

# **WEEDS TREES and TURF**

NOVEMBER 1967



Gil Liming, Reforestation Services, Salem, Ore., sprays Tordon with Norbak as a particulating agent on utility right-of-way in west coast demonstration. Liming is using Dow-developed adjustable in-flight swath system. See page 6.

## **Efficient Tree Removal**

Page 8

## **New Underwater Menace Eurasian Watermilfoil**

Page 10

## **Weed Turf With Fertilizer**

Page 20

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WEEDS TREES AND TURF magazine is making available its series on Turfgrass Management Training which ran earlier this year. This series listed college level training available at 26 colleges and universities across the nation.

A number of universities have requested reprints for use with their own student counseling programs and for use by high school counselors.

If these can be used in your state, contact WTT. Because such information on training can help in informing prospective students about the industry, WTT is making these available at the reprint cost. Cost per thousand for the 10-page reprint will be \$30, plus shipping. Lesser amounts can be ordered at \$5 per hundred, plus postage.

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Cleveland, Ohio 44115

# WEEDS TREES and TURF

FORMERLY WEEDS AND TURF

November 1967  
Volume 6, No. 11

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## Profit In National Beautification

Profits and the National Beautification Program can go hand in hand. No program in the past, nor any in the foreseeable future holds forth the promise of cash income coupled with the common good of the citizenry as does the National Beautification effort. It could not have been planned as an aid to the vegetation control market and been any more helpful.

Take any phase of the industry. Tree care men face the greatest opportunity since the first company was formed to enhance the beauty of city streets, parks, suburban areas, and industrial parks. The public image of adding beauty with trees and general landscaping has been greatly enhanced since the advent of the national program. People think beauty. They expect it. Tree companies have only to sell.

The contract applicator is in an equally advantageous position. The public expects well groomed rights-of-way, whether highway, street or utility line. Ragged, mechanically handled brush control today is definitely not the in thing. Fortunately, the chemicals to provide the grooming necessary are either on the market or coming. A good example is Uniroyal's new growth regulator, Slo-Gro. Dow's Tordon, which kills brush and then stimulates the native grass, is another. Though Dow isn't claiming the latter characteristic, it is a factor. Another factor is the several types of equipment and products to control drift and swath width during spraying. Operators have the opportunity to sell a service with grooming ramifications which has previously been unavailable.

The turfgrass industry, including sod producer and landscaper, can't help but profit. The instant lawn idea has been widely accepted for the newly constructed home. It still needs promotion for the older home where the original seeded lawn needs replacement, and on the industrial park site which was established prior to the ready availability of quality sod.

Landscape possibilities are going begging. They need to be sold. Community awareness of the poorly kept industrial site is a factor today in getting action on improvement. What better opportunity for the new landscape leasing idea?

The end result can only aid the industry by way of profits and establishment as an integral business of the community. The public can only gain. And the National Beautification Program will be given the boost it deserves. Efforts in developing good service and quality products are worthy. But we believe the sales promotion phase has been neglected in certain areas.

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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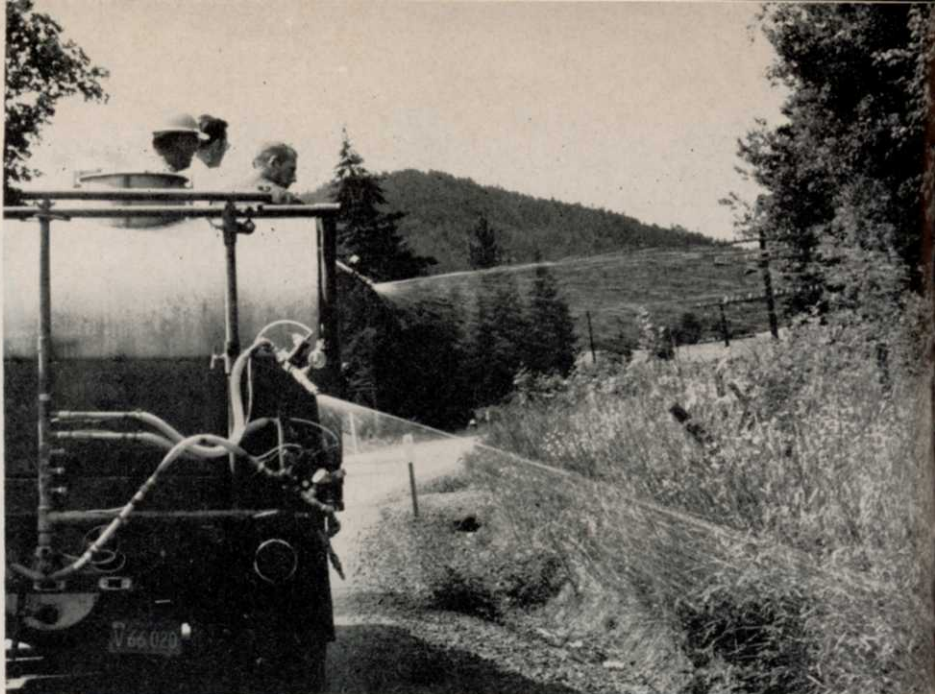
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# Dow Roadside and Range Tour



Directed spraying from the Dow roadside spray demonstration truck, using a mixture of Tordon with Norbak. This technique assures precision application with minimal drift.

## A Look at New Product Field Tests

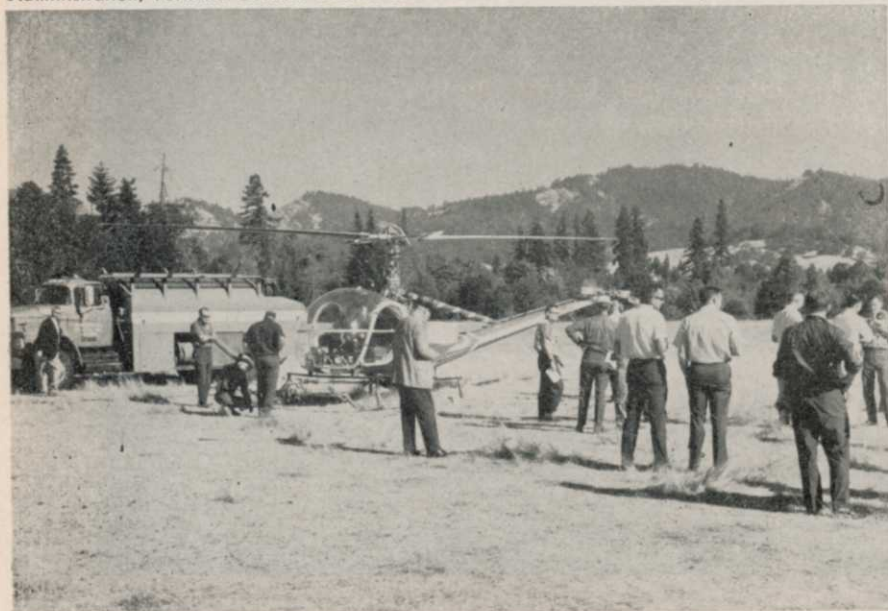
A WTT staff report based on a tour of roadside and rights-of-way field test areas during September '67 in Southwestern Oregon.

**P**INPOINT spray placement has been a constant goal of spraymen. Costly drift, which means chemical loss and liability from kill outside the target area

still mars the public image of the spray industry.

Outcrys about wildlife kill, injury to humans, and damage to landscape beauty affect the entire pesticide industry. Manufacturers and spraymen together share the public concern for safety and efficiency in chemical use. Both are making great

Evaluating Dow field test results during tour were representatives of Oregon and Washington state highway commissions, Oregon State University, University of California, Bonneville Power Administration, Portland General Electric and Pacific Gas and Electric companies.



Lew Corbin, sales manager for agricultural and industrial bioproducts for The Dow Chemical Company, Midland, Mich., at the right, and Weeds Trees and Turf editor Art Edwards visit during tour of Bonneville Power Administration right-of-way brush control demonstration.

strides in improving the total picture.

The Dow Chemical Company is among those who have developed effective chemicals, along with a delivery system to assure on-target spray placement. A tour of their field testing program in Oregon shows the tremendous progress made during the past few years.

Tordon, a Dow chemical, is a new selective herbicide which does not harm people or wildlife. It gives excellent vegetation con-

trol. When used with Norbak, a particularizing agent which picks up the lightweight fine particles in a spray and turns them into easily controlled heavy gelled droplets, the chemical has been safely targeted from both helicopters and ground spray equipment.

The tour of field test demonstrations where these two new products have been used was staged during September by Dow Chemical Company near the Coos Bay area of Oregon and inland for some 50 miles. Helping evaluate results were members of the Oregon and Washington state highway commissions, Oregon State University, University of California, Bonneville Power Administration, Portland General Electric and Pacific Gas and Electric companies.

Dr. J. F. Kagy, research director of the bioproducts western division of Dow, and one of the key Dow research personnel who developed Tordon, said that the nation now has the chemical tools to carry out safe and effective vegetation control. Besides Tordon, he pointed to the phenoxy herbicides such as 2,4-D and 2,4,5-T, and others which Dow and other formulators have made available to the market. These have practically eliminated the need for expensive mechanical brush control.

During the tour of roadsides,



**Roadside maintenance** near Bandon, Oregon. The strip at right was cleared of gorse by Tordon treatment and has since grown a desirable grass cover. Note dead gorse stumps in foreground, and gorse plants at left.

**Dow developed adjustable in-flight swath system** is demonstrated by Jim Welton, representative of Dow's western division for bioproducts.



**TABLE 1 — Broadleaf weed control** obtained from single treatments made in April, 1965, with FORMULA 40 and TORDON 101 MIXTURE

State	Applic. Date	Eval. Date	Broadleaved Weed Control Rating (a)			
			FORMULA 40		TORDON 101 MIXTURE Q1/A	
			1 1/2 Q1/A	1	2	3
Connecticut	4/13	9/23	7.5	10.0	9.7	10.0
New Jersey	4/10	9/24	9.2	10.0	10.0	10.0
Pennsylvania	4/19	9/21	9.0	9.0	9.7	10.0
Ohio	4/20	9/15	6.0	9.9	10.0	10.0
Michigan	4/22	9/13	5.0	5.0	9.5	9.5
North Carolina	4/6	6/7	7.3	8.5	8.3	9.0
Illinois	4/27	8/30	5.0	9.0	8.7	9.8
Minnesota	4/30	8/31	4.5	7.5	9.4	9.8
Wisconsin	4/28	8/31	5.0	8.0	8.9	9.7
Iowa	4/29	9/1	7.2	8.0	8.6	9.7
Indiana	4/23	9/15	4.0	5.5	7.0	7.8(b)
New York	4/14	9/22	4.5	7.5	6.0	9.5

(a) 0 = No control 10 = Complete kill  
(b) One replicate treated during hard rain

Formula 40 is 2,4-D. It was applied at the rate of 1 1/2 qts. per acre or 1 1/2 lbs. per acre acid equivalent. By contrast, Tordon 101 Mixtures if 2 lbs. of 2,4-D and 1/2 lb. of Tordon. Used at the rate of 1 qt. per acre, this is .12 lbs. per acre of Tordon and 1/2 lb. of 2,4-D.

utility rights-of-way and livestock ranges, Dr. Kagy stressed the need of the industry to learn more about the how of using these chemical tools. Applicators must be well trained and properly directed, he said.

Tordon, Dr. Kagy said, is a

persistent herbicide. Tordon's persistence, according to Dr. Kagy, lies in its ability to stay in the soil and to be taken up by the root system. This has enabled Tordon to control field bindweed, Canada thistle, and other hardy-type weeds. Research has made possible recommendations which prevent excessive over or under dosage. With proper use, Dr. Kagy stated that Tordon can be used to kill only undesirable vegetation and permit growth of desirable grasses. Tordon, while toxic to many plants, is not toxic to all. It is non-toxic to animals. In common with many of the herbicides on the market today, the low order of toxicity to animals eliminates the danger to wildlife and domestic animal populations. Tordon, not as yet cleared for use on livestock rangeland is expected to be very shortly. Also of interest to contract applicators is the fact that almost all production is now being utilized in the war in Viet Nam.

Tordon has been extensively  
(Continued on page 25)



Using truck mounted crane, Ontario tree trimming contractor, Andy Hamilton, removes entire sections of tree in single cut. Without crane, method would be impractical on removal projects near power lines and buildings.

*efficient*

# Tree Removal

*with 2-man crew*

By BUCKLEY JOHNS

**A**NDY HAMILTON may have one of the smallest tree removal operations in terms of crew size, but he's one of the busiest.

Hamilton's operation consists of mechanized equipment, himself and one man. He has developed a technique for tree trimming and debris removal which he says permits him to handle many jobs faster than normal 5- and 6-man crews.

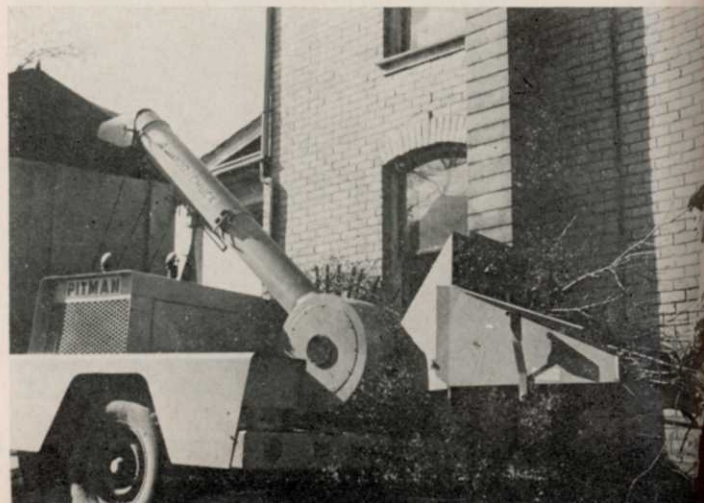
A Canadian of the province of Ontario at Brantford, Hamilton started tree trimming and removal to boost income during the winter months when his material handling business was at a low point. Result has been development of a solid business

and an efficient tree operation with up-to-the-minute equipment and only two men.

Equipment in the operation

consists of a truck-mounted, 5-ton telescoping crane—a principal unit used in his material handling business—power chain

**Limbs 8 inches in diameter and smaller are fed into 12-inch chipper. Hamilton reports chipper saved \$1000 in labor costs on recent Brantford, Ontario, project.**







Two men handle removal job in less than 2 hours. Stump, logs, and chips are all that remain of 85-foot tree. Hamilton says mechanized equipment makes this type operation possible.

saws, a 12-inch brush chipper, and a chip truck.

Hamilton's technique has enabled his 2-man crew to remove 85 foot trees in less than two hours. This includes chipping the branches, loading limbs too big for the chipper, and raking the area.

Rather than starting at the top of the tree and working down by removing each limb in 4- and 5-foot sections, the procedure used by many, Hamilton starts near the bottom and removes large sections of the tree in one cut. This is where the crane pays dividends.

#### Crane Is Key To Easy Bow Removal For Hamilton

To remove a tree, the crane—a Pitman Hydra-Lift with 47-foot telescoping boom, is positioned alongside the tree and outriggers extended. The crane operator extends the boom and positions it over the center of the first large bough to be removed. Meanwhile, Hamilton has climbed the tree and is ready to connect the crane's loadline to a choker placed around the limb. The loadline is used to steady the limb as it is sawed from the tree trunk.

During the sawing operation, the crane operator, as necessary, picks up on the bough to keep it from pinching the saw. Once the cut is completed, Hamilton's operator rotates the boom in order

to bring the bough out from the tree and spot it on the ground near the chipper. This procedure is continued until the tree is stripped of all main boughs.

While Hamilton works his chain saw through the tree trunk, at an approximate height of 2½ feet above the ground, his helper—who has already trimmed the protruding branches and has cut the large limbs in 10 foot sections—begins loading the logs on the truckbed. The mounting position of the crane, 23 inches behind the cab, permits full utilization of load space.

All branches 8 inches in diameter and smaller are fed into the Pitman Wood/Chuck brush chipper which reduces them to 1/15 their original volume and deposits them in a tarp-covered chip truck that also tows the chipper. The chipper, powered by a 330 cubic inch V-8 Ford industrial-

**Mounting position of Hydra-Lift truck-crane enables Hamilton to make maximum use of load space. All limbs of 85-foot tree, except those on truck, were fed into brush chipper.**



type engine, has a 12 inch solid steel rotor, 4 self-aligning cutting knives, blower and dust suppressor. The dust suppressor provides a fine spray of water over the wood as it enters the chipper. This curtails dust and also prolongs life of the blades.

After Hamilton has felled the trunk of a tree and then sectioned it, both trunk and logs are lifted onto the truck with the crane. All that remains is chipping the small branches.

Hamilton says that the crane and chipper combination which allows him to remove an entire section of the tree at once, eliminates waste time due to over-cutting. "Without the chipper, we would make at least three and possibly four trips to the dump in removing trees in the 65-foot to 85-foot height range. Instead, we end up with about a half truckload of chips and one load of logs. As for the chips, I'm working on a couple of ideas to sell them in the future," he concluded.

Hamilton recently used his mechanized system to remove 93 trees in a Brantford Winter Works project. His tender for the job was \$4,000—approximately \$1,000 under the nearest bid. He attributes his low tender to mechanized equipment which reduced three men, or 24 manhours per day, from his labor cost.

Hamilton, who finished the job in 15 days, claims his total labor cost was \$885. When figuring his tender for the job, he estimated his labor cost at \$2,200 and allowed five weeks for the job. Thus, Hamilton says, the chipper saved approximately \$1,000.

# New Underwater Menace

## Eurasian Watermilfoil

By ROBERT D. BLACKBURN and LYLE W. WELDON

Research Botanist and Research Agronomist, Crops Research Division,  
Agricultural Research Service, U. S. Department of Agriculture,  
Fort Lauderdale, Florida



Parrotfeather, above, is shown growing in association with cattail and aquatic grasses. It is one of three common species of milfoil in the southeastern U.S. and has populated the state for a number of years. More serious is the newly established Eurasian watermilfoil.

EURASIAN watermilfoil (*Myriophyllum spicatum* L.) is spreading at an alarming rate in the United States. It was first reported in the USA late in the nineteenth century. However, only in the last decade has it become a serious aquatic weed problem. It has invaded over 200,000 acres in the Chesapeake Bay, 5,000 acres in the TVA reservoirs, and 67,000 acres in Currituck Sound (3, 4, 6). The manner in which it dominates the water surfaces and decreases

utilization of water resources is causing alarm (2). Commercial and sport fishing, boating, hunting and other activities are being destroyed or severely damaged. The rapid rate of its growth, fragmentation, migration, and establishment makes it a serious threat (5). The plant thrives in water containing a salinity equivalent to one-third sea water (1). All of Florida's fresh and brackish waters are threatened.

Parrotfeather (*M. brasiliense*)

and broadleaf milfoil (*M. heterophyllum*) infestations have occurred in Florida for many years. These two species have presented only minor problems in local areas. However, Florida now has eurasian watermilfoil well established in two areas.

This report presents information on identification of the three most common milfoils in Florida, where eurasian watermilfoil is established, and how rapidly it is spreading.

The three common species of milfoil in Florida will be discussed individually and the identifying characteristics compared. It is important that new infestations of eurasian watermilfoil in the state be reported immediately to the proper state agencies. To accomplish this objective one must be able to differentiate among the three species.

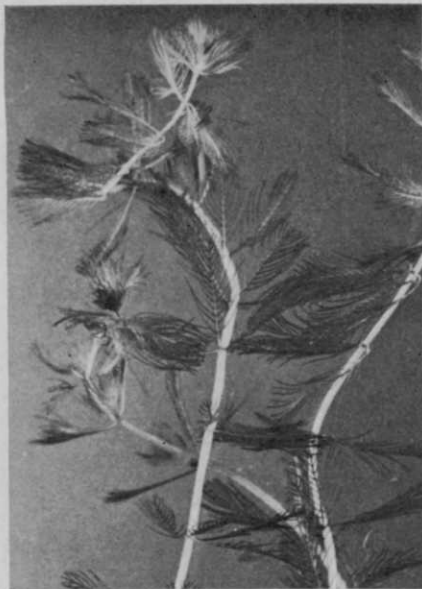
Parrotfeather, *Myriophyllum brasiliense* Camb. is a perennial aquatic rooted in the bottom mud. The stems are quite stout and are sparingly branched. The emerged tip may extend 3 to 12 inches above the water level. The individual leaves are

### Abstract

Eurasian watermilfoil (*Myriophyllum spicatum* L.), a submersed aquatic weed, is a serious threat to the commercial and sport fishing, to boating and swimming, and to other uses of Florida's abundant water resources. Watermilfoil has recently become established in Lake Seminole at Chattahoochee, and in the Crystal-Homosassa River Basin. The Crystal-Homosassa River Basin is estimated to have 3,000 partially to heavily infested acres. In these areas the weed is already hampering fishing, boating and swimming, and it is choking out waterfowl plants, providing mosquito breeding habitats, and lowering real estate values. Two related species, parrotfeather (*Myriophyllum brasiliense*) and broadleaf milfoil (*Myriophyllum heterophyllum*), are described as a means of differentiating the three species.



**Above-water portion** of parrotfeather, a perennial aquatic plant which roots in bottom mud.



**Eurasian watermilfoil** is also a rooted perennial, is newly established and spreading rapidly.



**Close-up of Eurasian watermilfoil leaf.** Plant is a threat to all of Florida's fresh and brackish waters.

whorled, generally 1 to 2 inches long, and have 10 to 18 narrow segments on each side of the midrib. The above-water foliage is yellow-green and has a dainty graceful appearance. The flowers are formed in the axils of the submersed foliage. The fruit is 1.5 to 2 mm. long. It could also be classified as an emersed plant.

It grows well in aquariums, small fish ponds, as well as in larger bodies of water and slow-moving streams. It is found only

in fresh water and seems to grow best in neutral or slightly alkaline ponds and streams.

Parrotfeather is a native of South America as the species name, *brasiliense*, denotes. Since the plant is commonly grown in aquariums, the spread has been facilitated with escapes throughout the southern and some of the more northern States. Small fishponds may become completely infested with the plant excluding other desirable plants and

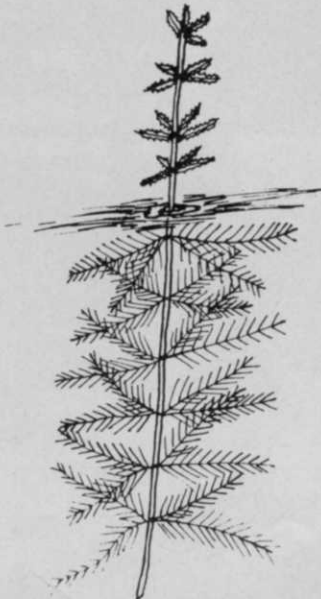
fish. Small drainage and irrigation channels also become clogged with growth of this weed.

Broadleaf watermilfoil, *Myriophyllum heterophyllum* michx. is a rooted perennial with most of the foliage submersed. The stems are quite variable in width, from 5 to 10 mm, but are generally stouter than other species in this group. The leaves are usually whorled in groups of 4 or 6. The submersed leaves usually have 6 to 10 pairs of dis-

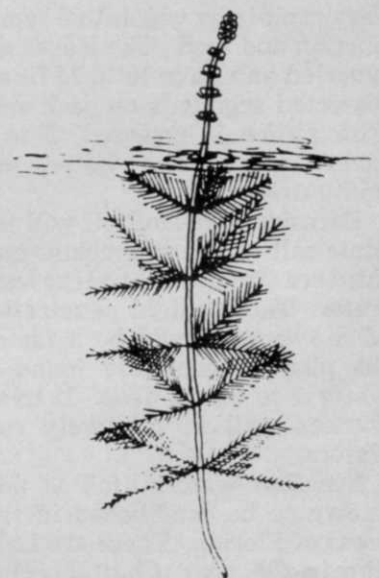
**Parrotfeather**, long an inhabitant of Florida is minor problem.

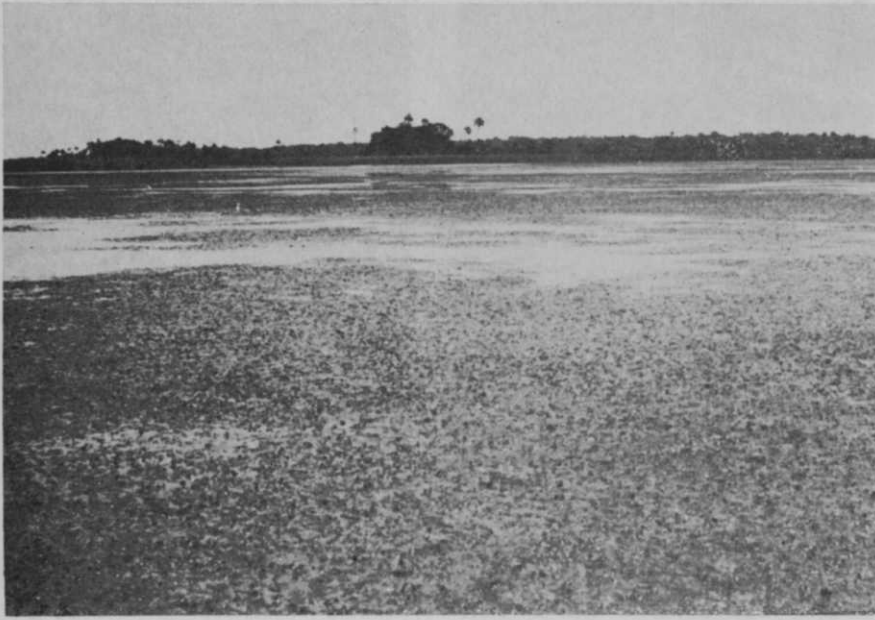


**Broadleaf watermilfoil.** Note serrated above water leaf.



**Eurasian watermilfoil** can be compared to the common milfoils.





**Infestation** of eurasian watermilfoil in Homosassa River near Chassahowitzka National Wildlife Refuge.

sected segments. The spikes are emersed and commonly 3 to 6 inches and occasionally more in length. The emersed leaves are 1.5 to 5 mm. wide and up to 2 cm. long. The margins are somewhat serrated. The fruit is formed on the emersed spike in the leaf axils.

**Species Common  
In Ponds And Lakes**

Broadleaf watermilfoil is common and is found throughout the country. It is most common in shallow ponds and lakes in the northern part of the State. Large growths interfere with fish production and harvesting.

Eurasian watermilfoil, *Myriophyllum spicatum*, is a perennial submersed plant that spreads very rapidly by vegetative reproduction and seed. The leaves are whorled and have 10 to 14 finely dissected segments on each side. The spike is emersed, 2 to 4 inches above the water, and without leaves.

Eurasian watermilfoil will tolerate salt water, as much as one-third sea strength, as well as fresh water. Though light penetration of the water would be a factor, the plant is generally found in water 1 to 9 feet deep. It overwinters well in relatively cool water.

Eurasian watermilfoil is now known to be established in two areas of Florida. These are Lake Seminole near Chattahoochee

and the Crystal-Homosassa River Basin. The rapidity with which it has become established in our waters, and the history of its spread in other areas of the USA illustrates the potential problem an unchecked spread of the plant may cause to our water resources.

The infestation of eurasian watermilfoil in Lake Seminole is located in the Spring Creek arm of the lake in Georgia. However, the dam of the lake is located in Florida on the Apalachicola River. Nothing prevents the plant fragments from floating out of the lake into the Apalachi-

cola River and infesting Apalachicola Bay. Once established, it could severely damage the Florida oyster industry.

It is believed that eurasian watermilfoil was introduced into Lake Seminole in 1965.\* It was first collected and identified in September, 1966 and at that time was infesting over 500 acres. In April, 1967 the infestation had spread over an estimated 1,200 acres. Fragments of the plant were observed floating in most of the Spring Creek area of the lake.

Eurasian watermilfoil, being a beautiful and popular aquarium plant, is reported by local fishermen to have been planted in the Crystal-Homosassa river basin in 1964 by tropical aquatic plant dealers.\*\* It was not positively identified as eurasian watermilfoil until the summer of 1966. In March, 1967 watermilfoil had spread over an estimated 3,000 acres in an area from the Withlacoochee River to Weekiwachee Springs. It is also well established in the brackish waters of Chassahowitzka Bay where the Homosassa River empties into the Gulf of Mexico.

The establishment of eurasian watermilfoil in this area of Florida could drastically affect the economy of the State. Homo-

\*Angus Gholson, personal communication.  
\*\*William McClellan, personal communication.

**Outboard motorboat** loaded from Crystal River is entwined with eurasian milfoil on both motor and trailer.



sassa Springs, Crystal River, and Weekiwachee Springs are only a few of its famous water attractions.

### **Eurasian Watermilfoil Dominates and Damages Water Resources**

Eurasian watermilfoil, now well established along the west coast of Florida, is a submersed vascular aquatic plant which produces a mat of vegetation several feet thick. It dominates the water where it grows. It can severely damage water resources by stopping recreational activities such as fishing, skiing, boating, and swimming; by clogging channels used for navigation and drainage; by destroying commercial fisheries; and by limiting the appeal of these areas as tourist attractions.

Florida now has three common species of watermilfoil. Parrot-feather and broadleaf milfoil have been established for many years. Eurasian watermilfoil's adaptation to a wide range of environmental conditions makes it a potential problem plant throughout Florida. It can be distinguished by its emersed flower spikes 2 to 4 inches long, or by its leaf whorls which are 10 to 14 finely dissected segments on each side.

The complex problem facing Florida is where and how rapidly watermilfoil will spread. The most efficient method of reproduction and spread is by fragmentation (4). A single 2-inch fragment may take root and grow 4 feet or more in 3 months (5). The interconnection of many of the rivers, and the movement of small boats from one area to another, increase the chances of its spreading to the other watersheds. The spread of milfoil over 200,000 acres in Chesapeake Bay in 10 years should illustrate the problem. Florida is well aware of how rapidly a plant can be disseminated, as a result of experience with the water hyacinth (*Eichhornia crassipes*) and a more recent aquatic plant, Florida elodea (*Hydrilla verticillata*). The public and also its State agencies must be convinced that eurasian watermilfoil is a serious threat.

The future of the water re-

sources may be determined by action taken in the next few years. Research is urgently needed on the ecology of the plant and on its control. Florida should evaluate methods successful in other parts of the USA. A successful method of control should be found and then utilized in a program. This will depend on early identification of the weed and on prompt treatment. Anyone who finds this plant in areas other than those discussed here should report it to a local Florida Game and Fresh Water Fish Commission office. Cooperation between the public and its State agencies will be an important factor in preventing spread.

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*Information for this material is from cooperative investigations of the Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture; the Central and Southern Florida Flood Control District; and the Florida Agricultural Experiment Station, Fort Lauderdale, Fla. The original paper was presented by author Blackburn at the 1967 annual meeting of the Hyacinth Control Society and will be published in the proceedings of the Society.*

## **Meeting Dates**



**Fertilizer Industry Round Table, 17th Annual Meeting, Hotel Mayflower, Washington, D. C., Nov. 15-17.**

**Entomological Society of America, Annual Meeting, Hotel New Yorker, N.Y.C., Nov. 27-30.**

**National Fertilizer Solutions Association, Annual Convention, Denver-Hilton Hotel, Denver, Colo., Nov. 27-30.**

**National Aerial Applicators Association, Annual Conference, Marriott Hotel, Dallas, Tex., Dec. 3-5.**

**North Central Weed Control Conference, Civic Auditorium, Fargo, No. Dak., Dec. 5-7.**

**Louisiana Turfgrass Association, Annual Conference, University of Southwestern Louisiana, Lafayette, La., Dec. 7-8.**

**Illinois Turfgrass Conference, University of Illinois campus, Urbana, Ill., Dec. 7-8.**

**Ohio Turfgrass Foundation Turfgrass Conference, Sheraton-Cleveland Hotel, Cleveland, O., Dec. 11-13.**

**American Society of Agricultural Engineers, Winter Meeting, Cobo Hall, Detroit, Mich., Dec. 13-15.**

**Northeastern Weed Control Conference, Hotel Commodore, New York, N. Y., Jan. 3-5.**

**Southern Weed Conference, 21st Meeting, Deauville Hotel, Miami Beach, Fla., Jan. 16-18.**

**Virginia Turfgrass Conference, Virginia Turfgrass Council and V.P.I., Golden Triangle Motel, Norfolk, Va., Jan. 23-24.**

**California Weed Conference, 20th Annual, El Rancho Hotel, Sacramento, Calif., Jan. 22-24.**

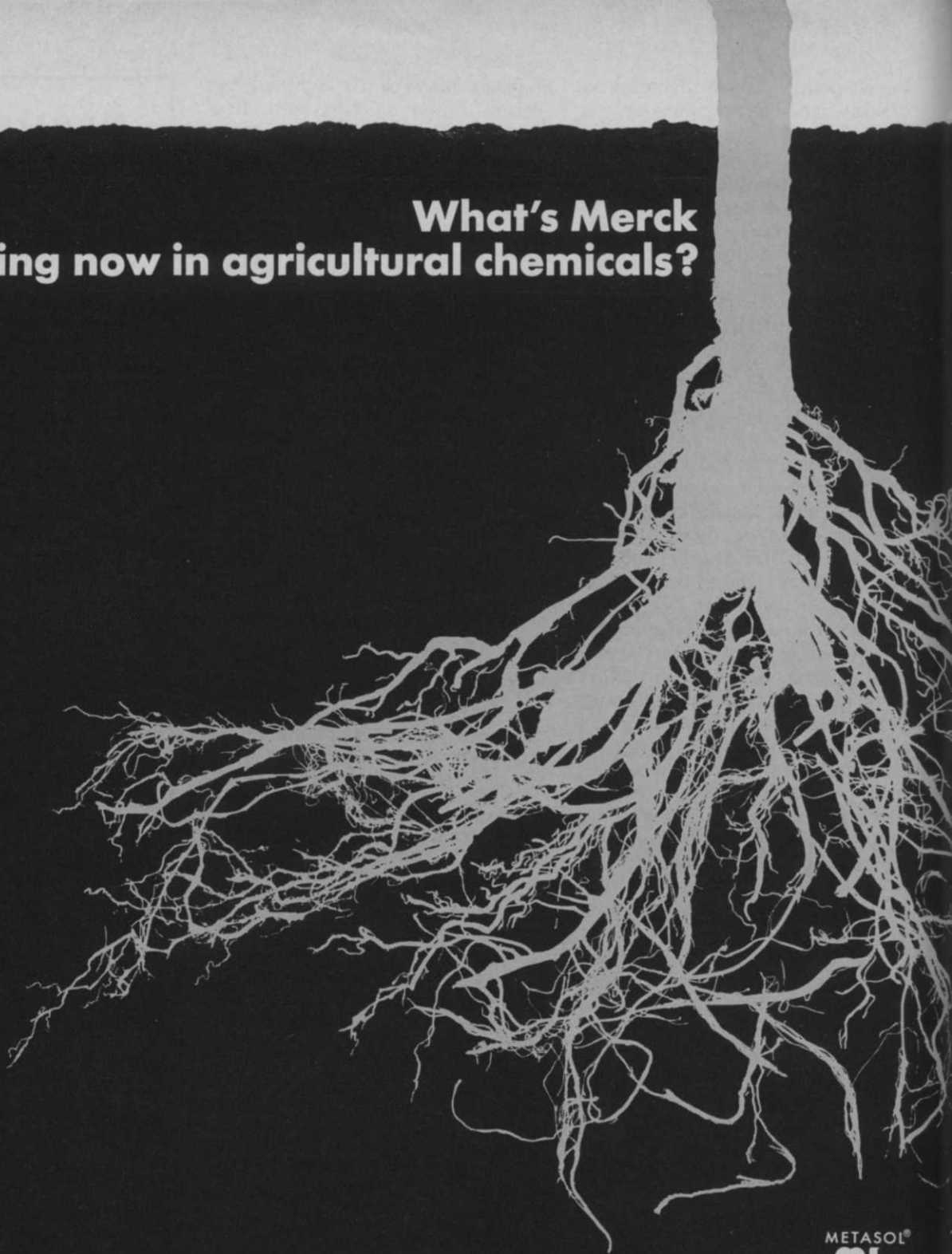
**Weed Society of America, 1968 Meeting, Jung Hotel, New Orleans, La., Feb. 5-8.**

**American Sod Producers Association, First Annual Meeting, In conjunction with Golf Course Superintendents Assn. Convention, San Francisco Hilton Hotel, San Francisco, Calif., Feb. 18-23.**

**Western Society of Weed Science, formerly Western Weed Control Conference, Owyhee Hotel, Boise, Idaho, Mar. 19-21.**

**Michigan Turfgrass Conference, Annual Meeting, Kellogg Center, Michigan State University, East Lansing, Mich., Mar. 20-21.**

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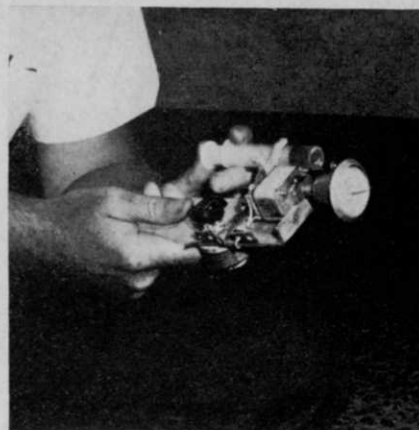
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**New officers and board** who will direct activities of 1967 Pacific Northwest Spraymen's Association, Inc., are, left to right: Board member, Lew Seflon, Lew Seflon Spray Co., Portland, Ore.; Vice-president, Stanley Raplee, Washington Tree Service, Seattle, Wash.; Board member, Jack Daniels, Greenup Spray Service, Seattle, Wash.; Secretary-Treasurer, Charles Seibold, Major Spray Service, Portland, Ore.; and President, James Overton, Miller Products, Portland, Ore.



**Ultra low volume applicator** with only a 12cc tank was demonstrated by Washington research entomologist Dr. Joseph L. Saunders. He predicts that similar units will become practical for commercial use in the future.

## Spraymen Concerned With New Products And Better Service At Seattle Annual

A WTT report of the annual meeting of the Pacific Northwest Spraymen's Association, Inc., at Seattle, Washington, during September.

**S**PAYMEN are looking ahead. They are truly becoming professional pesticide applicators. Awareness of their public image, care in application techniques to help that image, concern with effectiveness of their service, efforts to work together, and other factors point to improved stature for spraymen.

Such was evident at the recent Spray-O-Rama staged at Seattle Center, Seattle, Wash., by the Pacific Northwest Spraymen's Association, Inc. Most of their 2-day program was tied to new techniques in service, new methods of control, and new products and equipment coming on the market. Even telephone use techniques were covered by Mrs. Judi Simonis of Pacific Northwest Bell, who told the group to expect microwave units and picture phones in the foreseeable future.

Among new products creating group interest was Slo-Gro, a growth inhibiting chemical developed by Uniroyal. Known earlier as MH-30T (a formulation

of maleic hydrazide), the registered trademark for marketing purposes by Uniroyal will be Slo-Gro. Thomas E. Cowan, technical representative for the

**Dr. Joseph L. Saunders**, assistant entomologist at Western Washington Research and Extension Center, Puyallup, Wash., center, discusses Systex-R use which he says can control Dutch elm disease with Robert Mitchell, Agricultural Chemicals, Portland, Ore., left, and Stan Iversen, Neil A. Maclean Co., Seattle, Wash.





Discussing growth regulators, and MH-30T in particular, are, left to right: Don Mock, Shamrock Spray Service, Seattle, Wash.; T. P. Strand, Weaver Exterminating Co., Yakima, Wash.; and Thomas E. Cowan, Uniroyal technical representative, Los Angeles, Calif. Cowan presented research and field test results of new chemical, Slo-Gro, developed by Uniroyal.

same rules apply for trees sprayed with Slo-Gro as for grass. Most rapidly growing trees and wood shrubs respond favorably to treatment. Among those successfully tested to date are elm, sycamore, ash, maple, alder, athols, eucalyptus, oak, mulberry, black walnut, pepper, liquidambar, and a number of shrubs. Cowan says the chemical has proved particularly applicable over top trimming to prevent regrowth interference with utility lines.

#### Apply Only On New Vigorous Growth

By way of summary, Cowan said that Slo-Gro is effective only when applied on new, vigorous growth. Spray must thoroughly wet and cover all new growth, though he cautioned against excess drip or runoff on lawns and under trees. Slo-Gro is soluble in water and once mixed does not need further agitation. Spray must be applied so that it penetrates through the upper foliage and down to the new growth.

Dr. Roy Goss, agronomist at the Western Washington Research & Extension Center, Puyallup, Wash., provided the group with turfgrass management recommendations. He tied his turf management recommendations to those most often affecting the ground sprayman. In discussing soil fumigants, Dr. Goss pointed out that all soils in

company, presented results of field test work with the chemical. He also discussed Alar 85, another new growth regulator for which clearance is expected within the next year.

Cowan predicted that spraymen will be using more growth regulators in the immediate future. Such chemicals, he said, change growth pattern only. They do not kill the plants, but merely change the physiology of the growing vegetation.

Slo-Gro, according to Cowan, has been found particularly useful on steep highway banks which are difficult to mow. Grass, when mowed at 3 inch or greater heights, can be held back to the point that it need be mowed only 2 or 3 times during the year. The same type maintenance is applicable for golf course roughs, cemeteries, and certain industrial areas. Slo-Gro for such treatments can be applied for about \$20 per acre using the full rate of 1-1/3 gallons in 75 to 100 gallons of water, usually with a boom sprayer. Use of X-77 as a surfactant is very important (1 quart/acre if humidity is 60% or less and 1 pint if humidity is 80%).

Also, Cowan said it is practical

to cut the dosage of Slo-Gro to 2/3 gallon per acre if less reduction in growth is wanted. There is also less chance of any discoloration at the reduced rate. However, Cowan stressed that any browning lasts only about 2 weeks. Grass sprayed at 3" to 4" heights has been easily maintained at 6" to 8" heights for the year in Uniroyal's field tests.

Cowan said that about the

Only the left half of the locust, below, was sprayed with Slo-Gro, a new Uniroyal growth inhibiting chemical. Note retardation of growth during the single season after treatment. Spraying is done just after growth begins in spring season.





their natural state contain weed seeds, fungi, nematodes and other soil borne pests. Fumigation before planting is about the only way to clean them up, he said. But it is often a questionable practice because of costs and the waiting period of 2 to 3 weeks before planting. Herbicides will kill most weeds and may be more practical. Yet, he suggested that spraymen weigh the disadvantages of using a herbicide at a time when young grass seedlings are also susceptible. Waiting until grass is established to kill weeds means that the weeds have already crowded out some desirable turf.

If soil is fumigated, Dr. Goss reported an easy method for determining the time when it becomes safe to plant grass seed. He suggested placing radish seeds at the regular planting depth at random spots over the area. Keep the area moist. If the radish seeds germinate in the normal time, it is safe to proceed with planting. If not, allow a few more days.

Entomologist Dr. Joseph L. Saunders of the Western Washington Research and Extension Center, Puyallup, Wash., stirred the group with the statement that he could guarantee control of the elm leaf beetle with one application of Systex-R. This chemical, Dr. Saunders said, will protect large trees, those 10 to 15 inches in diameter, for two months. Within 2 hours after application, he said, beetles leave the trees. He has been field testing the J. J. Mauget Company's injector, using the Birdin systemic injector capsule. Dr. Saunders also demonstrated an ultra low volume applicator with 12 cc tank. Smaller tanks of 1 or 2 cc's, he said, have also been used as a research tool. The spray unit he demonstrated was designed and built by Chemagro Corporation for specially formulated chemicals.

Elected to offices for the coming year were: James Overton, Miller Products, Portland, Ore., president; Stanley Rapple, Washington Tree Service, Seattle, Wash., vice-president; Charles Seibold, Major Spray Service, Portland, Ore., secretary-treas-

urer; and board members, Lew Seflon, Lew Seflon Spray Company, Portland, Ore., and Jack Daniels, Greenup Spray Service, Seattle, Wash.

### **Fusarium Blight Bluegrass Investigation Scheduled**

Symptoms similar to those of Fusarium blight have been spotted on Merion bluegrass in Michigan for the past 2 years. As

a result, Dr. Robert P. Scheffer, plant pathologist, and Dr. Nicky A. Smith, Extension plant pathologist, both of Michigan State University, have started an investigation to determine if Fusarium blight is present. If so, they will survey sod growers, landscapers, golf course superintendents, and others to pin down extent and prevalence of the disease.

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**Special recognition for service** to the Alabama-Northwest Florida Turfgrass Association came to Mike Johnson, left, and Dr. D. G. Sturkie, center, during turfgrass short course at Auburn University. Johnson, Birmingham turf specialist, was chairman of the program committee, and Dr. Sturkie, agronomy researcher of Auburn's Agricultural Experiment Station, headed overall planning committee. Presenting the plaques is Bill Norrie, association secretary, Pensacola, Fla.

### Alabama-N.W. Florida Turfgrass Group Meets

More money is spent on turf than any other crop in Alabama, according to Dr. T. B. Hagler of that state's Extension Service. In a session with members of the Alabama-Northwest Florida Turfgrass Association at a recent special course, Dr. Hagler said turf is grown on grounds of a million homes, 100 golf courses, 600 schools and colleges, and many parks, cemeteries, public areas, and rights-of-way on highways.

Meeting with the group to discuss management of this Number 1 state crop which has become a multi-million dollar business was James M. Latham, Milwaukee Sewerage Commission agronomist, Milwaukee, Wis. Latham said that turf production is not the hay business. Over-fertilization, he said, causes excess mowing and should be avoided. Quality of turf is now the major consideration, not rate of growth, Latham believes.

He called for a complete fertilizer program with regular applications for best appearance of turf areas. Too often there is a delay in fertilizing until grass shows deficiency, followed by use of excess amounts. Timing of fertilization in relation to irrigation is especially important, he explained.

The problem of thatch devel-

opment was also covered by Latham. He said this comes about because of too fast growth rate or irregular mowing. His suggestion for prevention of thatch calls for fertilizing enough to maintain color and growth, but not enough for excess growth.

Results of fertilization studies with zoysia and Tiflawn bermuda were presented by Dr. D.

G. Sturkie, turf researcher at Auburn University Agricultural Experiment Station.

### Lederer To Serve Both AAN and NLNA

Robert F. Lederer has been named executive vice-president of the National Landscape Nurserymen's Association. He serves in the same position and holds the same title with the American Association of Nurserymen.

The two associations' boards of directors have made a joint statement announcing the umbrella management. In the move the NLNA acquired the administrative services of the entire AAN staff and moved their headquarters to the AAN headquarters in the Southern Building, Washington, D. C. Each organization will continue with its own governing body, separate bylaws, and independent association goals and management priorities.

Already operating with this type management program with Lederer as executive vice-president are the Wholesale Nursery Growers of America, the Horticultural Research Institute, and the Nurserymen's Group Insurance Trust.



**Members of the Northeastern Weed Control Conference** will stage their 22nd annual meeting Jan. 3-5, 1968, at the Hotel Commodore, 42nd at Park and Lexington Avenues, New York City. Program plans are being finalized by the executive committee, left to right: Dr. George H. Bayer, Agway Inc., Syracuse, N. Y.; Dr. John F. Ahrens, Connecticut Agricultural Experiment Station, Windsor, Conn.; Homer LeBaron, Geigy Agricultural Chemical Corp., Ardsley, N. Y.; Arthur Bing, Cornell Ornamentals Research Laboratory, Farmingdale, N. Y.; John Gallagher, Amchem Products, Inc., Ambler, Pa.; Dr. Richard D. Ilnicki, Rutgers University, New Brunswick, N. J.; Dr. John A. Meade, also of Rutgers; and Dr. J. R. Hansen, Hercules Inc., Wilmington, Del. Gallagher, who works with research and development at Amchem, is N.E. Weed Control Conference president for the current year.



Maine Helicopters, Inc., Vice-President Andrew Berry, right, and Chief Pilot Gene Herrin, center, accept delivery of their new Bell Ag-5 from Joe Moak of the Bell commercial sales staff.

### Advanced Helicopter In Service In Maine

A major new piece of equipment, the Bell Ag-5 helicopter equipped with an Agmaster spray unit, has been put into service in Maine by Maine Helicopters, Inc.

This aerial applicator company has added the new model to a previous fleet of two Bell Models, the 47G and the 47H-1.

Delivery was made to Andrew Berry, vice-president, and Gene Herrin, chief pilot, at the Textron Bell Helicopter Company's Fort Worth, Tex., facility.

Among Maine Helicopters' contracts are odor abatement control for S. D. Warner Paper Products and Dead River Com-

pany of Bangor. Berry says the company is also doing experimental application work for the U. S. Forest Service's spruce budworm control program.

Besides aerial application work, Maine Helicopters also does powerline patrol work for Central Maine Power, Bangor Hydro-Electric, and Rangely Power companies. Pipeline surveillance is carried out from Portland to the Canadian border for the Portland Water District.

Maine Helicopters operates equipment from the Augusta State Airport and has office headquarters at Portland. The company has been operating since 1960 as a full-time helicopter service in the state.

### 0217 Fylking Kentucky Bluegrass Seed For Sale

A new bluegrass seed from Sweden is now available in this country. Tested for 10 years and found an excellent performer as an all-around lawngrass, 0217 Fylking Kentucky bluegrass seed is now on the market.

Doyle Jacklin, Jacklin Seed Company, Inc., Dishman, Wash., said demand for seed of the pedigreed, genetic stock of 0217 is expected to be heavy because of its performance in an extensive field testing program throughout the country.

Two desirable features of 0217, Jacklin says, are its low, dense growth and its resistance to disease. Bright green leafblades, unmarked by lesions, are found on short leaf stalks. These escape damage by mowers even when grass is cut low. The blade itself bends back and downward more than is true with most bluegrasses. In this way, grass blades underlie the cutting edge of the mower, and Jacklin reports, some turf specialists have suggested it might be adaptable for a golf green.

0217 brand Fylking is spread by rhizomes, weaving into a strong sod underfoot. It is uniform and dense, Jacklin reports, yet responsive in handling as is generally the case with bluegrasses.

## Winterize Your Spray Rigs

*The following recommendations are guidelines for keeping equipment in good shape for next spring:*

1. Drain all spray material from tank, pump, boom and hoses. Store in safe place.
2. Remove end plugs from boom (if present), so any accumulation can be flushed out.
3. Fill spray tank with clear water, run pump, and flush water through the boom in safe area.
4. Again fill with "flush" mixture recommended by your county agent, depending on the last-used pesticide material.
5. Disassemble nozzles, clean screens, and store screens and nozzle parts dry or immersed in a jar of fuel oil.

6. Drain pump thoroughly and then coat the inside with a rustproofing material such as soluble oil or regular auto radiator rust inhibitor. This will prevent a stuck pump. Be sure pump is dry so it will not be damaged by freezing.

7. If tank is susceptible to rust, rinse or spray interior with soluble oil in water or other rust inhibitor. Do this whenever sprayer will be idle for a few days.

8. Support boom so it won't be damaged by other machinery. Avoid leaving aluminum boom material in contact with soil or manure accumulations.

9. Remove hoses, wipe clean of oil, and store them inside, coiled neatly in a five-gallon pail or straightened out on a shelf. Avoid sharp kinks or hanging over a nail.

# Weed Turf With Fertilizer

Director, The Lawn Institute, Marysville, Ohio  
By ROBERT W. SCHERY

EVERYONE wants a lawn of fine-textured grasses such as Kentucky bluegrass, fine fescue or bentgrass. There is no better way to achieve success than to sow quality seed of "fine-textured" species to a nicely prepared seedbed, at a favorable season, usually late August or September, for these topnotch grasses. Given a good start then, each is able to gain a jump on the weeds and generally remain topdog under average care.

But did you ever consider that attractive grasses can be greatly aided by so simple a procedure as fertilizing? Here is what, in one year, a single turf feeding accomplished at the Lawn Institute grounds.

Sod of an old pasture there that merely has been mowed contains a mixture of haygrasses (timothy especially) with bluegrass, and of course many broadleaf weeds. Clover is prominent. Wild carrot is abundant, as is dandelion and miscellaneous other broadleaf weeds such as



Grass in foreground area received heavy fertilizer treatment one year prior to time picture was made. Note almost complete absence of weeds as compared to background (area beyond string) which received no fertilizer. Broadleaf weeds are specially evident near tractor wheel.

occasional chickweeds, veronica and various Compositae. The particular turf in this test had not been fertilized for at least a decade since retired from pasture usage.

In the late spring of 1966 a heavy fertilization (perhaps 2-3 lb. N/M) was made with a 15-5-5

lawn fertilizer. Neither the fertilized area nor the surrounding unfertilized turf received further attention, except for mowing at approximately a 3 inch height. What was the result one year later? The chart tells the story.

Where the fertilizer had been applied the weed population dropped to an average of about 23 broadleaf weeds (of all kinds) per square foot, as compared to 50 for unfertilized areas. And conversely, the grass was increased to as much as 90% of the cover in a number of the sampling locations, compared to only occasional spots with as much as 50% grass on the unfertilized portion. On a square foot basis the frequency of wild carrot was cut fivefold, clover and other broadleaf weeds nearly in half, by application of the fertilizer. Grass was encouraged, and there seemed even to be a slight gain for the Kentucky bluegrass over the haygrasses, although this was not nearly so manifest as

Table 1. Results of Weeding Turf With Fertilizer at Lawn Institute Grounds, Marysville, Ohio, 1966.

Species checked	Average number of plants per square foot, or % cover <sup>a</sup>	
	Fertilized	Unfertilized
White clover .....	7.6	14.6
Hop clover .....	4.8	5.8
Wild carrot .....	3.2	16.4
Dandelion .....	1.6	3.6
Miscellaneous broadleaves .....	6.0	9.4
<i>All Dicotyledonae</i> .....	23.2	49.8
Fine-texture (Kentucky bluegrass).....	55.5%	25.7%
Coarse haygrasses .....	11.9%	7.6%
<i>Estimated % grass in total cover</i> . . .	67.4%	33.3%

<sup>a</sup> Mid-June sampling of old turf, part of which received a single heavy fertilization about a year previously. Based upon counts within a 6" square randomly dropped.

was grass gain over the Dicotyledonous (broadleaf) plants.

The ecological encouragement of grass at the expense of broadleaf species (mostly regarded as weeds) is nothing new. McLeod's thesis at the University of Massachusetts some years ago showed similar changes in components as well as increase in total plant population, as a result of fertilization. In pasture and roadside maintenance it is well recognized that nitrogen favors the grass over the legumes. Other tests, such as those by Juska at Beltsville, demonstrate similar ecological management of lawn populations, including lesser incidence of weeds at high mowing as compared to low. But it is always dramatic to witness marked turf change from so simple a procedure as a single application of fertilizer. If one feeding can make the changes noted in the chart in one year, think what regular feeding (and bolster seeding with quality lawnseed) should be able to accomplish! There is no simpler and less expensive a technique for lawns.

### American Sod Producers Launch Drive For Members

Sod growers are being asked to join their new national association group. Organized as the American Sod Producers Association this past summer at East Lansing, Mich., officers and board elected by the charter group have established rates for dues and classes for memberships. They are now soliciting memberships among growers and allied industries.

At a recent meeting at Chicago, the Board of Trustees directed George B. Hammond, Paint Valley Bluegrass Farms, Columbus, O., who is serving as acting secretary-treasurer, to contact growers and industry personnel.

Trustees agreed to continue grower membership dues at \$50 per year. Growers are eligible for Class A memberships. Material and equipment supplier dues were set at \$50 per year for Class B memberships. The \$50 rate will also apply for any company desiring to have more than one

executive participate in ASPA activities. Honor memberships will be accorded others, such as research people, who contribute to the industry.

First annual meeting for the Association will be held at San Francisco, Feb. 18-23. The group will meet in conjunction with the Golf Course Superintendents Association, as they have done in past years prior to formal organization of the grower association on a national basis. Dr. Elwyn Deal, University of Maryland agronomist, will be in charge of the special sod program which is set for Wednesday, Feb. 21, 1968.

When the group was formally organized July 11 as an association, Ben O. Warren, Warren's Turf Nursery, Palos Park, Ill., was elected president. Others elected at that time were: Robert Daymon, Emerald Valley Turf Nurseries, Howell, Mich., vice-president; Louis DeLea, Louis DeLea & Sons, East Northport, Long Island, N. Y., treasurer; Richard Horner, Horner Sod Farms, Wind Lake, Wis., secre-

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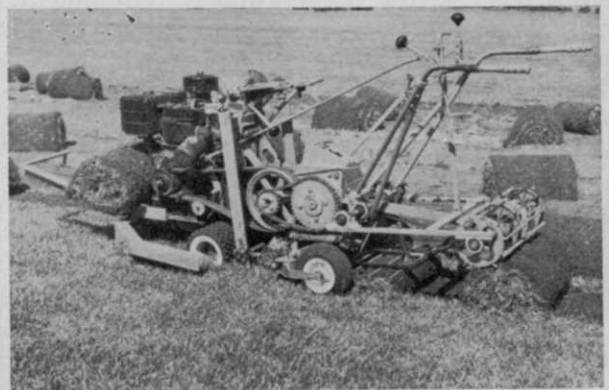
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Rolls sod tight and evenly as cut.

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Can pay for itself in one month.

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Robert W. Miller



Eliot C. Roberts



W. H. Daniel



James B. Beard

tary; and Tobias Grether, Cal-Turf, Inc., Camarillo, Calif., J. E. Ousley, Sr., Ousley Sod Company, Pompano Beach, Fla., and Wiley Miner, Princeton Turf Farms, Inc., Cranbury, N. J. were elected as additional members of the 7-man board.

Following the formal organization July 11, the Association staged a national field day with demonstrations by practically all major producers of sod harvesting equipment on the following day. The field day was held at the Emerald Valley Turf Nurseries farm during the morning, with Robert Daymon serving as host, and at the Halmich Sod Nursery with Bill Johnson as host for the afternoon session. Both Daymon and Johnson serve as presidents of their respective farms. Wayne County, Mich., County Extension Agent Donald D. Juchartz helped the group by previously arranging with producers to have their equipment on hand.

Hammond, who has worked closely with the group since prior to its inception, is handling queries and receiving memberships. He can be reached at 71 E. State St., Columbus, O.

### Use Care In Chemical Storage

Pesticides need to be stored in a separate building and marked accordingly. That's the thinking of John Lofgren, University of Minnesota entomologist. When such a building is not available, Lofgren suggests a securely locked area away from other storage.

### Major Turfgrass Event At Cleveland, Dec. 11-13

Cleveland, O., will be the site of one of the major turfgrass conferences and shows to be staged in 1967. The Ohio Turfgrass Foundation is hosting the event which will be headquartered at the Sheraton-Cleveland Hotel, Dec. 11-13.

More than 80 manufacturers, formulators and distributors have purchased booth space. They are exhibiting all types of equipment and supplies. Scheduled for showing are spray equipment, mowers, fairway equipment, blowers, irrigation equipment, fertilizers, seeds, chemicals, sod and aerification equipment. Harry Murray, Jr., Warren's Turf Nursery, and president of the host group, reports that all equipment along with the program will be headquartered at the Sheraton-Cleveland Hotel.

On the program are industry and research personnel from throughout the nation. Handling assignments on irrigation and plant-water relationships will be Dr. James B. Beard, Michigan State University, East Lansing, Mich., Dr. James R. Watson, Toro Manufacturing Corporation, Minneapolis, Minn., Robert Rugar, Rainy Sprinkler Sales, Peoria, Ill., and Walter J. Wilkie, March Irrigation Co., Muskegon, Mich.

A general turfgrass session including data on rhizome formation in bluegrass, cutting labor costs in turf management, reducing care of ornamentals, and training for turfgrass students will be handled by Dr. Lowell

Moser, agronomist at the Ohio State University, Columbus, O., Tom Mascaro, president of the Pennsylvania Turfgrass Foundation and Westpoint Products Corp., Westpoint, Pa., and Fred K. Buscher, Ohio Extension Service, Medina, O.

Soil fertility and turfgrass fertilization sessions of the program will feature Bill Lyons, Lyons Den Golf Course, Canal Fulton, O., Dr. Eliot C. Roberts, University of Florida, Gainesville, Fla., and Dr. Donald J. Hoff, agronomist, O.S.U., Columbus, O.

Turfgrass pest assignments will be handled by Dr. Houston B. Couch, Virginia Polytechnic Institute, Blacksburg, Va., Dr. Edward W. Stroube, O.S.U. weed control specialist, Columbus, O., and Dr. William H. Daniel, Purdue University, Lafayette, Ind.

Dr. Robert Miller, executive-secretary of the host group, reports that plenty of hotel space is available in Cleveland and at the headquarters hotel. However, he does urge out-of-state guests to make arrangements directly with the Sheraton-Cleveland Hotel, Public Square, Cleveland, O., if they plan to stay at headquarters. Upwards of 1000 persons are expected to attend.

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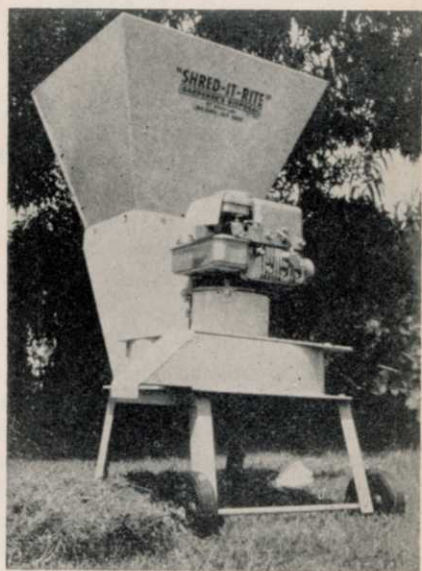
# Designed for the Vegetation Care Industry



**Terra-Tire by Goodyear** has been so designed that combined weight of man and tractor exerts less pressure than if the man were on foot. Walking pressure is about 24 pounds per square inch, 2 to 3 times more than if he were riding on a Terra-Tire-shod garden tractor. Tires also enable tractor to ride through mud, sand, and snow where tractor with conventional tires might bog down. For data, write Goodyear, Akron, Ohio 44316.



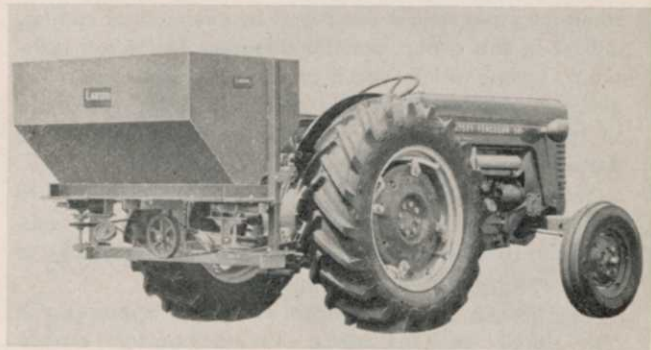
**New turret mulcher, Model TM7-36.** Maker reports no belt drives and complicated transmission components. Capacity is 3 tons hourly with still air spray range of 60 feet. Skid mounted, 36 hp engine, 12 volt electric start. Write Reinco, Inc., P. O. Box 584, Plainfield, N. J.



**Shred-It-Rite disposal** offers patented blade configuration for complete shredding. Blade enclosed for safety. Ideal for preparing lawn and garden debris for compost. Handles trimmings, bushes, limbs up to 1" diameter, shrubs and grass. Four rubber wheels make it easy to move. 3½ hp. engine. Price \$194.85 fob Torrance. Write Calif-McCulloch Equipment Co., 800 West Carson St., Torrance, Calif. 90510.



**Hydraulic truck-crane** designed for one-man loading and unloading. Hydraulic jack is heart of lifting mechanism. Features 360-degree rotation, and can be mounted on any style truck body or on loading dock. Replaces forklift for many jobs when mounted on floor dolly. Two sizes, 1500-lb. and 2500-lb. Source: Ideal Crane, Bert Parkhurst and Co., 15051 E. Admiral Place, Tulsa, Okla. 74116.



**Piggyback Broad-Caster, Model 413-3,** engineered for rough terrain. Gives excellent pattern on level ground. A 15 cubic foot capacity hopper, using twin fans to insure an even spread pattern. Unique single belt drive system eliminates gear boxes, chains, and troublesome drives. Application rates from 25 to 400 pounds per acre. Write: L. L. Larson Machine, Inc., Princeville, Ill. 61559.

## BLACK LOCUST

(*Robinia pseudoacacia*)



Drawing from: Manual of the Trees of North America, by Charles S. Sargent, Dover Publications, Inc. Reprinted through permission of the publisher.

Prepared by J. H. Kirch, forester and horticulturist serving as Marketing Manager, Industrial Chemicals, for Amchem Products, Inc.

Black locust, sometimes known as common locust, yellow locust or white locust is a medium-sized tree usually 30 to 45 feet in height with a diameter of 1 to 1 1/2 feet. The genus *Robinia* comprises about 20 species of trees and shrubs native only to North America.

Originally, the range of black locust was from Central Pennsylvania south to Georgia and west to Iowa and Kansas. Now, due to wide-spread planting and naturalization, the species is found in most of the states east of the Rocky Mountains. Black locust is found on moist fertile soil especially on rich bottomlands, but it is also present on rocky and sterile mountain slopes. It is very common on abandoned strip mine soil and is a valued species for spoil bank planting.

To the right-of-way manager, it is a member of the "root suckering" group of trees, so named because of their ability to sprout prolifically along lateral roots when the main stem is destroyed by chemical or cutting. Others in this group are the allanthurus (*Ailanthus altissima*), sumac (*Rhus* spp.), persimmon (*Diospyras virginiana*) and sassafras (*Sassafras albidum*). No group of species has been more troublesome to control on the rights-of-way east of the Mississippi River.

The black locust is readily distinguished by its 8 to 14 inch pinnately compound leaves with 7 to 19 subopposite or alternate leaflets which are usually 1 1/2 to 2 inches long and 1/2 to 3/4 inches wide.

The flowers resemble those of a pea, appearing in May, usually after the leaves. They are perfect, cream-white, about one inch across and very fragrant. The flowers are borne on slender stalks about 1/2 inch long and are arranged in loose drooping racemes 4 to 5 inches long.

Whether a plant species is desirable or undesirable often depends on the situation in which it occurs. This is true of all the trees to be discussed in this series of articles on identification. For example, maple (*Acer rubrum*) is a useful ornamental in landscape plantings because of its early red flowers, pleasing growth habit, and spectacular autumn foliage coloring. It is a nuisance on the right-of-way because of its resistance to chemical treatment. Similar comments could be made about the other species to be described. They have ornamental, and economic value, but not on a utility right-of-way which must be kept clear of tall vegetation. Strong resistance to treatment makes it especially important that a few "problem" species be clearly recognized when they are encountered in clearance work. Otherwise there may be needless disappointment, and waste of time and material through inappropriate treatment. J. H. Kirch.

Late in the summer the 2 to 4 inch long fruit pods of black locust appear and often persist far into the winter. They usually contain 4 to 8 small dark brown mottled seeds.

Black locust is sometimes confused with honey locust (*Gleditsia triacanthos*), but the branched thorns 2 to 4 inches long along the bark and twigs and the slightly serrate margin of the leaf easily distinguish the honey locust.

In general, amine foliage sprays of 2,4-D plus 2,4,5-T at 2 pounds of each per 100 gallons of water have been more effective than low volatile esters applied at similar rates. This is probably because the sensitive leaflets are not as quickly destroyed by the amine sprays and some translocation can occur. Interestingly enough, low volume aerial sprays using invert emulsions of 2,4-D/2,4,5-T have given better control in many cases than high volume ground sprays. This, again, may be due to the fact that the leaflets remain alive several days longer from aerial sprays than ground applications.

Picloram, dicamba, 2,3,6-TBA and amitrole applied as foliage sprays have given excellent root kill of locust. Recently, combinations of picloram and 2,4-D, dicamba or 2,3,6-TBA and 2,4-D plus 2,4,5-T, or amitrole added to the water phase of water-in-oil invert emulsions applied from the air have given good control of locust and other root suckering species growing in association with it.

Pellets of picloram and fenuron have been good for spot treating of this species.



## Classifieds

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 1900 Euclid Avenue, Cleveland, Ohio 44115.

**Rates:** "Position Wanted" 5c per word, minimum \$2.00. All other classifications, 10c per word, minimum \$2.00. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment.

### FOR SALE

**1963 MODEL JOHN BEAN SPRAYER.** 1,000 gallon capacity tank. Powered by electric start 25-hp Wisconsin engine. This unit mounted on 1963 2½-ton Ford truck. Truck has approximately 50,000 miles. Has heavy-duty steel bed. John Bean pump is rated at 25 gpm. Will sell sprayer without or with truck. This unit is used every day and is in first-class order. Not a junker. \$3,000.00 complete or \$1,200.00 for sprayer. Pictures on request. Industrial Weed Control & Chemical Service, 6601 North May Ave., Oklahoma City, Okla. 73116.

**TREE, LANDSCAPE, WEED, BRUSH** business established 20 years. Shows excellent return. Late-model equipment, top condition. Excellent growth condition. Will sell on terms to responsible party. With or without real estate. Proven moneymaker. D-B rating. Excellent opportunity. Ray E. Goodell, R.D. 1, Conklin, N.Y. 13748—Phone 607+723-1676.

**ESTABLISHED "GRASS COUNTRY"** TURF farm, 239 acres. 90 acres excellent level tillage; more available. 1,500,000 feet Merion sod presently growing. Seed, fertilizer on hand; some nursery stock, softwood timber, building sites, water. New equipment, good seven-room house, out-buildings. In expanding industrial, residential, recreational area. Fine opportunity for a young man. Value plus at \$88,000. Buy now and organize for promising spring business. Write or phone B. G. Day, Johnson, Vt. 05656, Owner. 802+635-2580 or 203+668-7445.

**BRUSH CHIPPERS. 2 Mitts & Merrill** (new type) 1963 model 12" 6-cylinder with torque converter. Good condition. 1 Mitts & Merrill 1960 model 12" 6-cylinder with torque converter. Very good condition. Extra knives with each of these machines. Lanphear Supply, 1884 South Green Rd., Cleveland, Ohio 44121, A.C. 216+381-1700.

**HADFIELD SOD ROLLER. Used. Fits** Ryan Cutter. \$300. Merion Sod Farms, Inc., 44533 Sterritt, Utica, Mich. Tel. 313+731-2570.

**PIRO SODWINDER. Like new. Rolls** precut 18" sod. One-half price. \$750. Merion Sod Farms, Inc., 44533 Sterritt, Utica, Mich. Tel. 313+731-2570.

### Dow Range Tour

(from page 7)

tested in numerous types of applications and nationwide (for one test see "Right-of-Way Brush Control," page 16, WEEDS TREES AND TURF, June, 1967). Excellent control of broadleaved weeds was provided when using 2 quarts of Tordon 101 mixture in 10 or more gallons of total spray volume per acre, applied with Norbak as a particulating agent to prevent spray drift. Two applications at half this rate also showed effectiveness. The Tordon 101 mixture gave better control than 2,4-D of certain troublesome species such as Canada thistle, clovers, wild carrot and milkweed. A spray volume study showed equal weed control results from use of 10, 15, 20 or 25 gallons per acre. The 5-gallon rate was less effective.

On the tour, use of Tordon on gorse, a troublesome weed plant which was introduced to this country as a domestic ornament and then escaped into the wild, proved to be very effective. Tordon at high dosages will prevent vegetation growth for up to three years. However, at lesser dosages the gorse and other undesirable broadleaved weeds are killed and native grasses come back during the first year. Tordon, for reasons as yet unexplainable, actually stimulates growth of grass in treated areas. Lew Corbin of Dow, located at Midland, Michigan, and sales manager for agricultural and industrial bioproducts, reports that researchers have some theories which as yet they have not established as fact, at least for publication. Nevertheless, in this Oregon area roadside field test, and in other areas, grass cover was noticeably stimulated after Tordon treatment.

The attack on the problem of drift has been successful with development of Norbak. Dow has used a company-developed demonstration rig which applies specified amounts of Tordon 101 with Norbak to roadsides. A particulated spray of the mixture is applied from 2 separately controlled nozzles of the application rig. Off center nozzles are controlled by the applicator on the

## Advertisers

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truck and can be targeted to very precise limits. Tests begun in 1964 are continuing.

Working closely with Dow has been the Bonneville Power Administration. On the tour, Fred Gross, right-of-way maintenance superintendent located at Portland, Oregon, discussed the value of chemicals to BPA. A few years back, Gross said, BPA was spending \$300 to \$500 per acre for mechanical brush control. Budget for the 56,000 acres of land beneath BPA's 10,000 miles of lines was almost one-half million dollars. Today, with chemicals, BPA is spending only \$35 to \$40 per acre yearly for control. Gross indicated that this would be the pattern of BPA for some time to come, especially in light of the fact that underground transmission lines are 8 to 10 times more costly. Further, Gross said, new technical advances are needed before lines can be placed underground on a practical basis.

Jack Warren of Dow stressed the need for safety, economy and approval for chemicals prior to marketing them. Special problems such as eliminating brown-out and still maintaining brush control need to be solved. Thus, a company in marketing a product must develop an entire system, including chemical, particulating agent, and the equipment to place it on target. In this latter case, Dow has developed an adjustable in-flight swath system for use on helicopters.

For December:

Annual Directory Issue

And Suppliers Guide

# Insect Report

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

## Turf Insects

### AN ARMORED SCALE (*Odonaspis ruthae*)

**Florida:** All stages light to severe on Bermuda grass on golf courses at Clearwater and Largo, Pinellas County; controls needed.

### RHODES-GRASS SCALE (*Antonina graminis*)

**Florida:** All stages light to severe on St. Augustine grass, Bermuda grass, and crabgrass on golf courses at Clearwater and Largo, Pinellas County; controls needed.

### A JAPANESE WEEVIL (*Calomycterus setarius*)

**Pennsylvania:** Severely damaged 10 acres of crownvetch seedlings in Centre County; first record of economic damage in State.

## Insects of Ornamentals

### AZALEA CATERPILLAR (*Datana major*)

**Alabama:** Larvae heavy on azaleas at homes in Escambia and Hale Counties; some shrubs partially defoliated.

### ROSE LEAFHOPPER (*Edwardsiana rosae*)

**Colorado:** Damaged 25 percent of rose foliage in Montrose County.

### FLORIDA RED SCALE (*Chrysomphalus aonidum*)

**Florida:** Severe on 120 coontie plants (*Zamia floridana*) in nursery at Tampa, Hillsborough County.

### HEMISPHERICAL SCALE (*Saissetia coffeae*)

**Florida:** Infested 120 coontie plants (*Zamia floridana*) in nursery at Tampa, Hillsborough County.

### A THRIPS (*Monilothrips kempfi*)

**California:** Damage severe to ferns in store in Guerneville, Sonoma County.

## Tree Insects

### APHIDS

**New Jersey:** *Prociphilus imbricator* infesting Monmouth County beech; heavy on lower branches. *Lachnus salignus* common on willows in central counties. **Maryland:** *L. Salignus* heavy on weeping willows in Allegany and Prince Georges Counties. **Arkansas:** *Drepanaphis acerifoliae* active, up to 50 per leaf on maple in Fayetteville area, Washington Coun-

ty. **Utah:** *Periphylus lyropictus* increasing in Logan, Cache County.

### ELM LEAF BEETLE (*Pyrrhalta luteola*)

**Oregon:** Damage to elms more serious than in previous years, especially in eastern area. **Oklahoma:** Damage moderate to heavy on elms in Major and Woodward Counties. **Maryland:** Heavy on American elm at Harman, Anne Arundel County.

### YELLOW-NECKED CATERPILLAR (*Datana ministra*)

**California:** Larvae, probably this species, heavy on cottonwood trees at Hornbrook, Siskiyou County.

### EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*)

**Oregon:** On pines at Hermiston, McNary, and Umatilla in Umatilla County for new county record; last infestation in State in May.

### SYCAMORE TUSSOCK MOTH (*Halisodota harrisii*)

**Oklahoma:** Heavy on Payne County sycamores.

### A TORTRICID MOTH (*Archips rosana*)

**New Hampshire:** Common on Japanese flowering quince June 15 at Exeter, Rockingham County, for new State record.

### ORANGE-STRIPED OAKWORM (*Anisota senatoria*)

**New Jersey:** Heavy along State Highway 72 from junction of State Highway 539 to Fawn Lakes area in Ocean County.

### A CONIFER SAWFLY (*Zadiprion* sp.)

**California:** Defoliating pinyon pine in Crystal Lake area and on Sugar Pine Trail of Angeles National Forest.

### INTRODUCED PINE SAWFLY (*Diprion similis*)

**New Hampshire:** Larvae very abundant statewide on white pine; damage extensive on ornamental planting.

### OYSTERSHELL SCALE (*Lepidosaphes ulmi*)

**California:** Heavy; damaging maple trees at Mt. Hann, Lake County.

### MIMOSA WEBWORM (*Homadaula albizziae*)

**Oklahoma:** Defoliated 100 percent of mimosa trees at Wagoner, Wagoner County.

### PINE WEBWORM (*Tetralopha robustella*)

**New Hampshire:** Damaging young white pine plantings at Redstone, Carroll County.

Compiled from information furnished by the U. S. Department of Agriculture, university staffs, and WTT readers. Turf and tree specialists are urged to send reports of insect problems noted in their areas to: Insect Reports, WEEDS TREES AND TURF, 1900 Euclid Ave., Cleveland, Ohio 44115.

## Trimnings

**Well Fed Sea Cows.** Sea cows are being used for a canal weed clearing field test by the Southern Florida Flood Control District. Five captured cows (manatees) have been fenced in a section of a weedy canal and their intake is being checked. This may well prove to be a workable project. But we hope chemical companies continue their research and those activities concerned with clearing new chemical compounds for aquatic weed control. We don't know much about sea cow numbers but we can't visualize them as being too much of a threat to the aquatic weed population.

\* \* \*

**Miracle Tree?** A warning to Minnesota homeowners to ignore direct mail promotions for a "miracle" tree known as *Robinia pseudo-acacia* has been sounded by Extension Horticulturist Mrs. Jane McKinnon at the University of Minnesota. She reports it is actually the black locust known for decades in the state and used mostly in erosion control and for fence posts.

\* \* \*

**DED Moving South.** Dutch elm disease is moving south according to the Arkansas State Plant Board. Survey crews this year found infected trees in 3 locations, south of previously infected areas, at Marianna, Marvell, and Fort Smith. However, DED did not take the jump predicted in previously infected areas. Based on infections in earlier years, the Plant Board expected 100 infected trees in the twin cities of Little Rock and North Little Rock. Good news is that only 4 trees were lost in '67.

\* \* \*

**Turf Business Even Big For Texans.** A Texas A&M University research and education program is aimed at helping the current "big business" of turfgrass maintenance in the state. Maintenance costs of the industry are now estimated at \$211 million yearly. The University's new 3-point program consists of research, student instruction, and adult education in turfgrass.

\* \* \*

**Alaska Bound Sod.** Sod can't be purchased in Alaska, so Walter O. Kraft ordered sod for the front lawn of his new home at Kodiak, Alaska, from Seattle. The 6000 square feet needed was shipped on a sea going vessel and kept cooled to 33°F for the 5-day trip.

\* \* \*

**Sod Harvester Is Perfected.** Princeton Turf Farms sod harvester is in production. Harvesting capacity is about 10,000 feet per hour, utilizing 3 men. Practical maximum for 10-hour day is closer to 7000 feet per hour because of physical capacity of men to handle sod and pallets. Pallets carry 1500 to 4000 pounds of sod, depending on moisture conditions of the sod being harvested. In a visit to Princeton's plant last month we saw 10 harvesters under construction. Lynn Johnson, Princeton engineer, estimates present shop crew can turn out 10 machines in about 2 months.



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in  
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**1968**

# Suppliers Guide

To Appear in the December '67 Issue of WEEDS TREES AND TURF

**1. Boldface Listings.** Suppliers using advertisements in this issue will be listed in boldface type in the directory under all categories of products the advertiser supplies. Your name stands out when readers refer to this handy directory which applicators use all year round!

**2. Reader Reply Card.** Bound into every December issue will be a Reader Reply Card. All readers have to do to get more information on advertised products is check off the advertiser's name and send the postage-paid card to us. We forward neatly typed lists of inquiries.

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LISTED in the 1968 WEEDS TREES AND TURF Suppliers Guide, readers will find all chemicals and equipment used for weed and brush control, turf management, and tree maintenance. Included are such chemicals as herbicides, insecticides for turf and trees, fungicides, and fertilizers, among others. Equipment listings include such items as power sprayers, vertical mowers, trimming and pruning tools, chippers, and many others. This is the only Suppliers Guide compiled annually for the entire vegetation maintenance and control industry in America.

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With a NU nes Sod Harvester and three men, you can lift, roll, and palletize up to 1,200 square yards of sod per hour. NU nes, developed at Cal-Turf Farms, is designed to handle any length of rolled or slabbed sod. Field grading of sod is done by the tractor operator, who has clear visibility at all times. Hydraulic controls permit quick and easy adjustment for

all conditions. The Sod Harvester travels alongside, never on the turf, during harvesting, and can pick up and roll sod under any moisture condition. Loaded pallets can be spotted for later field removal and be clear of the next harvesting run. If direct truck loading is desired, a conveyor extension is available. The basic power train is a Ford LCG-2110 wheel

tractor. The sod harvester can travel at speeds up to 17 MPH for quick transportation between plots. The efficiency of this all-mechanical operation has been proven on the Cal-Turf Farms, and can solve the problem of harvesting sod quickly and economically for all turf farmers. No more waiting for weather or labor

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