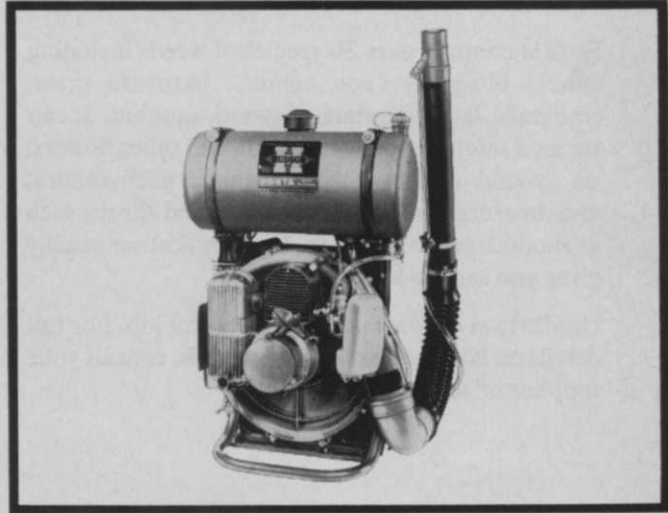
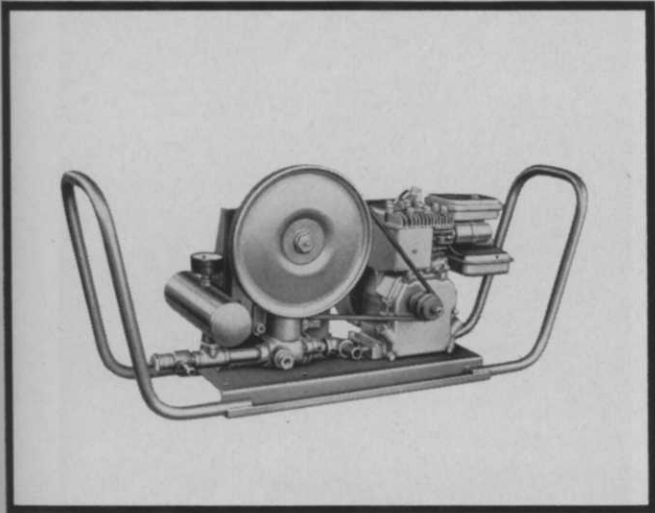
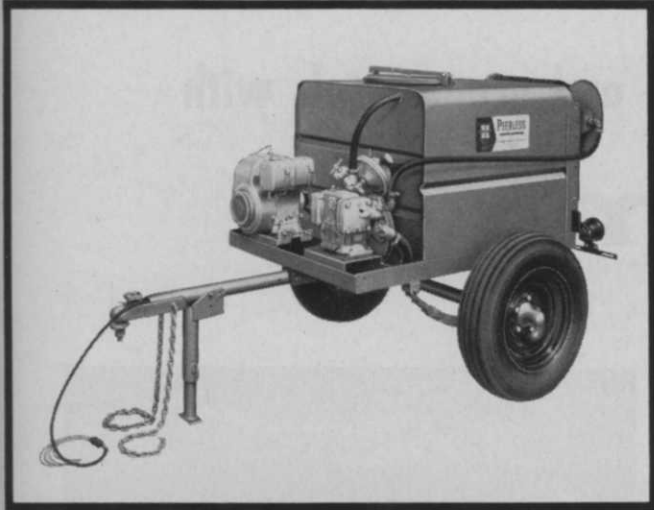
We still believe there is need for a *national* association to represent interests of commercial spraymen across the country. Only the voice of a truly *national* group will carry any weight in Washington on legislative matters. It requires dues from representatives in all sections of the country to finance an executive secretary and to bring public recognition of the services members have to offer. There is a place for state and regional associations which can become members of a national group. Leadership is needed. We hope someone in the industry will emerge to carry through the job so the National Association of Spraymen won't die by default.

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. While the editors welcome contributions by qualified freelance writers, unsolicited manuscripts, unaccompanied by stamped, self-addressed envelopes, cannot be returned.

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- TRITHION for ornamentals illustrated sheet.

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— WTT Mailbox —

Ponders Purple Putt

We read with interest your editorial entitled "Synthetic Turf and Bare Feet," in the March issue of *Weeds Trees and Turf*. We have heard of the prospect of synthetic turf for a while now, but we did not know that it is already a reality. Could you send us a list of the companies producing synthetic turf? We have had an inquiry or two and we'd like to have references on hand.

In different colors yet! Could you imagine playing a shot into the purple . . . or putting on the putting purple?

Alexander M. Radko

Eastern Director
U. S. Golf Association Green Section
Highland Park, N. J.

Though our list of synthetic turf manufacturers is not meant to be all inclusive, here is a compilation we have made:

Albany Felt Co.
1373 Broadway, Albany, N. Y.

American Biltrite Rubber Co.
(Neoturf) 22 Willow St.
Chelsea, Mass. 02129

Cabin Crafts, Inc. (Mardi Grass)
Dalton, Ga. 30720

The Chemstrand Co. (Astroturf)
Decatur, Ala.

Crown Turf Div., Crown
Carpet Mills, 442 N. Hamilton
Dalton, Ga.

Hercules Incorporated
(Bur-Tex-Poly-P)
Hercules Tower
Wilmington, Del.

Lockport Felt Co., Inc.
West Ave., Lockport, N. Y.

Minnesota Mining & Mfg. Co.
(Tartan Surfacing) (Tartan
Brand Turf) 2501 Hudson Rd.
St. Paul, Minn.

Mohasco Industries, Inc.
295 Fifth Ave., New York, N. Y.

Orrco Div., Ludlow Corp.
Needham Heights, Mass. 02194

Ozite Corp.
Merchandise Mart
Chicago, Ill. 60654

Pegasus International Corp.
(everGrass) 41 W. 57th St.
New York, N. Y.

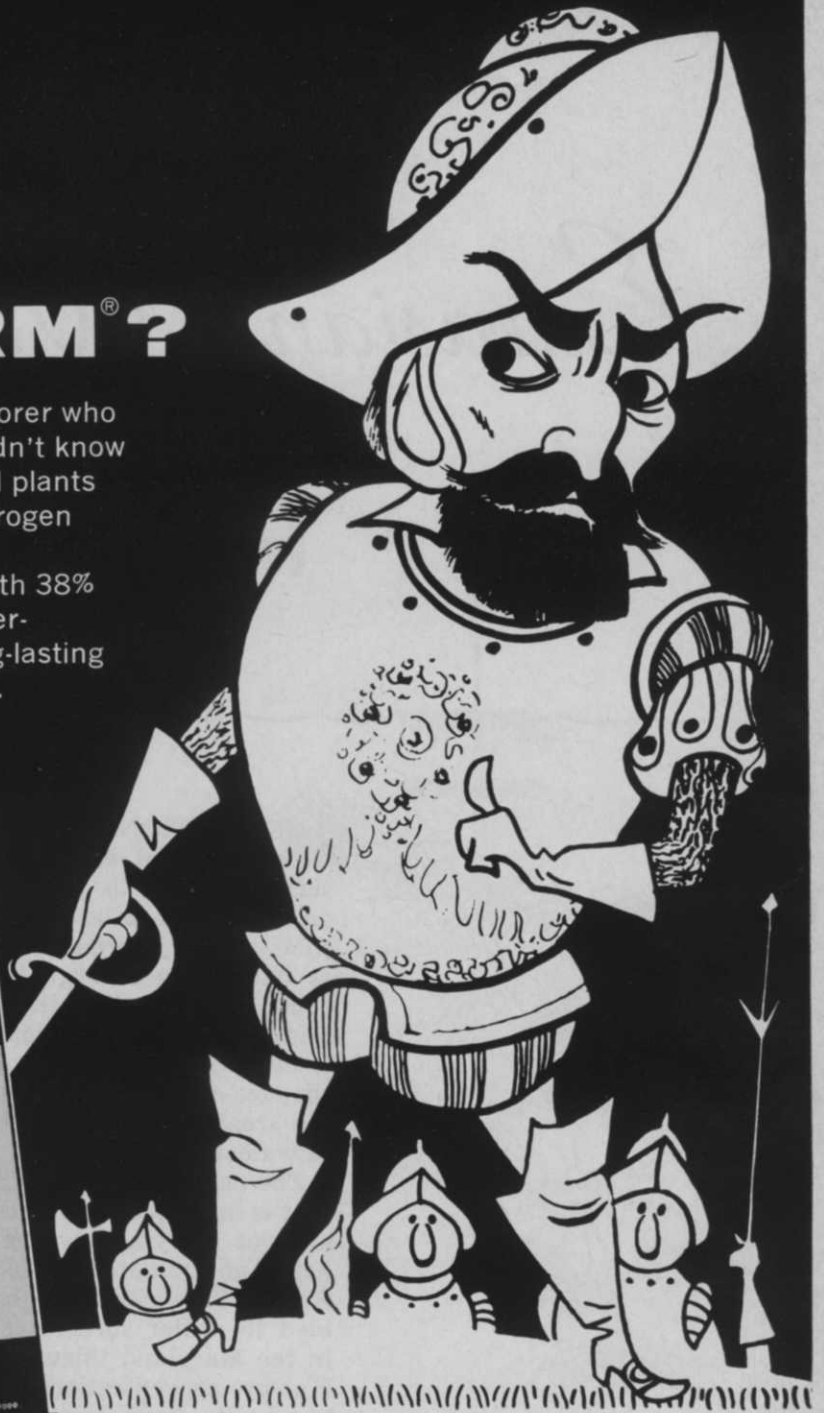
The Joseph M. Stern Co.
(Poly P-L Grass)
1968 E. 66th St.
Cleveland, Ohio 44103

Hope this list will help readers answer any inquiries they may receive on sources for synthetic turf.—Ed.

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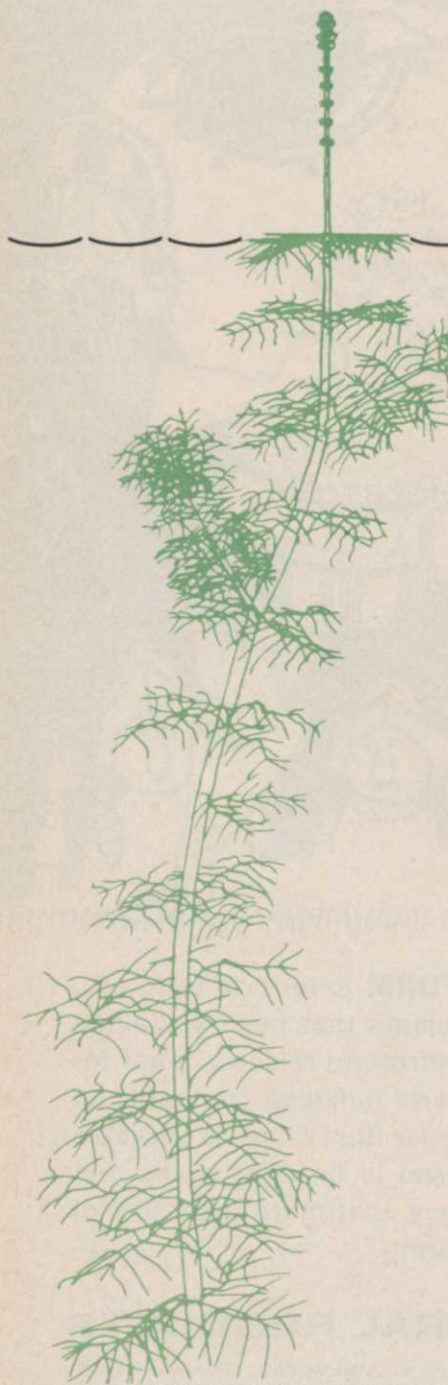
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When Writing to Advertisers Please Mention WEEDS TREES AND TURF

Eurasian Watermilfoil

Reduces Waterwa



INFESTATIONS of Eurasian watermilfoil have become a serious threat to ponds, lakes, and tidewater areas by reducing their use for recreation, as well as hampering navigation and commercial shellfishing operations. This weed, *Muriophyllum spicatum*, has also diminished the size of open waterfowl feeding areas and reduced the value of waterfront real estate.

The persistence of this aquatic pest is indicated in the tidewater area of Maryland where it inhabits an estimated 100,000 acres. Since 1961, watermilfoil has doubled its water surface coverage in the Maryland tidewater area. Heavy concentrations of this weed also have been found in the waters of New Jersey, New York, North Carolina, Alabama, Indiana, Ohio, California, and Texas. In the Tennessee Valley Authority watershed, infestations of the weed have demanded major control programs.

Milfoil Grows from Seeds, Rhizomes, or Stems

First found in this country in 1902, Eurasian watermilfoil is a successful invader primarily be-

cause it reproduces three ways. It can sprout from seeds, creeping rhizomes, or even from a simple broken stem part having a single joint or node. Such plant segments are spread by water currents and carried by propellers and hulls of boats. Seeds are so hardy that they remain alive even after passing through the digestive tract of migratory waterfowl. In any one or all of these ways, single plants can develop into a new bed of watermilfoil within a few years.

Control by Cutting is Temporary

Watermilfoil is difficult to control because, to halt the weed and its power to reproduce, the entire plant must be eliminated down to its roots. Limited control is accomplished with mechanical "harvesting" equipment which cuts off the upper part of the plants a few feet below the water surface. Water areas cleaned out in this manner have been reclaimed for limited recreational uses such as swimming, boating, and water skiing. Fishing and shellfish dredging operations, however, remain seriously

Use



Hand-held granule spreaders are used to apply herbicide to small areas infested with submersed aquatic weeds. Granular fertilizer spreaders are sometimes mounted to boat sterns when large areas are treated.

hampered by the growth left under the water surface. Also, within a short time, watermilfoil grows back and soon brings a halt to the surface sports.

TVA Dries Watermilfoil

Successful mechanical control was achieved on some Tennessee Valley Authority waters by de-watering and drying the plant. Results from "Studies on the Biology and Control of Eurasian Watermilfoil in the Tennessee Valley," conducted by Reservoir Ecology Branch, Division of Health and Safety, TVA, Muscle

Shoals, Ala., indicate that water manipulation has limitations. Necessity of maintaining a 9-foot navigation channel, water intake structures, and adequate flow for power production restricts this mechanical control method on TVA waters.

Chemicals Offer Continuous Control

In pools, slow-flowing channels, and tidelands, weed control chemicals are successfully used. Owners of commercial marinas, boat docks, beaches, and supervisors of watershed prop-

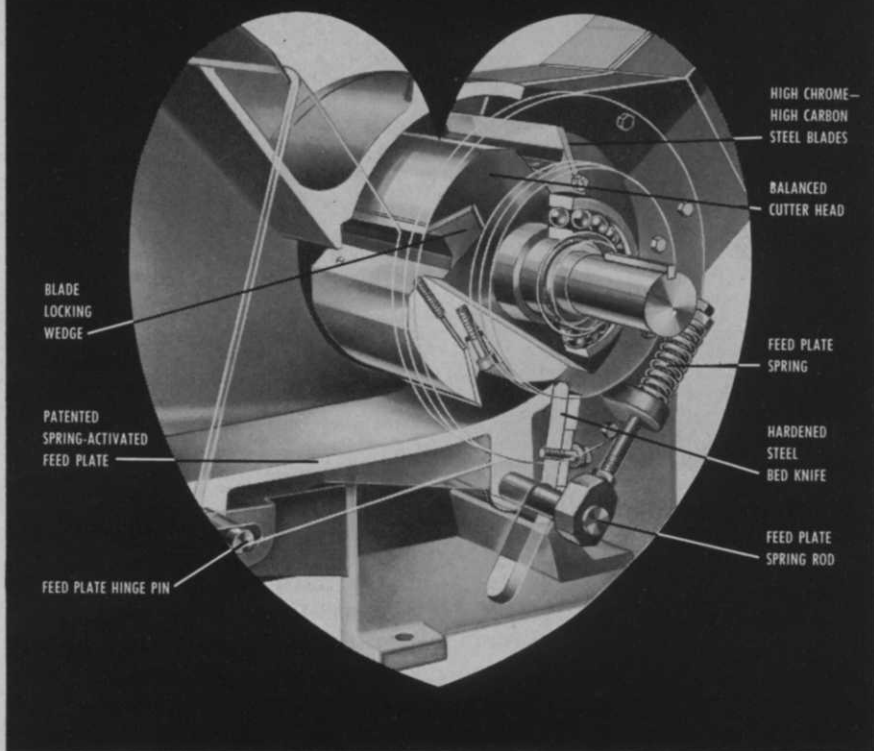
erties have tested, with much success, the effectiveness of granular butoxyethanol esters of the chemical herbicide, 2,4-D. One product, labeled Aqua-Kleen, incorporates this compound which is impregnated into specially hardened, 8/15-mesh attaclay particles. These granules contain 20% active ingredient by weight. After sinking to the base of the weed beds, they release the herbicide in the root zone area. A toxic concentration is produced and gives a maximum kill of watermilfoil. Waterlilies, stargrass, spatterdock, and other aquatic plants have also been controlled by this granular product. In some large-scale applications, 18-month control has been achieved.

Herbicides and herbicidal combinations found most effective against the aquatic plant in the TVA studies include Aqua-Kleen, as well as propylene glycol butyl ether ester of 2,4-D, liquid and granular potassium



Recreational use of waters is seriously hampered by infestations of Eurasian watermilfoil. New beds of watermilfoil start from broken parts as well as from creeping rhizomes and seeds.

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♥ Look inside a Fitchburg Chipper—note its heart—the spring-activated feed plate. No other chipper has this patented feature that adjusts to the size of the wood up to the machine's rated capacity. Chipping is smoother, quieter, faster, permitting the chipping of larger size wood without the need for extra power or the cost of extra fuel.

The spring-activated feed plate also makes a fly wheel unnecessary. No waiting for the fly wheel to speed up—less worries about safety, bearing troubles—and clutch strain. We invite you to compare the ease, economy and efficiency of operation of a Fitchburg Chipper with any other chipper on the market.

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*Optional equipment.

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silvex, and propylene glycol butyl ester of silvex.

Aqualin, a hydrocarbon acrolein, introduced by Shell Chemical Corp., has also been found effective against Eurasian water-milfoil. Shell reports Aqualin reacts with vital enzyme systems of the plant cells and causes treated vegetation to become flaccid and disintegrate within a few hours. Temperature is an important factor in application of the chemical. Warmth makes the compound work much faster (at 60° F the dosage must be double that used at 80° F).

Other factors influencing Aqualin application include amount of water flow, water temperature, velocity of flow, and density of weed growth. For temperatures above 70° F, ½ to 2 gal. of Aqualin per acre ft. are said effective (1.5 to 6 ppm). Below 70° F, 1 to 3 gal. (3 to 9 ppm) per acre are recommended.

Uniform Application: Critical in Small Areas

Conventional cyclone spreaders and fertilizer applicators, either hand-held or mounted on the stern of boats, are used to apply herbicide granules. When treating large areas, diffusion of the chemical in water compensates for slight inaccuracies during application. In small areas, however, uniform application over the entire infested area is important to prevent skips and watermilfoil regrowth. When using many granular products, volume of the water involved is not a factor in computing rates. Surface area can be used and easily determined to assure the correct dosage.

Aquatic Weed Clinics Set

How to eliminate bothersome aquatic weeds in lakes and ponds will be the subject of a series of weed control clinics given this spring by the Pennsalt Chemicals Corp. Over 50 group presentations will be held in Central and Northeastern sections of the U. S.

Readers interested in these clinics should write to Pennsalt Chemicals Corp., 309 Graham Bldg., Aurora, Ill. 60504.

"Now that we're using Copper Sulfate, our water problems are very few"

reports Mr. John Courchene,
Director of Water Quality for the Seattle Water Department



Constant sampling is one of the safeguards insisted upon by Mr. John Courchene, Director of Water Quality for the Seattle Water Department.

Seattle uses copper sulfate to treat not only the 725 acres but also the 7 mile shoreline of its primary storage and sedimentation reservoir. "Our primary objection to using other algae control chemicals is the difficulty of application," Mr. Courchene says. "When you total the cost of chemical purchase and application, copper sulfate is less expensive."

Seattle has been using copper sulfate for water treatment since 1940. At that time, they used approximately 20,000 pounds per year; in 1963, they used 70,000 pounds; in 1964—92,000 pounds. Mr. Courchene says, "We usually treat the entire lake in fall, winter and spring. During the other months we generally make shoreline applications. At one time we had a problem with Isoetes, an aquatic

rooted plant which rises to the surface and drifts over the lake. Before using copper sulfate we had to rake the shoreline, which proved expensive. Now that we apply copper sulfate from winter through spring, this problem is virtually eliminated."

While water can be treated by simply dragging a burlap sack of copper sulfate crystals behind a rowboat, labor costs frequently suggest more efficient procedures. The Seattle Water Department has designed and built two specialized pieces of distributing equipment. For the treatment of the lake itself, a large, bronze, mesh-screened hopper was constructed. Copper sulfate is fed into the submerged screen hopper which is mounted on the stern of a power launch. The boat is steered over parallel courses approximately 100 feet apart. Prop wash spreads the copper solution out over an area ap-

proximately 100 feet wide. For shoreline application, a portable blower is mounted on a truck and a belt of copper sulfate 30 to 50 feet wide is blown out over the shoreline from the truck as it is slowly driven along the top of a dike that encircles the lake.

The Seattle reservoir, when full, holds about 11 billion gallons of water, of which about 4.6 billion gallons are available to intake. "We use the available water figure when determining how much water we wish to treat. The amount of copper sulfate is determined by the quantity of water, water temperature and number and types of algae present. Both shallow and deep samples are collected each week from six sampling stations, as well as from the reservoir's source of supply and its distribution system. There is no industrial contamination and, now that we're using copper sulfate our water problems are very few."

For assistance on your water problems, Phelps Dodge Refining Corporation — one of the world's major producers of copper sulfate — can supply the following: Information on systems and equipment developed and used by water works and commercial applicators; literature, containing data and chemical formulas; technical assistance in algae and water weed control. Write: Phelps Dodge Refining Corporation Information Service, 300 Park Avenue, New York, N. Y. 10022.



Seattle designed and built simple, efficient equipment for distributing copper sulfate by power launch.

PHELPS DODGE REFINING CORPORATION 
300 PARK AVENUE, NEW YORK, N.Y. 10022



Industry harmony comes when competitors exchange problems and solutions.

How We Can Do a Better Job of Selling the Tree Maintenance Program

By HORACE P. BRYAN

Bryan Tree Service, Dallas, Texas

Veteran tree man Bryan recounts in this article his views on the need for improving the public's image of the tree maintenance industry in Dallas, Texas. His observations may well be equally applicable to other areas of the country where training, cooperation, and public acceptance could be improved.

A TREE maintenance program is sold, like everything else is sold, on the basis of confidence. The customer must trust the tree contractor's competency and know he's capable. And the customer must know that the contractor is reliable, that he will fulfill his contract, and respect the customer's property.

To promote the customer's confidence and sell him services,

a tree service contractor needs the following assets.

First, he must have a good image, operate from a permanent location, be identified by a business sign, and be located preferably on a thoroughfare. He should have a permanent telephone number, yellow page listings, and listings in the business directory of local newspapers. A good image consists, also, of good

trucks and equipment, marked by company signs, and neat courteous workmen. Uniforms bearing company insignia are also useful.

Needs Trade Association

Second, a tree service contractor needs contact and cooperation with other tree service firms through a trade organization to sell "tree care" and confidence in the tree maintenance industry. The organization should advertise through various media (newspapers, radio, TV) and work to make its officers the community spokesmen and contact men for inquiries about the tree care profession.

Organized tree service contractors should participate in programs for community improvement sponsored by business, fraternal, church, and other organizations. Tree men are especially well equipped to participate in programs relating to water pollution, parks, street and roadside beautification, and conservation.

Tree servicemen, in their daily work, serve in one of the most important phases of conservation. They should know what conservation is, generally, and ally themselves with the conservation movement. This is a powerful movement, serving the country well, and it can be of great aid to tree service contractors who promote it because of natural sympathies and understanding.

The American Forestry Association can be very useful to tree men. Programs sponsored by the area chapters of the National Audubon Society are enjoyable, inspiring and most informative. And the friends you make in the Audubon Society, and other conservation organizations, will back tree men to the end, once they understand their problems.

This may be called "playing politics," and that it is; but in this case it is not a "dirty" word. There's an old adage: Birds of a feather flock together. Birds are smarter than tree men who stand apart.

One tree man's misery is every tree man's misery. And very few tree contractors are going to

solve their biggest misery—sales, until the industry is generally uplifted. It will be lifted when tree men learn to “flock together,” and do enough “politiking” to gather unto their “flock” all those of like mind.

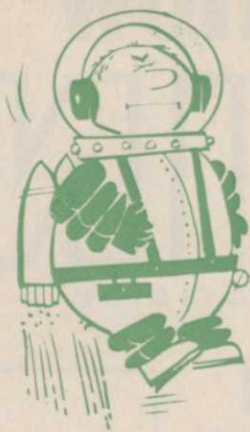
Third, to promote the sale of his services the tree contractor must have something to sell and somebody who knows how to sell it. Tree men sell *service*, and they must give *service*. This means that each firm must develop an adequate program, provide the necessary materials and equipment, and train themselves and their men to carry it through.

Experienced salesmen needed



At this stage of development, only a few large firms employ professional salesmen. Things are changing fast, but today the number of professional salesmen who are qualified to analyze and price a tree job is scarce. Most tree service contractors do their own selling, and they have about as much natural sales ability as any other type of contractor. But contractors in practically every other field are organized. This gives their salesmen a great advantage over tree men, mainly because they do not have to battle that old demon, suspicion. Through their organizations, most contractors have established standards of practice and brought about favorable laws by city, county, and state governments. These laws protect both the contractor and the customer, providing a basis of confidence,

before the sales talk starts. This makes sales much easier.



Updated crews sell, service better

Two Schools Needed

As a preliminary to the enactment of laws which would give tree service contractors a common ground of confidence with their customers, a trade organization would bring them together to compare experiences in trade practices and sales work. This is one essential step toward maturity. As a second step toward maturity, the trade organization should sponsor two schools or institutes.

First, a school for the training of tree care servicemen in practical work. This is important in the South and even more so in the Southwest where there is probably less training than anywhere in the country.

The second school, or institute, would be for tree service contractors and their more advanced men. Experts on soils, insects, plant diseases, and tree maintenance practices are available through the U.S. Dept. of Agriculture Extension Service that cooperates with universities in all the states, and from private companies which manufacture and supply materials for the industry.

The cost of such schooling is practically nothing to the tree service contractors, except for the time involved. The Agricultural Extension Service, and most universities are tax supported. Private companies know also that the materials and supplies which they have to sell cannot be effective except when

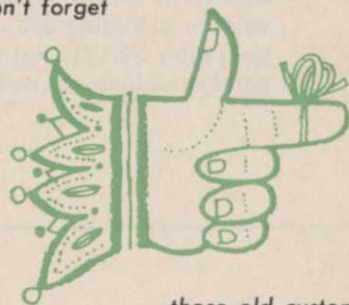
they are correctly used. Therefore they provide, as part of their promotion program, a group of superbly trained men who are looking for a chance — free of charge — to help train men in the field of their operations.

In many areas, where tree contractors are organized, such schools, or institutes, are conducted. And in such areas, the tree business has overcome many of the problems of services and sales they formerly faced. It is a simple 3-point matter: (1) improve what the tree servicemen have to sell and their services, (2) improve their selling methods, and (3) improve their relations with the general public.

Keeping Customers Important

The first act of selling is to get new customers. But, keeping customers is the most important part of a successful selling program for the tree service contractor. And keeping customers is more than doing a good job and giving satisfaction. A good job only provides the basis for keeping customers. There is more work to be done if customers are to be kept, year after year. And a stable tree business is built upon repeat business. This means creating a program to keep old customers.

Don't forget



those old customers

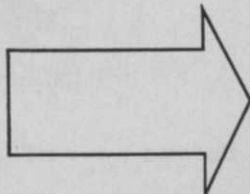
Stay Put So Customers Can Find You

Old customers must know where you are and how to contact you at all times. This is another place where a permanent location and a continuous telephone number help. These are important not only to keep old customers but to get the customers that old customers recommend. Sales to people whose friends have recommended you are the easiest. Many of us

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CARBARYL INSECTICIDE

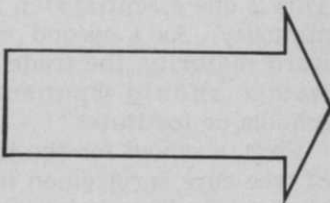
GUARDS trees, plants and turf against insects



Elm leaf beetles, chinch bugs, leafrollers, Japanese beetles, tent caterpillars, sod webworms and many other insect pests of turf, trees and grounds are controlled by powerful SEVIN insecticide sprays. In fact, you can control 160 different insect enemies of plants with long-lasting, economical SEVIN.



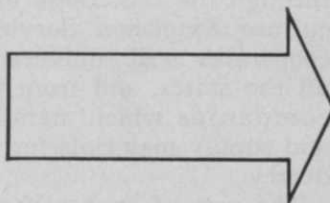
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SEVIN is safer to handle and use than many other insecticides. SEVIN is relatively low in toxicity to humans, animals and wildlife including fish and birds. People can use the grounds soon after SEVIN has been applied. And SEVIN residues do not contaminate the soil or streams or ponds.



GUARDS plant growth and beauty



You can use SEVIN carbaryl insecticide to protect the charm and beauty of plants wherever maintenance is required. It pays to apply versatile, safer-to-use SEVIN wherever insects attack.

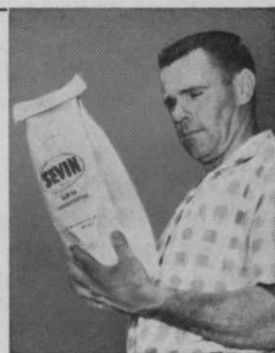


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Don't wait for insects to attack. See your supplier now for SEVIN to guard turf and ornamental plants from insects the better SEVIN way. Union Carbide Agricultural Products, 270 Park Avenue, New York, N. Y. 10017.



**AGRICULTURAL
PRODUCTS**

would have starved to death long ago if it had not been for the business resulting from the recommendations of old customers.

Many treemen have never been able to establish and maintain a permanent location or a continuous telephone number. It became a laughing matter in several areas, where we had established many customers who were relatives. Where can you find Mr. Bryan? We laughed with them, but it made us a little sick. Not only did we lose old customers every time we moved, but we also lost the recommendations all these old customers would have made, because they did not know just where to find us. We have never moved, when we had even a fair location, of our own decision. But we were the victim of our own indecision. We came to Dallas in 1950 with a climbing rope and saddle, plus a few pruning saws and some know-how. We should have bought our own place, long ago, when we knew we needed it.

Keep Card File And Sell With It

We keep a card filed on all of our old customers and mail out cards to them from time-to-time.

A typical one says, simply: "It's time for Dormant Oil Spray." The card carries our name and address and telephone number. We also try to visit our old customers, from time to time, not to make a direct effort to sell, but to recheck our work and see how their trees are doing. This is not pretense or hypocrisy; every tree is something to us, and sales often develop from these visits. Even though sales do not come immediately, we learn later that the customer has not forgotten us.

Mails Free Bulletin

But our most important link with old customers is a mimeographed bulletin which we call "Trees." It deals with trees and the various aspects of tree care and interesting things about trees.

The biggest obstacle to overcome in establishing a profitable business in the tree maintenance field is lack of confidence in tree

servicemen. In Dallas, for example, the potentially available business is unlimited. Literally, thousands would call a tree service contractor tomorrow if they could call with confidence. But the image of the tree man in Dallas could be improved. And the same is true, we believe, in many, many other areas.

This poor impression is only partially the fault of established tree service firms. This fault lies more in what they have not done, than in what they have done.



Fly-by-nighters are headache.

Three Causes For Bad Image

The "bogey-man" image of the local tree man has been created over a long period by a combination of circumstances.

First, standards of work are very low; competent men are scarce; and the struggle for survival has led to many undesirable practices.

Secondly, we are plagued by fly-by-nighters, year after year, who are interested only in the immediate dollar. The fly-by-nighters are a breed unto themselves, plaguing large growing areas or flitting from town-to-town and from business-to-business. After one of our big hailstorms, we have hundreds of roofing contractors posing as tree men; following a windstorm or ice storm, causing widespread tree damage, many of the same crowd show up.

Actually, they are painters and house levelers or other temporary workers. Following such a diverse range of business practices, they have to be very fast talkers to survive.


Thirdly, we have other permanent liabilities who have worked a growing Dallas for years. One

oldtimer drills holes and inserts his "magic water" into many of the finest trees on some of the largest estates in Dallas. This man has little or no formal education, but his magic water is good for all tree ailments, and he has the most wonderful guarantee! He picks his tree, a magnificent specimen or one of crucial importance, before he makes his bid. If he gets an audience he is likely to come up with a sale.

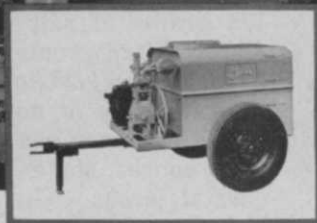
Another thing contributing to the bad image of the tree man, and quite unintentionally, are daily newspapers in our area. Periodically, usually at the height of the season, they run a well-meaning article warning the populace against the tree expert and "tree quacks" working in the neighborhood. These articles invariably warn readers against the "tree quack" and advise people to call their old reliable nurseryman. Nurserymen do more tree work in Dallas than tree maintenance contractors. Except for a couple of notable exceptions where independent tree firms are associated with large nurseries, the nurseries do not hire tree surgeons. Tree surgeons will not climb for what nurseries pay their working foremen. It would upset their wage schedules. So the nurseries do their own tree surgery with yard maintenance and landscaping crews.

In Dallas, tree service contractors have inherited this situation and consequently a bad image. Also, they have done nothing, collectively, to improve it.

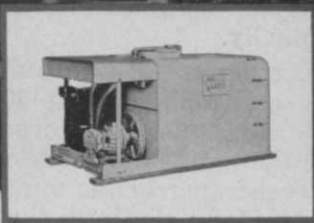
We are not condemning local newspapers and nurserymen; neither is at fault. It is more the fault of the tree surgeons for what they have not done. When tree surgery becomes a business with recognizable standards, the nurserymen will be happy. Most of them will cooperate with independent tree men and establish these standards. Local newspapers have never intentionally "knocked" the tree men. They have no reason to do so. When the tree men take the steps to create a favorable image, it will be reflected in our newspapers . . . and by the buying public.

leadership  *engineering* pushes performance up - prices down

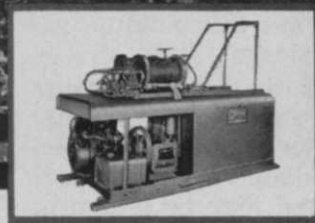
IT PAYS TO LEARN THE 3-R's OF HIGH-PRESSURE SPRAYING



ROYALETTE the leader for all-purpose versatility. 5 or 10 GPM @ 400 psi. (500 psi with the Model R-10) 14 separate models to meet your needs exactly.



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ROYAL the "big daddy" in 25, 35 and 60 GPM capacities @ pressures to 800 psi. Proven by years and years of service. 12 models.

It pays to learn the 3-R's, because the knowledge can help you save time and money, do more profit-making jobs, and help you get your jobs done better and sooner. What jobs? Ah, there's the key! Jobs like shade tree spraying, brush and weed control, dust abatement. Close to the soil tasks like liquid fertilizing, lawn insect and turf disease control, root feeding. Clean-up jobs like sanitation spraying, mosquito and insect control. Fringe benefits like equipment cleaning, water-soluble paint spraying, many more. With John Bean High-Pressure Sprayers, you have the power to do the jobs thoroughly and quick. You have Bean-Bond corrosion-resistant tanks, ceramic pump cylinders, and many other Leadership-Engineered features to insure durability and dependability. Now, go back and add up the models. Forty-one (and we didn't even count several engine options)! That makes it as simple as ABC to look through the 3-R's and pick the one that's exactly right for you. May we help you pick?

LEARN THE 3-R's. First lesson is writing for catalogs on the models that interest you most. Just clip this coupon to your letterhead and mail.

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Improving Soils for Different Turf Uses

By ROYLYN L. VOSS

Specialist in Soil Management, University of Hawaii, Honolulu

IMPROVEMENT of soils for turf depends on early anticipation of problems and diagnosis of a condition before it starts, with economic considerations. Unfortunate for the turf grower, soils do not often cooperate and give the conditions that are optimum for turf production. Beautiful turf is expected from every piece of land regardless of its composition. The following conditions are commonly found in soils used for growing turf, but they are not in any specific order.

1. High acidity and poor fertility
2. Compaction
3. Droughtiness
4. Poor texture and structure
5. Low organic matter contents
6. Salinity and salt buildup
7. Poor drainage

Problems that result because of these factors do necessarily overlap. For example, compaction immediately includes poor drainage and may be a sign of poor texture or lack of soil structure.

Compaction is Typical in Cultured Turfgrass

Under turf culture, soils are quite susceptible to compaction. What can be done with a soil to reduce this condition before it starts? In golf course green construction, compaction is minimized by using a sandy-loam soil. Normal programs call for making soil with mixtures of from 4 to 5 parts sand to 1 part of soil. Sometimes organic materials, such as peat moss, are mixed into the top few inches or incorporated into the total mixture. In a few cases, golf green construction is enhanced by having naturally occurring, sandy-loam soils already on the location.

About the only practical

method of avoiding unfavorable soil conditions in golf fairway, park, and playground construction is to choose and limit the type of soil materials brought in.

Lawn Topsoil Diverse

The home lawn is our intermediate consideration. Total remaking of the soil is usually not practical, but something more than just the control of soils brought in is desired. The diversity of topsoil materials is so great that the homeowner sometimes ends up with a less favorable material than he had originally.

In order to alter an unfavorable clay soil, at least 30% to 50% sand must be incorporated into the top 4 to 6 inches of soil. A second approach is to mix organic materials into the soil. Wood shavings, sawdust, bagasse, mill ash, manure, or compost all alter the nature of clay. A minimum of a 1-inch layer cut into 4 to 5 inches of soil is necessary to show any improvement. With the exception of compost and manure, additional nitrogen must be added to soil to compensate for nitrogen used in the decomposition of organic material.

Droughtiness is most commonly found in sandy soils. Here, added organic material increases the water-holding capacity and promotes soil structure development. Golf green construction and irrigation control minimizes this problem.

In both sandy soils and heavy clay soils, the addition of organic material offers the most convenient method of improvement. Poor texture, poor structure,

compaction, droughtiness, low levels of organic matter, and in many cases poor internal drainage are minimized.

Prevent Salt Buildup

Salt problems may occur because of brackish irrigation water, sea water intrusion, and from fertilizer salts in a few cases.

If salty water is used for irrigation, enough water movement through the soil must be provided to prevent a salt buildup. Some bermudagrass varieties may tolerate as many as 120 to 175 grains of salt in irrigation water. Plant ground covers such as dichondra (*Dichondra repens*) tolerate little or no salt.

Subterranean sea water intrusion causes some problems in coastal areas. Generally, sufficient quantities of good water supplied to keep the salt from percolating up through the soil helps in porous soils. In extreme cases, excavation and the construction of a coarse coral underlayer is necessary. When new soil is placed over this barrier the capillary rise of salty water is prevented, and the soil is flushed free of salt.

Poor drainage can be helped by altering the soil with sand or organic matter as described earlier. In many cases, layering of different types of soil may cause poor drainage. This frequently results from the topdressing procedures used in turf production.

Soil improvement for turfgrass production can be achieved, but the underlying problems must be anticipated and diagnosed before a profitable operation can become reality.

Cold facts about a hot new line of weed killers!

Admittedly Ansul has more than an academic interest in telling you about its new ANSAR and PHYTAR herbicides . . . but if you're a grower, dealer, sprayer, formulator, educator or consultant in the field of agricultural science, we think you should know that:

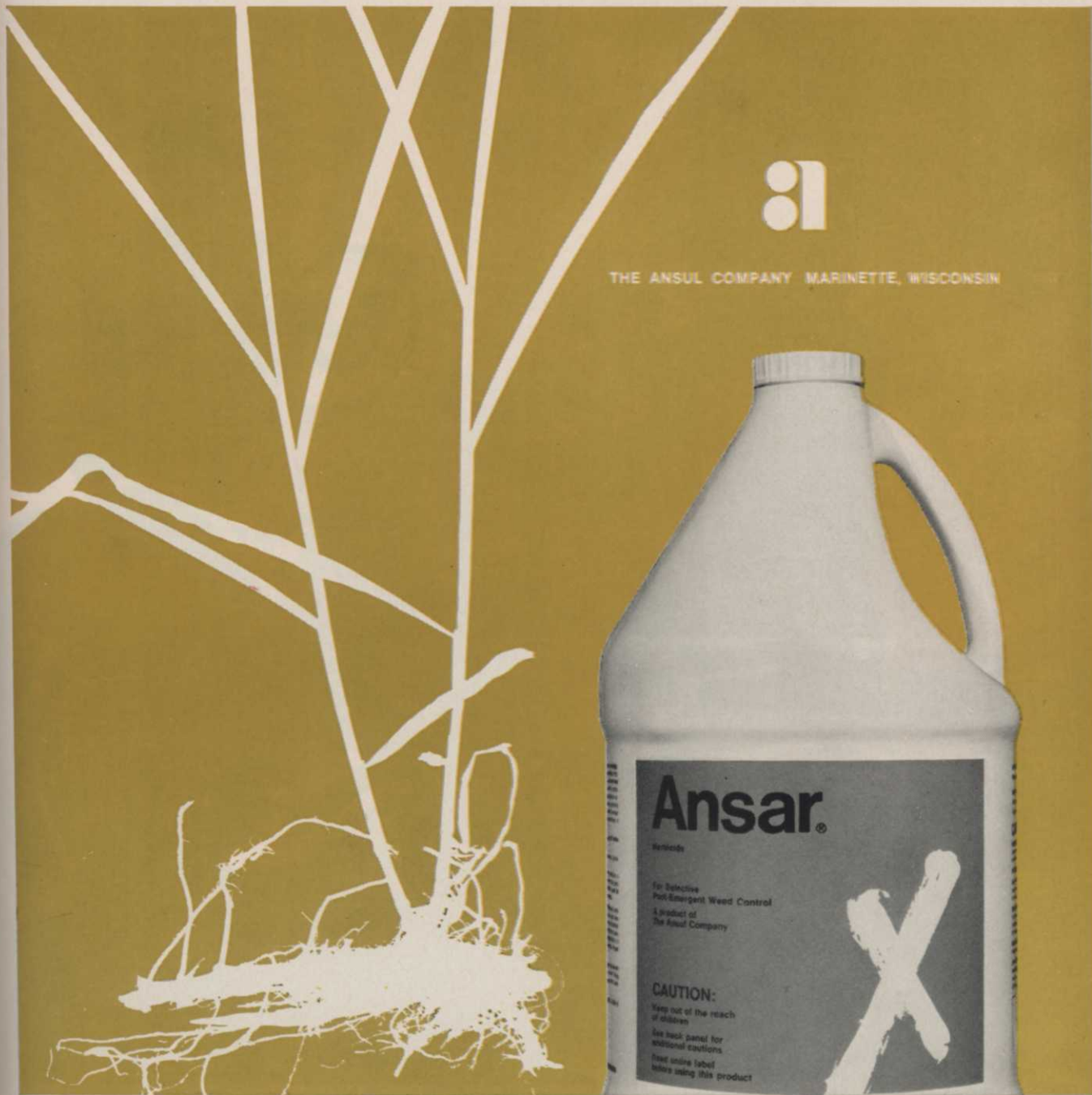
ANSAR 529 is the first weed killer that has been able to effectively control Johnson Grass! It's approved and proven for use in cotton. It's easy to

apply, economical and won't harm the cotton. It's also highly effective on puncture vine, morning glory, nutsedge, cocklebur and a host of other weeds.

PHYTAR 560, a non-selective, general herbicide, is a practical new substitute for old-fashioned weed oil. It eliminates weeds along roadways, ditches, around buildings and storage areas and in other non-crop locations. There is no residual toxicity. Unlike weed oil, it

won't stain, won't corrode spraying equipment and solves the storage problem (one gallon of PHYTAR mixed with water when you're ready to apply it is equivalent to 50 gallons of weed oil). In the final analysis it's cheaper and more effective.

As you get ready to face another weed season, tuck these ideas away. They may save you a lot of time and trouble . . . and might make you a lot of money.



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in one package.**

**International Cub Lo-Boy® and
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Hand mowers, power mowers and riding mowers all cost less than the smallest mowing tractors. Grazing goats cost even less. But they're all too slow, of course, if you have any sizable expanse of grass to keep neat.

In general, the more power you buy, the more mowing capacity you get. That's just as basic as the fact that the price goes up, too.

Many people with big grass to take care of have found an excellent compromise in a pair of midget workhorses of the International power line.

A quarter of a million of them have bought the 13 hp Cub Lo-Boy, for instance. With 42" rotary mower it fine-clips up to 10 acres a day. With 60" mower it handles up to 15.

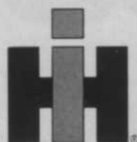
And that's on less than a gallon of gas an hour. The Cub Lo-Boy works with reel mowers, too, of course. Plus dozens of other attachments. It has big model hydraulics and engine-driven power take-off.

Still more compact—and unmatched for working skin-tight to trees, curbs and other obstacles—are the new 7, 10 and 12 hp International Cub Cadet tractors.

Economy and deluxe models handle rotary mowers up to 48" or 3-gang reels. They have direct, no-belt drive. Enclosed, two-wheel disc brakes. Sports car steering. The same warranty as bigger IH tractors. A Cadet's no toy. It's a tractor!

How sturdy? Five-year-old Cadets today are still worth up to $\frac{2}{3}$ their original value!

Either or both of these Internationals—Cub Lo-Boy or Cub Cadet—could be the answer to your mowing problems. Look them over at your IH dealer. He'll give you a good deal in pairs or in singles. Or by the dozen.



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ORTHO MSR-2 Emulsive kills the insects other sprays miss.

Aphids, mites, leafhoppers are all controlled by this systemic ORTHO product. Makes short work of leaf miners. White flies too. Because of its short residual life on the surface of the plant, there's no need to block off traffic flow. Spray morning or evening when people aren't

around. MSR-2 Emulsive is quickly absorbed by your ornamental shrubs and trees. Translocated within the sap stream of the plant it kills the above insects that attempt to feed on the foliage. Great protection for your investment..a full coverage spray schedule with ORTHO MSR-2.



On all chemicals, read cautions and directions before use.
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Entrance to Summit Hall's town farm in Gaithersburg, Md., as seen from Route 355. Body of water in front is a small spring-fed lake which provides a source of irrigation for part of the farm. Two other similar-sized lakes are located at other spots on the property.

Summit Hall Turf Farm Situated Amidst Megalopolis of 30 Million

By GERALD T. BRADY

THE mid-Atlantic region of Maryland, northern Virginia, Delaware, eastern Pennsylvania and New Jersey makes up a major portion of what is referred to as a megalopolis. Compressed into this seaboard corridor are nearly 30 million people, 15% of our total population. This is the spawning ground of suburbia in its most flourishing form. It is also the reason why Summit Hall Turf Farm in Gaithersburg, Md., could keep crews busy 12 months a year if the weather cooperated.

From the time of the first hearty crocuses in March until hard frost takes over in early January, Summit Hall helps keep the megalopolis green. More than 1,000 acres are under cultivation at the firm's two Maryland locations. The original 55-acre plant at Gaithersburg used to be picturesquely rural. Within the past four years, suburbia has sprung up on all sides and caused manager/founder, 40-year-old Bill Wilmot, to find expansion room elsewhere. Three years ago, the 1000-acre Potomac Valley Farm was estab-

lished to keep pace with increased consumer demand for quality turf grasses. The new farm is 18 miles "upstream" from Gaithersburg, and both locations operate on a capacity schedule ten months a year.

Summit Hall's main products are Meyer Zoysia, Merion Bluegrass, Scott's Windsor and some special-purpose grasses like U-3 Bermudagrass and others.

Double Production, Same Size Crew

Today the Farm utilizes no more manual labor than it did five years ago, but production volume has more than doubled during that same period. Like so many other agricultural businesses, Summit Hall was almost forced into mechanization due to a shortage of field labor. The shortage has been a proverbial blessing in disguise. Once underway, the mechanization program never stopped, hasn't stopped yet, and probably will go on as long as Bill Wilmot can find a new way to produce more, at less cost, for more profit.

The Farm's rolling stock in-

cludes a fleet of Ford F600 flat-bed trucks; a half dozen tractors including a Ford 6000 model, newest and largest in the Ford tractor line; 3 sales and service vehicles; several small utility trucks including Jeeps and pickups; several Ryan sodcutters; and a whole field full of mowers, vacuum sweepers, sprayers, seeders, plows, harrows, hydraulic land leveler and other maintenance equipment.

Summit Hall also has auto-



Summit Hall's founder and manager, Bill Wilmot, is surrounded by blue ribbons and trophies won by the Farm's flower show exhibits.

matic zoysia plugging machines which were designed and patented by the Farm. With these machines, one operator can harvest the equivalent of a dozen men working at top speed.

Machine Is Unique

Summit Hall's zoysia plugging machines are unique and unduplicated in the sod industry. They are for the most part completely automatic with the operator's job being simply to guide the machine along a given direction. Two pneumatic-driven cutting shafts alternately plunge into the sod scoring out a 2" diameter cylindrical plug with each thrust. On the upward cycle the plug is ejected from the cutting shaft and deposited into a loading crate positioned at the front of the machine. As the crate becomes filled up, it is manually removed to a nearly portable conveyor track and sent along to a flat-bed trailer.

The very unique feature of these plugging machines is the fact that they cut a cylindrical plug. Most growers harvest zoysia in regular sod strips and then dice the strips into square patches. Summit Hall, to the best of our knowledge, is the only commercial grower with mechanical harvesters that cut round plugs according to USGA recommendations. Each plug contains more than 3 square inches of sod, root and earth, cut cleanly and compactly to help prevent drying out in shipment.

The entire organization is



Workmen prepare to lower a section of eight-inch aluminum water main, which is part of Summit Hall's permanent irrigation system. When completed, the system will be one of the largest of its kind in the country.

knitted together by two-way radio. Trucks, sales vehicles, and even field tractors are radio-equipped. From the base at Gaithersburg, Wilmot can keep constant control of field operations, direct salesmen to calls which require immediate attention, and schedule sod installation crews from one job to the next. The radio network is another one of those improvements that he sometimes wonders how they ever got along without.

12 Miles of Aluminum Pipe

The Farm's new irrigation system, under construction now at the Potomac Valley location,

will comprise almost 12 miles of aluminum piping. Two and a half miles of 8" pipe will run underground along the edge of the grass fields, with hydrants spaced every 60 ft. along the line. Power-roll surface lines will run off the main and stretch laterally a half mile across the fields. The first phase of the system was installed during the 1965 growing season, in a year that saw extreme drought conditions in the east. Yet Summit Hall had its finest looking crops last year and credits the new irrigation system with the difference. Or, as Bill Wilmot put it, "No matter how scientific we get, let's



The Farm's radio communications network keeps all vehicles in touch with the home office. Frances Williams, one of the office personnel, is at the controls here.



The Farm's Mobile Tanker delivers fuel to field equipment. Many of the Farm's tractors, compressors, etc., are being switched to diesel for higher economy.

face it—none of it means a thing without plain ordinary water . . . and plenty of it.”

Serves Three Markets

The Farm sells to three distinct markets: (1) do-it-yourself homeowners for zoysia plugs, (2) custom installation, and (3) wholesale buyers. The do-it-yourself market is reached by a heavily promoted preseason sale between the first week in March and the middle of April. After that, plug sales are handled by the Hechinger Co., a local chain-operated haven for all kinds of do-it-yourself products.

Hechinger's handle both zoysia plugs and Merion Bluegrass sod. Plugs have been in the stores regularly for the past several years, but sod was tried on an experimental basis only two years ago. It turned out to be an instant success, particularly attractive to the homeowner who needed just a few yards for repair work. Summit Hall stocks the chain's 8 Washington area stores on consignment every Thursday, and picks up unsold



Automatic zoysia plugging machine does the work of 12 men.

material the following Tuesday. Returns are sold at reduced prices to a waiting list of customers who have registered their names with the Farm. Generally, there is little or no return material during the height of the spring planting season except for an occasional weekend of inclement weather. In that case, the Farm's office staff starts telephoning the waiting list and

within a few hours everything is gone.

Sells Zoysia By Mail

Outside of the Washington area, Summit Hall conducts a large-scale mail-order business for zoysia plugs. Promoting their plugs through the garden pages of metropolitan daily newspapers brings orders in from every corner of the country. During the most active season between March and June, the Farm harvests, packs and ships on an assembly line basis. Local housewives are used to help out in the packing shed, processing the several million plugs sold each season.

Besides the do-it-yourselfer, Summit Hall does a brisk business in custom sod (and plug) installation. Local newspaper ads bring in requests for estimates which are handled by two full-time salesmen. The conversion ratio of inquiry-to-sale runs better than 50%, thus keeping a three- to six-week backlog going between March and December.

Wholesale buyers, contractors

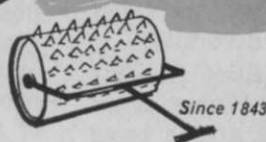
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and nurserymen quite often buy by the acre for a better price break. Others either send their own trucks to the Farm or have Summit Hall deliver a few hundred yards of sod for the job underway.

Jan., Feb., "Down" Months

All of this activity goes on between March and December. January and February are down months, with the Farm usually settled under a blanket of snow. As work tails off towards the end of December, temporary help is gradually reduced, with the best of the men retained as long as possible. Foremen and supervisors are permanent employees and usually each year a few of the more promising temporary hands are added to the full-time staff. During January and February this crew of 15 men overhaul equipment; paint, repair, or improve apparatus in the Farm's maintenance shop.

Labor Shortage Increasing

As soon as the snow starts melting in early March, the call goes out to last year's temporary employees. Most have taken interim jobs as store clerks and gas station attendants, but are generally available when the season gets underway. College students are added towards the end of May. The cycle is perpetual and, Wilmot admits, the roughest part of the business. Each year, according to the manager, it gets harder and harder to find enough field help to keep production rolling as sales volume increases. "We have a corps of men who keep coming back year after year," he said, "but only those who enjoy outdoor work." The alternative, of course, is mechanization and the Farm has done a great deal of it.

However, machine operators, truck drivers, packers and a certain number of laborers will always be needed. Summit Hall's problem is not unique; labor shortage plagues the entire agricultural industry. It is highly unlikely though that the Farm, which has grown from small beginnings into a multi-million-dollar operation in 18 years, will be stymied by this problem.

Maryland Sod Producers Unite; Form Sod Growers Assn.

"Better sod and a better sod industry," are goals set by recently formed Maryland Sod Producers Association.

Turfgrass producers in Maryland formed the association at a meeting in College Park, Md., April 19, as the result of discussion during a Maryland Sod Producers Conference, March 2.

Acting president of the new association is Parker Shirling, manager of Princeton Turf Farm, Centerville, Md. Other temporary officers elected by about 65 persons at the organization's first meeting include: vice president, Winton Osborne, Harford Sod Co., Fallston; secretary, Dr. Elwyn Deal, turfgrass specialist, University of Maryland, College of Agriculture; and treasurer, Emory R. Patton of R. P. Patton and Sons, Silver Spring. Edward F. Mayne, Olney, Md., along with the temporary officers, made up the committee to study MPS formation.

Temporary officers conducted a scheduled meeting May 17, where a proposed constitution and bylaws were presented.

Aims of the MSPA are to cooperate with the University of Maryland in an education program, and to develop close working relationship with the building industry in Maryland, and with turfgrass associations in other states.

Salt-Tolerant Grasses Eyed for Roadside Use

Three coarse-textured grasses show considerable promise for roadside use where stand establishment is made difficult by high salt concentrations in the soil, reports a turfgrass specialist from Iowa State University.

Grass specialist Eliot Roberts says Kentucky 31 fescue, sand lovegrass, and blue grama have been most tolerant of high salt concentrations. Six other coarse-textured grasses also show promise for establishing cover quickly on salt-contaminated soil, Roberts adds. They are intermediate wheatgrass, Russian wildrye, slender wheatgrass, tall

wheatgrass, western wheatgrass and reed canarygrass.

Roberts explains that failure to establish grass stands along roadsides is becoming a serious economic problem. Lack of adequate cover leads to erosion and causes undermining of highway medians and underslopes.

In most cases, the grass is killed by high amounts of salt carried from highways by runoff water. The salt then becomes concentrated in the soil. During the past two winters, Roberts notes, as much as 50,000 lbs. of salt have been used per mile on some sections of 4-lane highways in Iowa. He points out that road beautification suffers as a result.

As a part of a study sponsored by the Iowa Highway Commission, Roberts is testing 23 more varieties of coarse- and fine-textured grasses for salt tolerance. Co-operating in the project is Edward Zybura, agronomy graduate assistant at Iowa State University.

N. M. Horticulturist Says Clip Often for Hearty Turf

An important part of any good lawn maintenance program is the decision to mow frequently, reminds Douglas Bryant, horticulturist with New Mexico State University Cooperative Extension Service.

Infrequent clipping, he says, allows grass to grow so much that any later mowing removes too much leaf surface. Bryant suggests that never more than 1/4 to 1/3 of the total leaf surface should be removed at one mowing.

To cut larger amounts of leaf surface results in physiological shock to grass plants. Bryant points out, "this causes excessive graying or browning of leaf tips and reduces the photosynthetic production of food and depletion of root reserves."

Another reminder Bryant advances to lawn care specialists concerns the value of prompt clippings removal. "Clippings left on a mowed lawn give disease organisms and insects an opportunity to attack," he explains.



Weed-free turf

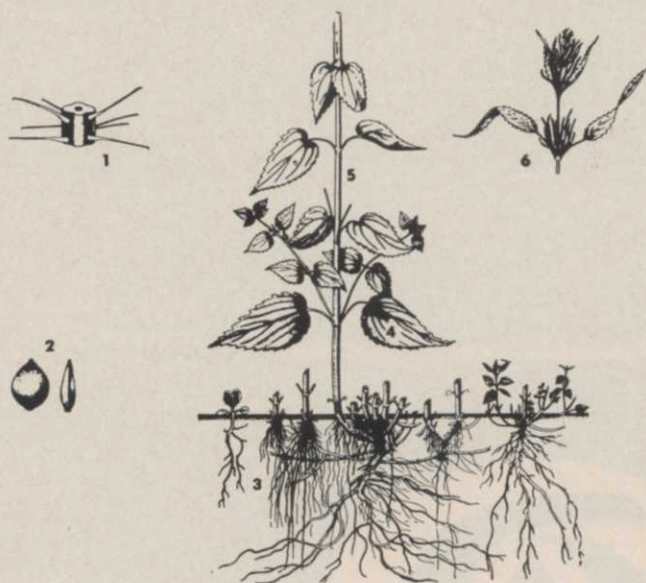
Dacthal effectively kills weeds and undesirable grasses in the ground before they sprout. Won't damage ornamentals and shrubs. Best weed control yet for golf-course and fairways, parks, rights-of-way, etc. Keep your turf weed-free with Dacthal applied professionally for best results. Diamond Chemicals, Diamond Alkali Company, 300 Union Commerce Building, Cleveland, Ohio 44115.

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STINGING NETTLE

(*Urtica dioica*)



Stinging nettle, sometimes called slender nettle or tall nettle, is a perennial reproducing by seeds and underground rootstocks. It originated in Europe and is now widespread in southern Canada and the North Central states of this country. Sometimes it may be found in the eastern United States.

It grows in damp, rich soil along roadsides, neglected yards, municipal parks, and near streams. Stinging nettle may cause welts and inflammation if touched by the skin. Bristly hairs (1) on the stems and leaves cause irritation.

Stems (5) are slightly branched near the top and may reach a height of 7 feet. The stems are round, slender, and rigid.

Leaves (4), 3 to 6 inches long, are dark green and opposite each other on the stem. They are 1/2 to 3 inches wide and have deeply serrated (saw-toothed) margins toward the tip. Leaves are sometimes rounded at the base.

Greenish flowers (6), without petals, are produced in clusters in the leaf axil, where leaves join the stem. Male (staminate) and female (pistillate) flowers are borne separately on the same plant. Only one yellow to grayish-tan seed (2) is produced by each female flower. Seeds are egg shaped, slightly rough, and about 1/32 inch (1 mm.) long.

Branched roots penetrate several feet deep. New plants are borne from joints of shallow rootstocks (3) which grow laterally from the crown.

Plants with similar common names in the genus *Solanum* are horse nettle (*S. carolinense*), and white horse nettle (*S. elaeagnifolium*); they have thorns on the leaves and stems, too. However, these species do not cause irritation like stinging nettle.

Control of stinging nettle by 2,4-D is good. Use 2/3 pound of a low volatile ester or 1 pound of 2,4-D amine per acre. Spot treatments are successful, but repeated applications may be necessary to kill all plants in patches of this weed. Follow directions on the herbicide label closely.

Prepared in cooperation with Crops Research Division, Agricultural Research Service, United States Department of Agriculture, Beltsville, Maryland

(DRAWING FROM NORTH CENTRAL REGIONAL PUBLICATION NO. 36, USDA EXTENSION SERVICE)

Herban Gets USDA Label Clearance

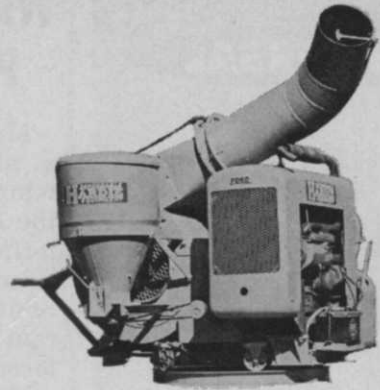
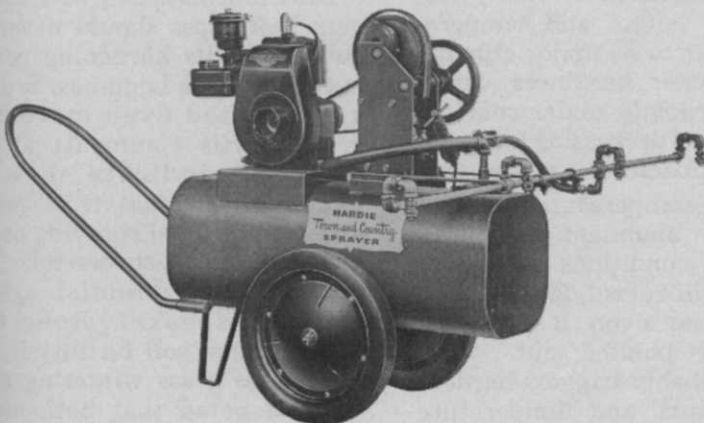
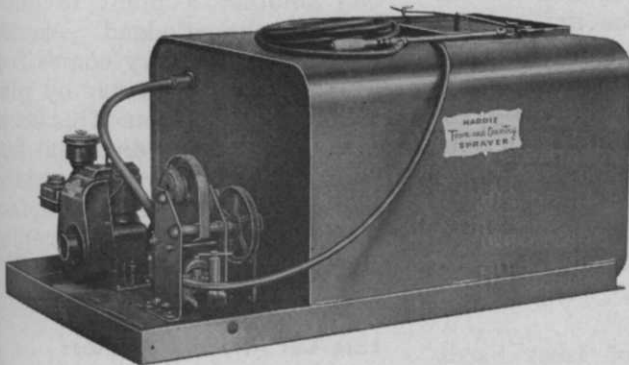
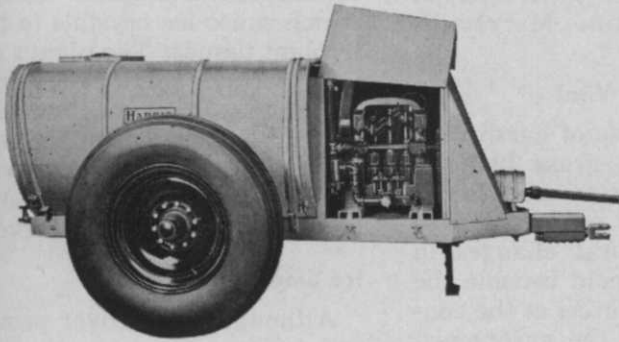
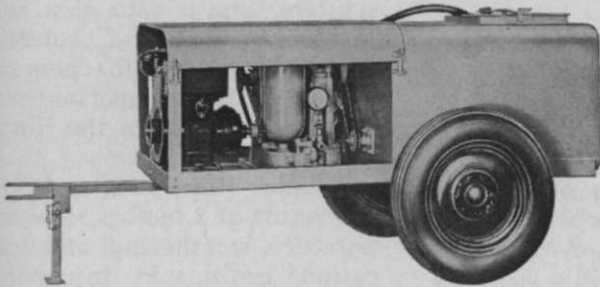
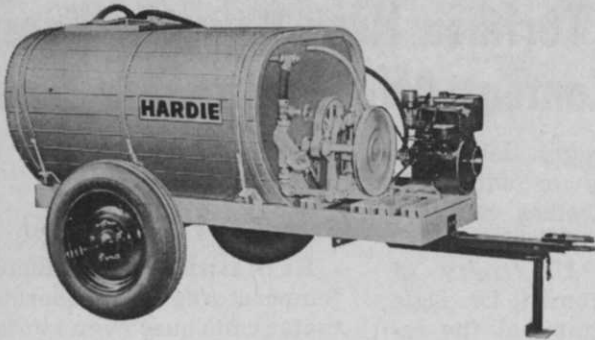
Herban, a selective herbicide produced by Hercules Inc., has just received label clearance from the U. S. Department of Agriculture for preemergence weed control in commercial culture of many standard nursery plants.

The clearance is for Herban's use on ornamental shrubs, trees and perennial flowers such as Ajuga, Shasta daisy, chrysanthemums, Stonecrop, Creeping Thyme, periwinkle, English ivy, day lily, Japanese Andromeda, Japanese holly, *Osmanthus delavayi*, juniper, arborvitae, Euonymus, Burfordi holly, Ligustrum, *Magnolia*, Nandina, *Pyracantha*, *Camellia japonica*, *Camellia sasanqua*, and *Spiraea*. Spray application to foliage is not recommended for less tolerant species such as pine seedlings, Noxwood, *Hibiscus*, and rhododendron. Any plants not listed on the Herban label cannot be safely planted in areas treated with the chemical until five months later.

Weeds controlled by Herban in commercial nurseries include annual weeds and grasses such as barnyardgrass, goosegrass, brachiaria, annual chickweed, Coloradograss (Harrahgrass), cocklebur, crabgrass, Florida pusley, foxtail, henbit, lambsquarters, morningglory, panicum (summer and fall), pigweed, and purslane. Deep-germinating morningglory and cocklebur control requires good rainfall to move the herbicide to plant roots. Herban does not control perennial weeds such as trumpetvine, nutgrass, and johnsongrass.

A wettable powder, Herban can be either broadcast or applied as a band over the row. It can also be used on newly planted liners as soon as the soil settles. Recommended rates are 4 to 6 pounds per acre (broadcast). Rain or sprinkler irrigation is needed for proper root absorption.

For more information about availability of Herban write to Hercules Inc., Hercules Tower, Wilmington, Del. 19899.



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Wisconsin Turfmen Hear How Hardiness, Potash Content Affect Wintering Grasses

Metabolic changes determine a plant's ability to withstand temperature extremes and are the key to grass and plant wintering abilities, University of Wisconsin Agronomist, Dr. Dale Smith, told delegates at the recent Wisconsin Turfgrass Conference.

Nearly 200 persons attended the conference, conducted at Wisconsin Center for Adult Education, Madison, Wis. Also included in the two-day schedule was a presentation on soil potassium needs by Robert E. Wagner, Eastern Director, American Potash Institute, and a comparison of turfgrass qualities by Dr. Robert W. Schery, Director of The Lawn Institute, Marysville, Ohio.

Hardiness Ability Vital

With the effects of harsh winter weather on grass being a prime consideration in Wisconsin, Dr. Smith's explanation of the plant's natural changes in preparation for cold became the focal point of interest at the conference. But as the agronomist pointed out, winter kill and injury are problems not only in northern areas, but wherever temperatures drop below freezing for prolonged periods.

"Ability of plants to harden through metabolic changes which occur in protoplasm of the cells during autumn is a vital factor in the plant's ability to withstand winter weather," he explained.

Development of frost hardiness is influenced by many factors. Day length and temperature appear to be major climatic requirements; hardiness develops most rapidly under shortening days and decreasing temperature, Smith told the conference.

"Warm temperatures accompanied by abundant soil moisture, both conditions that favor growth, will retard development of hardiness even if days are short," he pointed out. "Day length probably triggers hardening in plants, and temperature

determines the level of hardiness."

Cover Saves Northern Turf

Explaining that fluctuating temperatures in moderate climates can cause even more plant damage than cold north-state winters, Smith said that snow and soil give natural protection. "Leaving stubble to catch and hold snow is an important management practice in the North," he noted.

"Winter injury is primarily the result of 3 factors: low temperature, smothering, and desiccation," Smith said. Injury most frequently results from exposure to temperatures below freezing, which cause ice crystals to form in plant tissues. The plant's ability to tolerate this ice in its tissue is known as frost hardiness. Loss of frost hardiness can occur as the result of unseasonal warm periods, which cause the plant to use up carbohydrate reserves.

Ice Smothers Plants

Although snow cover protects vegetation, icy, nonporous cover can smother a plant to death, Smith acknowledged. Another type of plant injury comes from excessive loss of water by plant tissue or desiccation. This occurs commonly with plants that keep their leaves over winter. Moisture is lost from leaf surfaces and roots are unable to replace the moisture when the soil is frozen.

Late Cut Affects Hardiness

Dr. Smith warned turf managers that grass should never be cut during its hardening period in the autumn. Legumes, he said, are affected even more than grasses. His comments at the conference indicate that attempts to increase frost resistance by chemical spraying as yet have not been successful. The Wisconsin agronomist agreed with API speaker, Robert E. Wagner, that soil fertility is important to grass wintering ability. He noted that both nitro-

gen and potassium seem to have direct influence on hardness.

K-N Help Grass Survive Cold

"Winter survival of grasses appears to be favored by a high potassium ratio in the soil, which increases soluble carbohydrate reserves in the grass roots," Wagner explained. He added that potassium is also important in reducing high temperature injury to grasses.

In an extensive discussion on turf species comparisons at the conference, Lawn Institute speaker Dr. Schery narrowed the field of suitable grass species for Wisconsin to Kentucky bluegrasses, fine fescues, and the bentgrasses.

"A very satisfactory, all-purpose blend for Wisconsin might combine two or three bluegrasses with a modicum of fine fescues, depending on the amount of shade and soil quality," Schery advises. He stressed that Merion Kentucky bluegrass is still considered the best bluegrass commercially available for well-maintained lawns.

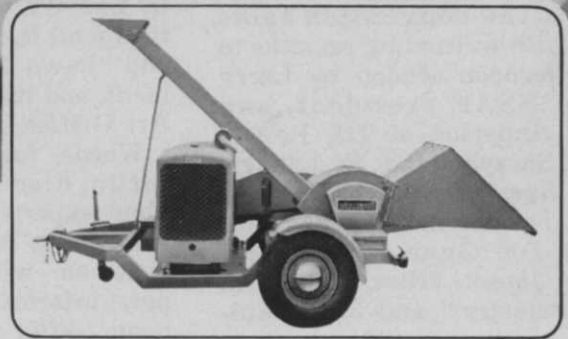
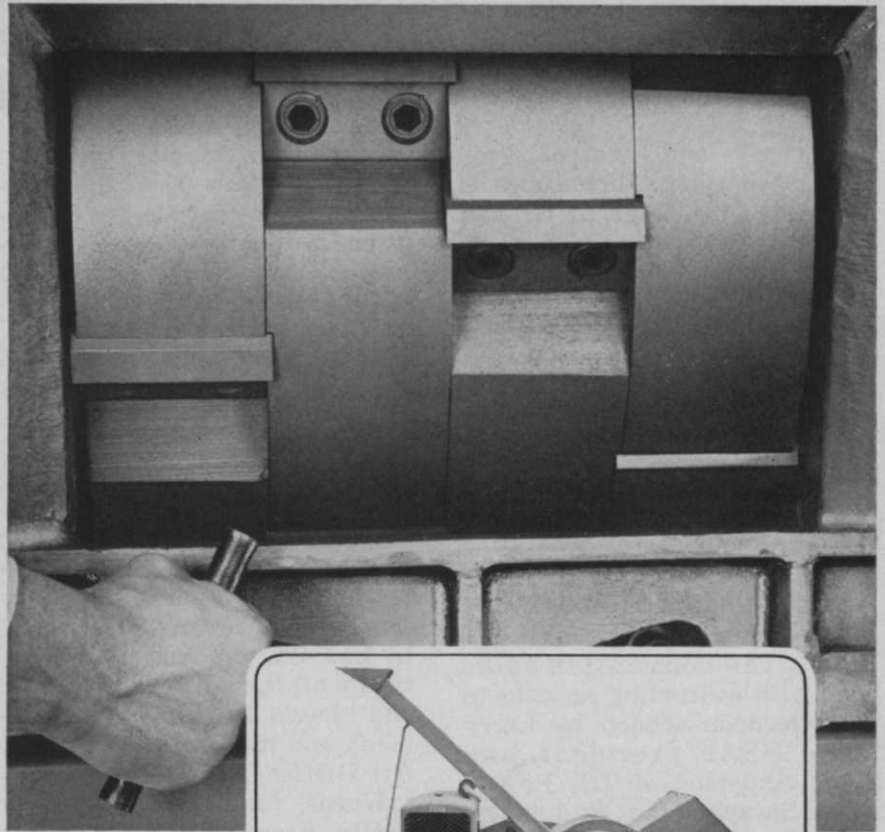
Schery concluded his section of the program by reminding turfmen that seed selection must be made in consideration of local environmental variations which can call for seed mixtures for optimum results.

Agra Enters Herbicide Field

A new line of herbicides, including weedkillers, brush killers, and plant hormones are now available, with entry of Agra Industries Ltd., into the herbicide field.

Announcing the entry, company president Robert D. Sharp said the Agra line now includes a wide range of 2,4-D and 2,4,5-T herbicides produced by Thompson Chemicals Corp., St. Louis, Mo., and Los Angeles, Calif. Agra products to control annual, perennial, and general weeds and woody plants are to be sold under the Thompson Chemicals label.

For available literature write to Agra Industries Ltd., 355 Lexington Ave., New York, N. Y.



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M & M, however, divides the same knife length up into 16 smaller knives, spaced only inches apart around the cylinder. Full length knives take only four cuts each time the cylinder revolves. The staggered knives take 16 cuts per revolution.

This faster cutting action draws the log in smoothly and distributes

cutting shock four times more evenly throughout each cylinder revolution. Machine vibration is virtually eliminated; there is less shock per bite; horsepower is used more efficiently; and a lot of fuel is saved.

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Ft. Lauderdale HSAF Convention, Nov. 2-5, To Cover New Laws, Trends, Methods, Equipment

New laws and regulations affecting spraymen are subjects of an idea exchange to be lead by John Mulrennan, Florida Board of Health, and Dempsey Sapp, Florida Pest Control Commissioner—just one of the topics set for the Horticultural Spraymen's Association of Florida Annual Convention, Nov. 2-5, at Pier 66 Motel in Ft. Lauderdale, Fla.

Starting the action-packed four-day program will be a Board of Directors dinner meeting 7 p.m. Wednesday, Nov. 2.

After Thursday morning registration, the convention talks open with welcoming remarks to the afternoon session by Larry Nipp, HSAF president, and Craig Anderson of The Professional Sprayers, Inc., Ft. Lauderdale. Speakers and topics they will cover in the afternoon include Dr. Gene Nutter and Ralph Jones: "New Trends in Our Industry," and John Mul-

rennan with Dempsey Sapp set to discuss "New Laws and Regulations." A poolside get-together and a Hole-in-One Golf Tournament, hosted by Sid Kirkpatrick, will top off the day's activities.

Friday's schedule offers an informative series of lawn care discussions during the morning session. Speeches programmed include "Available Lawn Grasses; Their Characteristics and Problems," by lawn expert Ralph White, Jr., general manager, Ousley Sod Co.; "Renovation, Aerifying, Verti-cutting of Lawns," by Lew Watson, Associate County Agent, Broward County, Fla.; and "Lawn Maintenance Equipment, and its Practical Uses," by Art Griffes, Ft. Lauderdale.

Weeds, fungus, and fertilizer forum discussions by Florida plant experts, Drs. Burt, Cabler, Edwardo, Border, Kerr, and Freeman will offer delegates new information Friday afternoon. After the forum a business meeting is scheduled and officer elections will take place.

The convention banquet is set for 8 p.m. Friday evening.

An equipment demonstration will be another feature of this year's HSAF meeting.

Formation of a Horticultural Pest Control Association of the

Eastern United States will be the central topic at the convention's business meeting Saturday morning, Nov. 5.

Convention registration fee is \$10, which includes the banquet. For reservations and more information write to Larry Nipp, American Power Spraying, 3675 S. W. 1st St., Ft. Lauderdale, Fla.

Dormant Hormone Research Continues

How can dormancy be speeded in plants? Withholding water and fertilizer helps bring about dormancy, but what could be a more effective method is now being developed, the U. S. Department of Agriculture reports.

Researchers have isolated and structurally identified a natural chemical in plants that makes them "grow-old" faster, or speeds leaf drop and other dormant functions, the USDA points out. This natural hormonelike chemical promotes dropping of leaves, flowers, and fruit in a process called abscission. Because of this role, the chemical has been named abscisin II by scientists of USDA's Agricultural Research Service and the University of California.

Working to isolate abscisin II, researchers crystallized 1/3160th of an ounce of the hormone from about 500 lbs. of cotton bolls, 4 to 7 days old. They then determined the structure of the compound by elemental analysis and by comparing it with known chemical compounds through mass magnetic-resonance comparisons. Currently researchers are attempting to synthesize the hormone.

Three major groups of plant hormones are now recognized: Auxins, gibberellins, and kinins. Abscisin II may be one of a fourth group of hormones that promote or accelerate abscission. The three known plant hormone groups are currently synthesized and are widely used in agriculture. Auxins, for example, kill weeds and promote rooting of cuttings. Gibberellins accelerate growth and flowering of trees and shrubs, and kinins are used to keep produce fresh.

AAN '65 Plant Patent Directory Now Available

The only publication in existence which annually summarizes information on new plant patents has again been updated by the American Association of Nurserymen and is now available.

Announcing the availability, AAN president Martin W. Ursey points out that the 1965 Supplement to the Plant Patent Directory, not only gives patent information, but also shows the common name assigned to each new introduction.

The original directory, "Plant Patents with Common Names—1-2207," covers those plant patents granted from the inception of the U. S. Plant Patent system in 1931 through December 31, 1962. Supplements for 1963, 1964, and 1965 are available for 50 cents each, and the original Directory for \$2, from the American Association of Nurserymen, 835 Southern Bldg., Washington, D. C. 20005.



Rugged grass hook is hand forged and shaped by eye from a single bar of steel. Blade is 1 3/4 inches wide and has an 11 1/2 inch cutting edge. For more information write to Witherby Products Div., John H. Graham & Co., Inc., 105 Duane St., New York, N. Y. 10008.

Check on Pests Before Using New Land for Nursery Stock

Nurserymen should check with their state and federal plant pest control officials before they set nursery stock out in new land areas, warns Greg Rohwer of the U. S. Department of Agriculture's Plant Pest Control Division.

Should the land be infested with serious plant pests, nurserymen may have trouble moving nursery stock because of quarantine regulations designed to stop the spread of plant pests.

Failure to take proper precautions before planting nursery stock on land infested with a serious pest like the white-fringed beetle or European chafer could delay stock movement from this land for as long as a year, or more, until adequate control of these insects had been accomplished.

Rohwer goes on to say that there is no effective treatment procedure for some plant pests such as soybean cyst nematode, burrowing nematode, or the golden nematode, which would not damage nursery stock already planted.

It is recommended nurserymen contact state or federal plant pest control officials to learn whether or not land proposed for production is part of a quarantine area, and if it is actually infested with a soil-

inhabiting pest. In either case, a certificate is required to move plants outside the quarantine area.

If land is infested, a quarantine official will provide information on what is required to move plants with a minimum of time and effort. This may include instructions to pre-treat the land with chemicals to kill the pests or to take other precautionary measures.

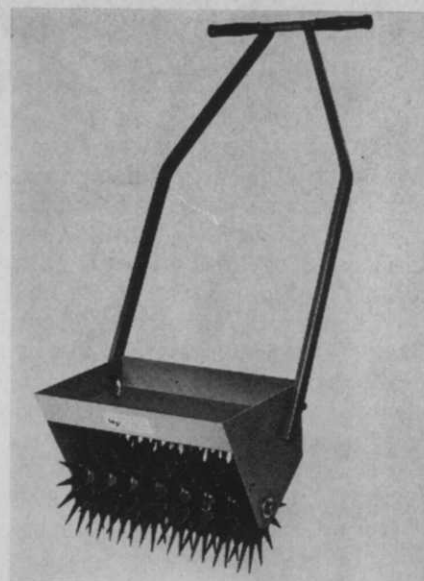
Pest control officials will also advise nurserymen on how to keep from spreading the infestation to other areas. The problem can also be multiplied by moving contaminated machinery from infested to noninfested land.

"Even if the nurseryman has to take a particular field out of cultivation, he'll be ahead of the game knowing this before he plants," Rohwer concludes.

All-Weather Use Possible With "Big-A" Spreader

Big Goodyear Terra-Tires that "literally float over a field," even though rain might have softened the footing, are said to make the "Big-A" fertilizer spreader introduced by Rickel, Inc., an applicator for use under varied conditions.

The vehicle has a 60-foot sprayer swath and is self-propelled by a heavy-duty, industrial gasoline engine. Increasing fertilizing capacities more than



Spike Disc design lawn and green aerator made by Harris Fabricating Co. has 8 10-inch discs to provide 16-inch width.

Handy Turf Aerator Devised

With spiking width of 16 inches, the recently introduced Harris lawn aerator is light (weighs 35 lbs.), maneuverable, and suited for lawn care where space is restricted. High carbon steel hardened and tempered discs, and all welded steel construction, give the spike aerator maximum strength and sod cutting characteristics. For further specifications on the Harris aerator, write, Harris Fabricating Co., 105 Duane St., New York, N.Y. 10008.

400% above conventional methods, it treats 60 acres an hour, Rickel claims. It can be adapted to spread liquid and dry fertilizing materials, lime, insecticides, and herbicides.

Serious erosion problems caused by narrow tires in soft soil are eliminated with balloon-size tires, the firm says.

Optional equipment on the vehicle includes a dry spreader box and a liquid tank, both of which are interchangeable and have large capacities. A metal cab is also available.

Field speed of the unit is 20 mph, and on roads it is capable of speeds up to 30 mph.

For complete details on the "Big-A" write, Rickel, Inc., Manufacturing Div., 1065 Board of Trade Bldg., 127 West 10th St., Kansas City, Mo.



Goodyear "Terra-Tires" give the "Big-A" spreader no-sink traction to prevent erosion due to tire ruts.

Bolens Debuts GK, Versatile "Snaky" Tractor For Contract Mowing, Grounds Keeping Jobs

Contract applicators faced with mowing in and around closely spaced trees and bushes will want to investigate the new GK tractor introduced last month by Bolens.

Members of the trade press, hosted at a preview unveiling by golf champion Arnold Palmer, saw the GK 18-hp. frame-steering tractor fingertip maneuvered, serpentinelike, around ornamentals at the Milwaukee (Wis.) Country Club. Center-pivoted with power steering, a 2-cylinder Wisconsin engine power plant in the rear and up-front seating made the unit about as easy to handle as a sturdy motor scooter. Weighing 1,530 lbs., without attachments, it is the largest tractor in the Bolens line.

The new front-wheel drive unit has a 3-speed transmission coupled with a high/low range selector to provide 6 speeds forward from $\frac{3}{4}$ to 10 mph. A direct-drive takeoff shaft powers attachments which can be quickly locked in and secured with hitch pins.

Both front- and rear-mounted attachments are available, including the new front-end, flexible, 4-blade, 72-inch rotary mower with retractable wing sections. Bolens says this can cut 7.28 acres per hour at top

speed and 1.46 acres per hour at 2 mph. With the two 15" retractable extension wings, that are easily lifted and automatically disengaged, the GK mower will cut a wide 72" swath or smaller 57" or 42" swaths. It will also turn and trim in a small 24" inside cutting radius. The hinged wings make the GK into a 6' mower that follows and hugs the ground contour through a strong downpressure spring which can be disengaged for lighter mowing. Blades of each section overlap to prevent streaking, and there are adjustments to 5 mowing heights from $1\frac{1}{2}$ " to 5".

A built-in shock absorber protects gear boxes in case the user hits ground obstructions.

Presently available attachments, in addition to the rotary mower, include a snowplow-grader blade, a snow caster with cab, and dump cart. Other accessories to be added soon include a thatcher, sickle, broom, vacuum, and loader.

The GK tractor can be fitted with soft, specially developed Goodyear Terra-Grip tires to travel lightly on turf, said to leave only "pigeon tracks" that soon disappear.

In addition to power steering, the Bolens GK has, as standard



Agility of swivel-hipped Bolens new GK was demonstrated at press conference by guiding it between paired ornamental trees.

equipment, a hydraulic lift system, electric starting, and an 8-gal. fuel tank.

For more information and price of the GK, write Don L. Boldt, Industrial Products Mgr., Bolens Div., FMC Corp., Port Washington, Wis. 53074.

Corrosion-Resistant Seal Added to Universal Pump

A special Viton-stainless seal, resistant to erosive or corrosive actions of a wide variety of chemical combinations is claimed to give the new Aquamaster F-2 by Universal Motor Co., a longer useful life.

Another feature adding to the durability of the new spray pump is its complete outside epoxy finish to protect engine, base, and pump from most chemical combinations.

Field tests conducted during 1965 showed no evidence of seal deterioration or shaft wear after lengthy exposure to all available liquid fertilizer combinations, the company reports.

The improved model retains basic overall design features of the standard unit. Weight is 64 lbs. and $1\frac{1}{2}$ - and 2-inch models provide capacities to 7200 GPH and will handle solid articles of $\frac{1}{2}$ -inch diameter.

New data sheets covering models powered by Clinton, Lauson, and Briggs & Stratton engines are available. Write Universal Motor Co., 1552 Harrison St., Oshkosh, Wis.



Ground-hugging mower attachment, with 15" wings, enables GK to follow ground contour as on this grass strip between green and sand trap.

ISTC Cleveland Meet to Have Full Family Program, Too

While more than 1,000 tree-men gather in Cleveland, Ohio, for the 42nd International Shade Tree Conference, Aug. 28-Sept. 2, for a technically oriented program, there will be a full schedule of events for the children and wives that come along for what has grown to be a truly family affair.

Ladies will be treated to a boat cruise, garden party, instruction in flower arranging, an entertaining talk on grooming for charm, a visit to Cleveland's famous cultural garden center, time for shopping, plus joining the men for the Sunday hospitality hour and reception, attendance at a Cleveland Indians ballgame, and the grand banquet.

Children will be chaperoned and kept on the go with a whirlwind of activities that include a trip up the Cuyahoga River, a visit to Cedar Point on the lake—Disneyland of the Midwest—, outdoor picnics, a tour of the fascinating Cleveland Museum of Natural History and Planetarium, and jukebox get togethers with coke refreshments.

Headquarters for the confer-

Hercules Film Shows Spray Drift Solution

Herbicide spray drift control is the subject of an 11-minute film now available from Hercules Incorporated.

Demonstrating a new approach to reducing herbicide spray drift, the color-sound movie documents the use of Vistik, a free-flowing, water-soluble powder, for use in conventional equipment. The movie explains that Vistik, hydroxyethyl cellulose, is a thickening agent which affects the water phase of a spray solution.

There is both a 16-mm. version and an 8-mm film, available in Fairchild cartridges for use in Fairchild Mark IV projectors. Arrangements to see the movie can be made by contacting the Cellulose and Protein Products Dept., Hercules Incorporated, Hercules Tower, Wilmington, Del. 19899.

ence, that is to include over 50 exhibits of new equipment and more than a dozen educational booths, is the Cleveland Sheraton Hotel.

Convention slogan for the 6-day meeting is "Beautify With Trees." Details of the program are expected to be announced next month, including how delegates can win a \$3,000 chipper.

Plant Pathologist Warns of Leaf, Stem, or Root Diseases

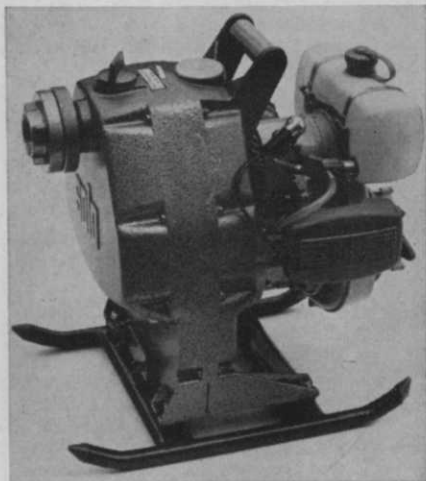
Serious disease problems can arise in ground-cover plants such as Myrtle, vinca, and Pachysandra unless proper maintenance programs are followed all through the season, warns R. E. Partyka, Ohio State University Extension plant pathologist.

Myrtle is attacked by two diseases: leaf-spot disease and Rhizoctonia stem-rot. Stem-rot can be severe to the plant. Pachysandra is troubled by a *Volutella* leaf-blight and Rhizoctonia stem-rot. Both diseases can cause considerable damage. Vinca or periwinkle are often attacked by a *Phomopsis* canker and die-back, Rhizoctonia root- and stem-rot, and several leaf-spotting fungi. Root- and stem-rot diseases can be identified by a general wilting and dying of the plants. Examination of stems and roots shows dead tissue on diseased plants.

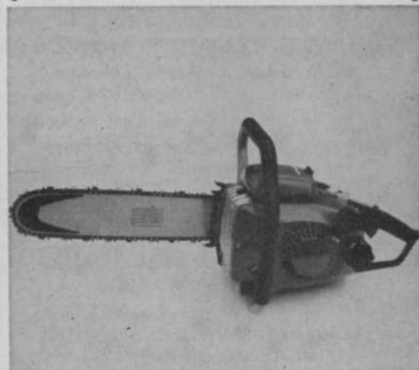
Partyka recommends removal of over-crowded plants, and dead leaves and plants as the first control step. Then he suggests, soil should be drenched with Terraclor 75 W solution, using 1 tablespoon per gallon of water. This will control Rhizoctonia stem- and root-rots. He says 2 applications at 3-week intervals will often suffice, but additional applications may be necessary.

Control of leaf spots and *Phomopsis* die-back can be effected by spraying ready-made, fixed copper solution, 3 times at 2-week intervals, starting when new growth begins in the spring, advises the plant disease specialist. Fixed-copper (50% active) should be used at the rate of 2 tablespoons per gal. of water. Application should cover leaves and stems completely.

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Meeting Dates



- South Carolina Nurserymen's Assn., Short Course**, Clemson House, Clemson, June 12-14.
- Western Society of Soil Science, Meeting**, University of Washington, Seattle, June 13-18.
- Michigan Upper Peninsula Turfgrass Conference**, Escanaba, June 17.
- Hyacinth Control Society, Annual Meeting**, Ramada Inn, Lakeland, Florida, June 19-22.
- New Jersey Society of Certified Tree Experts, Meeting**, Essex County Highway Dept., Verona, June 20.
- Lawn and Turfgrass Equipment and Products Show and Research Field Day**, Rutgers University, New Brunswick, N. J., June 20-21.
- Sod Producers Field Day**, Rutgers University, New Brunswick, N. J., June 22.
- Cornell University 1966 Conference for Arborists, Nurserymen, Landscapers**, Ives Hall, Ithaca, N. Y., July 6-8.
- Pacific Northwest Plant Food Assn. Summer Conference**, Cascadian Hotel, Wenatchee, Wash., July 11-14.
- Connecticut Nurserymen's Assn. Summer Meeting**, Cuzz-Acres Nursery, Orange, July 13.
- Mississippi Valley Golf Course Superintendent's Assn., Meeting**, Westborough Country Club, St. Louis, Mo., July 13.
- American Association of Nurserymen, 91st Annual Convention**, Palmer House, Chicago, Ill., July 16-20.
- Southwest Fertilizer Conference**, Marriott Motor Hotel, Dallas, Texas, July 20-21.
- West Virginia Nurserymen's Assn. Meeting**, White Sulphur Springs, Aug. 3-4.
- Penna. Nurserymen's Assn. Summer Meeting**, Fairview Nurseries, Inc., Fairview, Erie County, Pa., Aug. 5-7.
- Joint Convention and Trade Show**, by Southern Nurserymen's Assn., Louisiana, Alabama, Mississippi, and Arkansas Nurserymen's Assns., Jung Hotel, New Orleans, Aug. 7-10.
- Indiana Association of Nurserymen, Inc., Summer Meeting**, Purdue University, West Lafayette, Aug. 8-11.
- Midwest Turf Field Days**, Purdue University, West Lafayette, Ind., Aug. 15-16.
- International Shade Tree Conference, 42nd Annual Convention**, Sheraton-Cleveland Hotel, Cleveland, Ohio, Aug. 28-Sept. 2.

Sod Industry Mechanizations Debut at Rutgers, June 20-22

Three days of sod growing talks, equipment demonstrations, and field shows, including a sod problem clinic and a research tour, are scheduled at the Rutgers University, College of Agriculture and Environmental Science campus, New Brunswick, N. J., June 20-22. The program is sponsored by Rutgers in cooperation with the Cultivated Sod Association of New Jersey, Inc.

Arrangements for the events are under direction of Dr. Henry W. Indyk, Extension Specialist in Turfgrass Management, and CSANJ secretary.

Lawn and turfgrass products will be shown Monday, June 20. The newest and latest in all types of equipment for turf work and various products presently available for growing and maintaining attractive lawns and turfgrass areas will be exhibited.

Live exhibits of turfgrasses, weeds, insects and diseases are to be displayed. In addition, a clinic, staffed by a group of specialists, will stand ready to diagnose problems and answer questions.

The Turfgrass Research Field Day, usually conducted during

August, will be held on June 21. Guided tours of the turfgrass research plots will be conducted periodically by the turfgrass research staff.

Turf Research Tour, June 22

Visitors will have opportunities to observe and discuss turfgrass research being conducted at Rutgers Wednesday morning, June 22. The tour of campus facilities is part of the all-day and evening Sod Producers Field Day. Particular emphasis will be placed on new turfgrass varieties in the breeding and selection program which constitutes a large segment of the research program at Rutgers.

Afternoon activities are to show mechanization advances in the production, cutting, and handling of sod. Featured will be field demonstrations of a land leveler, stone picker, soil fumigation, seeders, aerial and ground application of fertilizer, gang mowers, sod cutters, mechanical sod roller, palletization, and boom loaders. Plans include public demonstrations for the first time of the new and improved model of a self-propelled, hydraulically operated sod cutter, roller, palletizer combination developed by Princeton Turf Farms. Field demonstrations will be conducted on one



Lineup shows landscape experts who attended the University of Iowa Conference on Community Development for Parks and Recreation in Iowa City. Conference talks, March 18-19, covered grounds operations from landscaping to management. Pictured left to right are, Howard Orr, landscape architect, U. S. Forest Service; Miss Virginia Lee Cunningham, assistant executive director, Heart of the Hawkeye Council Campfire Girls; Dr. Orren Beaty, special assistant to Stewart Udall, Secretary of the Interior; Mrs. Verna Rensvold, midwest representative, National Recreation and Parks Association; Miss Geneva Allen, recreational therapist, Iowa Methodist Hospital; and William Griffith, regional manager, Deere and Co. Over 100 recreation personnel attended the Conference.

of Princeton Turf's sod farms, Cranbury, New Jersey.

Besides the Turfgrass Research Field Day and the equipment demonstrations, the day's activities will extend into the evening to include a dinner meeting and an informal round-table discussion of sod production problems.

In conjunction with these activities, the Northeast Branch of the American Society of Agronomy will be holding its annual Conference.

Interested sod producers from the United States and Canada or anyone with a new development in mechanization who may wish to have it demonstrated is welcome to participate. More detailed information on exhibit space or the program may be obtained by contacting Dr. Henry W. Indyk, College of Agriculture and Environmental Science, New Brunswick, N. J.

Watch Trees for Fertilizer Deficiency Signs Snyder Says

Sparse foliage, weak new growth, and light green leaf color are all signs that point to need for more fertilizer, says Dr. Leon C. Snyder, head of the University of Minnesota Dept. of Horticultural Science.

Tree fertilization programs become more important, Snyder explains, when root zone areas are covered with paved driveways and sidewalks, limiting soil area in which tree roots can develop. Another factor which causes trees to require more fertilizer is fallen leaf removal. Normally dead leaves and branches would fall to the ground and decompose, renewing soil fertility. But landscaped areas are deprived of this source of tree food through grounds cleaning programs, Snyder reminded tree service people. He recommends early spring, or late fall tree fertilizing, once every three or four years.

"A complete fertilizer comparatively high in nitrogen such as 10-8-6 is good for evergreens, and a 10-10-10 analysis should be used for deciduous trees," Snyder says. As a general guide he suggests using 2 to 4 lbs. of complete fertilizer for each inch in

diameter of the trunk, measuring trees at breast height. Thus a 12-inch tree might require 24 to 48 lbs. of fertilizer, depending on soil and rate of desired growth.

Punch-bar application gets fertilizer close to feeding roots Snyder points out. Holes about 18 inches deep at intervals of 2 feet, in a band just under outermost branches, with about ¼ cup of fertilizer in each, and then filled with compost, give desired penetration he says.

Entomologist Kerr Says Lawn Caterpillars Crop Up Quickly

Lawn caterpillars are easy kill but quite difficult to control reports associate entomologist Dr. Stratton Kerr of the Florida Agricultural Experiment Station.

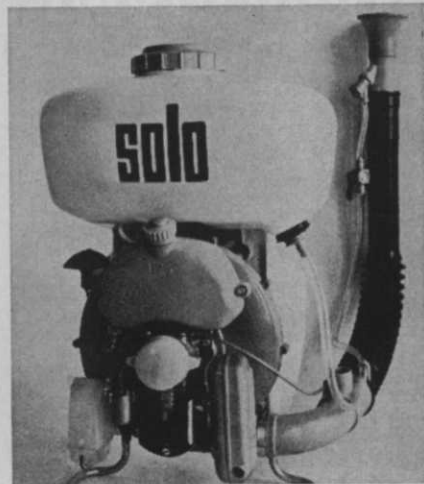
Kerr says the destructive infestations can crop up again as early as 3 weeks after lawn treatment. Lawn damage occurs when the caterpillars chew the blades down so grass has an extremely close-mowed appearance. The pest feeds on almost all common Florida lawn grasses.

Damaged areas appear first along hedges and flower beds. Then injury starts in a patchy distribution across the lawn, with injured spots being only about 2 or 3 feet across. The spots enlarge in heavy infestations, reaching a peak in the summer.

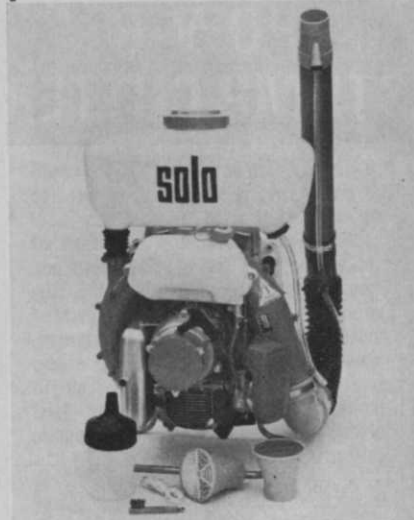
Control is complicated because the bugs feed up the grass blades instead of down on the runners like cinch bugs do. As the lawn is mowed insecticide is chopped off, reducing the total treated area. This means effective control requires applications of insecticide about every 3 to 4 weeks.

Dr. Kerr recommends Sevin and toxaphene as two of the better insecticides for lawn caterpillar control. Other effective controls he suggests are diazinon and DDT. He cautions that applicators should start as soon as an infestation is noticed because 5 or 6 days' delay gives the lawn pest time to do most of its damage. Control efforts will be wasted if they do not catch the lawn caterpillars right away, Kerr notes.

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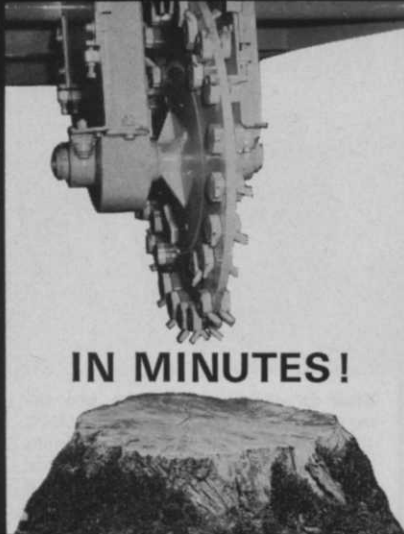


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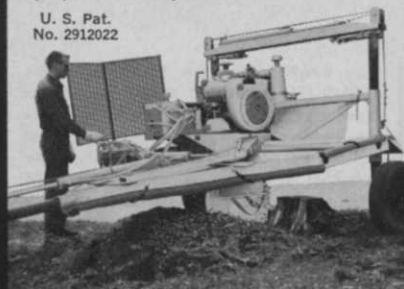


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Hyman Lab Is Site For USFS, UC Research

One of the biggest challenges in the field of research in insecticides, discovery of effective substitutes for DDT and other chemicals, is now getting the joint attention of U. S. Forest Service and University of California scientists at Berkeley.

Leader of an insecticide evaluation project at the USFS Experiment Station in Berkeley, Dr. Arthur D. Moore, announced that USFS has leased lab facilities belonging to Dr. Julius Hyman, president, Hyman Laboratories, 2840 8th St., Berkeley.

Hyman, a chemist who was instrumental in finding and initially developing insecticides commonly referred to as aldrin, endrin, chlordane, and dieldrin, will counsel and work with the 25 Forest Service and some of the 17 UC scientists studying the problem.

Professor of Entomology at UC, Dr. John E. Casida, is directing graduate students and postdoctoral fellows with the University group. Some of the team began work at the Hyman lab early in April. Facilities include six chemical labs, a shop, stockroom library, and a pilot plant for chemical production.

Seek Selective Chemicals

"Our immediate goal," Moore said, "is to develop chemical substitutes for DDT; chemicals that are highly selective against individual species of insects, and those that break down into harmless components without contaminating the environment."

A tree defoliator usually controlled by aerial applications of DDT, the spruce budworm, has already been effectively controlled with Zectran. A carbamate insecticide, Zectran is reported to be effective in small amounts, as little as 2 oz. per acre, and it breaks down in the environment.

Pyrethrum is another insecticide the research group finds promising for control of tree defoliators. It shows extreme toxicity to the insects and is one of the safest insecticides known for control of plant pests. The prob-

lem pyrethrum presents is that it is very unstable in air and sunlight. Dr. Casida believes a synergist may give pyrethrum stability until it reaches the pest, and for a brief period thereafter.

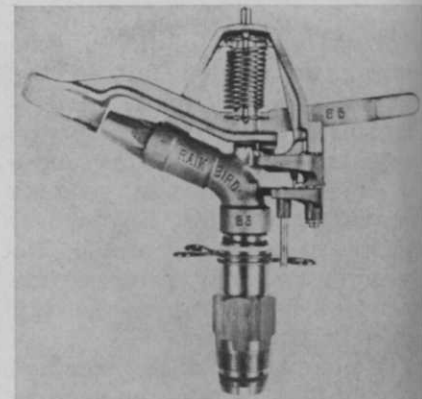
Although the group is concentrating on insecticides for use against forest pests, its basic research will apply to all phases of insect control.

Florida Flood District Sees Growing Weed Control Costs

Sea cows, \$3,000 "Ducks," and \$229,173 spent for weed control last fiscal year are among weed control items covered in Central and Southern Florida Flood Control District's annual report for 1965.

Noting that sea cows (manatees) eat not only aquatic weeds, but even their roots, the publication explains the only problem encountered so far in the district's 3-year study as to feasibility of the animals for weed control is their slow reproduction rate.

Addition of many miles of new canals in the FCD created a need for more equipment. During the year, the district purchased two amphibious vehicles, known to the military as "Ducks," at a cost of just under \$3,000 each. The FCD uses the "Ducks" to tow heavy steel A-frames suspended by cable to the canal bottom for aquatic "plowing." Other measures the district's 20-man crew uses in the battle against weeds



Special, non-clogging, non-corrosive vane allows maximum distance of throw with short water passage from this recently introduced Rain Bird model 85TNT sprinkler. For use on large turf areas, it is made of precision-machined brass. The vane is of durable, field-proven plastic. Address inquiries to Rain Bird, Glendora, Calif. 97140.

include chemical spraying from boats, trucks, and afoot, and mechanical mowing and chopping operations.

Cost of \$229,173 for weed control during the past fiscal year was almost \$70,000 over the district's 1963-64 figure of \$160,000, but the annual report points out that costs obviously increase each year as the FCD accepts more canals for operation and maintenance.

Casoron Aq Granules Best When Used On Pond Bottoms

Test results on dichlobenil, registered in late 1965 as a pre-emergence aquatic herbicide by the U. S. Department of Agriculture, showed best results when it was used on exposed pond bottoms just after the spring thaw.

Presented in a report compiled by Illinois Natural History Survey Section of Aquatic Biology, the test findings indicate that the chemical is effective against sago pondweed, southern naiad, and chara.

Dichlobenil is sold by Thompson-Hayward Chemical Co. under the trade name Casoron Aq Granules. One formulation of Casoron is available as a heavy

aquatic granule containing 4% active ingredient or 4 lbs. of dichlobenil per 100 lbs. of granules.

This Casoron formulation is effective when applied either to the water or to an exposed pond bottom, though slightly higher rates may be required for water application, the survey report indicates. Effective control was achieved against aquatic plants when Casoron was applied as soon as the ground (pond bottoms) had thawed and by mid-March for application through water.

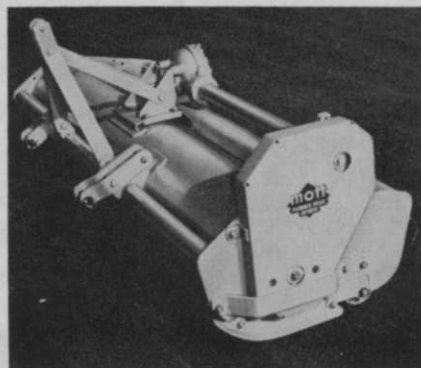
Included in the survey report, titled "The Chemical Control of Some Aquatic Plants," is a Thompson-Hayward listing of other water plants Casoron Aq Granules can be used against. Suggested application rates are also given.

For complete information on the tests write for Supplement No. 5, The Chemical Control of Some Aquatic Plants, Illinois Natural History Survey Section of Aquatic Biology, Urbana, Ill.

Hudson Updates Catalog

New 20-foot spray booms with adjustable or fixed nozzle spacing are just one of the up-to-date listings in the H. D. Hudson catalog now available.

Introducing the company's over-the-road sprayers, special 150- and 200-gal. units fitted with accessories to adapt them for trailing over roads at normal speeds, the publication includes the company's complete Peerless Power sprayer and duster line. For a free copy write H. D. Hudson Mfg. Co., 589 E. Illinois St., Chicago, Ill. 60611.



Unitized construction is one of the built-in strong points of the new Mott "88" mower.

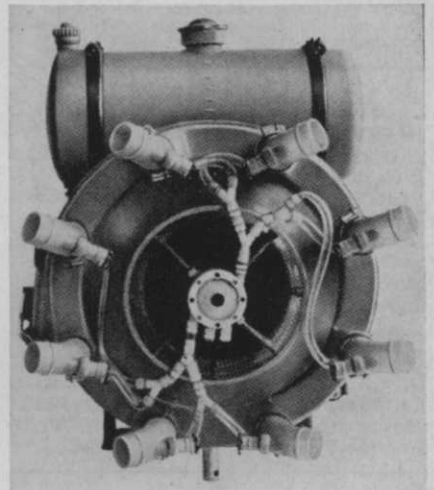
Mott Introduces 88" Flail Mower

Rugged unitized construction, large diameter, a thick-walled tubular cutter shaft, and oversized bearings are features said to make the new Mott Model "88" ideally suited for heavy duty mowing.

Other strong points claimed for the new mower include a 60 hp. Timken roller bearing equipped gear box, a totally enclosed output drive shaft, and safety engineered guards. Roller adjusts height of cut from 1" to 6". Mounting is by 3-point hitch. Free-swinging knives fold back in the face of obstructions and automatically return to cutting position when clear, thus reducing danger of throwing struck object.

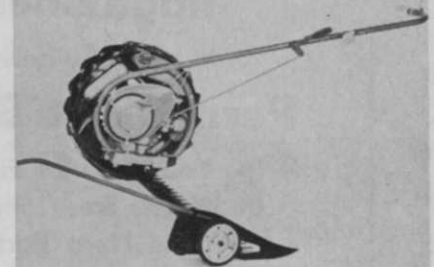
For complete information about the new model "88," write Mott Corp., 500 Shawmut Ave., LaGrange, Ill. 60525.

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Storage Danger Noted

Storage of volatile herbicides near fertilizer and other agricultural chemicals can result in crop injury, reports Dr. Kurt C. Feltner, agronomist, Kansas State University.

Dr. Feltner reminds spraymen that a volatile material is one

that can change rapidly from the liquid to the vapor phase. By doing so, it can move readily through the air and contaminate materials stored nearby, he warns.

Scheu Introduces Portable Flamethrower

A quick-igniting flame that carries up to 25 ft. to burn off weeds, brush, or debris makes its new portable flamethrower lighting torch ideal for cleanup operations, according to Scheu Products Co.

A pressurized tank, with safety valve system and hose attached to hand gun, powers the flamethrower. For mobile use the operator can attach the tank to a tractor, jeep, or any truck or trailer flat bed.

The new trigger-controlled flamethrower has a runner mounted 25-gal. tank, 16 in. in diameter by 32 in. long. Total weight, with 10 ft. of hose and the gun, is 93 lbs. Write for complete information to Scheu Products Co., Bin 1, Upland, Calif.

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**Reduce Herbicide Drift
the low-cost way with
VISTIK*
Hydroxyethyl Cellulose**

VISTIK is an economical water-soluble thickening agent which efficiently reduces herbicide spray drift. For example, when spraying herbicide at a rate of 12 gallons per acre, the cost of using VISTIK is only 60¢ per acre. No special or expensive equipment needed. Your present air and ground equipment can be employed to apply VISTIK sprays. More profitably, too, for VISTIK can be used under conditions which ordinary sprays will not tolerate.

Easy to handle and to mix, VISTIK spray solutions can be prepared readily for use in less than 10 minutes. Herbicide potency is unaffected... VISTIK simply thickens the water phase used as a carrier.

***A new sound-color movie of an actual VISTIK field trial, available through your local Hercules representative. Just fill out the coupon, and we will be happy to arrange a showing right in your office!*

CV66-1A

See a demonstration for yourself.** Contact the Hercules sales office nearest you, or fill out the coupon below. **Cellulose and Protein Products Department, Hercules Incorporated, Wilmington, Delaware 19899.**



HERCULES

- I would like to see the new VISTIK movie.
 I would like to receive technical information about VISTIK.

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Applications for clearance of Vistik by State and Federal regulatory agencies are currently in progress

*Hercules Trademark



Single power source on the Royer Powerscreen 42 actuates the screen deck to sift soil, and hooks up with a conveyor belt which can be elevated to discharge height convenient for loading or stockpiling.

Fine Soil Combination Unit Named Powerscreen 42

An assembly that combines a vibrating screen deck and an elevating conveyor to operate from one power source is now available from Royer Foundry & Machine Co.

Called the Powerscreen 42, the device is designed for preparation of uniformly fine, homogeneous, trash-free top dressing and planting mixtures.

Vibrating action of the screen is produced by an enclosed eccentric, transmitting 1600 cycles-per-minute. Eight coiled springs under the screen deck alternately

store and release this energy to achieve a smooth steady screen rhythm. The unit's over 17 sq. ft. of woven steel-wire screen surface pass processed soil directly onto an elevating conveyor. Utilizing a 16-inch wide troughing-type rubber belt, sealed to prevent leakage, the conveyor assembly extends 12 ft. for truck loading or stockpiling.

Power units available are either a 5 h.p. gasoline engine, or a 3 h.p. electric motor. For additional information on the new screen-conveyor combination, request bulletin PS-42 from Royer Foundry & Machine Co., Kingston, Pa.

Outlines Betasan Data

An 8-page illustrated booklet describing weed control for lawns with Betasan, a selective preemergence herbicide, is now available.

Drawings of 9 annual weeds controlled by Betasan, and explanations of how the herbicide affects weeds at germination, are included in the information piece.

Titled "Betasan Control for Crabgrass and *Poa annua* in Greens and Turf," the publication has a table giving application rates and a special section on golf courses. Copies of the booklet are available from Stauffer Chemical Co., 380 Madison Ave., New York, N. Y. 10017.



Markal "B" makes a permanent, legible mark on both rough and smooth-bark trees, according to the producer. The paintstick is said to be effective in hot or cold, wet or dry weather. It comes in 10 colors, ideal for color coding. For a free sample write to Markal Co., 250 N. Washtenaw Ave., Chicago, Ill. 60612.

Decided. When officers of the Northeastern Weed Control Conference, who had just about decided the Astor Hotel in New York City was a mighty fine place to hold their annual meetings, learned the Astor would not be available in '67 because it was to be torn down, they set out to find another location. Some thought the conference should be held away from the Big City, but most agreed that Manhattan has overwhelming advantages to most delegates. Its easy accessibility, wide selection of eating places, and proximity to the headquarters of many chemical companies won out. The "search" committee decided upon the Hotel Commodore at 42nd and Lexington Avenues. Dates are January 4-6.

* * *

A break for CAs? The upcoming pending amendments to the Fair Labor Standards Act will set increasing minimum wages for employees in firms using more than 500 man-days of labor in any quarter during the previous calendar year. No piece-work rates will be allowed which pay an employee less than the to-be-established minimums per hour. Also, the amendments will require payment of time and one half for overtime. This latter requirement may be a real backbreaker for contract applicators whose on-the-road service employees can pretty well pace themselves, and may have to juggle working hours to suit their clients. CAs should obtain legislative relief so that their men would be completely exempted from the overtime provisions on the basis that they work without supervision and sometimes are off in distant places, etc. We understand this same problem faces other "independent workers," such as routemen for soft drink manufacturers, and that well-organized companies in these fields are attempting to get the Labor Dept. to give them relief on this provision. The contract vegetation maintenance and control field should watch these developments carefully. Wouldn't it be nice if there were a national association of spraymen who could have a representative in Washington to speak for their interests?

* * *

"Biggest Ever." Another record-breaking convention is coming up, this one by the American Association of Nurserymen at the Palmer House in Chicago, July 16-20. General convention chairman, Elmer Palmgren, says they'll have the largest exhibit of commercial products in history. The formal program is centered around "Management Opportunities"—understanding insurance, how to sell better, how to handle credit, what customers want, etc. And, of course, there'll be the past presidents' banquet and dance with headline entertainment.

* * *

Looking for employees? All of us are. Let us help you find them through our Classified Advertising columns. Manpower shortages are a major problem throughout the vegetation maintenance and control field.

DROP DEAD



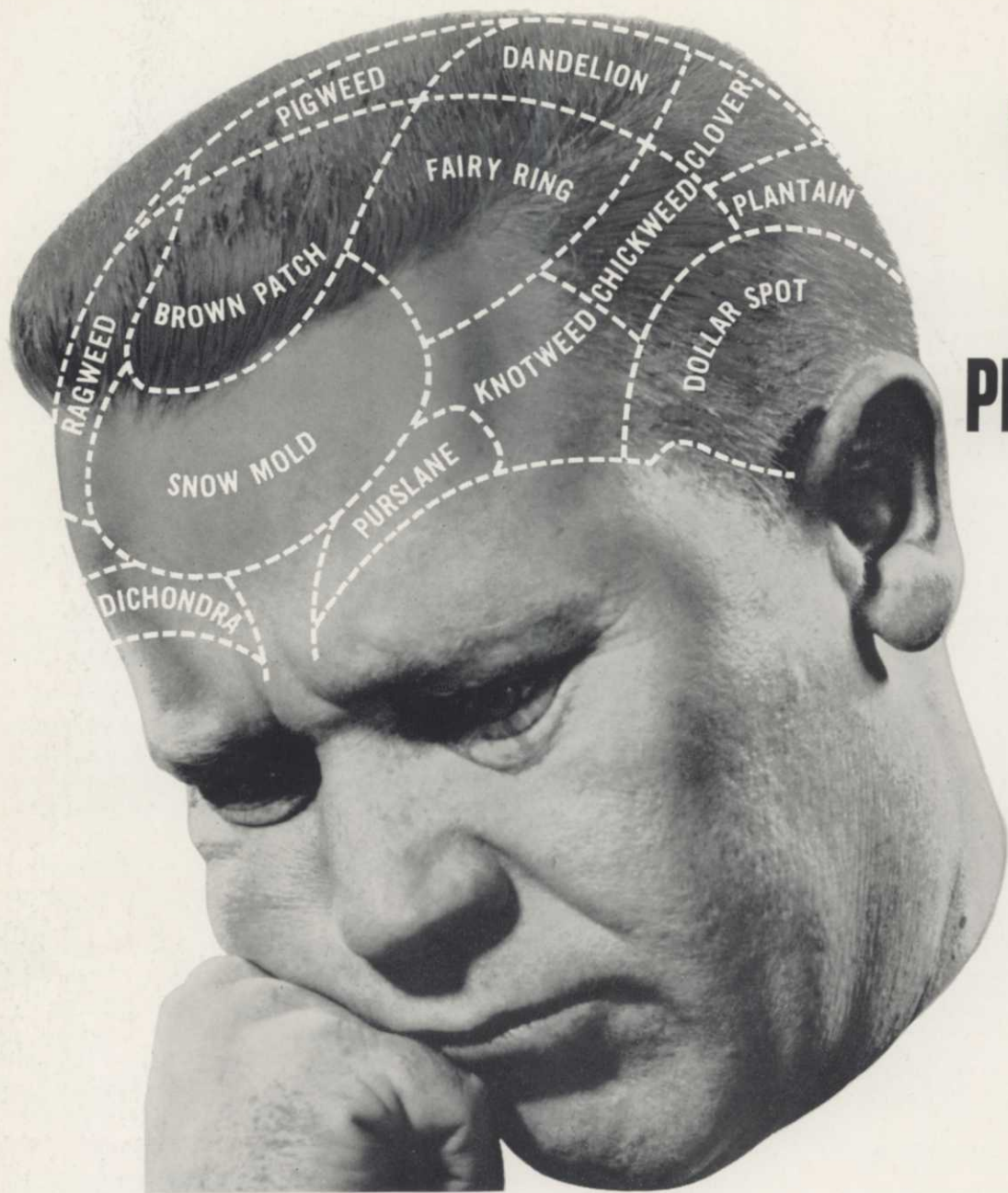
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Now... Panogen Turf Fungicide, also in NEW granular form.

Mecopar, Mecopex, and Panogen Turf Fungicide are water soluble liquids easily applied with spray equipment. Granular Panogen Turf Fungicide is readily applied with any granular spreader.



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