



# **WEEDS TREES and TURF**

A TRADE MAGAZINES, INC. PUBLICATION

July 1966



**Tips on Hand, V-Hopper  
Granular Spreaders . . .12**



**TVA Whirlybirds Pellets  
on Rights-of-Way . . . .14**

**Let's Take a Look at  
Tent Caterpillars . . . .18**



**How Ga. Sodder Plants  
Large Turf Areas . . . .20**

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

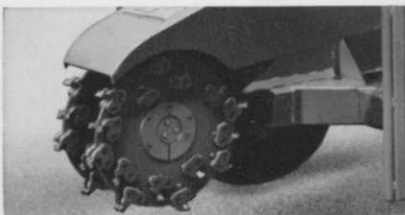
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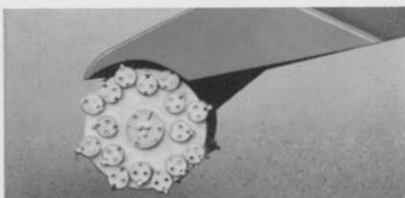
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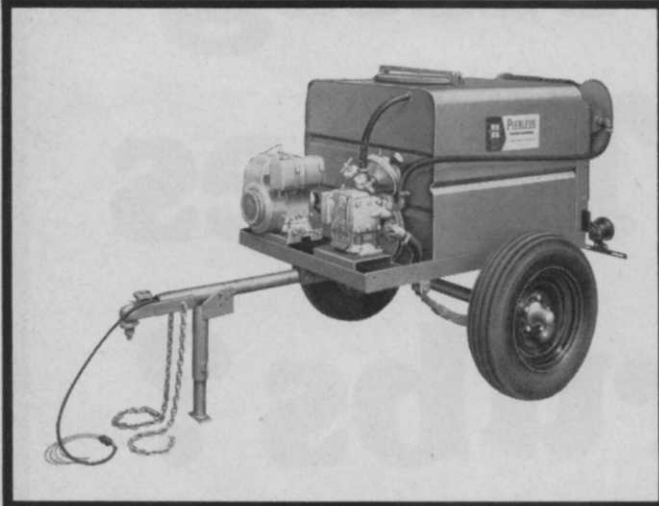


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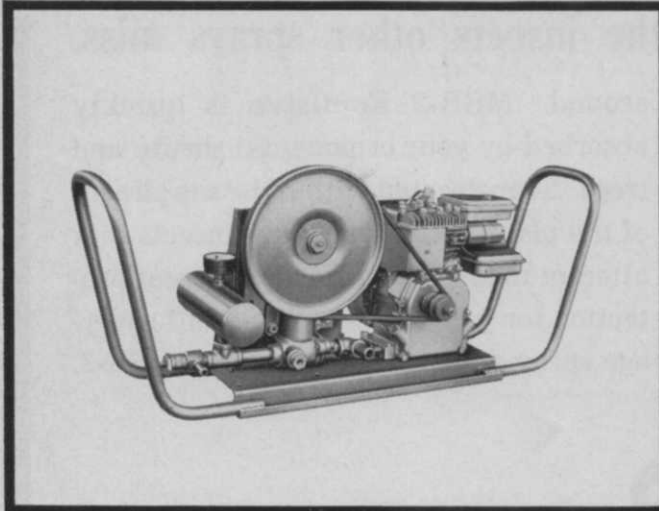
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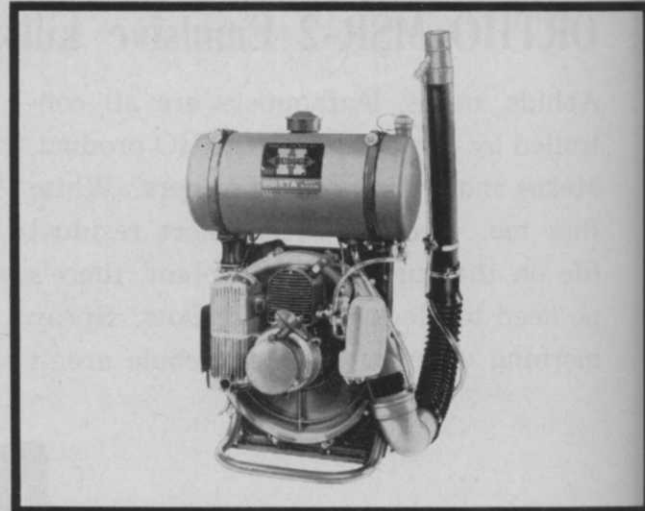
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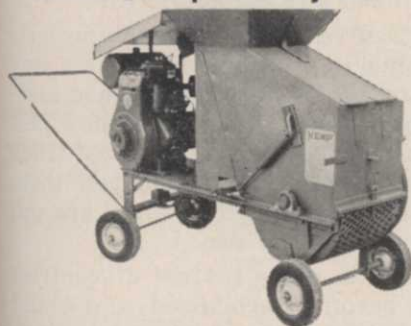
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# WEEDS TREES and TURF

FORMERLY WEEDS AND TURF

July 1966  
Volume 5, No. 7

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## Lost Identity

One day last month we sat in the office of a sales manager for a large chemical company who was anxious to become better acquainted with the "contract applicator" group he'd heard so much about lately. He wanted to learn what its members buy, how they buy, where they buy, what their problems are, and how his firm could offer useful customer service that would help the CA build business and, ultimately of course, buy more chemicals. The supplier asked us for the information we had on this unorganized and little-recognized segment of the vegetation maintenance and control market in which the combined purchasing value of its members accounts for vast quantities of insecticides, herbicides, fungicides, and equipment. "If only CAs were 'contactable,'" the supplier sighed. "If only there were an organization we could speak to and work with!"

This true experience points up another important argument in favor of forming a national association of spraymen. If manufacturers and suppliers could more easily be in conversation collectively with contractors in this industry, these suppliers would develop formulations, application equipment, and other tools that would better fit the needs of commercial spraymen who are in the vegetation business to do the best job possible and still make a reasonable profit.

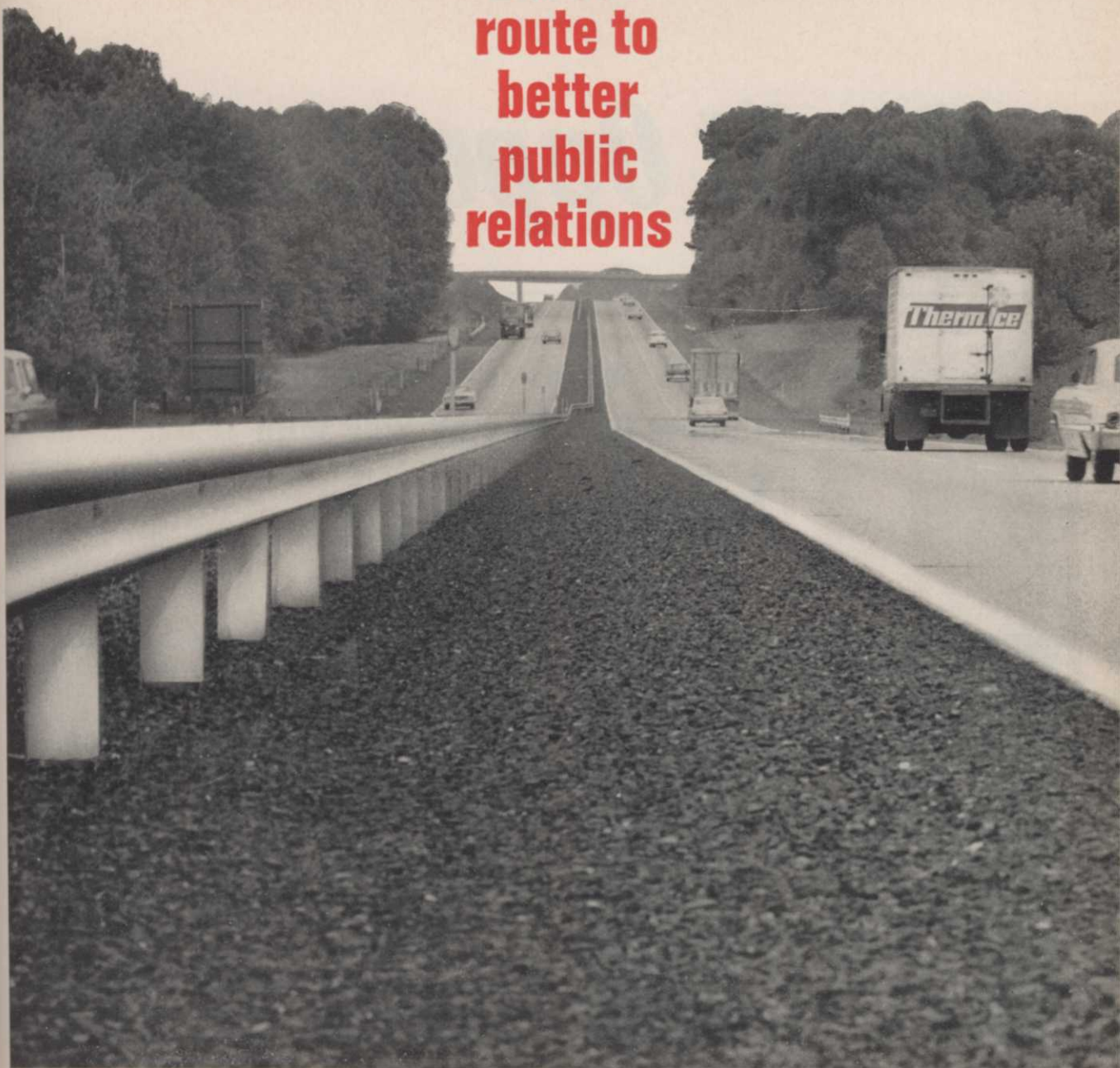
In other industries, research funds and projects have been established by individual suppliers, and administered through their customers' trade associations. Everyone has benefited. When new pesticides are to be offered, often an organized trade group is given a prior chance to field test them for effectiveness and safety before they are put on the market for anyone to use.

An organized trade association of contract spraymen would become recognized and could provide a showplace for new equipment through a national convention supported by exhibiting suppliers. It's easier to obtain eminent speakers for a national meeting than to ask them to appear at a number of regional or state meetings.

If some selfless industry men in this field don't contribute and volunteer their time towards truly organizing a national association of spraymen, the identity of CAs as an important and influential service group may be lost. Another allied trade organization may form an affiliated subdivision of its own association to absorb CAs looking anywhere for someone willing to represent them. When this happens, CAs may well come off second best and lose their identity.

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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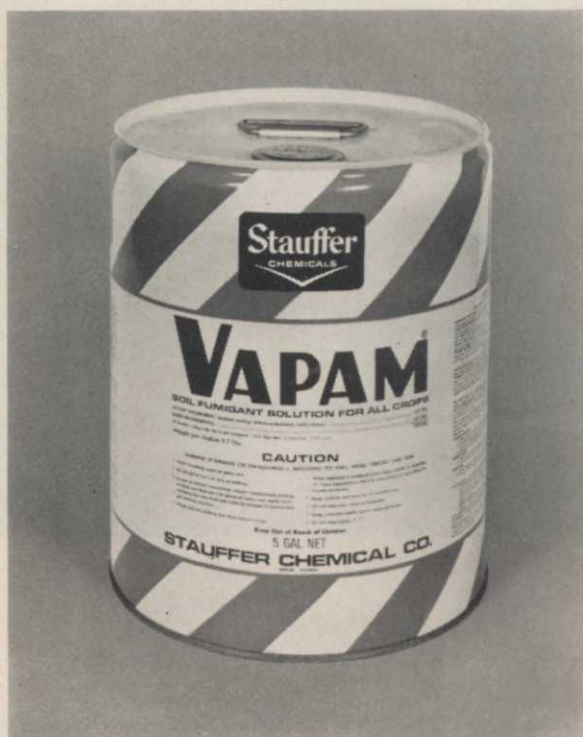
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# Up-date on Granular

## How to Calibrate Hand-carried Truck-mounted Granular Spreaders

By

L. S. WHITCOMB

U. S. Borax & Chemical Corp.  
Los Angeles, California

**C**ALIBRATING hand-carried or truck-mounted spreaders for granulated pesticides is similar, in principle, to the calibration of spray rigs. In both cases you measure the amount of pesticide, either weed killer or insecticide, discharged over a given area.

Manufacturers of most equipment have already calibrated their equipment and provide directions for setting their spreaders. However, often it is necessary to use equipment which is no longer new, or the manufacturer's directions have been lost, or we are using a pesticide not similar to materials for which the spreader was originally calibrated. In these cases, equipment must be adjusted to assure proper application.

### Check Basic Requirements

Broadcast spreaders range from the shoulder-carried cyclone type with only one adjustable control, to truck-mounted power units with rotating disks and numerous adjustable controls. Regardless of the size or complexity of the spreader, the following approach should be used to check the usefulness of the particular spreader. First, determine the rate at which the granular pesticide is to be applied for your needs. Rates are stated on product labels along with notes stating necessary precautions for handling and applying.

Next, you must consider four characteristics of your spreader.

1. Will the spreader handle the pesticide satisfactorily; do the granules readily flow out of the hopper and through the spreader?

2. Does the discharge from the spreader fall uniformly over the ground, thus treating the area evenly.

3. Is the rate of application you desire within the limits of the spreader? Spreading capacities might be estimated at any of three rates: 50 lbs./A., 500 lbs./A., or 5000 lbs./A.

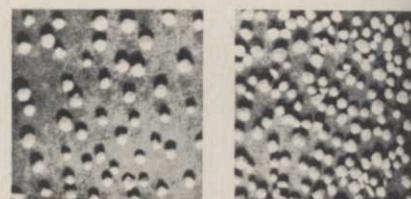
4. Is the spreader capable of applying granules in rows at widths you desire?

If the answer to any of the first three questions is "No," then consult the manufacturer's manual about adjustments, or get a spreader with greater bulk or better distribution capacities. Usually, the discharge of a large spreader can be cut down to a very small rate if granules are small enough to continue to flow out of the hopper.

### Use Sack to Calibrate Hand-carried Spreaders

For calibrating hand-operated spreaders, you will need the following equipment: a measuring tape, a large cloth bag, and a set of household scales. A marking pen or crayon may also be needed if the discharge setting device is not already marked on the spreader.

The first important step is to establish a constant rate of travel for the spreader. During the



Compare the different rates at which granule spreaders apply pesticides from preset calibration trials. On the left, 25 granules were scattered at  $\frac{1}{2}$  lb./100 sq. ft. or 200 lbs./A. The 151 granules on the right were applied at 3 lbs./100 sq. ft. or 1,200 lbs./A. By using a maladjusted spreader that applies even  $\frac{1}{4}$  lb./100 sq. ft. too much, 25 extra granules per sq. inch are spread at extra cost and where they are not needed.

first calibration trials, the walking speed should be fixed at a medium rate. Later, you may wish to increase or decrease travel speed as a method to attain the exact application rate desired.

Next, prepare to operate the spreader with pesticide in it. In order to avoid wasting the pesticide or actually treating the test area at an improper rate, tie the large cloth bag around the spreader to catch all the pesticide discharged.

Now select the appropriate quantity of chemical for a trial. This should be about 1% or 2% of the recommended quantity for one acre. If directions are stated in terms of lbs./100 sq. ft., then use enough to cover about 500 sq. ft. Make a note of the weight of the granules, put them in the spreader, and walk at a medium speed while operating

*(Continued on page 26)*

# Granular Spreaders

By

J. ROBERT WEST

O. M. Scott & Sons Co.  
Marysville, Ohio

## How to Adjust Granular Spreaders With V-shaped Hoppers

**D**RY GRANULAR herbicides, fungicides, insecticides, and fertilizers are usually applied with spreaders that meter the formulation through adjustable discharge ports in the bottom of the spreader. Although many of these spreaders give approximate settings, it is practically impossible for a manufacturer to provide accurate rate settings for products other than their own granular materials.

### Applied Rates Depend on Granules

The metered application rate at any given setting will vary for different materials. Density, particle size, and flowability are common material characteristics which vary and affect the application rate. Finely powdered material that tends to pack often can be applied only with those spreading devices equipped with special agitators to maintain a steady flow. If there is a considerable variation from bag to bag in particle size and product density, or if the forward speed of the spreader changes appreciably during application, rates are apt to be affected.

Generally, it is necessary to establish a spreader setting that will apply a desired amount of granular material per square foot of soil surface, usually figured per 100 sq. ft. or per one acre. This is called "establishing the rate."

Parts of spreaders, particularly the metering mechanism, will wear. Worn mechanisms require

adjustments to maintain the rate of application according to standards or tolerances set forth by the original manufacturer. This adjustment is normally referred to as "calibration" and usually can be done only by instructions from the manufacturer.

### Rate Establishment Based on 100 sq. ft.

To establish the rate by which granules will spread from an applicator, equipment measurements and a treatment area (100 sq. ft.) must be determined for use as standards. First, measure the width (W) of the spreader in feet. Divide 100 by the width (100/W); this will give the lineal feet (F) the spreader must travel to cover 100 sq. ft.,  $100/W = F$ . Select an area of turf to be treated and mark off the lineal feet (F). As a double-check, the length of this area (F) multiplied by the width of the spreader (W) should then equal 100 sq. ft., or  $F \times W = 100$  sq. ft.

### Application Rate Adjusted by Three Methods

Now that a standard treatment area has been marked, the rate of discharge for V-shaped hopper spreaders may be established by any of three methods.

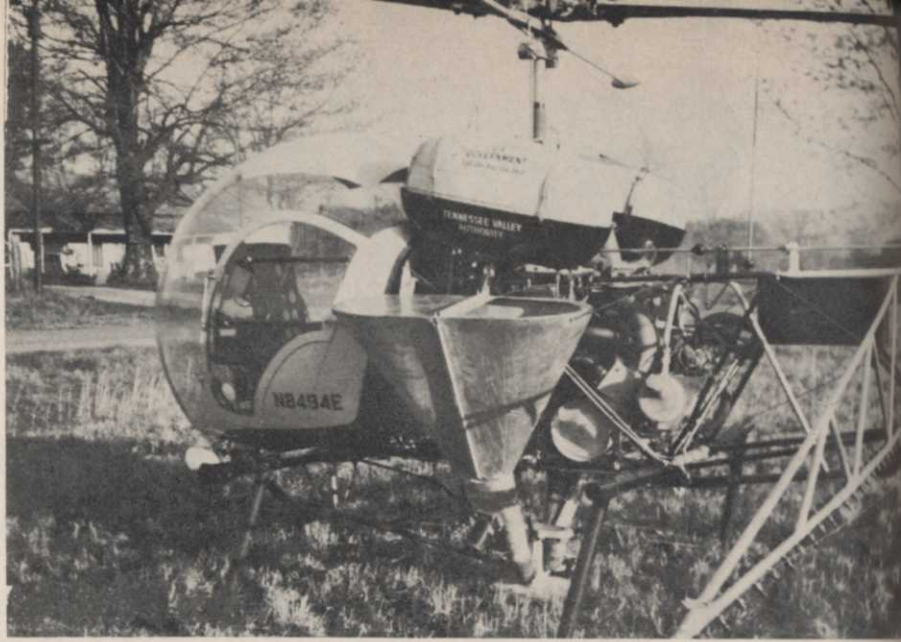
*Method 1:* Fill the spreader half full with granules. Weigh both the spreader and the granules and record their total weight. Adjust the spreader's output rate to an approximate setting and operate it over the

lineal feet (F) marked for the test plot. Again, weigh the spreader and its contents. Subtract the second weighing from the first; the answer will be the number of pounds of granules you applied on 100 sq. ft. If the weight of material applied is more or less than the desired or recommended rate, readjust the spreader's output and make another test run until the correct setting is established.

*Method 2:* Construct a light-weight metal pan 2 inches deep, 6 inches wide, and of sufficient length to fit between the wheels of the spreader. Drill a hole in each corner of the pan and fasten a piece of wire in each hole. This pan then can be hung beneath the spreader and should catch all of the granules. Next, determine the desired rate of product application (from label or other recommendations) per 100 sq. ft. Fill the spreader half full of material and operate it over the lineal distance (F). Weigh the granules caught in the pan (do not include the pan's weight). If the amount of material is more or less than the recommended rate per 100 sq. ft., reset the spreader and make another test run until the correct setting is established.

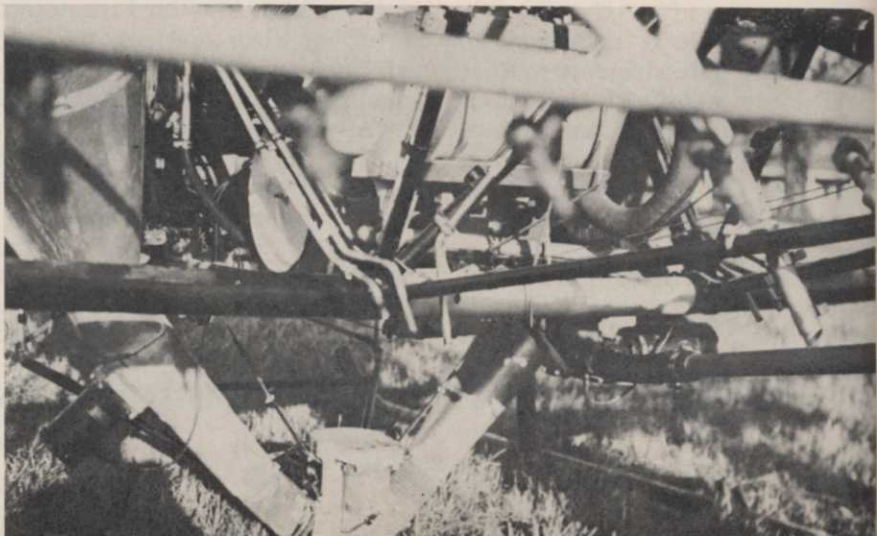
*Method 3:* Agitators of most hand-pushed spreaders are driven by one wheel only. Find the wheel that drives the agitator and drill a 1/4-inch hole near its outside edge. Fasten a 1/4-inch  
(Continued on page 36)

A Bell helicopter (right) is equipped with two 60-gallon bins that tote pelleted material which is fed through chutes to a centrifugal spreader.



Pellets scattered (above) from the Bell helicopter fall in a rather uniform pattern. Density is compared with the 3" x 5" filing card.

Three-inch flexible chutes (right) carry granules from side bins to a centrifugal disk that spins at 225 rpm and spreads the pellets.



Results of  
TVA Tests  
with  
Helicopters to  
Spread Pellets  
for  
Rights-of-way  
Brush

Helicopter crews maneuver their craft with great agility along the right-of-way of a 500-kilovolt power line near Madison, Ala.

Report by

R. A. MANN

Tennessee Valley Authority  
Chattanooga, Tennessee

CAN a helicopter spread pellets in a uniform and satisfactory pattern on transmission line rights-of-way? Will the pellet material be effective for stump treatment on cleared construction and on lines where brush is established?

To answer these questions, the Tennessee Valley Authority set up 1-acre test plots. Nine plots were arranged along the right-of-way of a 500 kilovolt line under construction, and nine more were laid out along the right-of-way of a 161 kilovolt line. There was considerable brush cover under the 161-kv line even though it had been treated with chemical. The plots were established in an area between Huntsville and Scottsboro, Alabama. Pellets were applied with a Bell model 47G-3B helicopter equipped with a supercharged Lycoming engine. The helicopter was rigged with a variable speed, centrifugal disk that spread the pellets and two 60-gallon saddle-back tanks, each with 3-inch flexible chutes to the disk.

Pellets were checked for caking before loading. Then they were loaded on the helicopter by using buckets, and little time was wasted on the ground. Pellet



materials used were Dybar (25% active) applied at 60, 80, and 100 lbs./A, Urab (25% active) at 60, 80, and 100 lbs./A., and Tordon 10K (10% active) applied at 80, 100, and 120 lbs./A. Approximately 14,000 pellets weigh one pound, if the pellets range from  $\frac{1}{8}$  in. to  $\frac{5}{32}$  in. Applied at the rate of 100 lbs./A., about 32 pellets would be spread in each square foot. To spread pellets at a 50-foot swath, the centrifugal disk is spun at its maximum speed, 225 rounds per minute. The pilot was able to start and stop the flow of granules from the helicopter very efficiently, and the pellets were applied even up to the edges of the rights-of-way.

#### Ground Control Maintained

If pellets caked or clogged the disk, a ground observer told the pilot on a portable ground-to-air "walkie-talkie" system, and the pilot quickly landed and the malfunction was repaired. The radio equipment proved to be very helpful since errors and malfunctions could be discovered and corrected immediately.

The soil type of the test areas varied from red clay to gray silt loam; the terrain had rolling hills and a few limestone outcroppings. Pellets were applied on April 13 and 14, 1965. Size of the cleared plots along the 500-kv line were about 550 feet long and 150 wide. Along the 161-kv line, the plots were about 870 feet long and 100 feet wide. Rainfall for the two rights-of-way are shown in Table 1.

The number of plants, counted from Nov. 29 through Dec. 1, 1965, in the plots varied from a high of 35,432 to a low of 1,234 stems per acre. Weeds controlled are listed in Table 2. Chemicals applied at the high rates completely eradicated most species, and chemicals applied at low rates resulted in high stem counts. These plots will be evaluated again late in 1966 and in 1967, if necessary, to determine the effectiveness of the various rates and whether they will be economical for brush control.

Let's consider the advantages and disadvantages of applying pellets for brush control by helicopter. Since no special ground

**Table 1. Rainfall data taken along two rights-of-way from December 1964 to November 1965.**

Pellet Plots on Widows Creek—Huntsville 161-Kv Line

Pellet Plots on Widows Creek—Madison 500-Kv Line

	<u>Scottsboro</u>	<u>Hyton</u>	<u>Paint Rock</u>	<u>AVERAGE</u>		<u>New Market</u>	<u>Monte Sano</u>	<u>Bingham Mt.</u>	<u>AVERAGE</u>
December 1964	4.40	5.09	4.27	4.58	December 1964	3.43	4.35	4.81	4.20
January 1965	3.71	4.85	4.03	4.20	January 1965	3.11	4.37	4.58	4.02
February	6.32	9.35	6.97	7.55	February	5.06	6.75	7.20	6.34
March	13.27	11.58	10.84	11.90	March	9.06	10.89	11.66	10.54
April	3.39	3.80	2.60	3.26	April	4.37	2.62	3.60	3.53
May	1.29	4.10	5.08	3.49	May	2.96	1.21	2.77	2.31
June	8.17	6.54	4.45	6.38	June	5.40	5.79	5.18	5.46
July	5.93	8.91	5.19	6.67	July	6.43	5.33	6.80	6.19
August	4.15	4.81	2.83	3.93	August	2.63	1.83	3.00	2.49
September	5.10	2.37	2.62	3.36	September	3.30	3.52	2.33	3.05
October	0.73	2.85	1.82	1.80	October	1.91	2.69	1.98	2.19
November	1.32	0.97	1.34	1.21	November	1.46	1.19	0.96	1.20
TOTAL	57.78	65.22	52.04	58.35	TOTAL	49.12	50.54	54.87	51.51

equipment is required to service the helicopter, the first advantage is that the overall equipment cost is relatively low. Pellets can be applied during the entire day in winds of up to 12 miles per hour. The pelleted material is nonvolatile and can be applied in rough or in inaccessible areas. Pellets can be applied from a helicopter before it is needed for the work during the foliage spray season.

On the other hand, some of the disadvantages of applying pellets by helicopter begin with cost. At the present time, pellets are more expensive than liquid

materials for equivalent brush control. There is minor kill of brush off of the right-of-way, because the chemical released from the granules affects the roots of plants that extend within the right-of-way. Also, in order for the chemical to be washed from the granules onto the plants, adequate rainfall is a necessity. A higher and heavier pellet application rate would be required for heavy soil than that required for porous, sandy, well-drained soil, since the active ingredients must penetrate the soil and be absorbed through the

roots. Two or three years are required for kill of some species. However, there is no need for a quick kill of brush, because the growth of most species is retarded, and the plants are ultimately killed.

Pellets were applied evenly, and we believe that helicopter application will do an excellent job at a reasonable cost if pellets can be formulated at a cost comparable to the liquid ester formulation for an equal kill. Pellet application by helicopter will be a valuable tool for brush control work.

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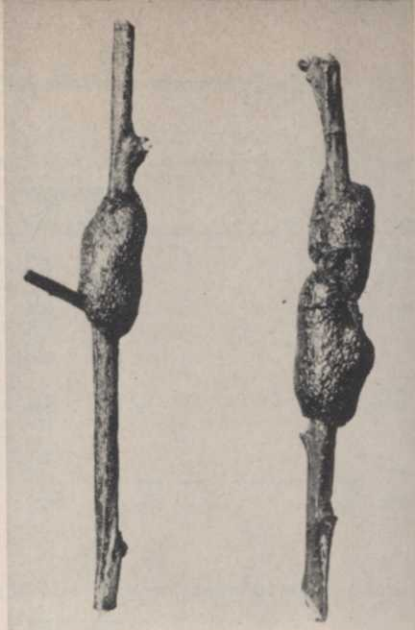
R.D. #2 BINGHAMTON, N.Y.







Tent of the eastern tent caterpillar is stretched from branch to branch within the fork of a wild cherry tree. Seven hundred or more gregarious larvae may retreat into a single nest.



Bandlike collars around branches and twigs of host plants are formed by egg masses of the eastern tent caterpillar. Each mass is laid by the female moth as a flowing packet of from 150 to 350 eggs, and later the egg mass becomes solid.

### Meet Those Webbing Defoliators of Trees and Flowering Plants

# Eastern Tent Caterpillars

**E**ASTERN tent caterpillars, *Malacosoma americanum* (Fabricius), have plagued U. S. greenery since 1646 and periodically, every 10 years or so, become so abundant that they completely defoliate unsprayed orchard and shade trees and other flowering plants. Leaves of wild cherry and apple trees are most favored, but other plants such as roses, pear, plum, peach, and shade trees are ravaged particularly when the favored food supply is exhausted.

Damage by these gregarious beasts weakens trees, and repeated defoliation along with other stresses ultimately kills the plant host.

#### Twig Collars Hold Moth's Eggs

This insect passes the winter in egg masses that form bandlike collars around the twigs or branches of the host. Egg masses are about  $\frac{3}{4}$  inch long and contain from 150 to 350 eggs. In the spring when small, tender leaves begin to unfold, larvae hatch from the eggs and crawl to a nearby tree crotch. There, a larval colony is formed and is

often composed of the young from several egg masses.

Soon larvae construct a tent of silk enlarging it as they grow. The tent is used for a retreat at night and during rainy or cool weather. From their nest, the larvae sally forth on the tender, spring foliage and feed at regular intervals trailing threads of silk along their path. Branches between the tent and feeding sites frequently are incased by silken strands left along trails of the busy caterpillars.

The fuzzy larvae are fully grown in about six weeks and quit the community habit. At this time they are about 2 inches long with a white stripe down the back bordered by reddish-brown patches and blue spots on the sides. Larvae scatter from the tree nest and spin white cocoons in which they transform to brown pupae. Cocoons are about 1 inch long and are usually found on the tree trunk or some nearby object.

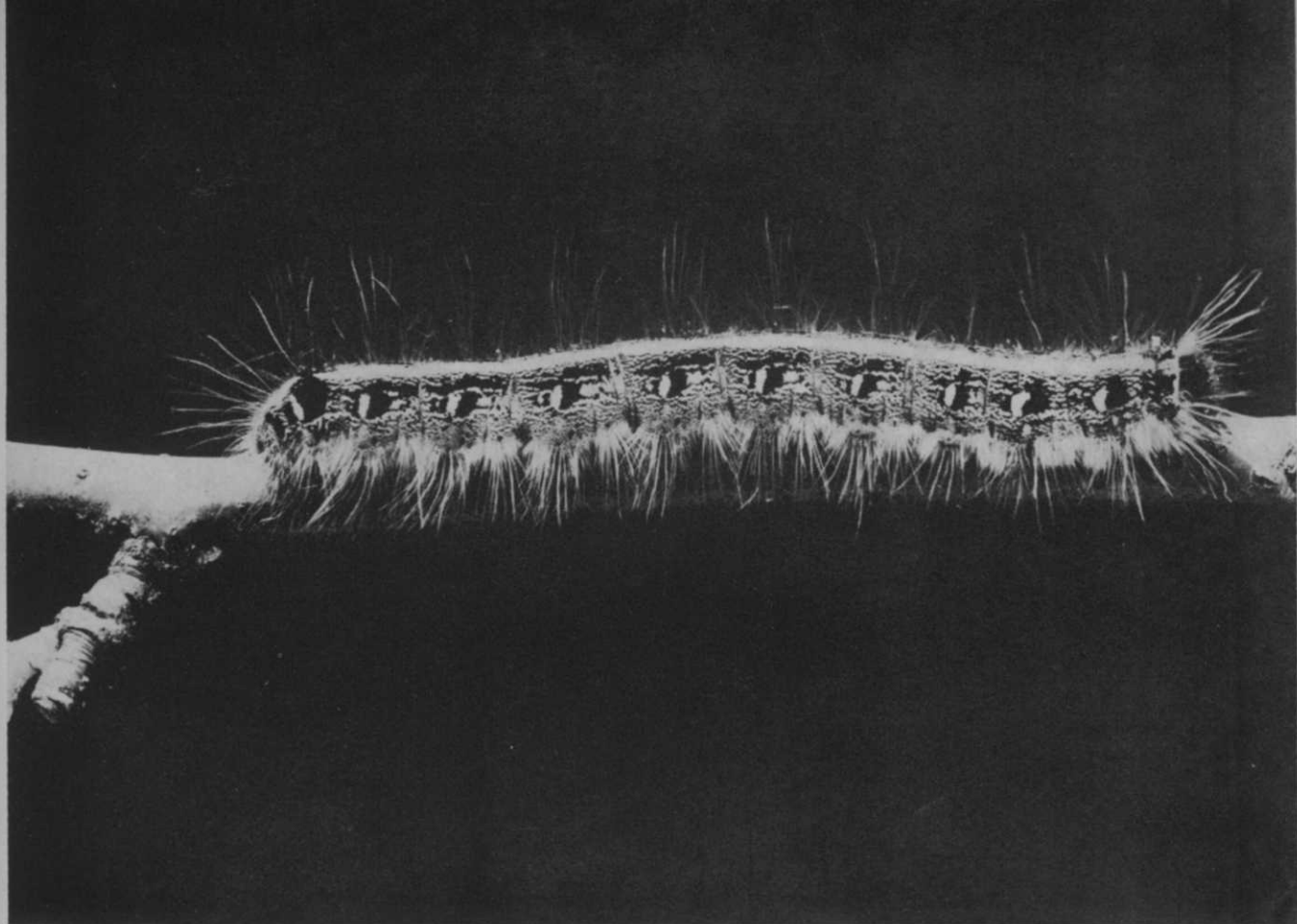
Ten days to three weeks after pupation, adult moths emerge from cocoons. Adults are light, reddish brown with two white stripes across each forewing. In

early summer, females lay eggs on twigs and branches for the next season's generation which remains in the egg stage for about nine months.

#### Kill Winter Eggs Or Summer Larvae

Eastern tent caterpillars often are abundant each year in one or more localities which frequently cover considerable territory. Several methods of control are recommended. Egg clusters are easily seen and can be pruned out and burned in the winter. In early summer, nests are removed from trees and burned by winding them up on the brushy tip of a pole and putting them into a fire.

Chemicals are applied in the spring as soon as nests are large enough to be seen. Wettable powder DDT, methoxychlor, chlordane, carbaryl (Sevin) or malathion at 1 lb., or toxaphene at 1.2 lbs. per 100 gals. of spray or 3 lbs. of lead arsenate with 3 lbs. of hydrated lime to 100 gals. of spray will give satisfactory control. If infestations are heavy, wild cherry should not be allowed to grow within a quarter-mile of protected plants.



**Spotted markings** on the side of the larva and a white stripe on its back identify the eastern tent caterpillar.

**Tree entirely stripped** of foliage supports only the silken tent of eastern tent caterpillars since they have moved on to ravage the leaves of another tree nearby.

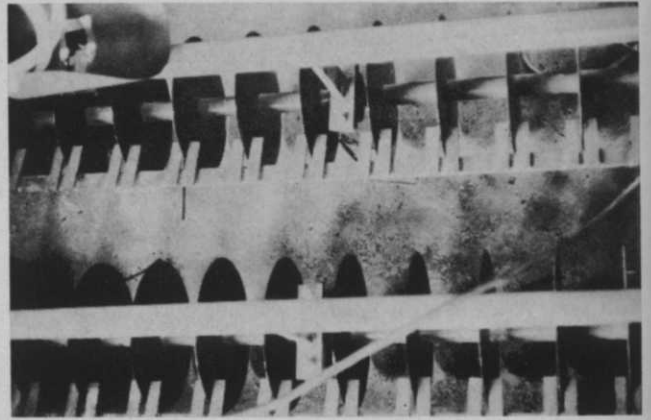


**Threads of spun silk** stretched along trunk of wild cherry tree show paths of tent caterpillars from community tent nest to feeding sites in upper branches.





Fully automatic turf planter, used for golf course fairways and other large turf areas, scatter sprigs uniformly and is self-feeding.



Inside view of the automatic, self-feeding planter shows two sets of disks that slice the soil and press sprigs into a groove.

## Automatic Machines, Efficiency, Good Turf Practices Combine to Overcome Rising Costs

By E. RAY JENSEN

Southern Turf Nurseries  
Tifton, Georgia

Nearly all progress in the field of planting grass in the South has been initiated with new hybrid bermudagrasses. Due to higher labor costs and customer demands for better results, improved methods have become a necessity. New planting techniques have reduced planting costs, given better stands, and accelerated turf coverage. Even though bermudagrass is still considered the workhorse of southern turf grasses, many of the methods used to plant it can be used also to plant other stoloniferous grasses.

### New Automatic Planter Feeds Itself

The newest development in fairway planting is a fully automatic, self-feeding machine. It has made planting golf course fairways and large turf areas much easier. Sod fed from a tray and rotating cylinder eliminates hand broadcasting, and the planter scatters sprigs uniformly over the soil. Sprigs are pressed in the soil by two sets of disks, and then the soil is packed by a heavy roller before the sprigs are exposed to the sun and dry weather. Track marks are almost nonexistent, since the machine is supported constantly

by disks and rollers except during turns. Its hopper has the rather large capacity to hold 100 bushels of sprigs, thus time consumed by reloading is shortened. Two good operators can plant up to 15 acres per day.

Many relatively small areas such as football fields, lawns, and tees are still planted by the unit commonly known as the Tifton Turf Planter. This is simply a tractor-drawn, straight disk-type planter that has two sets of 12-inch disks welded 4 inches apart to a 6-foot wide shaft. One set of disks is offset and trails the other. A flat roller is attached and follows to firm the soil around the freshly planted stolons. These units have been used to plant considerable amounts of grass.

The Tifton Turf Planter method, though much faster than older methods, still has the disadvantage of requiring hand labor to broadcast stolons. Also, the planter is not heavy enough to completely obliterate impressions left by the tractor wheels.

This is important where close mowing is required and where golf cart traffic is expected.

### Two-row Planter Inserts New Bermudagrasses

For introducing improved hybrid bermudagrasses into existing bermuda or weedy sods, a modified planter is presently the best available. Originally it was designed to plant coastal bermudagrass pastures. This machine is semi-automatic. It plants grass rows by splitting the old sod or grass surface with a coulter disk and winged-shoe. Stolons fall into the opened furrows which are then closed by slanted tires and pressed with rollers. A two-row planter of this type will cover up to six acres per day installing grass at 12-inch centers. Stands are somewhat more erratic than those planted by straight disk machines, and coverage in unprepared seedbeds is slower. The semi-automatic planter offers the direct advantage of allowing the fairway to remain in play. Also costs are reduced because the necessity for reworking old seedbeds is eliminated.

Newly planted hybrids become the dominant species within one to three years depending

on the degree of competition from older vegetation.

#### High Labor Costs Demand Efficiency

Other planting methods are numerous and vary from hand sprigging to "Rube Goldberg" automatics. Entire golf courses have been planted with tobacco and cabbage planters, but high labor costs and demands for quick results make economy and efficiency paramount.

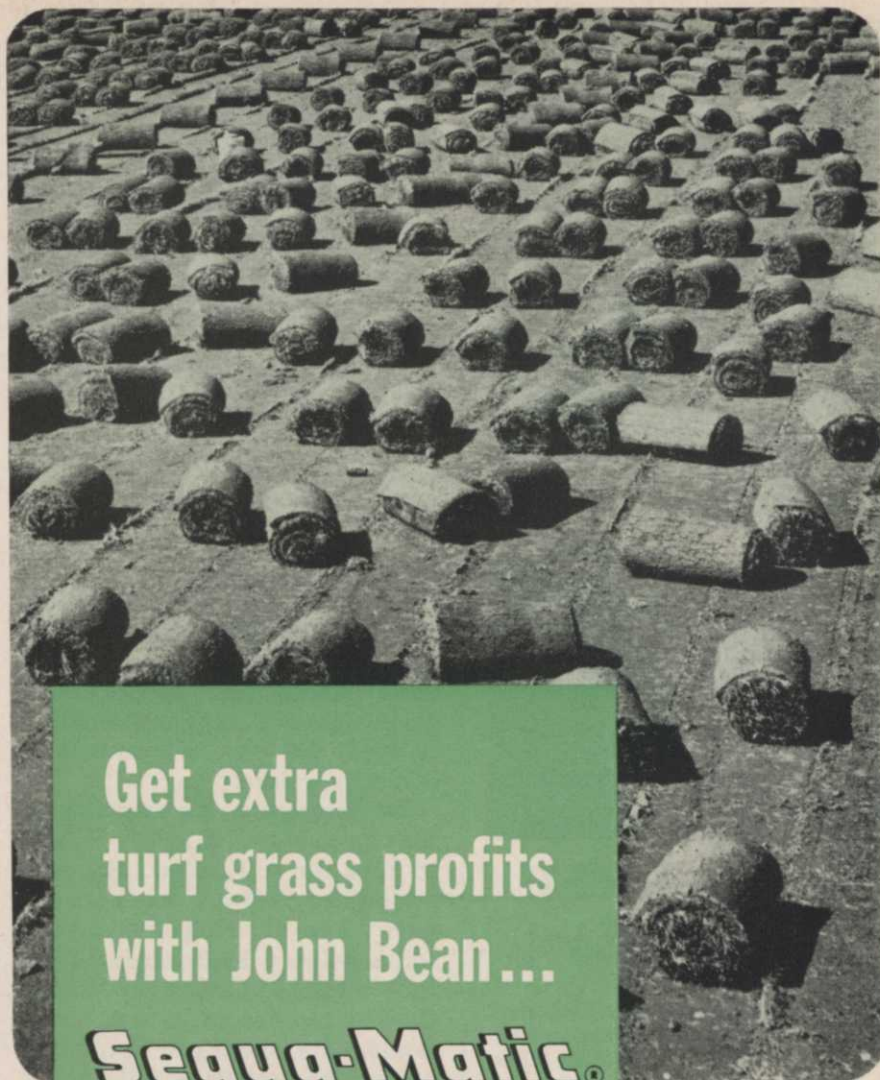
#### Land Prep, Plant Care Determines Success

Planting systems and machinery are important in getting the job done, but preplanting land preparation and postplanting maintenance are just as important. Regardless of the methods, failure is just around the corner unless sprigs are given a proper bed and care.

Points to remember are few and quite simple, yet we often see poor turf stands because basic rules are ignored. It is essential that sprigs be placed in the proper soil medium. Worked-up topsoil should be smooth and free of tracks. Sprigs need to be partially embedded beneath the soil surface. Soil should be soft enough for a disk or coulter to penetrate 1 to 2 inches, and new seedbeds need to be soft enough to permit uninhibited root growth during the early life of the plant.

Soil should be supplemented with fertilizer at 100 to 150 pounds of phosphorus and 150 to 200 pounds of potassium per acre, depending upon local soil requirements. Less nitrogen is required to start the plants, and 20 to 40 pounds of nitrogen per acre is usually adequate. We normally fertilize seedbeds with 800 to 1000 pounds of 5-10-15 per acre. Fertilizer should be scratched lightly into the upper 1 or 2 inches of topsoil. This can be done during the final "floating-cut" operation.

Heavy demand for nitrogen comes after the grass puts on new leaf growth. Within a week to ten days after planting, frequent but light applications of



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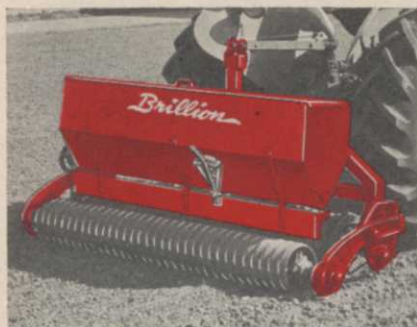
Sequa-Matic is a completely automatic, pressure actuated and operated system. It moves the sprinkling operation from the mainline to the end of the field, beginning simultaneously with the first sprinkler in each lateral. Since only one sprinkler per lateral operates at a time, economical small diameter pipe can be used. You set the sprinkling schedule you desire on the Sequence Timer Control. No further attention is required. Sequa-Matic gives optimum moisture control through maximum utilization of the water applied. The solid, grid-type installation means low labor costs, too. For more information and literature on Sequa-Matic for commercial turf installation, write to: Dept. 33

*Also, ask about Sequa-Matic plastic valves for underground systems.*

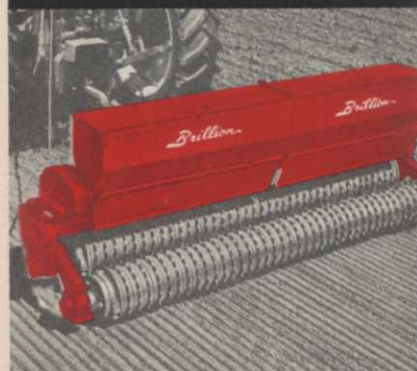


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Three weeks after planting Tifton dwarf bermudagrass, a dense mat of entwined turf begins to form on the course left level by the automatic sprig planter.

ammonium nitrate, or another fast-release form of nitrogen is needed. This additional nitrogen assures fast-growing and healthy turf. About four weeks after planting, we find it worth while to apply an extra 400 pounds of 5-10-15 per acre.

To determine the amounts of lime needed in the soil, it is best to have the soil tested. For bermudagrass, soil pH should range from 5.5 to 7.0. However, if your soil is below pH 6.0 (acidic) then lime applications are advisable. Usually one ton of lime per acre is adequate, and it can be applied before the fertilizer and should be harrowed 3 or 4 inches deep.

Grass should be irrigated within the first hour after it is planted and the soil kept moist continuously for two weeks.

The best planting time for bermudagrass is from March 1 to



Tifton dwarf bermudagrass sprigs were rolled immediately after being planted leaving the soil smooth and uncut.

## Natural Gas Harmless to Trees

In the article entitled "How to Diagnose Tree Diseases," WTT May '66, there appeared on page 28, a statement to the effect that heavy concentrations of natural gas is one of the factors which usually results in sudden death of a tree. Also in the same paragraph it was stated that natural gas leaks will make trees become progressively weaker over a period of years.

Dr. Pirone, who is listed as one of the co-authors of this article, advised the publisher that he is not in agreement with these statements and that on the contrary, he has on numerous occasions gone on record in support of the position that natural gas does not affect trees.

November 1 in the Deep South, and April 15 to September 1 in the Middle South. Bermudas planted too late may suffer winter kill, and those planted too early may rot in the cold soil before they take root. Extremely late or early plantings are risks that always should be avoided.

## 30 Graduate From PSU Turfgrass Course

Representatives from 10 states and 2 Canadian provinces made up the graduating class of 30 students who completed work this spring in the Pennsylvania State University Turfgrass Management Winter Course.

Since the first course started in 1957, over 80% of the graduates have found employment in turf maintenance or a related field. The Turfgrass Management Winter Course consists of two eight-week terms a year in each of two years. Six-month summer periods between the second and third terms are used for on-the-job training.

Individuals with turf maintenance experience are given priority in admission to the course. High school graduates are also

given priority, but non-graduates are considered eligible if they are over 21 years old with at least three-years' experience. Approximate cost of tuition, room and board, and books is \$1700 for state residents and \$2225 for out-of-staters.

Applications for the next course, beginning Oct. 10, are now being received. For a brochure describing the course and an application blank for admission, write Director of Short Courses, Room 206, Armsby Bldg., University Park, Penn. 16802.

### Five Tips for Better Turf Management

Effective chemical control of lawn diseases is a must, but the best way to grow healthy grass is to follow a few simple rules that will prevent disease from getting a foothold, Emroy Shannon, plant pathologist with New Mexico State University Cooperative Extension Service advises.

He outlines five turf management practices that will help avoid lawn disease problems.

1. Select an adapted variety grass when planting turf. As an example, Shannon points out that bermudagrass grows best in southern New Mexico, while bluegrass does well in the northern part of the state but poorly in the southern part.

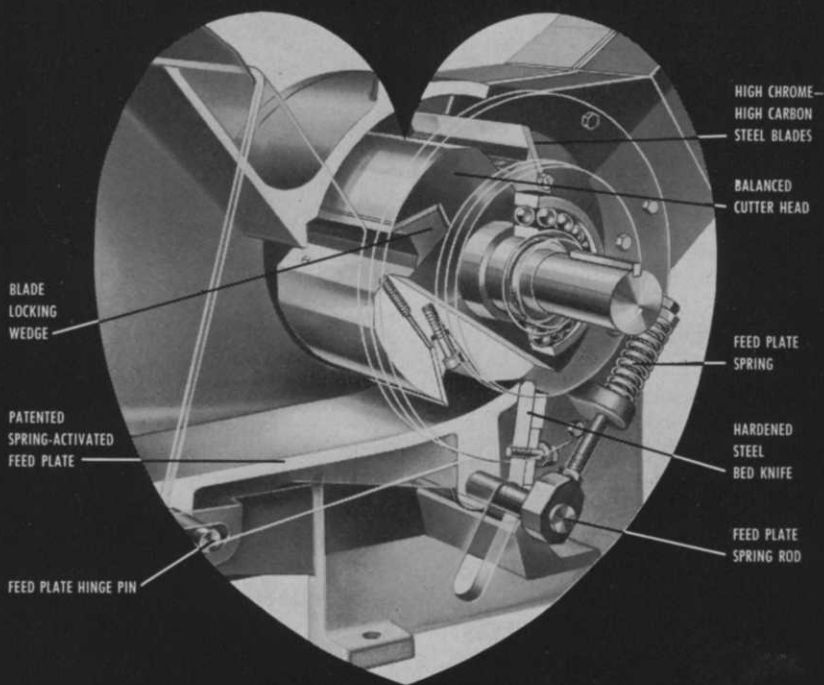
2. Fertilize to keep grass growing vigorously, but avoid too much nitrogen, which causes grass to grow too fast and become weak.

3. Let the grass start to wilt before watering, and then water enough to soak the soil 6 inches or more. Shannon notes that light, daily waterings set up ideal conditions for disease.

4. Do not allow clippings to accumulate. These provide food for fungus diseases and keep the turf humid, a condition that fosters disease.

5. Mow turf before it gets too tall. And then cut off no more than one-half of the leaf surface at one mowing.

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## Maryland Turfmen Strengthen Association

More than 40 Maryland sod growers, marketers, and installers recently authorized acceptance of a proposed constitution and bylaws, and voted to apply for incorporation of their newly organized Maryland Turfgrass Association.

Adopted bylaws call for an executive committee made up of four officers, the immediate past president, and six directors elected from the membership. Until the association's first annual meeting in December, five members of the bylaws committee are to serve as the executive committee.

Officers chosen from the bylaws committee will be led by acting president Parker Shirling, manager of Princeton Turf Farm, Centerville, Md. Other temporary officers include Winton Osborne, Harford Sod Co., Fallston, vice president; Dr. Elwyn Deal, turfgrass specialist, University of Maryland, secretary; Emory Patton, P. R. Patton and Sons, Silver Spring, treasurer; and committeeman Edward F. Mayne, Mayne Realty, Olney.

Active membership in the



Executive committee members of the newly organized Maryland Turfgrass Association work together here on proposed bylaws for the association at their recent formation meeting at the University of Maryland. They are (left to right) Winton Osborne, Fallston, vice president; Emory Patton, Silver Spring, treasurer; Parker Shirling, Centerville, president; Dr. Elwyn Deal, University of Maryland turfgrass specialist, secretary; and Edward Mayne, Olney, committee member. All will serve in a temporary capacity until the group's first annual meeting in December.

association is open to individuals or companies actively engaged in sod production, marketing, or installation in Maryland. Up to three memberships are open to individuals or companies, with annual dues of \$50 for each membership.

Association goals as listed in the bylaws include encouragement of an interchange of scientific information and practical knowledge relating to sod production, marketing, and installa-

tion. Other goals are to encourage cooperation with associations with parallel interests, and to promote justice and education to and for sod association members.

## 2nd Hawaii Turfgrass Meet Scheduled for Aug. 25-26

Two days of practical sessions and how-to-do-it demonstrations will mark the 2nd Annual Turfgrass Management Conference at the University of Hawaii in Honolulu, Aug. 25-26.

More than 150 delegates are expected to convene in Kuykendall Hall for this year's conference, sponsored by the University of Hawaii's College of Tropical Agriculture and the Turfgrass Association of Oahu. Included will be talks on weed identification and control, herbicide selection and application, spray techniques, and research in turfgrass weed control. Question and answer panels will provide valuable help by focusing on problem areas of turfmen. Of interest to delegates will be the exhibits and tours planned for the conference.

A number of mainlanders are expected to attend the meet. Edwin B. Andresen, conference chairman, can provide further details. Write him at Hawaii Dept. of Transportation, Highways Div., Oahu District, 721 Kelikoi St., Honolulu, Hawaii 96813.



Consumer education pertaining to sod quality is emphasized by the Nursery Sod Growers Association of Ontario, headquartered in Stouffville, Ont., Canada. The association's board of directors assembled here include, seated (left to right), W. L. Campbell, Fairlawn Sod Nursery Ltd. (past president) and F. Watts, Frank Watts Sod and Seed Co., Ltd. (president). Directors standing are (left to right): J. DiCecca, Waterdown Sod Supply; M. Wynnyk, Wynnyk and Nosad; W. J. Berger, Bluegrass Turf Farms Ltd.; and W. B. Black, Braeheid Sod Supply Ltd. Started in 1960, the association presently represents growers who sell approximately 80% of all sod produced in Ontario, and approximately 60% of all sod produced in Canada.





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## How to Calibrate Hand-carried, Truck-mounted Granular Spreaders (from page 12)

the spreader. Mark your starting point and where the granules are depleted at the end of the test run. Measure the distance between these two points, and multiply it by the width of the spreader's swath. The answer will be the area of the treated plot in square feet.

$$\begin{aligned} &\text{Length of test run (ft.)} \times \\ &\quad \text{Width of swath (ft.)} \\ &= \text{Sq. ft. treated (A)} \end{aligned}$$

Now the actual application rate can be computed by using the following formula.

$$\begin{aligned} &\frac{\text{Weight of pesticide (W)}}{\text{Area covered in trial (A)}} \\ &= (P) \text{ pesticide lbs./sq. ft.} \end{aligned}$$

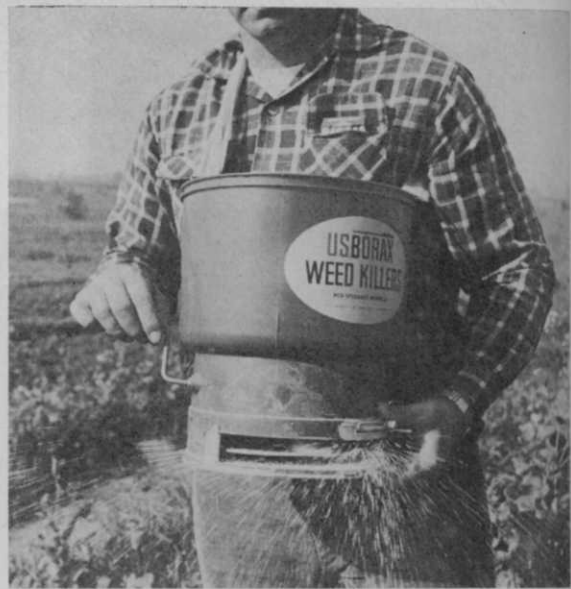
To compare the actual rate with the recommended rate in terms of lbs./100 sq. ft., multiply the answer (P) by 100. To express the actual rate in terms of lbs./A., multiply (P) by 43,560. If the actual rate of the trial is not correct, pour the pesticide from the cloth bag back into the spreader, and repeat the trials until the recommended rate is obtained. When the actual rate from a trial is low, increase the discharge from the spreader or decrease the travel speed. When the actual rate is high, decrease the discharge or increase the speed.

### Calibrate Truck-mounted Spreaders with a Tarp

Because of the larger equipment, calibration of truck- or tractor-mounted power spreaders is slightly different than adjusting hand-carried spreaders. A light tarpaulin will be needed to catch the discharged granules as was the cloth bag for the smaller spreader. Fasten the tarp to the bottom of the spreader or to the back of the truck body. Then drape the tarp around the sides of the spreader forming a hammock that will catch the flying granules which should be retained during trial runs.

Since the width of swath is greater with such power equipment, a larger test area and hence more pesticide in each

**Hand-carried granule spreaders are calibrated by moving only a few adjustment knobs, one under this operator's thumb. Walking speed or the spreader's output can be changed to assure the proper application rate.**



trial will be necessary. Use 5% to 10% of the quantity recommended per acre or enough to cover about 3,000 to 5,000 square feet. Again, note the weight of granules used, measure the distance of the trial run, compute the area covered, and convert to lbs./100 sq. ft. or lbs./A. as previously described. Compare the actual output rate with the recommended rate and either increase or decrease the discharge rate, or change travel speed so that actual discharge matches the desired rate.

### Seed Drills Calibrated

If a drill-type seeder is used to distribute pesticide on or beside a row of plants, essentially the same procedure should be used. Note whether the "Directions For Use" on the pesticide container express application rate as lbs./A., lbs./100 lineal feet, or lbs./1,000 lineal feet of row. In any case, granules can be caught in cans secured over the ends of each tube.

Weigh the pesticide caught in the can, but not the can. Divide the weight by the length of the row along which the test run was made. The answer is lbs./lineal foot. Multiply this by 100 to get the rate in lbs./100 ft., or 1,000 to get 1,000 lineal ft.

If only one drill tube is used during the trial runs, multiply the actual rate obtained, per lineal feet, by the number of drill tubes on the seeder to get the

total discharger rate for the entire seeder unit (T). Multiply the recommended rate, per lineal feet, by the number of drill tubes to get the total rate for the entire seeder unit (R). Compare the actual discharge (T) with the total recommended for that seeder (R). If they are not equal, repeat with trial runs until the output equals the recommended dose. This can be done by increasing or decreasing the discharge of all the drill tubes or by changing the travel speed.

As more chemicals are developed and as regulations governing their use become more stringent, it becomes increasingly important to accurately follow label directions for use. Making certain that application equipment is properly calibrated will not only save you money on the cost of pesticides, but it will help assure the proper results and conformity with regulations where they exist.

### Purdue Offers Tree Guide

Yard tree planting tips illustrated with diagrams to show correct planting mixtures and bracing, trimming, and placement techniques, are offered in "Planting Yard Trees," an information piece now available from Purdue University.

For a copy of the tree planting guide, ask for publication HO-43, Agricultural Publications, AES Building, Purdue University, West Lafayette, Ind. 47907.

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## PRICKLY LETTUCE

(*Lactuca scariola*)



Prickly lettuce, also known as wild lettuce, compass plant, milk thistle, horse thistle, and wild opium, commonly grows along roadsides and fence rows, and in wastelands, usually in light, dry soils. This species is also found in meadows and gardens.

Introduced from Europe, prickly lettuce has become widespread in the northern United States and southern Canada. The plant is an annual or winter annual and reproduces by seeds.

Stems are erect, growing from 2 to 6 feet tall. Stiff, hollow stems are prickly on the lower part (1) and contain a milky juice. The taproot is large and stalky, and has few branches.

Bluish green leaves grow alternately from the stem, and have prickles on the lower surface of the midrib and the leaf edges. Lower leaves are lobed and tend to twist upwards from the stem. Upper leaves are small and straighter.

Yellow ray flowers, growing in the upper part of the plant (2), are about 3/16 inch across and occur in open terminal clusters.

Dark-brown, flattened seeds (3) are contained in mature flowers. One plant may produce 27,000 seeds. Seeds are about 3 mm. long, are vertically ridged, and bear a tuft of white bristles (called the parachute) at the upper end. Seeds are occasionally found in grass seed.

Prickly lettuce can be controlled by application of 1/2 - to 3/4 -lb. of 2,4-D acid per acre to young plants.

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

## PSU Primer Offers Basic Pesticide Facts

"Pest Control, Pesticides, and People," a circular just completed by the Agricultural Extension Service, Pennsylvania State University, is designed to inform the public on pesticides. But its easy-to-understand contents should have value to WTT readers as well.

Attractively designed in magazine style, the circular distills a kaleidoscopic view of pesticides into a short, unvarnished story, according to Herbert Cole, Jr., agricultural chemicals coordinator at the University.

In 13 brief chapters, the information piece tells of legal controls, the proper and safe use of pesticides, and efforts to improve pest control methods while reducing their hazards.

Copies are available from Agricultural Extension Service, The Pennsylvania State University, University Park, Pennsylvania.

## Purdue Tours to Highlight '66 Midwest Nurserymen Meet

Four days of tours, talks, and research shows are included in the 1966 Midwest Nurserymen's Summer Meeting plans. Starting Monday, August 8, the program on Purdue University campus in West Lafayette, Ind., will give nurserymen a close look at Purdue horticultural facilities.

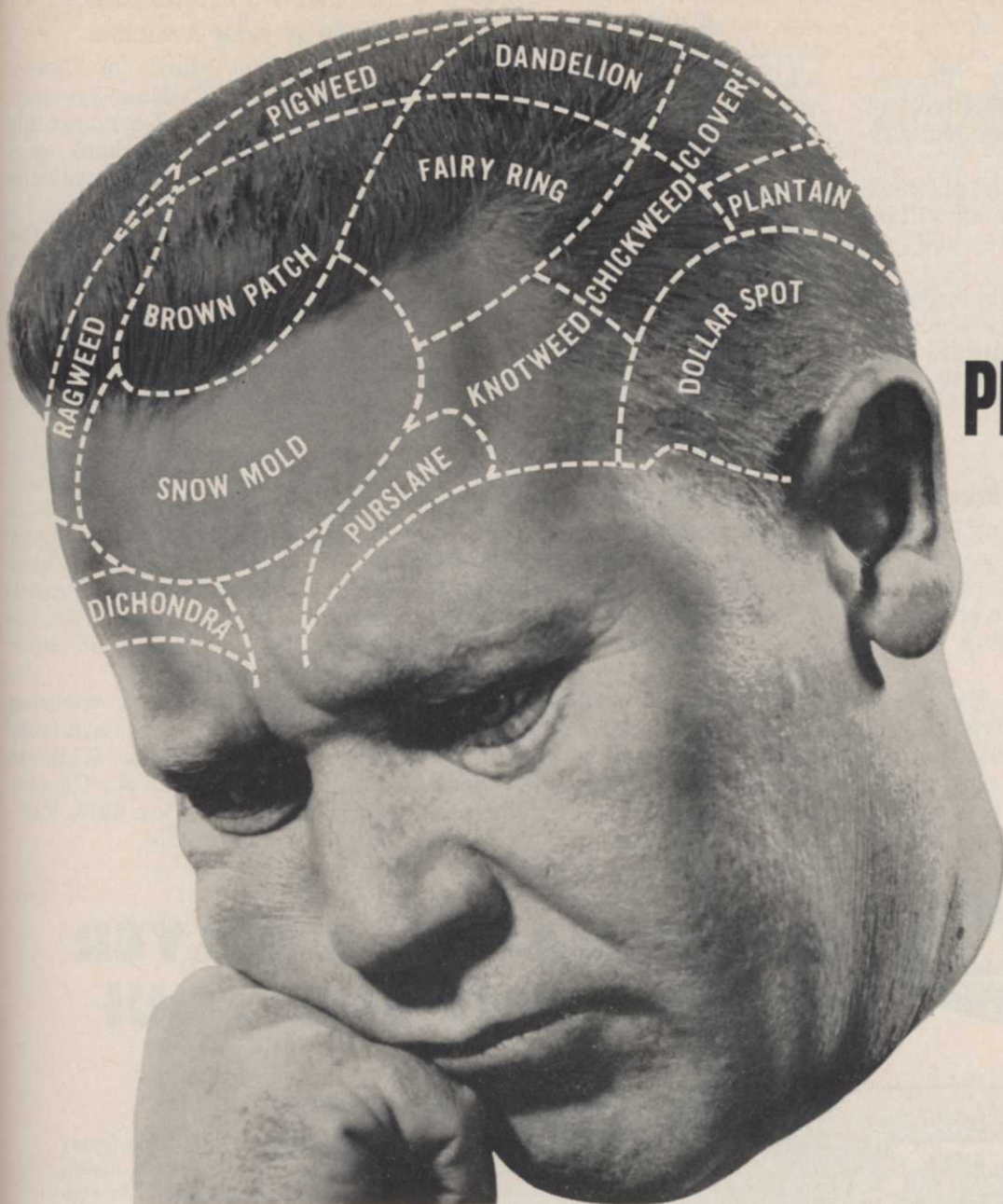
Meeting hosts are the Indiana Association of Nurserymen, in cooperation with the Purdue Department of Horticulture.

Highlights of the event will be the tours through Purdue's horticultural research projects.

After registration Monday morning, delegates may take the afternoon to view equipment demonstrations by exhibitors. Then on Tuesday the slate of events includes landscape tours of residences, businesses and industries, and a tour through the Purdue research farm. Delegates will also see research in progress on chemical weed control and mulch.

Purdue tours Wednesday will show delegates research laboratories, greenhouses, controlled

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environment chambers, and the school's turf research plots.

On Thursday, Aug. 11, speakers will discuss "Present and Future Impact of Highway Beautification on the Nursery Industry."

A ladies program is planned, and family entertainment will be available at Purdue and in Lafayette.

Write for registration information to Dr. Donald L. Schuder, Agriculture Hall, Purdue University, West Lafayette, Ind. 47907.

### Weed Control Helps Young Trees Endure Drouth

As many tree planting projects fail from inadequate control of weeds as from improper planting techniques, inadequate site preparation, or the planting of unadapted species.

Marvin W. Smith, Extension forester at the University of Minnesota, points out that in some seasons and in certain regions, precipitation can barely support tree growth. As a result,

he explains, unwanted vegetation on planting sites seriously threatens the young tree seedling which is forced to compete with weeds and grasses for soil moisture, nutrients and growing space.

Effective weed control in windbreaks, shelterbelts, Christmas tree plantings, and forest plantations can be accomplished through either mechanical cultivation or the use of herbicides.

Mechanical weed control methods do have the disadvantage of causing injury to root systems of trees, and they can be delayed because of wet weather. Repeated cultivations can be expensive.

Of the new selective chemical herbicides developed in recent years, Simazine and Amazine are perhaps the most popular, Smith says.

Simazine acts against a broad spectrum of grasses and broad-leaved weeds, and is safe for use around most trees and shrub species planted in windbreaks and forest plantations.

### Chemagro Phytotoxicity Study Is Now Available

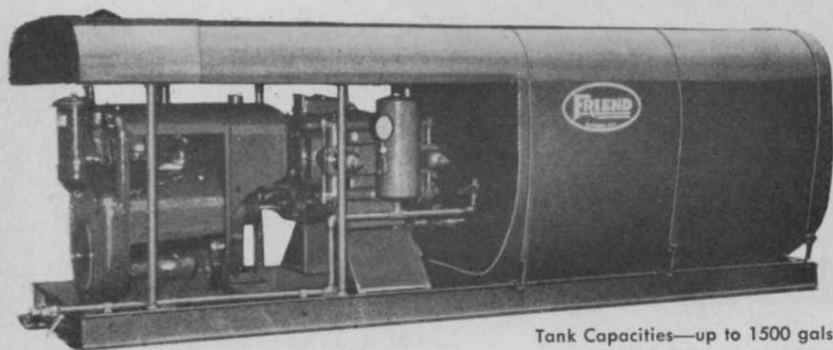
Phytotoxic effects of Dexon, Morestan, and Meta-Systox-R on a wide group of ornamentals are shown in a new book on a recently completed Chemagro Corp. study.

Plant tolerance toward the three chemicals is presented in the 48-page book, prepared by Monrovia Nursery Co., in cooperation with Chemagro. Research director Conrad Skimina of Monrovia, conceived and conducted the tests.

Dexon is a non mercurial fungicide; Morestan, a carbonate miticide; and Meta-Systox-R, a foliar-applied systemic. Over 800 varieties of ornamental plants and shrubs were tested, including azaleas, camellias, conifers, ferns, palms, and some broad leaf plants.

Copies of the book covering the joint study are available free to WTT readers. Write to Public Relations Dept., Chemagro Corp., P. O. Box 4913, Kansas City, Mo. 64120.

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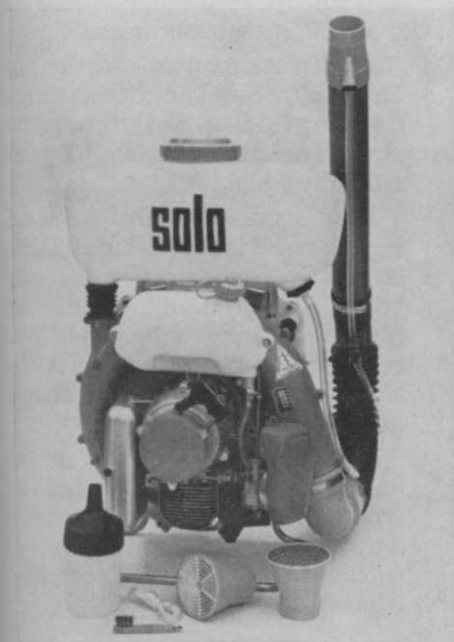
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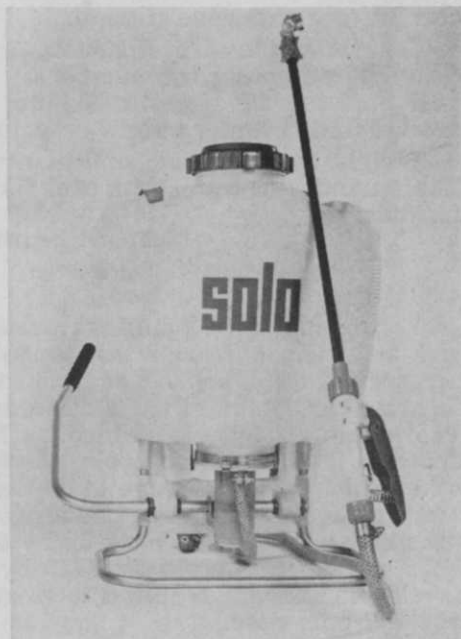


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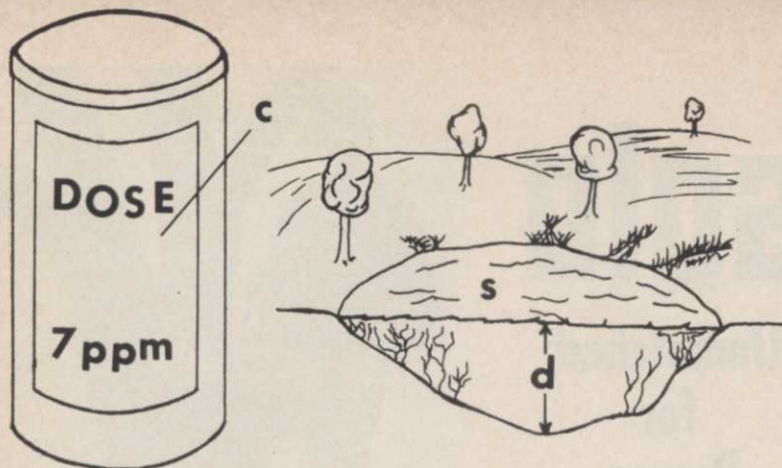
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## How to Calculate Parts per million (ppm) in Pounds or Gallons for Chemical Aquatic Weed Control

Accurate calculation of aquatic herbicide rates in pounds or gallons from "parts per million" (ppm) recommendations to treat a given pool (lake or pond) will lead to more economical operation and prevent excessive treatment.

Determination of pool surface area (*s*) is critical. This can be done by estimating the number of acres or parts of acres on a pool surface. Pool depth (*d*) and dosage in ppm (*c*) are also needed to determine weight or volume rates.

Weight (pounds) of chemical necessary for treatment of the total quantity of water in a pool is calculated with the following formula.

$$\text{Pounds required} = \frac{\text{pool depth}}{2} \times \text{ppm desired} \times 2.71 \times \text{surface acres}$$

For example, if 7 ppm is recommended for aquatic weed control, and the pool has a maximum depth of 12 feet with 5 surface acres, then 569.1 pounds of toxicant are prescribed. Using the formula, the pounds of toxicant needed were calculated as follows. Pool depth (12 feet) is divided by 2; this gives an average pool depth (6 feet). In large pools, average depth is best determined by calculating the average of 15 depth measurements. Multiply the average depth (6 feet) by ppm desired (7 ppm) to get 42. Multiply the number of surface acres (5) by the constant 2.71; this gives a 13.55 value. Now multiply 13.55 by 42, and the answer is 569.1 pounds of toxicant required to treat a 5-acre pool, 12 feet deep, at the 7-ppm dose.

The volume (gallons) of chemical needed for treatment of the total quantity of water in a pool is calculated by using .325 as the constant instead of 2.71 used to determine weight.

$$\text{Gallons needed} = \frac{\text{pool depth}}{2} \times \text{ppm desired} \times .325 \times \text{number of surface acres}$$

If 7 ppm is recommended for aquatic weed control, and a pool with 5 surface acres has a maximum depth of 12 feet, 68.25 gallons of chemical are needed. Gallons of chemical were calculated by first dividing the pool depth (12 feet) by 2; this gives the average pool depth (6 feet). Multiply the average depth (6 feet) by ppm desired (7 ppm) to get 42. Multiply the number of surface acres (5) by the constant .325; this gives a value of 1.625. Now multiply 1.625 by 42, and the answer is 68.25 gallons of poison to treat a 5-acre pool, 12 feet deep, at a 7-ppm dosage rate.

The "Constants," 2.71 (for weight) and .325 (for volume), are derived from calculations based on treatment of a one-acre pool, one foot deep.

## Cornell Tree, Shrub Recommendations Are Out

A comprehensive 40-page booklet with sections on tree and shrub insect and disease control, fertilizer recommendations, and insecticide uses has just been published by Cornell University.

"Cornell Recommendations for Trees and Shrubs—Commercial Production and Maintenance" was specially prepared for nurserymen, arborists, city foresters, agricultural chemical dealers, and others involved in commercial production, maintenance, and protection of shade trees and ornamental shrubs.

"Insect Control on Trees and Shrubs," by Dr. John A. Weidhaas, Jr., is one of the chief works in the handbook. This section gives insecticide dilution rates, a table of equivalents, a host plant guide to insect names, and control recommendations for over 130 insects and mites.

A disease control section by Dr. W. A. Sinclair discusses use of fungicides, soil fumigants, nematocides, and wetting and spreading agents.

In a section by Dr. A. M. S. Pridham titled "Other Difficulties in Growing Plants," controls for problem weeds are reviewed along with shade tree fertilization procedures. Correction for chlorotic conditions is also covered.

Available free, a copy of the handbook may be obtained by writing to Cooperative Extension Service, New York College of Agriculture, Cornell University, Ithaca, N. Y.

## Gives Gall Controls

"How to Control Galls on Shade Trees and Shrubs," is the title of an information sheet now available from Purdue University, West Lafayette, Ind. Illustrated with drawings of gall-infected plants and leaves, the sheet shows four gall types and gives control suggestions. For a copy, request publication E-56, April 1966, Agricultural Publications, AES Building, Purdue University, West Lafayette, Ind. 47907.



## CSU 3-Season Turf Study Gives Bluegrasses the Nod

Bluegrasses are generally better adapted to lawn needs in Colorado than bentgrass, fescue, zoysia, buffalograss or bermudagrass, John W. May, junior plant physiologist, and Dr. J. L. Fults, botanist at Colorado State University report.

Scientists at CSU have compared the grasses in tests at the school's Agricultural Experiment Station during the last three seasons.

One of the most promising of the new varieties tested is Windsor bluegrass. It combines many features of Merion with faster germination and rate of development. The turf is finer textured and lighter in color than Merion. It also shows a tolerance for drouth conditions. Tests indicated that Windsor is more resistant to rust than Merion, and resists disease as well as any of the high-quality bluegrasses.

Though Merion bluegrass establishment is slow initially, it consistently develops into a turf of high quality, the research team notes.

Merion was found to respond quickly to fertilizers and to resist leaf-spot diseases. It also tolerates close clippings better than most bluegrasses, and provides relatively uniform turf quality for many years.

Another grass variety found in the tests to be slow in establishing cover is Newport bluegrass. But it grows and maintains its color late in the fall, which

gives it an advantage for use on football fields and parks subjected to heavy fall traffic. This becomes a disadvantage in years when winter comes early, because the foliage is subject to winter kill.

In the 3-season study, Park bluegrass was found to respond quickly to fertilizer and to have vigorous seedling qualities.

## Penn. Plans Turf Survey

Plans for a comprehensive survey of the entire turfgrass industry in Pennsylvania were discussed at the recent annual meeting of the Pennsylvania Turfgrass Council in Harrisburg, Pa.

Director of Crop Reporting Service, Pennsylvania Dept. of Agriculture, Dewey O. Boster, explained the comprehensive study will use the same methods CRS uses to obtain data for other agricultural enterprises. Between 15 to 20 enumerators will collect data on a full-time basis, and results will be reported in a Crop and Livestock Annual Summary, published yearly by the State's Dept. of Agriculture.

A formal committee, appointed by Dr. L. H. Bull, Penn. Secretary of Agriculture, has developed questionnaires already for use by the enumerators. The survey should be of particular interest to industries engaged in production and marketing of turfgrass equipment, PTC executive director H. B. Musser noted.



Automatic chain lubrication is one of the improvements added to new Wright chain saw model C-40A. The device is activated from a worm gear with cam, directly from the saw crankshaft. A manual system may be used to override the unit if desired. The saw weighs 16½ lbs., and will take a 14-, 17-, and 21-inch hard nose bar and a 25-inch roller nose bar. For more details contact Wright Saw Div., Thomas Industries, Inc., 207 E. Broadway, Louisville, Ky.

## Meeting Dates



**American Association of Nurserymen, 91st Annual Convention,** Palmer House, Chicago, Ill., July 16-20.

**Annual Conference on Parks and Outdoor Recreation,** University of Oregon, Eugene, July 21-22.

**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 Horticultural Congress,** University of Maryland, College Park, Aug. 15-20.

**Penn State Turfgrass Field Day,** Pennsylvania State University, University Park, Aug. 17-18.

**Ohio Nurserymen's Assn., Summer Meeting,** Dayton, Aug. 17-19.

**Wisconsin Park and Recreation Assn., Summer Meeting,** Fish Creek, Aug. 18-19.

**Texas Assn. of Nurserymen, Annual Convention, Nursery and Garden Supply Show,** Dallas Memorial Auditorium, Dallas, Aug. 21-24.

**American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Joint Annual Meeting,** Oklahoma State University, Stillwater, Aug. 21-26.

**Hawaiian Turfgrass Management Conference,** University of Hawaii, Honolulu, Aug. 25-26.

**Penna. Grassland Council, Materials Handling Field Day,** John Rodgers (Plum Bottom) Farm, Belleville, Aug. 26.

**International Shade Tree Conference, 42nd Annual Convention,** Sheraton-Cleveland Hotel, Cleveland, Ohio, Aug. 28-Sept. 2.

**Northern Michigan Turfgrass Conference,** Traverse City Country Club, Traverse City, Sept. 13.

**Pacific Northwest Spraymen's Assn. Spray-O-Rama,** Thunderbird Motel, Portland, Oregon, Sept. 23-24.

## Lausche Addresses ISTC Cleveland Meet Next Month

Senator Frank J. Lausche, who urged Ohioans to "Plant Ohio" while he was governor, will keynote the 42nd International Shade Tree Conference Convention & Trade Show. More than 1,000 arborists, foresters, and nurserymen will gather at the Cleveland-Sheraton Hotel, Aug. 28 to Sept. 2, for what is predicted to be the ISTC's biggest convention.

The convention theme, "Beautify With Trees," mirrors the entire program, which includes exhibits and demonstrations of latest tree equipment, educational exhibits, and horticultural tours. Among sites to be visited are the outstanding Fine Arts Garden and Cleveland's new, two-million-dollar mall, featuring a fountained plaza and formal gardens.

City tree programs and problems will underline the full slate of talks planned, Dr. Lewis C. Chadwick, Executive Director of ISTC, told WTT. Dr. Chadwick emphasizes that city programs of beautification and planning, along with preservation of trees in the face of adverse city conditions, is of major interest to the tree industry. This will be further brought out during the convention by panel discussions and seminars that will provide up-to-date assistance on the care and treatment of trees—particularly, the urban arbor.

General chairman of the Cleveland meet is John Michalko, Shade Tree Commissioner of Cleveland, the "Forest City."



Cleveland-Sheraton Hotel (right), located on Public Square, is Shade Tree meet site.

William P. Lanphear, III, V. P. and Treas. of the Forest City Tree Protection Co., in Cleveland, is co-chairman. Complete details of the convention will be announced in WTT next month. Those desiring more information and advance registration should contact Dr. L. C. Chadwick, Executive Director, International Shade Tree Conference, 1827 Neil Ave., Columbus, Ohio.

## SBA Offers Ad Aid Book

Basics of advertising, how to prepare ad budgets, what the most effective media are, and where to place advertising emphasis, are all discussed in "Effective Advertising," a book offered by the Small Business Administration.

The publication, Topic 14, is available for \$1.25 from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

## Northwest Spraymen Plan Sept. 23-24 Spray-O-Rama

"People, Pesticides and Professionalism" will be theme of the 1966 Spray-O-Rama sponsored by the Pacific Northwest Spraymen's Association. Spraymen will gather at the Thunderbird Motel, Portland, Ore., Sept. 23-24.

Outstanding speakers and panel groups to help spraymen solve their problems will be featured on this year's program. Highlighting the Saturday evening banquet will be a presentation by Robert E. Averill, Public Relations Director, Merritt Davis Schools, Inc., of Salem, Ore. For further advance information and registration, contact A. J. Overton, Miller Products Co., 7737 N. E. Killingsworth, Portland, Ore. 97218.

## New Western ISTC Officers Named at Fresno Gathering

Jack R. Rogers, superintendent of street trees, Los Angeles, was installed president of the Western Chapter, International Shade Tree Conference at its 33rd annual convention, in Fresno, May 15-18. Jess B. Gunnels, California Tree Service Inc., Pasadena, was named vice president. Secretary-treasurer is C. Elmer Lee, Southern California Edison Co., Los Angeles. Brian Fewer, supervisor of street tree planting, San Francisco, is editor.

Convention talks emphasized beautification. Keynote speaker Clarke W. Davis, executive secretary of the National Arborist Association, Washington, D. C., related the "Make America Beautiful" program to community action. Beauty and utilities were brought together in a talk on "Beautility" by Richard Hayden, senior vice president, Pacific Gas and Electric Co., San Francisco. He pointed to the opportunity for utility companies to take part in community beautification. Other speakers at the conference included O. J. Anderson, Houston, Texas, president of ISTC, and ISTC Executive Director Dr. L. C. Chadwick, Columbus, Ohio.



Plaza and gardens of Cleveland's beautiful, two-million dollar mall to be visited by ISTC.

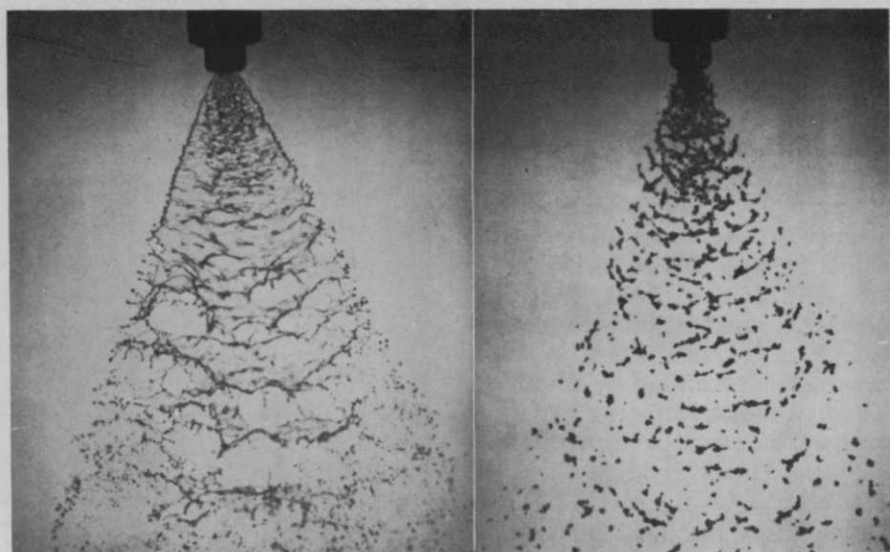
## Northern Michigan Turf Day To Be Held Sept. 13

Evaluation of bluegrass, fescue, and bentgrass varieties, based on area research, will be discussed at the Northern Michigan Turfgrass Field Day, Sept. 13, at the Traverse City Country Club, Traverse City, Michigan.

Turfgrass researcher James Beard, and soil scientist Paul Rieke, both of Michigan State University, are directors of the program aimed at professional turfmen. Other research-based topics will include weed control, snow mold control, and nitrogen carrier comparisons.

## Hercules Changes Name

Hercules Incorporated is the new name for Hercules Powder Co. This is the first time the firm has changed its corporate identity since it was founded January 1, 1913.



High-speed photos (25 micro-second exposures with Strobex flash) show difference in droplet size of water (left) and mixture of Dow's Tordon 101 with particulating agent Norbak (right).

## Dow's Norbak Shapes Sprays

Size of herbicide spray droplets is a key to spray drift control, The Dow Chemical Co. reports.

Specifically developed by Dow to control spray drift, Norbak particulating agent is a water swellable polymer. It is said to form droplets into larger and

more uniform particles so the spray is less subject to air currents.

A mixture of Dow's Tordon, water, and Norbak has a granulated appearance in the spray tank due to individual swollen particles. But it can be poured, pumped, and sprayed just like water, the company claims.

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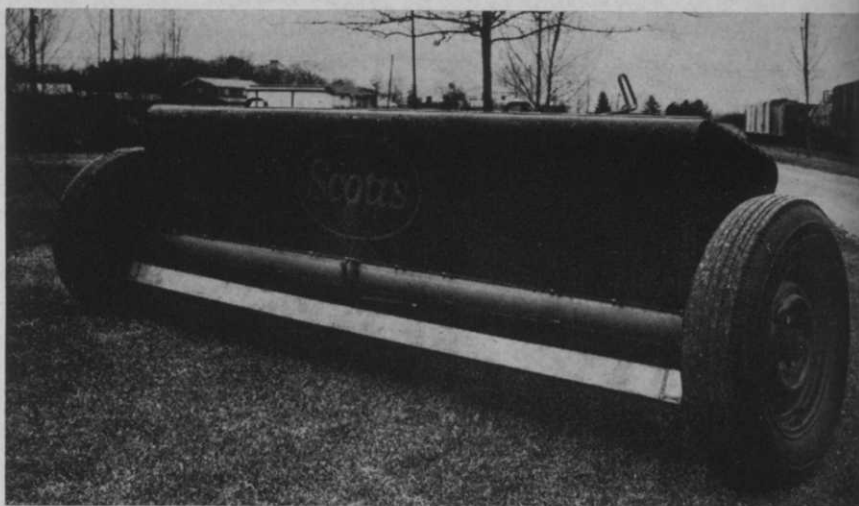
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## How to Adjust Granular Spreaders with V-shaped Hoppers

(from page 13)

bolt 3 inches long into the wheel so it can be used later to turn the wheel. Measure the circumference (distance around) of the wheel in feet. Divide this figure into the lineal feet (F) the spreader must travel to cover 100 sq. ft. Lineal feet, in this case, are determined by dividing 100 by the diameter of the spreader's output pattern (D), or  $100/D = F$ . By dividing the circumference of the drive wheel by the linear feet, you determine the number of wheel revolutions required for the spreader to cover 100 sq. ft. Now fill the spreader half full with granules and estimate its rate setting. Place the spreader over a large sheet of paper or cloth; block up the drive wheel side of the spreader so that it is about 1/2 inch off the ground. Next, open the spreader, and by using the bolt as a crank, rotate the wheel the same number of turns re-



**Metal calibration pan** fastened temporarily between wheels of V-shaped hopper spreader and hung directly below slot in bottom of hopper to catch granule output. Granules are retained in this catch pan and weighed after each trial run.

quired to cover 100 sq. ft. Crank the wheel at the approximate speed at which it would move under normal applications. Weigh the material on the paper. If the amount collected is more or less than the recommended rate, per 100 sq. ft., reset the spreader and repeat the test until the desired rate is applied.

Some spreaders are specifi-

cally designed and manufactured to apply granulated materials quite accurately. Other spreaders are designed primarily for fertilizer applications where accuracy is not as important. Generally speaking, those multi-purpose spreaders which are made to apply herbicides, pesticides, and also fertilizers are of necessity manufactured at closer tolerances and for greater accuracy than are typical fertilizer spreaders.



## PLATZ

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Whether you need a motor-driven atomizer or a plunger sprayer, there's a Platz model to do your job best. Motor-driven models can be used as sprayers or dusters without changing the plastic tanks and have flame-throwing lances for burning weeds or thawing. You can't find greater efficiency or more versatility at a lower price.

**2-HP PLATZ**—\$149.50 F.O.B. Youngstown. Weighs 15 lbs. 2½-gallon tank. Horizontal range 26 feet, vertical 20 feet. Throttle controls stepless dusting rate. Sprayer has 4 delivery speeds.



**3-HP BOSS**—\$239.50 F.O.B. Youngstown. Weighs 30½ lbs. 2½-gallon tank. Horizontal range 46 feet, vertical 30 feet. Has long range nozzle and twin nozzle for simultaneous spraying of two rows.

**FRANKONIA**—\$69.50 F.O.B. Youngstown. Weighs 20 lbs. 4-gallon tank, made of heavy-gauge sheet brass. Powerful brass pump. Robust suction filter. Self-cleaning valves.

Phone, write, wire



## BURTON SUPPLY COMPANY, INC.

Import Division, Box 929-W, Youngstown, Ohio 44501 • Phone 747-4485 (Area Code 216)

**FULL SUPPLY OF SPARE PARTS FOR 24-HOUR DELIVERY**



### Banvel D, 2,4-D Use With Fertilizer Is Described

Banvel D herbicide and 2,4-D have both been approved for use in combination with dry fertilizer to control broadleaf weeds in established lawns (not pastures) and golf courses, according to Velsicol Chemical Corp.

A formulation was approved for use in spring or fall at the rate of 5 lbs. per 1000 sq. ft. (½ lb. of Banvel D and 1-1½ lbs. 2,4-D per acre.)

One application per year, if needed, for control of dandelion, plantain, chickweed, knotweed, clover, sheep sorrel, stitchwort, buckhorn, dog fennel, mustard, and other broadleaf weeds is recommended by the company.

Applications to moist grass are said to give best results. Turf should not be mowed or watered for 24 hours after treatment.

For additional information write Velsicol Chemical Corp., 341 East Ohio St., Chicago, Ill.

## 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.

### POSITION WANTED

**HERBICIDE MARKETING Specialist, experienced** in sales through western distributors, sales management, advertising, sales promotion, and marketing research, desires creative sales opportunity. Western location preferred. Résumé upon request. Box 19, Weeds Trees and Turf magazine.

### HELP WANTED

**FORESTER for 12-man forestry division,** Village of Oak Park, Illinois, population 61,000. Salary dependent upon experience; range \$512-642/month. College degree in forestry or allied and same experience. Must want to learn and apply municipal forestry procedures, including tree planting and care, and public grounds care. Résumé to Finance Department-Personnel, 113 N. Euclid Ave., Oak Park, Ill. 60301.

Classified Ads in  
Weeds Trees and Turf Get Results  
**USE THEM!**

### BARTLETT TREE EXPERTS OFFER EXCEPTIONAL OPPORTUNITY

This nationally known tree service company, which operates from Maine to Florida, offers outstanding career opportunities in sales and management for college graduates in forestry, horticulture and agriculture, or men with experience in these fields. Ability to work with public and personnel is important. Attractive salary plus commission, protected territory, growth potential excellent. Intensive training course and benefits. Send resume of education or experience to William Eckhardt, Bartlett Tree Experts, P.O. Box 3067, Stamford, Conn.

### DED Fact Kit Available

A free information kit, "Facts About Dutch Elm Disease . . . A Community Problem," is now available from John Bean Div., FMC.

Coverage of chemicals and sprayers used by municipalities to arrest spread of the Elm Bark Beetle is in the kit. It also contains reprints of articles about the disease in various communities.

For the free information write Dutch Elm Disease Kit, John Bean Agricultural, Box 9490, Lansing, Mich. 48909.

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## new TRIONIC

SPREADER-ACTIVATOR FOR  
SYSTEMIC HERBICIDE SPRAYS

## REDUCES FOAMING

TRIONIC is a new 3-in-one non-foaming adjuvant—anionic—nonionic—cationic—formulated to minimize foaming common to most herbicidal sprays. Completely water dispersible. Substantially improves wetting and distribution of the spray on the plant. Enhances penetration of waxy cuticles. Try TRIONIC—the new non-foaming spreader-activator for systemic herbicide sprays. For further information, see your supplier or write to—



## COLLOIDAL PRODUCTS

C O R P O R A T I O N

P.O. BOX 667 • SAUSALITO, CALIFORNIA 94965

# PETERS SPECIAL

## SOLUBLE FERTILIZERS

Completely chelated all purpose feeds

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

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

Compatible with all commonly used spray materials.

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

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

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

## Suppliers Personnel Changes

Stauffer Chemical Co. announces that Keith B. Campbell has been named division agronomist for its Fertilizer Division. A graduate of Brigham Young University with a B.S. in agronomy, Campbell is currently chairman of the Northwest Plant Food Association Committees on Utah Soil Improvement, and on Utah State University Scholarships. His headquarters will be in Salt Lake City.

Allied Chemical Corp., Nitrogen Division, has appointed Dr. Harvey J. Stangel manager of its foreign market development. A native of Kewaunee, Wis., Dr. Stangel received his B.S., M.S., and Ph.D. degrees from the University of Wisconsin where his specialty was agronomy and plant physiology. He started with Allied's Nitrogen Division in 1954 and in 1958 moved to the company's New York headquarters as chief agronomist.

The Ansul Co. has appointed Chesley L. Milam as agricultural chemicals salesman for its chemical products division. Milam will work from his office in Sandy Springs, S. C. He was graduated from Clemson University with a degree in animal husbandry.

Chemagro Corp. has chosen Leonard P. Quattrochi to fill a newly created position of product manager, pest control and public health chemicals. He will be responsible for development of a line of pest control and pub-

lic health insecticides. Quattrochi served as a technical sales representative, biological technician, and field researchman since he joined the company in 1955. He was graduated from the University of Pittsburgh in 1952, with a B.S. degree.

## Literature you'll want

Here are the latest government, university, and industrial publications of interest to contract applicators. Some can be obtained free of charge, while others are nominally priced. When ordering, include title and catalog number, if any. Sources follow booklet titles.

**Gross Varieties in the United States.** Catalog No. A 1.76:170/965, Rev. 1965, 102 pp., 50¢, Supt. of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

**Controlling Nematodes in the Home Garden.** Catalog No. A 1.9:2048/5, Rev. 1965, 10 pp. il., 10¢, Supt. of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

**Bulrushes and Bulrushlike Plants of Eastern North America.** Catalog No. I 49.4:221, 1965, 19 pp. il., 20¢, Supt. of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

**Insects and Related Pests of House Plants, How to Control Them.** Catalog No. A 1.77:105, 1965, 32 pp. il., 15¢, Supt. of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

**Herbicide Manual for Noncropland Weeds.** Catalog No. A 1.76:269, 1965, 90 pp. il., 50¢, Supt. of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

**1966 Chemical Weed Control for Turfgrass.** Cooperative Extension Service, University of Connecticut, Storrs, Conn.

## Trimnings

**U-A-N-swars . . .** clever name for the Utah Association of Nurserymen's newsletter . . . in a recent issue reminds its members that none must do any spraying unless each holds a contractor license, in addition to any business or nursery license they have. Seems there has been an increasing number of "quick-buck" artists in the state doing maintenance work that is ruining the reputation of qualified contractors. These sprayers are attempting to police themselves to lessen the chance of any more limiting legislation coming their way!

\* \* \*

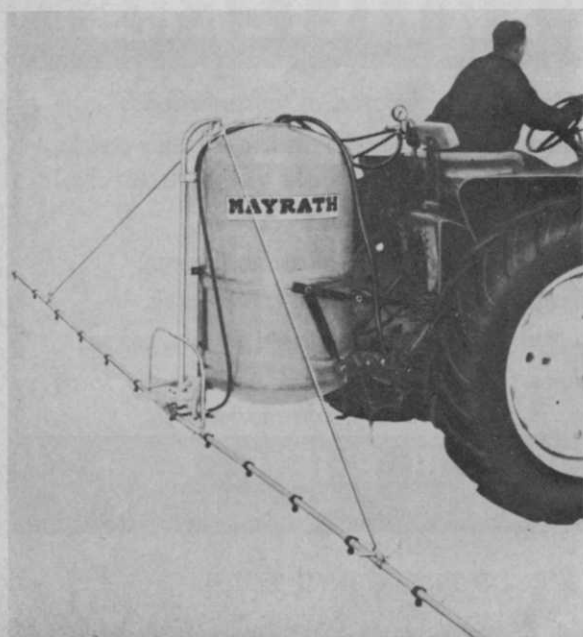
**This is real dedication.** University of Maryland agronomist, Dr. Elwyn Deal, tells us about one of his students who's just completed a research project which will benefit users of Tifgreen bermudagrass. He's Charles "Chuck" Laughlin who began playing golf with sawed-off clubs at the tender age of four. At 12 he was watering turf on golf courses, and at 16 the blond, crew-cut turfer earned money on a grounds crew in his home town of Cedar Rapids, Iowa. Now, at 26, he's earned a master's degree in turf management for his research into the amounts and kinds of nitrogen or fertilizer added to Tifgreen bermudagrass to assure top-quality color, vigor, density, and texture. We could use more youngsters in this business with such dedication.

\* \* \*

**PR for sodder.** A recent issue of the *Cleveland Plain Dealer* devoted a full-page pictorial feature to Warren's Turf Nursery because it has recently established farm branches in the Cleveland region . . . with more than 1,000 acres in Uniontown, Celeryville, and Mansfield. The report details many of the intricacies involved with the growing of quality turf, including the vacuum cooling of sod to keep it from perishing between harvesting and installation. This is not only a nice plug for brothers Ben and Bob Warren, but for the entire commercial sod industry that is growing by such leaps and bounds across the country to meet the increasing demands for "instant grass."

\* \* \*

**Congratulations to Don Griffiths, and the Agricultural and Technical College in Farmingdale, N.Y.** Don, who's associate professor in the Dept. of Ornamental Horticulture there, has helped set up a new two-year course in turf management which will prepare graduates with a well-rounded education. Recognizing the fact that turf management specialists are concerned with problems other than the technicalities of raising fine turf, the planning faculty and advisors have included basic courses in design, horticulture, and arboriculture, as well as basic science courses geared to provide a sound formal education. For more information, write the Director of Admissions, State University, Agriculture and Technical College, Farmingdale, N.Y. 11735.



**A lightweight 150 gal. fiberglass tank** and a handy 3-point hitch combine to make the new Mayrath tractor mount sprayer easy to handle even when filled with a 1200 lb. load, its manufacturer reports. Available with 22-, 28- or 32-foot adjustable booms, the sprayer also has Mayrath's exclusive gallons-per-acre gauge. The metered gauge is visible from the tractor seat. Another feature of the new spray rig is a globe valve to allow full flow of chemicals even when larger size tips are used for spray. For full data write Sprayers, Mayrath Co., Compton, Ill.



# 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.

 **Diamond Chemicals**

## Ho-hum... another new herbicide...

This one is called Phytar 560!  
You'd think that manufacturers would run out of funny names . . . or would get wise to the fact that farmers are completely confused about all the new herbicides kicking around these days.

But we think you'll remember PHYTAR! It does things that none of the others have been able to do. It's a general, non-selective herbicide that completely eradicates all vegetation along roadways and ditches, around buildings and storage areas and in other non-crop areas. If you've been using weed oil to

do these jobs you'll find PHYTAR vastly superior in at least five important ways: (1) It's more effective and *cheaper*; (2) There is absolutely no residual toxicity, (3) no staining, and (4) not nearly as much corrosion of your spraying equipment. (5) You'll eliminate the storage problem because one gallon of PHYTAR 560 (which is mixed with water when you're ready to apply it) is equivalent to 50 gallons of weed oil.

Try it! The name's PHYTAR . . . and it's a product of the Ansul Company, Marinette, Wisconsin.



THE ANSUL COMPANY, MARINETTE, WISCONSIN