

Shade Tree
Issue
celebrating



The 42nd ISTC
Convention and Show

WEEDS TREES and TURF

A TRADE MAGAZINES, INC. PUBLICATION

August 1966



The Fine Arts Garden at University Circle will be one of the sights ISTC delegates visit during their convention in Cleveland, Ohio. This section features a beautiful lagoon, surrounded by many varieties of trees; a perfect setting for Cleveland's famous Museum of Art in background.

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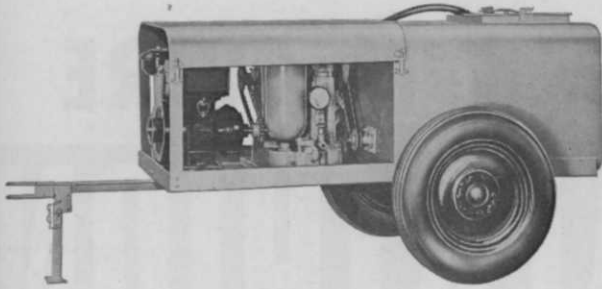
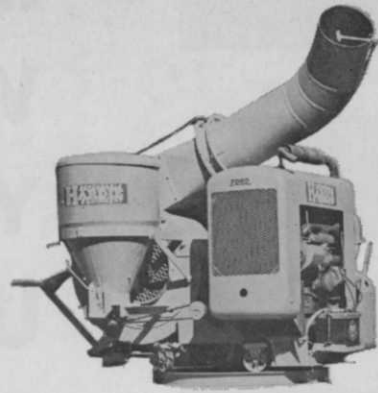
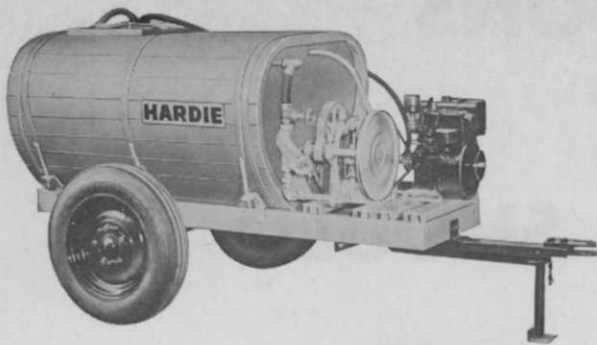
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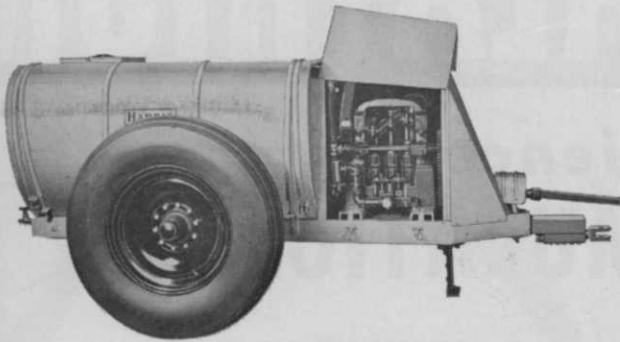
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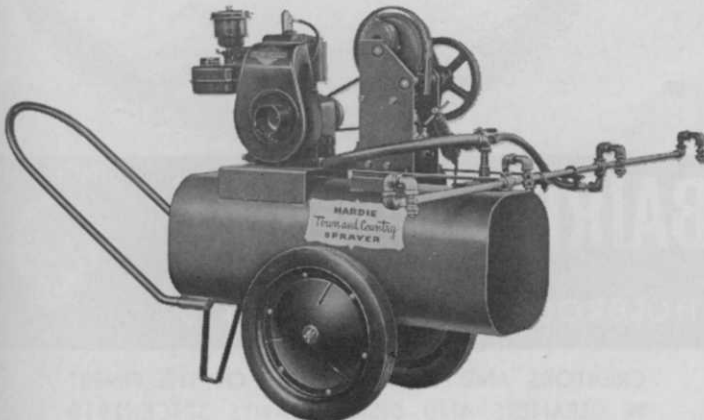
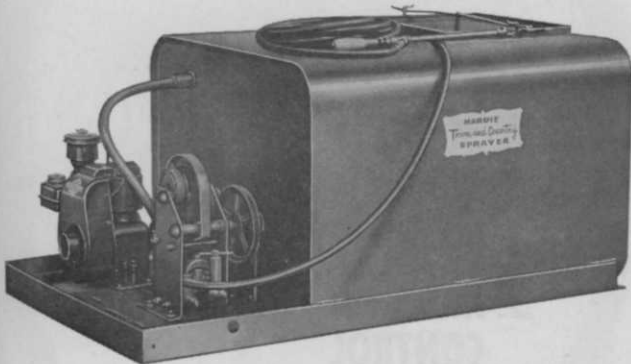
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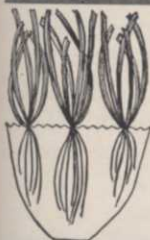
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WEEDS TREES and TURF

FORMERLY WEEDS AND TURF

August 1966

Volume 5, No. 8

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In a few weeks, over 1,000 treemen will be streaming into Cleveland for the 42nd Annual International Shade Tree Conference Convention and Trade Show. Since Cleveland is our hometown, *Weeds Trees and Turf* welcomes delegates to this active community of over one million which owes much of its beauty to the widespread use of trees that make its parks and suburban areas among the most elegant anywhere. This is truly the "Forest City."

In joint meeting with the ISTC will be the National Arborist Association. No two groups have done more to advance the science of tree care and to make Americans conscious of the need to save trees and to appreciate how much they add to our country's beauty.

Spearheading the ISTC is Dr. Lewis C. Chadwick, longtime executive secretary headquartered at Ohio State University in Columbus. Dr. Paul E. Tilford, until this past year, was the knowledgeable secretary of the National Arborist Association, who worked out of Wooster, Ohio, home of the Ohio Agricultural Research Station. His successor, Clarke W. Davis, now runs the NAA from Washington, D.C., and is already making a name for himself through his active public relations program.

The convention committee has planned a full

program that will benefit commercial arborists, municipal and utility treemen, and other vegetation controllers concerned with the protection and enhancement of trees.

This is a family affair, too. Local workers have arranged an active and fun-filled program for the ladies and the children. They will, among other things, board excursion boats to sightsee on Lake Erie which gently rolls against the northern shores of this city which is so delightful in August.

Treemen everywhere are invited to the ISTC convention at the Sheraton-Cleveland Hotel, August 28-September 2. Come. You'll be treated to a most valuable educational program, will see the newest in equipment and chemicals for tree work in the display booths, and will have a mighty fine time enjoying yourself, too. *Weeds Trees and Turf* looks forward to greeting you here at this important annual convention.

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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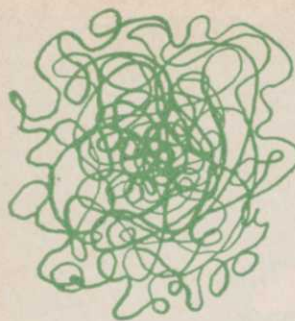


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By DAN NEELY
Plant Pathologist
Illinois Natural History Survey
Urbana, Illinois

Anthracnose of Sycamore and how to

An American sycamore with severe anthracnose symptoms. Most of the leaves were killed shortly after leaf emergence in the spring.



ONE OF the more unsightly nonlethal shade tree diseases is sycamore anthracnose. This disease is caused by a fungus that attacks leaves, twigs, and occasionally trunks of sycamore. It is most evident in May and June following opening of buds and emergence of new shoots. Young shoots are killed when the leaves are $\frac{1}{2}$ inch to 2 inches wide. An attacked tree has the general appearance of severe frost injury. Although the entire crown may be defoliated, often the lower half of the crown is affected more severely than the upper half. New leaves will appear during the summer but repeated attacks reduce growth and vigor of the tree. Occasionally trees become deformed and unsightly.

Sycamore anthracnose has been reported from almost every state in the United States in which American sycamore is a native tree. The states most frequently reporting severe occurrence are Missouri, Illinois, Indiana, Ohio, Pennsylvania, Maryland, Delaware, New Jersey, New York, Connecticut, and Massachusetts. Apparently the conditions favorable for disease development occur more frequently in these states.

Sycamore anthracnose is extremely severe in some years and almost negligible in others.



Shoot blight. Many of the young shoots on this branch were killed shortly after emerging from the buds. A few shoots were not killed and on these the leaves are normal in size.

Protect against it

It has long been observed that the disease occurs during "cold, wet springs." Recently it has been determined that spring temperature, not rainfall, is the dominant factor associated with disease severity. The temperature during the 2-week period immediately following first sycamore leaf emergence in the spring is of crucial importance. If the daily mean temperature for this 2-week period averages below 55 degrees, sycamore anthracnose is likely to be severe. As this temperature increases from 55 to 60 degrees sycamore anthracnose tends to be less severe. If the temperature for this period is above 60 degrees, few or no anthracnose symptoms will appear.

Most Susceptible Species

The species of *Platanus* subject to this disease are *P. occidentalis*, American sycamore (also called American plane); *P. acerifolia*, London plane; *P. orientalis*, Oriental plane; *P. racemosa*, California sycamore. The disease is more severe and occurs more often on *P. occidentalis* than on the other species named. However, there appears to be a variation in susceptibility within the species *P. occidentalis*. Because of severity of sycamore anthracnose on *P. occidentalis* in England, Holland, Bel-

gium, Northern France, and Germany, the common *Platanus* species grown in these countries is *P. acerifolia*, the London plane.

The fungus that causes sycamore anthracnose is named *Gnomonia platani*. Earlier the fungus was mistakenly named *Gnomonia veneta*. Unfortunately, most European and American writers have continued to call the sycamore anthracnose fungus *Gnomonia veneta*.

The fungus causing anthracnose of oak often has been

identified as the same fungus causing anthracnose of sycamore. Considering morphological, cultural, and pathogenic differences, the author feels that the fungus causing oak anthracnose is distinct and separate from the fungus causing sycamore anthracnose. The oak anthracnose fungus is *Gnomonia quercina*.

Four Developmental Stages

There are four developmental stages of sycamore anthracnose: bud, twig, shoot, and leaf blight. One or more of these may be observed during one season. The leaf blight stage probably originates following penetration of the leaf by fungus inoculum from an external source. During the summer and fall the fungus grows down the leaf veins, through the petiole, and infects the current season twig. The bud, twig, and shoot blight stages develop the following spring. They are the result of girdling action and canker formation in the infected twigs. The fungus in the canker usually remains active the second year

Bud blight. The buds failed to open because the twig tissue surrounding the buds was killed by fungus action.



Twig blight. The terminal portions of these twigs died after the twigs were girdled by the fungus.



following infection, and the canker increases in size. The repeated killing of twigs and accompanying canker formation throughout the crown causes abnormal branching and gnarled growths on many trees. Occasionally small trees are killed.

The four stages of anthracnose are described as follows:

Bud blight. The fungus present in the twig girdles and kills the tissue surrounding an individual bud before the bud expands or opens in the spring.

Twig blight. The fungus present in the twig girdles and kills the distal (tip) portion of the twig prior to bud expansion in the spring.

Shoot blight. This is similar to bud and twig blight but occurs later in the season. The fungus present in the twig girdles and kills tissue surrounding shoots that emerge from individual buds, or girdles and kills the entire twig containing many emerging shoots. Shoot blight occurs when the leaves on the emerging shoots are from ½ to 2 inches wide. It is often confused with frost injury.

Leaf blight. This stage occurs still later in the growing season. The first symptoms on the leaf blade are small faded, chlorotic spots. Spots that occur alongside or near veins increase in size and become necrotic (dried and shriveled). Necrotic areas along the midrib or main veins increase rapidly in size. When a major portion of the leaf blade or the petiole becomes diseased the leaf falls.

How to Protect Sycamores

Sycamores can be protected from anthracnose by application of an organic mercury fungicide. In areas where anthracnose occurs frequently, and where the American sycamore is highly valuable, the fungicide should be applied annually. In areas where sycamore is less valuable, the fungicide should be applied the year following disease occurrence to prevent excessive weakening of affected trees due to attacks during two consecutive years. Spraying of London plane is usually not warranted.

In most instances one appli-



Leaf blight. Necrotic areas along the leaf veins are characteristic leaf blight symptoms of sycamore anthracnose.



A 2-year-old canker on a twig of American sycamore.

cation of the fungicide, properly timed, is adequate. Application of the fungicide following appearance of disease symptoms is of little or no benefit. The spray must be applied in the spring when the sycamore buds are swelling and the bud caps are breaking.

Suggested organic mercury fungicides and rates of usage per 100 gallons of spray are as follows:

Coromerc, 1½ pounds; Puratized Agricultural Spray, 1½ pints; or Phix Apple Spray, ½ pound. In those unusual years when the weather remains cold for an extended period following application of the fungicide, a second application is recommended after 14 days and at two-thirds the previously suggested rate.

Why the organic mercury fungicides are effective in controlling anthracnose is not fully understood. Apparently they are able to penetrate the bark or wood of twigs in sufficient con-

centration to reduce fungus growth and prevent girdling of the buds or twigs.

The sycamore is a fast-growing tree that has been used extensively in recent years as a shade tree for home plantings. In areas where anthracnose is severe, sycamore will need special care, and planting other tree species is recommended.

Systemics Promising For Shade Trees

Systemic insecticides, which are absorbed by trees and translocated to stems and leaves, have definite advantages over spraying, according to Dr. Carlton S. Koehler, associate entomologist at the University of California, Berkeley. However, he does not expect systemics to replace conventional sprays.

Cautioning that some trees cannot be treated with systemics, the California entomologist adds that an overdose of systemic insecticide can do more harm to a tree than overspraying. He lists the advantages of systemics as their long residual action, economy, freedom from destruction of natural enemies of tree pests, simplicity of equipment required for treatment, and the ability to treat trees with systemics in unsatisfactory spraying weather.

Dr. Koehler also reports that in tests with Bidrin implantations at 6" intervals around elm trunks, aphids were controlled for 50 days and elm leaf beetles for an entire season.

T-H Improves Tedion

A new wettable powder formulation of its Tedion miticide has been announced by Thompson-Hayward. Containing 50% actual Tedion concentrate, the new W-50 formulation is said to be more economical and easier to handle than products previously available. Also marketed in an emulsifiable concentrate, W-50 is formulated for killing mite eggs, larvae, and nymphs.

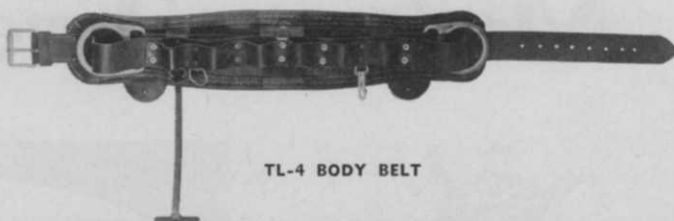
Additional information on the new formulation and its uses can be obtained from Thompson-Hayward Chemical Co., Kansas City, Kans. 66110.

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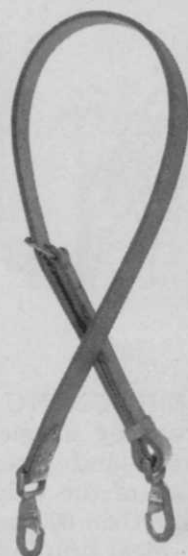
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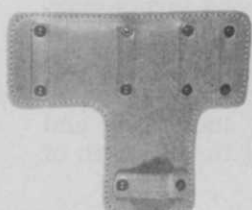
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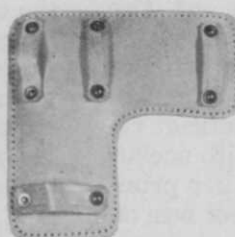
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Pruning

Mature Trees



By
KEITH L. DAVEY

President
Davey Tree Surgery Co., Ltd.
San Francisco, California

THE PRUNING of mature trees by surgical methods to retain and strengthen the structure of the older tree goes back less than 80 years. We call this surgical pruning.

Pruning of young trees had been developed to a fine degree by nurserymen and gardeners many centuries ago in Europe, where the training of the smaller structure of the young tree was accomplished without damage, even though branches were stubbed and beneficial results were produced with sucker growth. Most good earlier pruning done on mature trees was on the small limbs.

Special gardener pruning effects of topiary, espalier, pleaching, and even pollarding emphasized clipping (which is stubbing) of small branches. This no doubt has contributed to the belief that stubbing can be done on all mature trees, even though it takes little study to show that these special-effect cuts are only made on terminal or second-year wood.

Pruning mature trees, on the other hand, must follow surgical principles to heal wounds quickly and create only normal healthy growth.

We must recognize two new factors in the mature tree: (1)

all exposed heartwood must be protected by callus heal before heart rot decay weakens the tree, and (2) suckers in a mature tree do weaken the tree. Suckers are connected only to the outside sapwood layers making a ball and socket joint. If the sucker does not pull out when young, in later years a splitty crotch develops, and heavy end growth outgrows the strength of the sucker.

Healing Callus Can Be Induced

Tree surgery techniques do prove that a healing callus can be induced to cover cuts or trunk wounds much faster than untreated wounds. Callus can grow in two directions, outward or across, depending on the greater immediate tree need. When left untreated, it usually buttresses around the sides of the wound. If traced to allow the best sapflow around the wound, callus will heal thin and rapidly across the wound. This same principle, using nature's callus growth variation at the crotch, creates an equally fast thin callus heal around the cut.

This area varies in each crotch, but can be identified. We call it "Davey shoulder ring area," as it was identified by Wellington Davey in his experimental work on trunk wounds before 1900.

Surgical pruning requires three judgments in every cut: (1) an exact positioning of the cut, (2) cutting to a strong enough lateral branch or leader to take the sap flow, and (3) keeping an overall balance between tops and roots. This point of balance is shown by natural divisions between the first and second top. It should never exceed more than 1/3 of the top, even when the four types of superfluous branches (dead wood, weak limbs, interfering branches, and suckers) are removed in a general pruning.

One final factor that will strongly affect good work is the ability of the man to climb the tall tree and reach the position to make the cuts properly. Rope climbing and rigging make the largest trees accessible, and are still considered the best methods of reaching these hard-to-get-at locations in mature trees.

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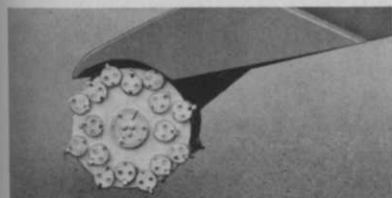


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Scrap into dollars. Contract applicators, arborists, municipal treemen, etc., can use their chippers to turn waste brush trimmings into valuable mulch which can be used in unlimited ways. Shown above is a Fitchburg chipper at work in photo (left); a Mits & Merrill chipper is pictured right.

Where to Sell Those Wood Chips

WOOD CHIPS, a longtime favorite as a mulch for trees and plants, are finding ever-increasing numbers of applications in other areas and offering a potential new source of income to custom applicators, nurserymen, and tree surgeons.

Given a source of wood wastes or brush, and a woodchipper, a number of enterprising operators have converted wood scrap into dollars and cents, selling the end product at prices ranging from \$6.50 to \$12.00 per cord. Among the many novel new uses for wood chips are such applications as animal bedding, poultry litter, overall ground cover, paving, highway barriers and even as an emergency cattle feed mixed with molasses. Homeowners also use hickory and apple wood chips for backyard barbecuing.

The University of Massachusetts spreads wood chips on its ski slopes at Thunder Mountain instead of using straw as in the past. The Forestry Sciences Laboratory at Athens, Georgia, is trying to develop skiing into a summertime sport and is experimenting with ski slopes covered with sawdust and wood chips. Ski pros claim that a 20% grade of sawdust chips was "... not unlike some snow conditions..." Uses for chips, in fact, seem to be limited only by the imagination of chipper owners.

Cushioning cleats on golf

shoes is the reason Walter Leix orders wood chips for the paths, rest areas, and golf cart paths at the Shannopin Country Club in Pittsburgh, Pa. Since the practice has caught on with other golf courses in the area, he claims competition for wood chips has created a demand which suppliers cannot meet. Leix cites one other additional benefit of wood chips: "If they get caught in the lawn mower," he says, "they don't harm the blades."

Davey Tree Expert Company is the supplier of the Shannopin Country Club. The reason for Davey entering the supplier field was simply as a convenient method for disposing of brush and scrap accumulated in large rights-of-way clearance projects. Currently the company is supplying wood chips for a number of users in the Buffalo, N. Y., area and discounting income derived from this source from its land clearance project.

Using wood chips as a mulch suggested one further use to nurseryman James Cookman, Southboro, Mass. As wood-chip mulch decays into organic humus (usually, in 6 to 7 years) it adds valuable nutrients and conditions the soil. Cookman speeded up the process to one year by composting chips in pits with alternate layers of garbage from local restaurants, saturating the compost with a 35% solu-

tion of urea nitrogen and bagging the finished product for sale at \$1.79 per 10 pounds. Appearance of the compost after processing is similar to good black garden loam.

F. E. Maltby, Maltby & Co., Stoughton, Mass., claims that wood chips from his company's tree-service operations are worth roughly the same as loam soil, a price which might vary between \$1.75 to \$4.50 per cubic yard. "The general public," Maltby says, "is at last realizing that the easiest and cheapest way to control weeds in a landscaped area is with wood-chip mulch, which we make with our Fitchburg chippers. The watering ban in the Northeast has been a factor in this too."

Foresters for Saginaw, Mich., are helping to prepare the soil of a recreation area on Ojibawa Island by spreading it with chips from its three Mits & Merrill chippers. Next year, these chips, when plowed into heavy soil, increase its workability, keep moisture in and weeds out. This is another market for waste chips.

Nurserymen supplying shrubs and trees to Connecticut State Highway Department also find that chips make maintenance easier. The state requires that spring-planted stock must be guaranteed for six months and fall plantings for one year. Under this same provision, the nursery must replace any stock

that dies during the guarantee period. Also, the nursery must water and weed the areas they landscape.

To help meet these three demands, wood chips were spread 4 inches deep around trees and shrubs after planting and the root area was thoroughly soaked. Results of the project show that the need for watering is cut by 60 to 70% and weed growth by 90%. With the current water ban in much of the Northeast, mulching with wood chips will probably increase this year.

From fertilizer to mulch, wood chips are catching on, not just as a means for disposing of wood wastes but also as a profitable sideline enterprise in themselves.

Vary Mowing Height According to Grass Species

In most respects, warm season grasses, such as bermuda, zoysia, or buffalograss, require different management than do cool season bluegrass or fescue lawns, according to Jim Nighswonger, Kansas State University extension landscape architect.

He points to mowing height as an example. "Warm season grasses prefer a mowing height of 1 to 1½ inches, while cool season grasses grow best when mowed to 2½ to 3 inches," Nighswonger explains.

Bermuda and zoysia lawns benefit most from fertilization in early May and July, while cool season lawns respond best to March and early September fertilization, he notes.

In Kansas, Nighswonger advises, 1½ to 2½ inches of water applied every 10 to 14 days provide the right moisture conditions. A simple water gauge, such as a coffee can placed near the sprinkler, can measure approximate applications of water.

Buffalograss, an extremely drought-resistant species, requires even less water. Nighswonger reports that buffalograss is preferred in the western one-third of Kansas if irrigation water is not available.



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Safety

and the Tree Surgeon



By HORACE P. BRYAN

Bryan Tree Service, Dallas, Texas

SAFETY in the tree business, as in any business, begins by following the slogan, "work safely." In no business is this a meaningless, empty motto.

Tree workers, especially, because of the unusual hazards they encounter, should be conscious of the fact that by safe practices and constant alertness, tree surgery and maintenance can be done without mishaps. Chance-taking men who work trees for a living are going to get hurt. No man is safer than his methods, and neither fear

nor refusal to do the tough, high job is part of a proper work program. There are rotten, dead trees and even faulty green trees which should not be climbed. To climb them and attempt to work on them is to risk a life.

One Fall: Too Much

Men who climb rotten trees or work without using ropes and safety saddles for security, or those who grab power saws and jump up ladders without being "tied in" with ropes or saddles are taking chances. Other climbers are tempted to climb ladders

unbalanced or unsubstantially supported against a tree. Of course, workers may climb such hazardous steps many times without incident, but it takes only one fall to break a leg.

Ladders should be shifted to secure positions on a steady foundation. A rope thrown through a crotch of the tree above the ladder provides climbers with a secure hold on which to balance their weight. We tie a knot in the end of a rope and throw it like an old seaman's heaving line. On one end of the rope we fasten a safety snap (Fig. 1) which is latched to the climber's saddle, and we tie a big multiple knot on the other end. The knot acts as a weight when the tree surgeon hurls it, sometimes 25 to 40 feet high, through a tree crotch and then lets it fall to his reach. If the knot does not readily fall, after the rope is laid through a fork, workers flip the rope, and the knot soon drops to the right level.

Now the worker may climb the tree safely, with or without a ladder, by using the rope. Without a ladder, he can scale the tree by the traditional rope climber's technique: hand-over-hand pull-up with a safe foot hitch (Fig. 2), if he has the rope in the fork of a limb. If the rope is placed through a crotch near the tree trunk, a climber can snap the safety latch to his saddle and pull himself up with the free end of the rope, using his feet against the trunk for bal-



Fig. 1. (left) Safety rope fastened to the snap on the tree surgeon's saddle. A round turn is made in the eye of the snap, and is secured with a bowline knot. The upper knot on the right is the climber's sliding hitch knot.

Fig. 2. (below) The sliding hitch knot allows climbers to change their height to any desirable working altitude. It is used just above the saddle snap, well within reach of the tree surgeon.





Fig. 3. With his rope looped through a fork near the tree trunk, tree surgeon, David Barnes, is suspended by his rope fastened to the saddle snap, and he's balanced on the tree trunk.

ance (Fig. 3). When a ladder is used that cannot be properly secured, a rope is essential, especially when climbers must ascend tall, almost limbless trees.

Lead Weight Rubber Covered

When we throw a rope through a very high crotch, a rubber-covered, lead throwing weight is tied to the line instead of a knot. We use bell-shaped, lead weights (4½" x 2¾") that average one-half pound. The weight carries the rope both upward and over tall limbs, and it makes the rope slide downward rapidly to within easy reach from the ground level. Throws with the lead weight are made not only to get safety ropes in position, but also to maneuver other ropes into

their proper places to lower limbs to the ground.

On jobs where we cannot use a ladder safely or climb up on a rope, we use linemen's spurs. It is much better to do only slight damage to a tree than to have a man take chances. Spurs are useful assets in getting the job done, and any hazard to workmen comes through their inexperience and carelessness. We recommend the use of spurs particularly where safety outweighs the damage caused to the tree. They do some damage to the bark and cambium layers, but these layers heal rapidly in the top parts of the tree. Of course, when trees are removed, piece-by-piece, damage caused by spurs is negligible.

A climber's safety rope and saddle are tools just as important as the saw. We prefer ropes ½-inch thick made of blue-dot or red-dot manila and think there is no substitute. Many in the business have tried nylon rope, but they have found it inferior because it lacks firmness and other qualities which make a rope suitable for tying knots and hitching to saddles. When compared with manila rope, nylon affords a very poor grip for workers who depend on a rope for support while they climb trees. We use lengths of manila rope that vary from 75 to 150 feet depending upon the height of the trees and other needs.

Safety saddles may be purchased in several forms from different supply houses. We use the simple, two-piece saddle made of nylon web without the leather lining. Nylon webbing resists mildew and other forms of rot. Choice of a safety saddle, however, is largely a personal matter and is left to the individual climbers.

Each Climber Responsible

Surgeons should be given good equipment and taught to trust it. Each climber should have his own pruning saw, rope, and saddle, and it is his responsibility to take care of them. Saws must be protected against rust and gums caused by the trees' sap, bends or kinks in the blade, and broken or bent teeth. The latter two often are caused by rough handling or hauling.

Every man should know the condition of his rope; a safety-conscious tree surgeon literally examines every inch of the rope each time he uses it and as it passes through slide knots (Fig. 3) or rings in the saddle as he works. Ropes should be stored in dry places, kept away from heavy or sharp tools, and rigged with safety snaps properly. Periodically, the snap should be switched to the "knot end" of the rope, and the end to which the snap was attached can be used for the knot. The "snap end" wears out faster than the free end.

Safety saddles need only rou-

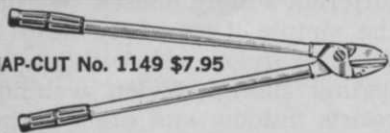
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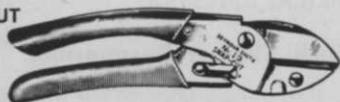
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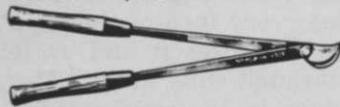
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Fig. 4. The rope climber's foot hitch allows him to lock himself at any height on the rope. Rope is wound around his left foot and pressure from the right foot stops the rope in place. With combined arm and leg action, climbers can lift themselves without considerable strain and can rest at any distance from the ground.

tine care and inspection. They should be stored in dry places and protected when hauled. Most faults appear first in the saddle stitching and joints; however, they usually last for many years without causing trouble.

Spot Troublespots First

Trees are usually cut or trimmed from the top down. I first study a large tree from the ground and note buildings, lines, and other obstacles. Then I select a crotch or fork in the tree for my limb-lowering rope and another for a safety rope. A safety rope looped through a high crotch provides a long lead for more balance, greater working freedom, and maximum safety. It also allows long swings onto limbs and is still effective as a safety rope.

Many large trees can be trimmed or cut by looping the safety rope through a crotch only once, but in others the rope may need to be relocated once or twice. When a worker must swing to the side, supported by a single safety rope, to trim a limb, we use a 6-foot auxiliary rope. One end of this rope is permanently attached to the saddle, and the other end is thrown around a limb or branch and fastened to the saddle with a snap. This auxiliary rope is handy also to carry a power saw.

Trees: No Place For Jokers

The experienced climber's greatest hazard is "distraction." The most common distraction is

anger at the groundman, the boss, or the client, but it can come from many places, even a tangled rope. If our climbers become distracted or upset in any way, they come down to the ground on their safety rope and relax. Only after they are fully in control do they return and finish the job.

Clients are rarely, if ever, allowed to give orders to a man working in a tree; this is the foreman's job. And trees are no place for practical jokers. The best tree crew I ever knew had a big time talking and laughing, and the days were short, but they knew when to talk and when not to talk.

"Timber" Stops Headaches

"Timber" is a call well known to all "small fry," it seems. We prefer that they do their "timbering" within the fence of their own backyards. The call, T-i-m-b-e-r, by a man sawing off a limb is, however, a sound practice. I learned this one day when working with a crew of seven climbers and two groundmen in a large parklike area. After a while, shouting "Timber" grew a little monotonous. I sawed off a short limb ("headaches" we call them) about 3 feet long and 6 inches in diameter, quickly glanced in all directions, I thought, and then pitched it out to fall. No sooner had the limb section started its fall, when I saw a ground worker directly under me. Luckily, it missed

him, but it was close enough to teach me to yell, Timber! Hard hats should be provided tree workers, especially groundmen. Also ground workers should give a warning call when they walk under trees being trimmed or cut.

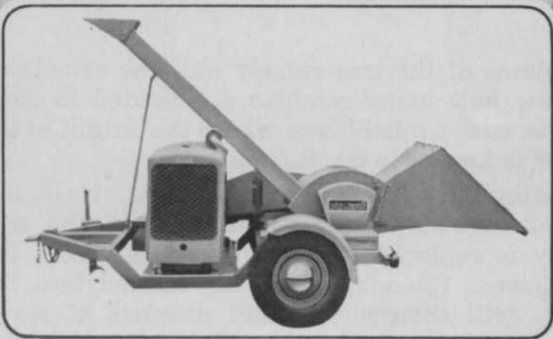
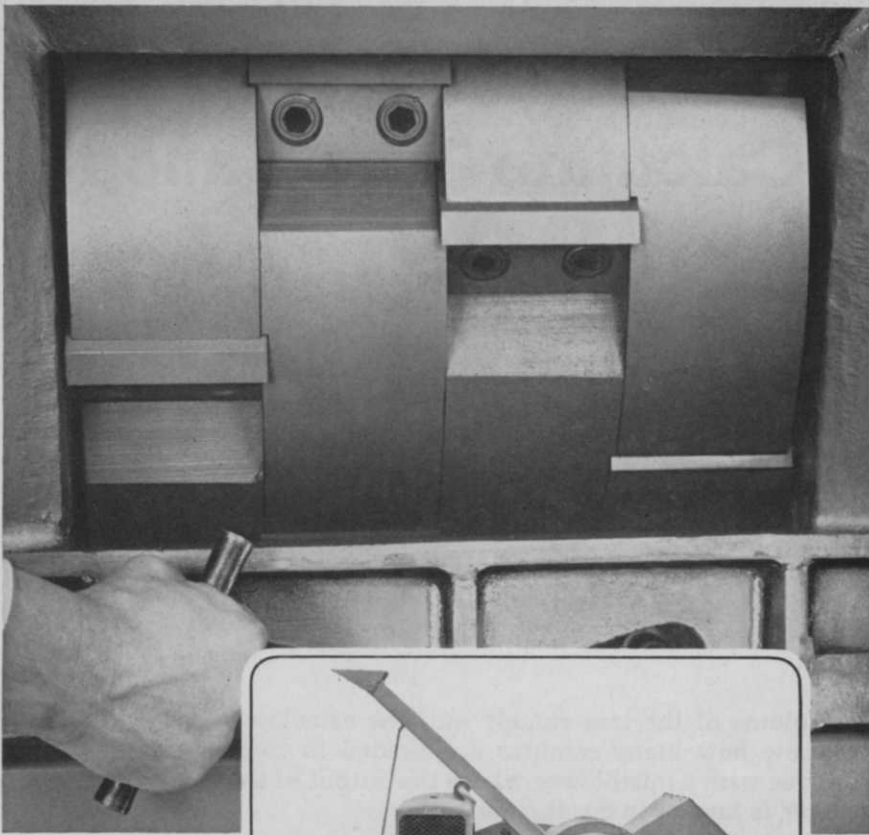
Cautious Climbers Live

A tree climber has to be stout, agile, and well balanced in the tree. He must like to climb and must know every limb on which he puts a hand or foot. He asks, "Is it green or dead? is it a sucker attached only to the bark or a limb anchored to the heartwood? or is it hollow or weakened by rotten knots, breaks, or gall wounds?"

A limb which has grown up with the tree originates from the heartwood, but a sucker or "water-sprout" comes from a later bud and is never anchored deeper than the sapwood. They are not difficult to recognize, but young climbers should be made aware of the dangers caused by insecure limbs.

Climbers should know what kind of tree they're working in and the strength characteristics of each. Rotten knots, breaks, and gall wounds appear more often in some species than in others. Hackberry, for example, is often affected by gall wounds in the Dallas area, so we carefully examined every hackberry limb before trusting it with our weight. Visible wounds and weaknesses are, of course, detected easily, but the treacherous, invisible dangers are sensed many times only by experienced climbers.

Your "safety school" is actually on the job. Owners, foremen, or experienced climbers can be the teachers. Sometimes a good climber can pass along more "tips" and "pointers" to young climbers and groundmen than the boss can. If you have such an experienced climber, make teaching part of his job and pay him for it. Each new worker can be taken to a suitable tree where the object is not to get work done, but to teach the correct method. In the end it pays off in more work completed safely.



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Why do you get them only on Mitts and Merrill brush chippers?

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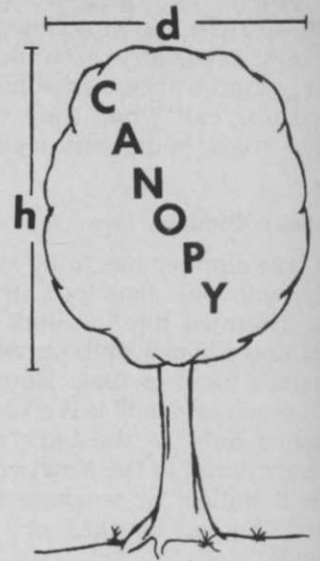
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Calculate Tree Canopy To Regulate Treatment Time With Mistblowers



Volume of the tree canopy must be calculated to know how many minutes are needed to treat one tree with a mistblower where the output of the blower is known in cu. ft./min.

During mist blowing applications, it is important that static (dead) air held in the tree canopy is replaced by spray-laden air from the mistblower. Chemical-laden air blasted into the canopy will then yield small droplets of spray solution to leaves and twigs of the entire canopy.

To calculate the volume of a tree canopy, only two dimensions are needed (See Illustration):

d = diameter of tree canopy at the thickest portion, and

h = height of the tree *canopy* at the tallest point, not the entire tree.

These two values, diameter (d) and canopy height (h), are used in the following formula to calculate the volume of a tree canopy.

$$\text{Canopy volume (cu. ft.)} = \frac{(3.14 \times d)^2}{12.57} \times (1.16 h - 0.36 d)$$

For example, if canopy diameter (d) is 8 feet and canopy height (h) is 10 feet, letters in the formula are replaced by numbers to read:

$$\text{Canopy volume (cu. ft.)} = \frac{(3.14 \times 8)^2}{12.57} \times (1.16 \times 10 - 0.36 \times 8)$$

To find out how many cubic feet are in the canopy, first multiply 3.14 by 8; you get 25.12. The superscript (2) tells us to multiply 25.12 by 25.12; this gives 631.01. Divide 631.01 by 12.57; the answer is 50.19. The formula now reads:

$$\text{Canopy volume (cu. ft.)} = 50.19 \times (1.16 \times 10 - 0.36 \times 8).$$

Ten multiplied by 1.16 equals 11.6, and 8 multiplied by 0.36 equals 2.88. Subtract 2.88 from 11.6, and the answer is 8.72. Now the formula is stated:

cu. ft. = 50.19×8.72 , or canopy volume (cu. ft.) = 437.65. Thus, we have found there are 437.65 cu. ft. in a tree canopy 10 feet high and 8 feet in diameter.

To determine how much time it will take to treat 437.65 cu. ft. in the tree canopy, output of the mistblower must be known. Charts that accompany mistblowers tell the cu. ft. output for different nozzle settings and application speeds.

If, for example, blower output is 1,000 cu. ft. per minute, the time required to treat 437.65 cu. ft. is directly proportional to time required to mist blow 1,000 cu. ft. The proportion is stated:

$$\frac{1,000 \text{ cu. ft.}}{1 \text{ minute}} = \frac{437.65 \text{ cu. ft.}}{X \text{ minutes}}$$

In other words, if the output of the mistblower is 1,000 cu. ft. per minute, how long (X minutes) will it take to produce 437.65 cu. ft.? To get the answer,

cross multiply. $1,000 \times X \text{ minutes} = 437.65 \times 1 \text{ min.}$

$X \text{ min. times } 1,000 \text{ equals } 1,000 X$, and $1 \text{ times } 437.65 \text{ equals } 437.65$. The equation is now stated:

$$1,000 X = 437.65.$$

To find the number of minutes (X) needed to produce 437.65 cu. ft. of air, divide 437.65 by 1,000, or:

$$X = \frac{437.65}{1,000}. \text{ The answer is } 0.437, \text{ or } 0.438 \text{ minutes}$$

if rounded to the nearest thousandth of a minute. For a mistblower that can produce 1,000 cu. ft. per minute, it takes 0.438 minutes (or about 27 seconds) to produce 437.65 cu. ft. of air.

To convert 0.438 minutes to more practical terms, multiply 0.438 by the number of seconds in one minute (60): $0.438 \times 60 = 26.28 \text{ secs.}$ It will take 26.28 seconds for a mistblower to replace 437.65 cu. ft. of air with insecticide in the tree canopy if the blower output is 1,000 cu. ft. per minute.



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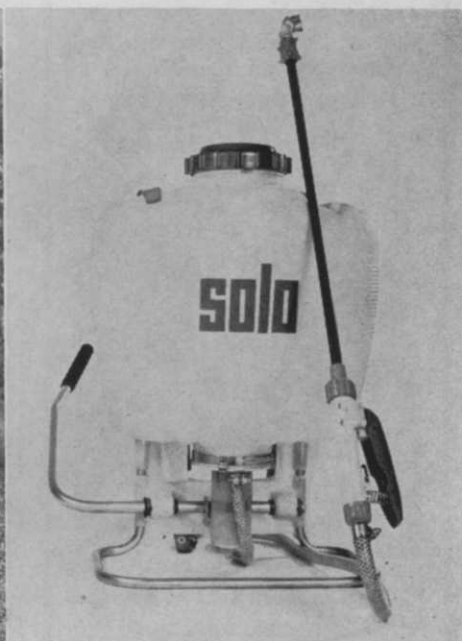
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Rainfall Influence on Preemergence Herbicides

"How much rainfall is necessary to activate a preemergence herbicide? How much rain must fall before the herbicide is leached from the zone of germinating weed seeds? How much rain does it take to move the herbicide to where the crop seed is germinating, with resulting injury to the crop?"

In a controlled study concentrated into a single growing season, Dr. Anson R. Cooke, Director of Biological Research, Amchem Products, Inc., attempted to answer these three questions.

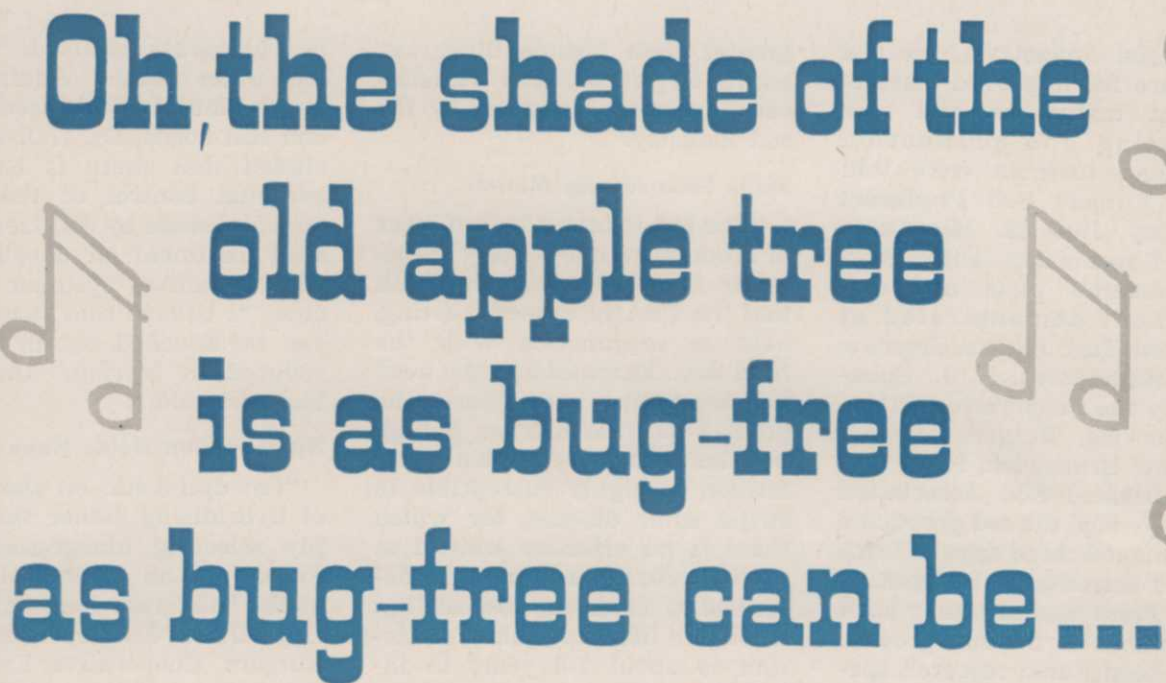
While delivering a paper on the subject at the Southern Weed Conference in Jacksonville this year, Dr. Cooke pointed out how tests proved that various amounts of artificial rainfall at certain periods after application greatly influenced the performance of certain pre-emergence herbicides.

It was also noted that by substituting common soluble formulations of a product such as Amiben with less soluble derivatives of the same product, weed control often remained constantly high even when initial rainfall

varied from 0.5 to 2 inches. The more soluble forms, on the other hand, often gave poorer weed control when carried too deeply by a single heavy rain of perhaps 1 or more inches.

How were the exact amounts of moisture obtained without interruption from natural rainfall? Dr. Cooke and his colleagues worked with a unique machine which applies controllable amounts of rainlike irrigation on selected test plots. After the desired amount of water is applied, each plot is covered with a plastic tent to prevent any further natural rain from falling on the plot.

With such knowledge, Dr. Cooke concluded, it may soon be possible for a herbicide manufacturer to formulate pre-emergence herbicides on a more-or-less custom basis depending on the average normal rainfall for a given area. For example, in a normally high rainfall area a rather insoluble form of a herbicide might be provided while a relatively soluble form of the same herbicide might be supplied to areas of normally low rainfall.



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Bluegrass Perils, All-in-One Sod Harvester Shown at Rutgers Sod and Research Field Days, June 20-22

The sod industry's greatest needs are for improved disease-resistant turfgrasses and new harvesting and production equipment, turfmen were told at the Rutgers Sod Producers Field Day, June 22. More than 100 turf specialists toured Rutgers research plots and saw equipment demonstrated at Princeton Turf Farm's Croshaw Farm, Hightstown, N. J. Sponsored by the Cooperative Extension Service, Rutgers University, New Brunswick, N. J., and the Cultivated Sod Association of New Jersey, the sod producers day climaxed three days of lawn and turf activities at Rutgers.

New grass varieties may soon be available to the sod grower. Dr. C. Reed Funk, research specialist in turfgrass breeding and selection at Rutgers, cautioned that new varieties would probably be expensive. "Almost inevitably, when we select for good turf potential we get poor seed potential," the Rutgers expert noted. "Nevertheless," he continued, "though their cost is

greater than Merion bluegrass, some experimental varieties could be adapted for use by the sod industry."

Stripe Smut Attacks Merion

"The sod industry is in danger of becoming a one-variety industry in the Northeast," Dr. Funk told the CSANJ dinner meeting, held in conjunction with the field day. Emphasizing the need for developing new grasses, he pointed out that Merion, though popular and an excellent performer, is highly susceptible to stripe smut disease, for which there is no effective control at present. Stripe smut may be described as an old age disease that limits the life expectancy of Merion to about 7-8 years in infested areas.

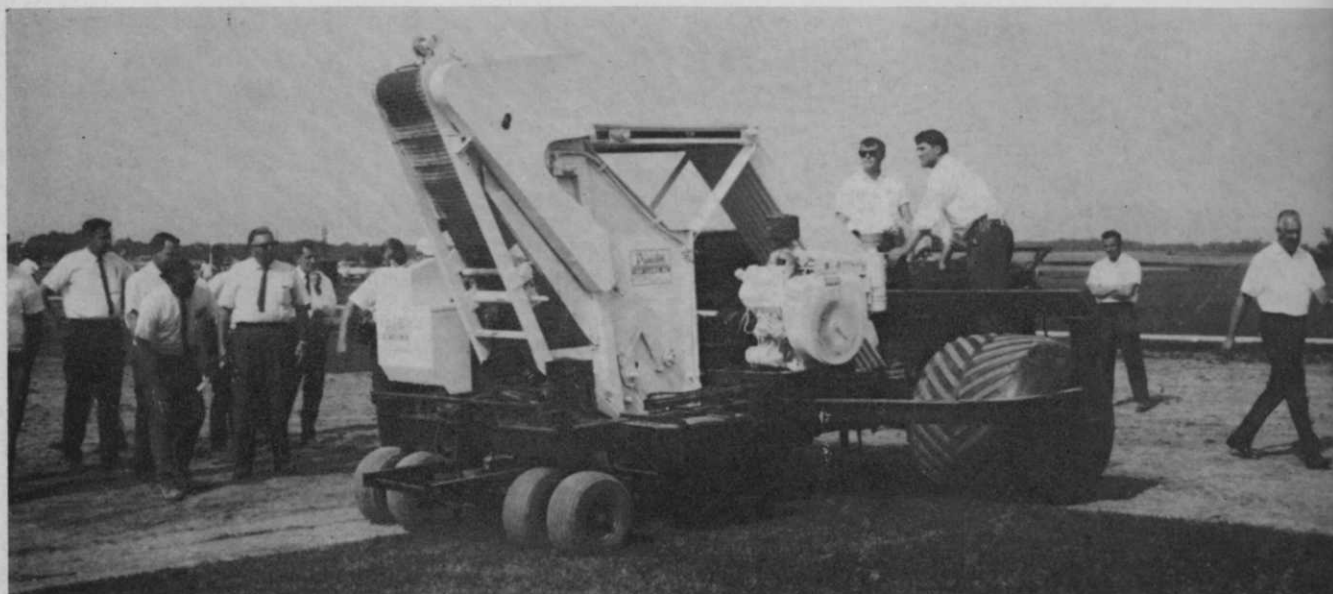
Dr. P. M. Halisky, department of plant biology, Rutgers, described the disease as a parasite affecting Merion lawns in their second or third year, becoming progressively worse until the lawn is destroyed. Many grass varieties are attacked by smuts,

but bluegrass smuts do not affect other plants. Adding that stripe smut is both seed borne and soil borne, Dr. Halisky concluded that there is hope for eventual control of the widespread disease by soil treatment, seed treatment, or development of a selective, systemic fungicide. "I believe that stripe smut can be knocked out or greatly reduced in Merion," the plant biologist said.

Hybridization Holds Hope

"I'm optimistic on the future of hybridizing rather than simply selecting bluegrasses," Dr. Funk told an interested group at the Turfgrass Research Field Day, June 21. Sponsored by Rutgers' Cooperative Extension Service and College of Agriculture and Environmental Science, this field day gave participants a chance to look closely at the turf research program.

Showing plantings of about 6,000 bluegrasses collected, or "selected," from pastures, parks, and golf courses, the research



Princeton Turf Farm's experimental sod harvester, demonstrated at Princeton's Croshaw Farm for Rutgers June 22 Sod Producers Field Day. Self-propelled, hydraulically operated harvester requires 3 men, a driver and 2 handlers, to cut, convey, and palletize sod in a single operation. Future developments will aim for automatic palletizing.

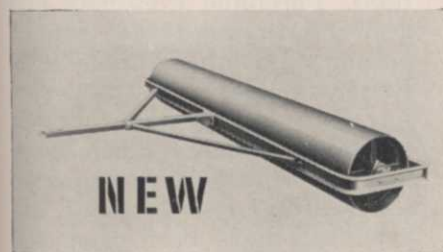
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specialist noted that most of these selected plants are rejected because of poor disease resistance. Though valuable plants can be obtained in this manner, Dr. Funk reported that the greatest promise for future turfgrass development lies in hybridization of the finest selections with each other.

Anheuser dwarf bluegrass, a Purdue University, Lafayette, Ind., development of a grass selected in St. Louis, was called one of the most promising experimental varieties. Some of the wider bladed varieties are more resistant to leaf spot infection, Dr. Funk explained. Dark-colored and wide-leaved, Anheuser shows good resistance both to stripe smut and leaf spot, and is being tested as a parent in hybrid plants. Though this variety does not form an extremely dense turf, the researcher also remarked that too dense turf often poses more problems than grasses with less density.

Other promising bluegrasses include K5(47), an experimental variety that dates back to 1947; 0217, commercially developed; N.J. P30, a New Jersey grass; and Pennsylvania State University's varieties, K-106 and K-107. None of these varieties is commercially available at present, since wide regional testing always precedes release. If made available, all would have high seed cost because of



Promising experimental variety of hybrid bluegrass has shown excellent disease resistance, Dr. Reed Funk, Rutgers University turfgrass research specialist, tells field day gathering.

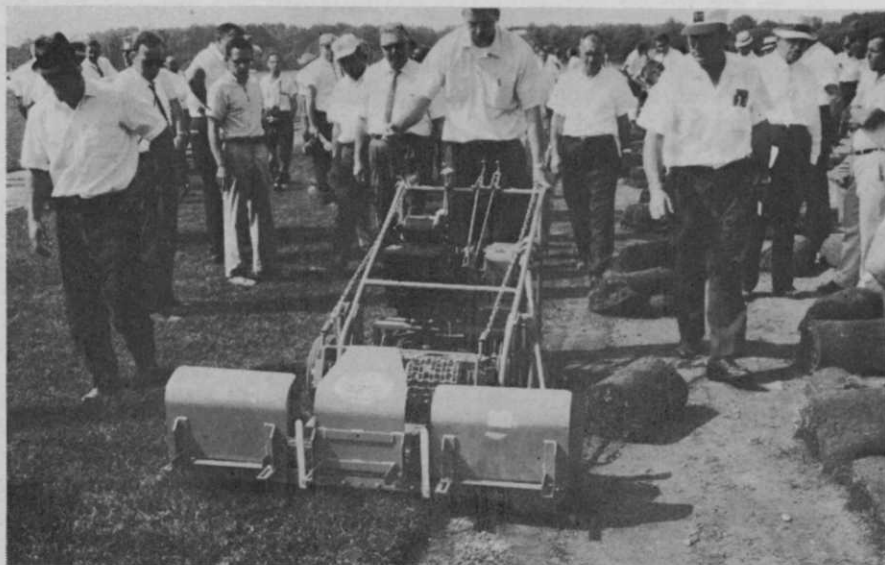
poor germination characteristics. Adding that only 1 out of 5 bluegrass plants will reproduce by apomixis (without fertilization), Dr. Funk explained that reproduction by apomixis is necessary to insure uniformity of characteristics in a grass variety. Rutgers research also seeks to develop fundamental information on genetics and breeding procedures, according to the researcher. "Turfgrass breeding is a relatively untouched area," he said, "and our work can't be accomplished in a year's crash program; it will take 10 to 20 years."

New perennial ryegrasses that form a more dense turf, and are

finer leaved than current ryegrasses, are also being developed by Rutgers. Noting that a new ryegrass could be available in about 3 years, the question was asked: "Would you object to having this grass in your own lawn?" Many who attended the field day weren't too certain. Though attractive, the new ryegrasses still are difficult to mow.

Advantages of the hardy, experimental ryegrasses include ease of establishment and growth under many soil conditions. Perennial ryegrasses may find a place in roadside, school ground, and athletic field sites. Better summer and winter performance, and greater resistance to brown patch, chinch bugs, heat, and drought are also sought in the new varieties. Experiments have been conducted with mixed seedings of Merion and ryegrasses, with the bluegrass generally crowding out the ryegrasses.

Other grasses being tested include zoysia, bentgrasses, and red fescues. Several rapidly spreading types of fescue have been developed. Field day participants were also shown turfgrass fertilization tests in progress. Dr. Ralph E. Engel, turfgrass research specialist at Rutgers, counseled that moderate application of nitrogen will help control poa annua in bent-



New automatic sod roller is demonstrated for turfmen by the maker, Ryan Equipment Co., St. Paul, Minn. Not yet in production, pilot rollers are under test throughout country.

grasses. "With herbicides, we can work with lower levels of nitrogen," he continued. Fertilize more than twice a year for best color and performance, and discourage poa annua by avoiding heavy fertilization in the cooler months. May to August applications were suggested.

Nematocides on bentgrass, turf thinning experiments, and cutting height experiments were also included in the research tour. These tests are in their early stages with results inconclusive.

Disease is Encouraged

Rutgers research plots are mistreated to encourage disease. Herbicides are not applied to most plots. Irrigation is irregular. Fertilization is apt to be either indifferent or excessive. Some plots are closely barbered and others allowed to grow as high as 3½". Such mistreatment is part of a studied attempt to find the limitations and susceptibilities of the grasses under test. Whenever a particular grass variety comes down with a disease,

the researchers have a new problem, but they also have more information about that variety.

Merion is a case in point. Said to be resistant but not immune to the leaf spot disease and consequent melting out of turf, much of the established Merion was attacked by the disease this spring. Cool, wet weather favored the disease, but questions have been raised. Could the resistance of Merion be breaking down, or is there a new strain of the fungus, or was it attacked because stripe smut had previously weakened it? The only answer lies in further observation.

For the turfmen, the answer to leaf spot lies in good management, the experts say. Watering too often keeps the leaves wet and encourages the disease. Excessive fertilization and too-close mowing also encourage leaf spot. Water to a depth of 6" to 8" about every 10 days, depending on local soil and weather conditions. Fertilize moderately, preferably in the cooler months of April, May, Sept., and Oct.,

applying over half the fertilizer in the fall. In New Jersey, with grass clippings left on the ground, 3 to 4 pounds of nitrogen per 1,000 square feet a year is adequate for Merion. Other bluegrasses take less, 1 to 2 pounds of N. Finally, mow 1½" to 2" at 7-day intervals. Regular mowing is important.

New Varieties Needed

While leaf spot is not a serious problem in Merion, Rutgers researchers describe it as "the most destructive disease of Kentucky bluegrass in New Jersey." Often confused with drought or heat injury, the leaf spot fungus attacks the roots and rhizomes of bluegrass plants in the late spring and early summer, causing the turf to "melt out." The leaf spot phase will often clear itself up, but melting out is far more serious. The disease may be seen from dark, red-purple lesions on the leaves and brown, thin or bare turf. Tests show that, in general, the greater the area of turf loss from melting out, the greater the takeover by

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broad-leaved weeds and crabgrass.

Underlining the need for new varieties to supplement Merion, the June 21st and 22nd field days observed plots of Merion weakened by stripe smut, called Merion's worst enemy. Pausing to examine an infected plant, Dr. Funk said that, "though good management will help grass recover from stripe smut, it will still get progressively worse." The disease may be identified by gray stripes on leaves. In later stages, leaves turn black, curl and tear, exposing the smut spores.

Thatch accumulation is another problem causing frequent deterioration of Merion. According to Dr. Henry Indyk, extension specialist in turfgrass management at Rutgers, grass clippings do not, in themselves, create thatch. With regular mowing, and under normal conditions, clippings do not have to be removed.

Zoysia nursery plants and test plots were another field day stop. Recalling that zoysia was once considered nearly disease-free, Dr. Engel reported that plants have shown susceptibility to disease in New Jersey tests. Later, Dr. Funk remarked to an evening session that "It is safe to assume that any variety will develop problems after a few years." In other words, it is unlikely that cure-all grass varieties will be developed, underscoring the need for continued research to make new, disease-resistant grasses available through the sod producer. Dr. Funk also suggested that organizations, such as the Cultivated Sod Association of New Jersey, could aid in testing new sod grasses if member growers would plant and evaluate samples in their locations.

Sod Mechanization Shown

Predicting that the sod industry will move more and more toward mechanization, Dr. Henry Indyk added that the need is for strictly specialized equipment for sod producers faced with a labor shortage. Mechanization will bring costs down and increase the popularity of

sod, the extension specialist indicated.

Mechanization from stone picking to boom loading of pallets was demonstrated in the June 22 afternoon session, hosted by Princeton Turf's Croshaw Farm. First to be demonstrated was the Anderson Rotary Rock Picker, manufactured by Armor Metal Products, Helena, Mont. Said by the maker to be capable of picking rocks from 1½" to 200 pounds, the Anderson picker works as deep as 6" at speeds of 1 to 5 mph, with a hopper capacity of 4,000 pounds. It is claimed the equipment can remove 100 tons of rock in a day.

Next shown was the Howard Rotavator, which the manufacturer says is suitable for turf thinning and light tillage. Howard Rotavator Co., Harvard, Ill., makes the rotavator which has a tillage width of up to 130" and a tillage depth of about 8".

Land Leveler Shown

The Eversman Land Leveler demonstrated is used by Princeton Turf Farms to prepare areas for seeding. Made in Denver, Colo., the leveler operates by cutting through highs and dumping in low spots.

Also shown were 3 types of seeders: the Brillion, made by Brillion Iron Works, Brillion, Wis.; the Viking, Viking Manufacturing Co., Manhattan, Kans.; and a new model grader, seeder, fertilizer, introduced by the John B. Adt Co., Timonium, Md., which claims the equipment will pulverize dirt, mix seed, plant, and roll in one operation.

Jacobsen Manufacturing Co., Racine, Wis., demonstrated its Model F-10 mowing tractor. With 5 or 7 gang combinations, the mowers can be raised or lowered hydraulically from the operator's seat while the tractor is moving. Front-mounted cutters are claimed to permit closer trimming and mowing before grass is packed down by wheels.

Other equipment shown included irrigation pipe by Johns-Manville; a soil fumigation injector by Morton Chemical Co.; Rainbird sprinkler heads; sweepers by Rogers Manufacturing,

and Giant-Vac; Travelite and Side-O-Matic boom loaders-unloaders; and fertilizer spreaders.

Harvesting Need Critical

"One of the most critical needs in sod production is in the area of harvesting," according to Dr. Indyk. Harvesting equipment shown at the field day included an 18" Ryan Sod Cutter with cutoff unit. Ryan Equipment Co., St. Paul, Minn., also demonstrated its experimental automatic sod roller. Though not yet in production, 40 units are being tested throughout the country. It is said to be able to roll 1,000 to 1,200 yards of turf in an hour.

The Finland Turf Cutter combines the best features of an oscillating blade cutter and the old-style drag cutter, according to its maker, Finneyfrock's, Olney, Md. The recently introduced equipment has been dubbed "Big Brute" by the manufacturer, who says machines with cutting widths of up to 24" will soon be available.

Highlight of the demonstrations was Princeton Turf Farm's experimental harvester. Princeton feels it is getting closer to perfecting the one-step harvester in this latest reworking of its own development, but emphasizes that there is still a lot of work to be done. The self-propelled, hydraulically operated harvester requires 3 men, a driver and two handlers. With the capacity to harvest 6,000 to 8,000 feet per hour, the machine can strip off excess top soil to reduce weight and insure uniformity of cut sod. Future developments, Princeton says, will aim for complete reliability, automatic stacking to eliminate handlers, and a hydraulic "feeler" steering system.

In addition to the Sod Producers Field Day and Turf Research Field Day, Rutgers' '66 Lawn and Turfgrass Equipment and Products Show was held on June 20-21. With a clinic to advise lawn owners on their weed and turf problems, and nearly 40 manufacturers showing their equipment, the show also gave homeowners an opportunity to see the research plots and, perhaps, their lawn of the future.

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AGRICULTURAL CHEMICALS

Helicopter Tree Planting, Talks, Exhibits, Tours, Set for 42nd ISTC Convention in Cleveland This Month

An unusual out-of-the-sky tree planting ceremony is part of the outstanding five-day International Shade Tree Conference convention and trade show, being held this month in Cleveland, Ohio, August 28-Sept. 2. While delegates watch, a helicopter will maneuver in and lower to its new site a young tree for one of Cleveland's lake-front malls.

After this special feature Tuesday morning, Aug. 30, conventioners return to the Cleveland-Sheraton Hotel convention headquarters for the keynote luncheon highlighted with an address by U. S. Senator Frank J. Lausche.

The '66 convention and show will open on Sunday, Aug. 28, with registration, a business session, and a reception and hospitality party for delegates. Some 50 trade and educational exhibits are planned for the show; these will be open on Sunday. ISTC President, O. J. Anderson of Houston, Tex., will officially call the meeting to order and inaugurate convention activities at 9:30 a.m. on Monday, Aug. 29.

"Dieback and Decline of Hardwoods: Some Possible Causes," and "Use of Soil Wetting Agents



John Michalko, Cleveland's Shade Tree Commissioner, and general chairman of 42nd ISTC meet.

in Arboricultural Practices" will be discussed at the Monday morning session. Speakers are, respectively, Dr. Wayne Sinclair, Department of Plant Pathology, Cornell University, Ithaca, N. Y., and Robert A. Moore, Aquatrols Corp. of America, Camden, N. J.

Many Experts Address Afternoon Session

The afternoon session will include: "Recommendations for Treatment of Soil Fills around Trees," by John Z. Duling, Dul-




William P. Lanphear, III, of Forest City Tree Protection Co., of Cleveland, is co-chairman for '66 show.

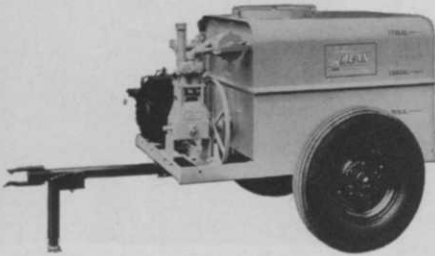
ing Tree Expert Co., Muncie, Indiana; "Problems and Solutions in Curbside Tree Plantings in Excavations," by Edward J. Brarmann, Jr., Supervisor of Forestry for the Jersey Central Power & Light Co., Morristown, N. J.; and "Industrial Landscaping—Problems and Solutions," by Ralph G. Carmichael, Davey Tree Expert Co., Bettendorf, Ia.

Tuesday's concurrent sessions on commercial, municipal, and utility arboriculture will be marked by specialized talks and panels of experts in each area. The program on commercial arboriculture, arranged by the National Arborist Association, Clarke W. Davis, executive secretary, will feature a panel discussion on "Shade Tree Fertilization and Aeration Practices," to be moderated by Edward E. Irish, Chas. F. Irish Co., Warren, Mich. In addition, "Systemic Insecticides, Up-to-Date" will be discussed by Dr. R. B. Neiswander, professor emeritus, Department of Entomology, Ohio Agricultural Research and Development Center, Wooster, Ohio. "A Look at Business," the annual business meeting for members of the National Arborist Association, and a dinner for NAA members and guests are



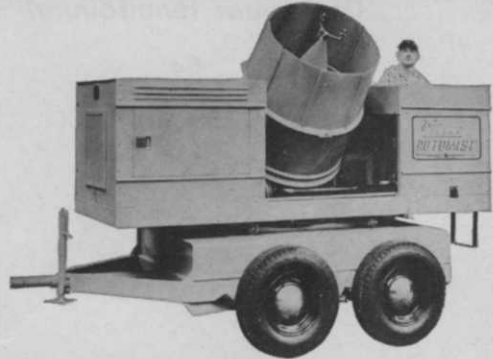
Cleveland's famous landmark, Terminal Tower, dominates skyline of 42nd ISTC host city.

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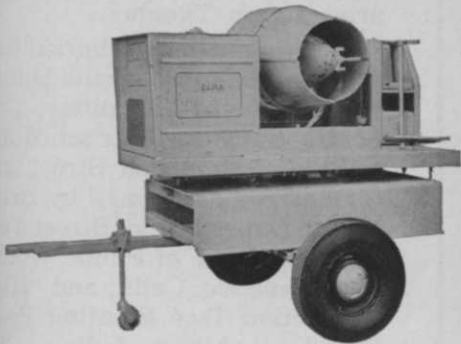
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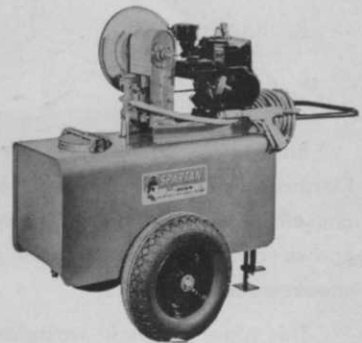
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91 ROTOMIST

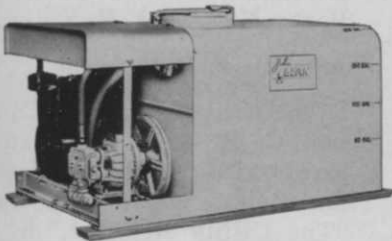
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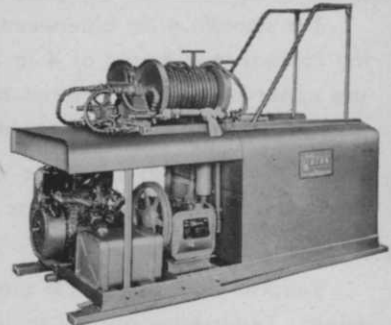
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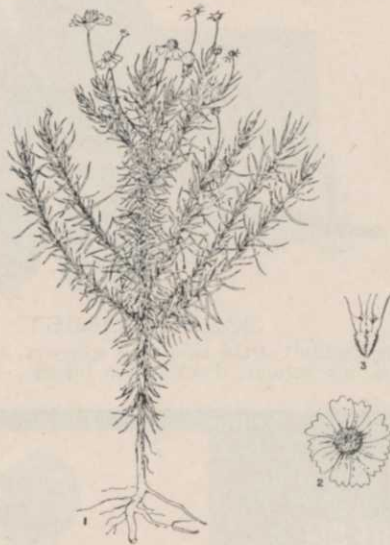


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BITTERWEED

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Bitterweed, found from Virginia to Kansas and southward to Florida and Texas, has spread as far north as Michigan and Massachusetts. An annual that reproduces by seeds, bitterweed is also known as yellow dog fennel and bitter sneezeweed, or simply, sneezeweed.

This plant grows in wastelands, in yards, along roadsides, and around buildings. In some areas, it is a common pasture plant and may cause livestock poisoning if grazed in the late summer and early fall when plants are in bloom. Bitterweed may also produce milk with a bitter flavor if grazed by cows.

The smooth, erect bitterweed stem grows from a short, branching taproot to a height of 4 to 30 inches, with many branches in the upper part (1). Numerous narrow, smooth leaves grow alternately from the stem and branches. Leaves are closely crowded.

Flower heads (2) are about $\frac{3}{4}$ inch in diameter. Several yellow ray flowers with 3-toothed tips surround a dome of yellow disk flowers.

Reddish-brown seeds (3) are wedge-shaped and hairy on the edges. Seeds have bristled scales at the top.

Good control of bitterweed usually results from the application of 1 pound of 2,4-D amine per acre before the weeds are 1 inch high. Older weeds in their bloom stage may require 2 or 3 applications, or use of 2 pounds of 2,4-D amine per acre, for control. Good control of young weeds may also be obtained from 2,4,5-T, MCPA, or silvex applied at the rate of 1 pound per acre.

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

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



Dr. Lewis C. Chadwick, Columbus, Ohio, executive director of International Shade Tree Conference.

also planned for commercial arborists on Tuesday.

The municipal arboriculture program, arranged by the Municipal Arborists Committee, Carl Schiff, chairman, has scheduled talks on "Municipal Street and Shade Tree Problems," by Brian Fewer, Supervisor of Street Tree Planting, Dept. of Public Works, San Francisco, Calif.; and "High Production Tree Planting Practices," by Albert Ayling, City Forester, Warren, Mich. Municipal arborists have also set panel discussions on "Tree Evaluation," and "The Labor Situation: What Can Be Done About It," to be moderated by Carl Schiff, Director of Horticulture, Dept. of Parks, New York, N. Y.

Arborists to Hear Panel

The Utility Arborists Committee, C. E. Lee, chairman, has arranged a program of panels and talks, which will include "The Utility Arborist," by Harold Cody, General Superintendent, Distribution Div., Cleveland Electric Illuminating Co., Cleveland, Ohio. Municipal and utility arborists will get together for a dinner program, also planned for Tuesday.

Exhibits, a tour of the Holden Arboretum, and commercial equipment demonstrations are to highlight the ISTC program for Wednesday, Aug. 31.

A full slate of educational sessions is again set for Thursday, Sept. 1. Talks are to include:



Clarke W. Davis, executive secretary of National Arborist Assn., which will meet with ISTC.

"Biotic Approach to Insect Control," by John W. Peacock, shade tree entomologist, U. S. Forest Service, Delaware, Ohio; "Selected Trees for Street, Lawn, and Industrial Landscapes," by Roy Nordine, the Morton Arboretum, Lisle, Ill.; and "Personnel Management," to be analyzed by Hackett C. Wilson, Wilson Tree Co., Shelby, N. C. Educational sessions will close with F. L. Parr, Parr & Hanson Co., Hicksville, Long Island, N. Y., speaking on "Arboriculture: What's Ahead?"

Plan Entertainment for All

Final day of the '66 convention, Friday, Sept. 2, offers a post-convention tour for delegates to interesting shade tree sites in and around Cleveland. So that the meet will interest the entire family, a separate ladies' program, and a teenage and youth program have been arranged to include sightseeing and entertainment. Convention activities culminate with the annual banquet, set for 7:30 p.m. on Thursday.

John Michalko, Shade Tree Commissioner of Cleveland, is general chairman of the '66 gathering, which is expected to attract more than 1,000 treemen to "The Forest City." William P. Lanphear, III, vice president and treasurer, Forest City Tree Protection Co., Cleveland, is co-chairman. Executive director of the International Shade Tree Conference is Dr. Lewis C. Chadwick of Columbus, Ohio.

New Turfgrass Guide Available from Penn. State

An attractively prepared 32-page booklet on turfgrasses is now available from Pennsylvania State University.

Called "Turfgrass Guide for Lawns, Recreation Areas, and Roadsides," the publication describes 22 grasses and includes explanations of seed labeling requirements and mixture recommendations.

Special turfgrass problems

such as weed, insect, disease, moss, and algae control, are all discussed in the guide.

Other areas covered are soil testing, turf establishment and management, and turf renovation. Drawings of 24 common lawn weeds are on the booklet's rear cover.

Copies are available from Pennsylvania State University, Cooperative Extension Service, College of Agriculture, University Park, Pa. 16802.



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Invert Emulsion Use In Aquatic Weed Control Reported at Hyacinth Control Meeting

Use of invert emulsion formulations in aquatic weed control was a highlight topic at the sixth annual Hyacinth Control Society meeting, June 19-22, at Ramada Inn, Lakeland, Fla.

Dr. Lyle Weldon, of the Agriculture Research Service, U. S. Dept. of Agriculture, Ft. Lauderdale, Fla., related findings on use of invert emulsions to the gathering of aquatic weed controllers.

Delegates also heard a report on use and effectiveness of dichlobenil (Thompson-Hayward's Casoron). Manager of research and market development for the T-H Southeast region, James L. Taylor, presented data on the new aquatic herbicide.

A special feature at the meeting was the program directed by Zeb Grant, HCS president. He showed aquatic weed control people a prize-winning film produced for Central and Southern Florida Flood Control District, entitled "Marisa And The Mermaid." The film depicts the District's battle against aquatic weeds in its 15,000 square mile area.

Other papers presented at the event related the importance of training for safe use of herbicides in aquatic plant control,

and gave progress reports on current water weed control programs.

They included: "Practical Suggestions for A Large Scale Aquatic Weed Control Operation," by William E. Wunderlich, U. S. Army Corps of Engineers, New Orleans Dist. chief of aquatic growth control; "The Panama Canal Company's Aquatic Weed Control Program," by Julian S. Hearne, chief of the Dredge Div., Panama Canal Co.; and "A Survey of Herbicidal Application Methods in Southeastern U. S.," by John W. Woods, chief of the Fisheries Div., Georgia Game and Fresh Water Fish Commission.

Another top-interest paper presented during the 4-day session offered delegates an opportunity to look at the projected Army Corps of Engineers water weed control program.

"Future of The Aquatic Weed Control Program of The Army Corps of Engineers," was the title of a paper given by Harold R. Blakey, office of the Chief of Engineers, Washington, D. C. Charles Zeigler, Chief of Aquatic Plant Control Section, Operations Div., Corps of Engineers, Jacksonville, Fla., presented a paper titled "Training for the

Safe Use of Herbicides in Aquatic Plant Control," to the aquatic weed control gathering.

A proceedings of the entire meeting will be available from the Hyacinth Control Society, Inc., P.O. Box 1731, Tampa, Fla. 33601.

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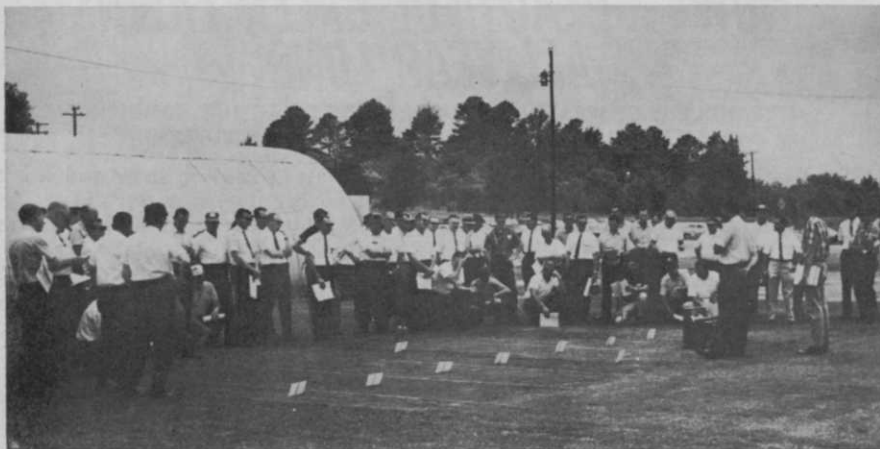
New Mexico law requires an applicator to apply for a permit, file a surety bond guaranteeing he will answer for damages, and take a written examination. He is tested on regulations, safety, calibration, dosage determination, and recognition and treatment of pesticide poisoning. He is required to keep detailed records on each contract, including date, time, method of application, pesticide used, dosage, name and address of contracting party, owner, and location of area treated.

Gerald Nielsen, chief, plant industry division, State Department of Agriculture, New Mexico State University, University Park, N. Mex., says the New Mexico Pesticide Applicator's Law protects both customer and applicator from inexperienced applicators.

Utah U. Gets USDA Grant

A \$69,591 grant to Utah State University at Logan, has been awarded by the U. S. Department of Agriculture for basic research on structural modification of plants by herbicides.

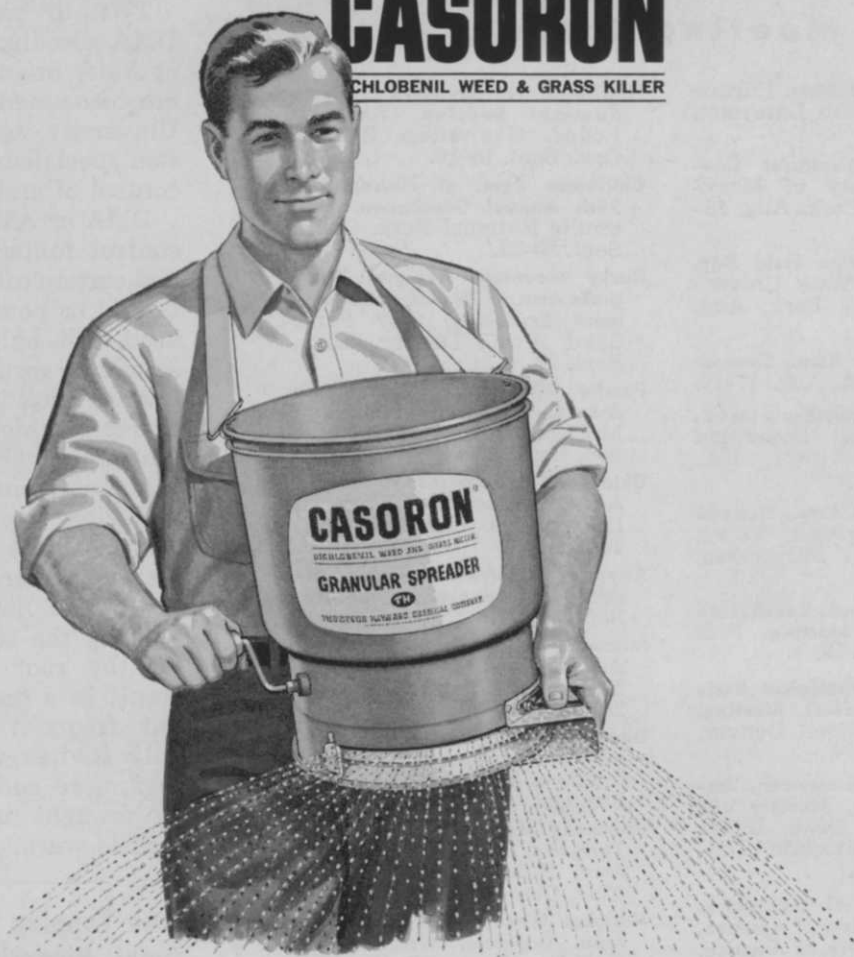
Information developed in this study should help to improve weed control methods, says USDA, whose Agricultural Research Service will sponsor the 4-year research study. Dr. J. LaMar Anderson, plant physiologist of Utah State University's plant science department, is to direct the project.



Overseeding bermuda turf with cool season grasses is explained by W. R. Thompson, Jr., at the Mississippi Turfgrass Conference, Mississippi State University, June 6-7. About 125 representatives from Mississippi and adjoining states toured research plots and saw new equipment demonstrated. Conference program focused on lowering turf maintenance costs with modern equipment and good management techniques. June 7 weed control sessions emphasized care in the use of herbicides to avoid damage to desirable turf. Fertilization was also discussed. Dr. R. E. Schmidt of Virginia Polytechnic Institute advised that, to avoid winter injury, bermudagrass should not be fertilized heavily with nitrogen in the fall. Conference proceedings may be obtained for \$2.00 by writing W. R. Thompson, Jr., Drawer AC, Mississippi State University, State College, Mississippi.

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Meeting Dates



- Midwest Turf Field Days**, Purdue University, West Lafayette, Ind., Aug. 8-9.
- 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.
- New England Nurserymen's Assn., Summer Meeting**, Boulevard Nurseries, Newport, R.I., Aug. 18.
- Wisconsin Arborists Assn., Summer Meeting**, Tyrolean Town House Motel, Milwaukee, Aug. 18-19.
- Wisconsin Park and Recreation Assn., Summer Meeting**, Fish Creek, Aug. 18-19.
- American Phytopathological Society, 58th Annual Meeting**, Denver Hilton Hotel, Denver, Colo., Aug. 20-24.
- 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.
- Alabama-N. W. Florida Turfgrass Assn. Annual Meeting**, Auburn University, Auburn, Ala., Sept. 8-9.
- Illinois Turfgrass Field Day**, University of Illinois, Urbana, Sept. 9.
- Tennessee Nurserymen's Assn., Kentucky Nurserymen's Assn., Joint Convention**, Mountain View Hotel, Gatlinburg, Tenn., Sept. 11-13.
- Mississippi Turfgrass Assn., Annual Fall Meeting**, Jackson Country Club, Jackson, Sept. 13.
- Northern Michigan Turfgrass Conference**, Traverse City Country Club, Traverse City, Sept. 13.
- Northwest Nurserymen's Indian Summer Session**, Salishan Lodge, Gleneden Beach, Ore., Sept. 16-18.
- California Assn. of Nurserymen, 56th Annual Convention**, Yosemite National Park, Calif., Sept. 20-22.
- Rocky Mountain Regional Turfgrass Assn., 12th Annual Equipment Exposition**, City Park, 23rd Ave., Denver, Colo., Sept. 21.
- Pacific Northwest Spraymen's Assn. Spray-O-Rama**, Thunderbird Motel, Portland, Oregon, Sept. 23-24.
- Oklahoma Nurserymen's Assn., Annual Convention**, Western Hills Lodge, Wagoner, Sept. 26-27.
- Arizona Nurserymen's Assn., Annual Convention**, Nogales, Sept. 26-27.
- Missouri Valley Turfgrass Assn., Annual Meeting**, University of Missouri, Columbia, Sept. 28-29.
- Ohio 25th Short Course on Roadside Development**, Departments of State Bldg., Columbus, Oct. 3-7.
- University of Florida 14th Annual Turfgrass Management Conference**, Ramada Inn, Gainesville, Oct. 4-6.
- National Recreation and Park Assn. Congress**, Washington-Hilton Hotel, Washington, D.C., Oct. 9-13.
- National Conference on State Parks, 46th Annual Meeting**, Kentucky Dam Village State Park, Ky., Oct. 16-21.
- National Weed Committee of Canada, Eastern Section**, Research Station, Canada Agriculture, Kentville, Nova Scotia, Nov. 1-3.
- Horticultural Spraymen's Assn. of Florida, Annual Convention**, Pier 66 Hotel, Fort Lauderdale, Nov. 3-5.
- New Jersey Federation of Shade Tree Commissions, Annual Meeting**, Haddon Hall Hotel, Atlantic City, Nov. 13-15.
- Nebraska Association of Nurserymen, Annual Convention**, Cornhusker Hotel, Lincoln, Nov. 14-15.
- National Weed Committee of Canada, Western Section**, Research Station, Canada Agriculture, Brandon, Manitoba, Nov. 29-Dec. 1.
- Illinois Turfgrass Conference**, University of Illinois, Urbana, Dec. 1-2.
- Minnesota Nurserymen's Assn., 40th Annual Convention**, Curtis Hotel, Minneapolis, Dec. 5-6.
- North Central Weed Control Conference**, Broadview Hotel, Wichita, Kans., Dec. 5-7.

OSU Says DMA, AMA for Crabgrass Control

Two to six applications of DMA, disodium methyl arsenate, or AMA, amine methyl arsenate, are recommended by Ohio State University agricultural extension specialists for postemergent control of crabgrass.

DMA or AMA are also said to control foxtail, barnyard grass, and certain other annual grasses. Liquid or powder forms may be used, but only crabgrass areas should be sprayed, not the whole lawn. If soil is dry and temperatures are high, water the lawn thoroughly about two days before treatment.

During dry summers, crabgrass is more apt to be a problem on watered lawns than on unwatered lawns. Thoroughly wetting the soil will encourage healthy root development and result in a good stand of grass, but frequent light sprinkling only invites weeds and makes turf more susceptible to injury by drought and heat, the specialists warn.

Tree Topping Can Cause Fungi, Bacteria Decay

Remove trees from crowded stands instead of topping all the trees, Kansas State University extension landscape architect Jim Nighswonger recommends.

Unless special care is taken with topping, branches do not heal, and wood-rotting diseases frequently spread throughout the tree. Open wounds left by topping are avenues for entry of decay fungi and bacteria Nighswonger explains. Another unhealthy result of tree topping is growth of weak sprouts below topped stubs. They grow and gain in diameter and weight until they can be easily torn from the tree by wind.

When pruning is necessary, Nighswonger suggests that limbs should be cut as close as possible to the main branch or trunk. Flush pruning cuts are ideal, and will heal over quicker.

He reminds that protective tree paint should be applied to any pruning wound over 1½ inches in diameter.

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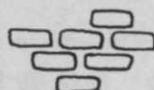
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Maryland Turf Expert Advises Overseeding Now

Best time to overseed thin or bare spots, or to seed new lawn areas, is in late August or early September, according to turf-grass specialist, Dr. Elwyn Deal, of the Department of Agronomy, University of Maryland.

Under most Maryland conditions, Dr. Deal says, seeding a mixture of two or more grasses is better than using a single variety. The University lists the most widely adapted mixture in Maryland as 40% Kentucky bluegrass, 40% Merion bluegrass, and 20% creeping red fescue.

If a quick cover is necessary, Dr. Deal suggests 5% redtop or ryegrass may be added to the mixture, but he warns that mixtures containing more than 5% should be avoided. Tall fescue can be used in play areas and in other areas where heavy use makes a coarse-textured grass acceptable.

Further information is available in Maryland Extension Bulletin 171, "Lawn Care in Maryland;" Agronomy Mimeo #2, "Lawn Grass Seed Buying Guide;" and Extension Leaflet #38, "Lawn Management Guide." Address inquiries for copies of these bulletins to Cooperative Extension Service, University of Maryland, College of Agriculture, College Park, Md.

Mallinckrodt Turf Guide Out

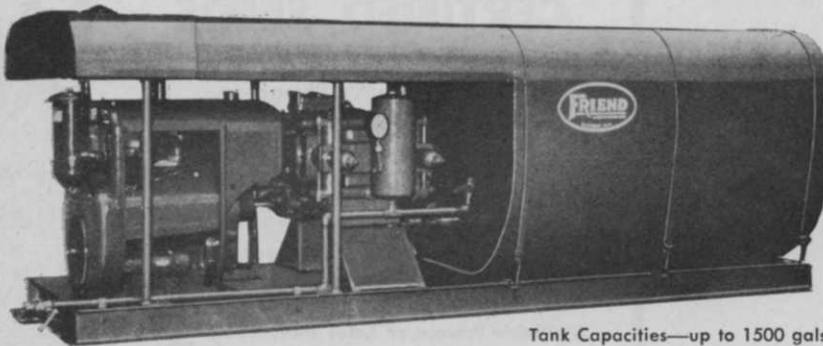
Control of 17 major turf diseases is discussed in the 48-page "Turf Pest Management Handbook," now available to turf managers upon request from Turf Products, Mallinckrodt Chemical Works, Box 5439, St. Louis, Mo. 63160.

With 20 color illustrations and updated turf disease and fungus identification keys, the booklet is said to have been prepared by leading turf authorities for guidance on many aspects of turf management.

Ohio Plans 25th Roadside Short Course, Oct. 3-7

Contractors and other professionals interested in roadside landscape design, construction, and maintenance are invited to attend the 25th annual Short Course on Roadside Development, Oct. 3-7. Sponsored by the Ohio Department of Highways and Ohio State University's Department of Landscape Architecture, the short course includes two days of meetings to be held at the Departments of State Building, in Columbus, Ohio. Contract seeding, promoting turf growth, and use of ureaform in the highway program are among subjects to be covered. Equipment displays and demonstrations are highlights of a two-day field trip also planned. Additional information on the short course can be obtained from Wilbur J. Garmhausen, Chief Landscape Architect, Ohio Department of Highways, Columbus, O. 43215.

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Deep Growth, Herbicides Help Tree Root Control

Shade trees with shallow roots in lawn areas often cause aggravating problems in turf maintenance. Grass growth may be unsatisfactory because of competition for water and nutrients, sprouts may come up in the lawn, and the tree's roots may develop so close to the surface that they cause ridges in the lawn.

Tree roots tend to grow wherever soil conditions are most favorable; if lawns are kept sprinkled and fertilized, but the lower soil levels neglected, conditions are created that promote surface development of tree roots.

To encourage deeper root penetration the National Arborist Association suggests that fertilizer, and water as needed, be applied in the normal root zone some 15 to 20 inches below the soil surface.

Herbicidal chemicals may be used to advantage. The common weedkiller 2,4-D, may be sprayed on the foliage of the sprouts, or 2,4,5-T, a brush-killing compound, may be applied to the leaves and stems. Used at the proper rates, as given on the container label, these materials will not injure grass, but will kill the sprouts and usually a section of the roots.

If the tree stands near the border of a lawn, a trench may be dug 10 to 12 inches deep and a barrier placed to prevent roots

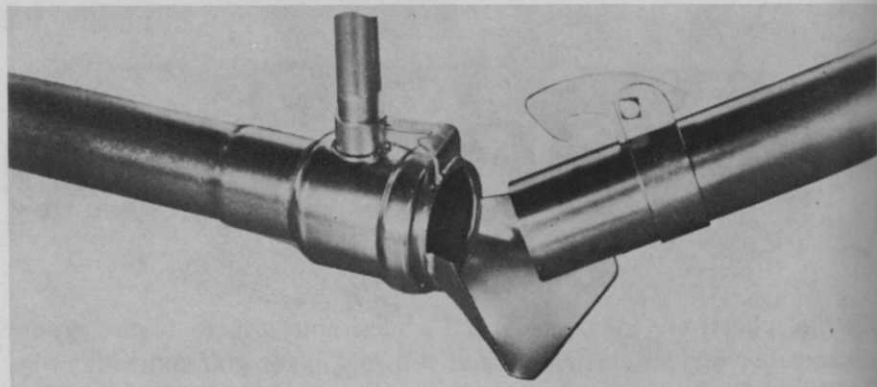
entering the turf area. The barrier may consist of several layers of asphalt roofing paper placed upright, or sheet aluminum may be used. Such barriers are long lasting and generally quite effective.

Rohm & Haas Booklet Describes Turf Diseases

A new 16-page booklet on turfgrass diseases is available from Rohm and Haas Co., developer of the dithiocarbamate fungicide, Fore. With full-color photos of typical disease symptoms, the publication describes 10 major turf diseases the company says can be controlled by Fore.

Titled "Fore in the Control of Turf Grass Diseases," it gives a preventative spray program for control of *Helminthosporium* melting out, *Rhizoctonia* brown patch, dollar spot, *Pythium* blight, *Fusarium* patch, *Fusarium* blight, red thread, copper spot, slime molds, rusts, and algae. Fore, said not to be injurious to grasses, has been tested by numerous experiment stations and golf courses in the eastern, central, and southern areas of the U. S. Fore as a control of certain ornamental diseases is also recommended.

For copies of the publication, AG-232, write the Agricultural and Sanitary Chemicals Dept., Rohm and Haas Co., Independence Mall West, Philadelphia, Pa., 19105.



Press-in steel couplers and fittings make it easy for turfmen to hook up a portable sprinkling system or temporary water transport line, according to John Bean. These fittings are available for use with 2" to 6" aluminum tubing. Features are said to include a bell-shaped coupler for greater angularity, tapered section on fittings to prevent cocking, one-piece construction of riser valves for economy, and sweep forming of elbows to reduce friction losses. Interested readers should request catalog W-362 when writing to the John Bean Division, FMC Corp., for complete details. Address Shur-Rane Dept., Box 9490, Lansing, Mich. 48909.

ASA to Include Turfgrass Topics in Aug. 21-26 Meet

Turfgrass breeding and nitrogen nutrition of turfgrasses are to be discussed at the joint meeting of the American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society of America, set for Aug. 21 to 26 at Oklahoma State University, Stillwater.

As part of a half-day program on plant breeding and genetics, Dr. J. A. Long, director of biochemical research for O. M. Scott & Sons, Marysville, Ohio, will talk on the effectiveness of breeding methods for developing improved bluegrass, st. Augustinegrass, red fescue, tall fescue, and ryegrass.

Nitrogen nutrition will be topic of a special symposium sponsored by the Crop Science Society of America, and directed by Dr. James B. Beard of Michigan State University. Speakers will include Dr. Coleman Y. Ward, agronomy department, Mississippi State University, who will discuss the forms in which grasses absorb nitrogen; Dr. Eliot C. Roberts, horticulture department, Iowa State University, who will talk on nitrogen effects on turfgrass growth and quality; Dr. R. E. Schmidt, agronomy department, Virginia Polytechnic Institute, who will describe environmental elements, such as light, oxygen, and temperature, affecting nitrogen utilization; and Dr. Norman Goetze, farm crops department, Oregon State U., talking on nitrogen carriers.

Contact the American Society of Agronomy, 677 S. Segoe Road, Madison, Wis. 53711, for more information on the meeting.

Md. Sod Program Grows

Many Maryland sod growers, who this fall will plant for certification, have already had their fields inspected, University of Maryland extension specialist, Joe Newcomer, reports. Growers seeking approval under the Maryland Sod Certification Program must use certified seed when planting such varieties as Merion bluegrass and Pennlawn red fescue, and should save a

sample of the seed as a control check. To obtain the certified tag, sod growers who use non-certified seed must have approval of the seed lot before planting. Seeds are checked for kind, origin, and contamination by other crop and weed seeds. Checking for Aug. and Sept. plantings is underway. Details on the state's certification program are available to WTT readers who write: Department of Agronomy, University of Maryland, College Park, Md.

Diamond Adds Arsonate Plant

Construction of a new multi-million pound capacity plant for production of its arsonate herbicides has been revealed by the Agricultural Chemicals Division of Diamond Alkali Co., Cleveland, Ohio.

The new facility is scheduled to produce Diamond's DSMA and MSMA, postemergent herbicides and Diamond's arsonate surfactant, Daconate. It is located at the company's Greens Bayou, Texas, operation.

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"No-Mow" is Hit of Texas A&M Turfgrass Day, July 6

"No-Mow," a low-light tolerating bermudagrass variety was hit of the show as some 125 turf managers gathered for Texas A&M University's annual turf field day, July 6. "No-Mow" has exhibited exceptional tolerance to low light intensity," Dr. George G. McBee, of the school's soil and crop sciences department, said. Other grasses tested, including Pensacola bahiagrass, Meyer zoysia, and two Bermuda varieties, performed unsatisfactorily in shade. Only T-135, another Bermuda selection, showed some shade tolerance.

Visitors to test plots at the Agronomy Field Laboratory also saw a test of weed control using organic arsenicals. AMA, MSMA, Malgon, CAMA, and DSMA controlled annual weedy grasses with a single application, though several applications were necessary to kill such perennials as nutgrass. Fineleaf Bermudas

were described as "sensitive but tolerant" to arsenicals.

Of more than 80 new grasses, several Bermuda-related types were top performers in the Texas

tests. These were *Cynodon hirsutus*, *Cynodon barberi*, and *Cynodon dactylon*.

Other plots showed weed control experiments on Tifgreen, said to be safe for such herbicides as 2,4-D as long as the temperature is not too high; clipping-height experiments; and establishment studies, where



Visitors register for the Turfgrass Field Day, held at Texas A&M University, College Station, Texas, July 6. On the horn, right, is Dr. George G. McBee, soil and crop scientist.

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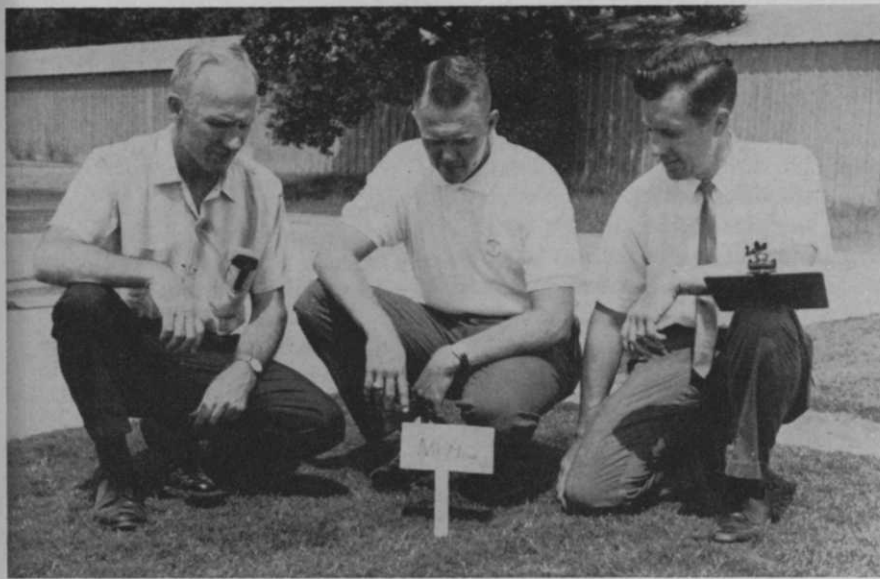
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Qualities of "No-Mow" bermudagrass variety are explained to Quinton A. Johnson, president, Texas Turfgrass Assn., by Dr. E. C. Holt, left, and Dr. George G. McBee, right, of Texas A&M.

broadcast sprigging gave fastest and most uniform growth of zoysia, St. Augustine, and Bermuda varieties tested.

Special plant growth chambers and nematode studies were explained on a tour of Texas A&M's laboratories. Talks on turf heating, soil aeration, and

miscellaneous turf experiments highlighted the field day's afternoon session.

Explaining Texas studies to visitors were Dr. Walter Thames, Dr. Wendell Horne, Al Novosad, Dr. Neal Pratt, Cecil Brooks, Ken Beerwinkle, Alvin Zemanek, and Wallace Menn, all of Texas A&M.

Avoid Nitrogen Overuse

Some newspaper articles published recently have been advocating what some consider extremely high rates of nitrogen for lawns, according to Dr. Elwyn E. Deal, extension turf specialist at the University of Maryland. Rates as high as 6 to 8 pounds of nitrogen per 1000 sq. ft. for common Kentucky bluegrass, and 8 to 10 pounds for Merion Kentucky bluegrass have been suggested, Deal reports.

Current recommendations from most experiment stations suggest 3 to 4 pounds of nitrogen per 1000 sq. ft. per year for common Kentucky bluegrass and 4 to 6 pounds for Merion, Deal says. Roughly one-half of two-thirds of this amount can be applied in September and October, and the rest in March. With Merion, another light application may be made in May.

Severe disease problems, heat, and drought injury during summer often result when nitrogen is applied at high rates to cool-season grasses in the Maryland area, Dr. Deal cautions.

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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.

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FOR SALE

BEAN ROYAL PUMP and regulator. 55 gal. per min. Both newly reconditioned, with Continental motor, \$1,350. 1200 Curtis Dyna-Fogger, less than 100 hours, good working condition, \$900. Both items f.o.b. Byron, Michigan. M. L. Sutton, United Tree Service, Byron, Michigan. Phone 313+266-4363.

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.

Fall Planting Excellent For Certain Ornamentals

Fall is an excellent time to plant many ornamental trees such as evergreens, hackberry and moraine locust, and shrubs such as spirea, according to Jim Nighswonger, extension landscape architect, Kansas State University, Manhattan, Kans.

He notes that growing problems can often be traced back to poor planting practices. Whether planting bare-root or balled and burlapped trees or shrubs, Nighswonger says make sure the hole dug is large enough. The larger a balled and burlapped plant, the greater the hole size should be in relation to ball diameter. For a 12 to 18" soil ball, add 6 to 8" for hole diameter.

Plant should be set at about the same depth it had before moving. Back fill with good soil and peat moss after planting, and water thoroughly. Nighswonger adds that fertilizer is seldom needed until the plant has established itself in the new location.

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PLATZ

For EFFECTIVE Weed and Pest Control

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.



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Stauffer Lists Eptam Uses

Eptam granular herbicide, said to control annual and perennial weeds in flower beds and among ornamentals, is discussed in a new folder available from Stauffer. Listed are 15 herbaceous plants, 9 ground covers, and 25 evergreen and deciduous trees and shrubs, Stauffer claims Eptam granular will protect.

Timing, application, and recommended rates are covered in the folder which may be obtained by writing Stauffer Chemical Co., 380 Madison Ave., New York, N.Y. 10017.

No insect problem here...



...thanks to Malathion. Authorities the country over for years have relied on this truly all-purpose insecticide to keep recreational and camping areas free of mosquitoes, flies, ticks, ants, spiders and other bothersome flying and biting pests... including species which have developed resistance to other chemicals.

Malathion comes in a wide variety of liquid and powder forms, which can be used in any type of application equipment.

And Malathion provides low-cost insect control. A little goes a long way.

These are the reasons why municipalities use Malathion to guard against outbreaks of encephalitis. Homeowners also use Malathion to rid the garden and patio of insects just before that important barbeque... and to take care of nuisance pests indoors. They show why Malathion continues to gain in popularity as the number 1 insecticide for use in and around parks, golf courses, playgrounds, camping areas—wherever people gather to relax.

For complete information about the use of Malathion to control insect pests, write for booklet PE-5039.

Before using any pesticide, stop and read the label



CYANAMID

AMERICAN CYANAMID COMPANY
PRINCETON, NEW JERSEY

SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

A Near Kill

Experienced treemen know equipment safety guards are built onto machinery for sound safety reasons. Here's an account of a near-fatal accident that resulted from failure to use a safety guard.

A Public Utility District arborist in Kennewick, Wash., reports that the mishap occurred while he was nearly 40 ft. up in the air inside the bucket of an aerial hoist. A safety shield over the controls had been removed for "better access" to the levers.

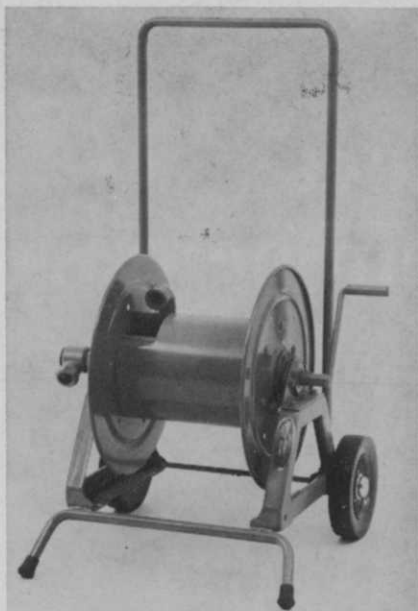
Minus the shield over controls, the treeman slowly brought the bucket up under a cable attached to a building and stretched across the street to another anchoring. As the bucket continued to rise, the wire came directly across the operator's hand which was pressing on the "Up" control. Before the unusual pressure was noticed, the serviceman's hand was trapped and the hoist surged upward.

When the cable snapped from its moorings, the bounce nearly popped the serviceman out of the bucket, and to the ground close to 40 ft. below.

Banvel D Label Approved

Approval of a new USDA label registration for granular Banvel D + 2,4-D was recently revealed by the Velsicol Chemical Corp. One application a year, in spring or fall, is recommended by the maker for control of dandelion, clover, knotweed, chickweed, and other broadleaf weeds in established lawns and golf course areas. The granular form may also be applied to newly seeded lawns after the second spring cutting, Velsicol says. For best results the herbicide should be applied to moist grass, which should not be watered or mowed for 24 hours afterwards.

For more information on the granular Banvel D + 2,4-D combination, write Velsicol Chemical Corp., 341 East Ohio St., Chicago, Ill. 60611.



New Hannay portable hose reel handles 60 to 250 ft. of $\frac{3}{8}$ to 1-in. I.D. hose for liquids or gases up to 300 psi, and temperatures from -20 to +180 degrees Fahrenheit. Rewind is by direct hand crank with an adjustable drag device to brake or lock the reel. The new models are permanently mounted on tubular steel frames. They feature self-aligning front and back bearings. Complete information is available from Clifford B. Hannay & Son, Inc., Westerlo, N. Y. 12193.

Tractor Exhaust Blows Dry Insecticide Fog

Estate Deluxe BlitzFogger "400" is a new lawn and garden tractor attachment that uses heated exhaust gases to dispense insecticide fog.

Manufactured by Northern Industries, Inc., the device incorporates a metering valve which allows heated exhaust gases to thermalize insecticide in an attached tank. The resulting dry fog covers an acre of ground in less than 10 minutes, the firm claims. The unit comes equipped with an easy-to-read gauge that registers the amount of insecticide left in the tank.

Fog generated by the attachment is said to be safe for use on and around trees, flowers, and shrubs.

BlitzFogger "400" has a half-gallon tank, metering valve, pipe fittings, and a nozzle. Included with new units is a quart of BlitzFog insecticide, made especially for the foggers.

To obtain more details on the exhaust attachment write to Northern Industries, Inc., 407 E. Michigan St., Milwaukee, Wis. 53202.

Trimmings

High and Dry. Talking to a sod producer the other day, we heard of a hapless New York State landscaper caught with his sod down. Barely had he placed the last piece of sod around a new high-rise apartment when the local authorities imposed a watertight sprinkling ban. Within a few days, his fresh, green sod turned to a straw mat, and the apartment owner staunchly refused to part with a nickel on the grounds that the ground he ordered was to be of grass, not hay. We don't know how the matter was resolved, if it has been resolved, but we wonder about the sod grower and the unfortunate landscaper, and just how far their responsibility for fresh turf goes. What about the grower or landscaper who delivers his sod in good order to the occasional customer who's convinced garden hoses are for washing cars, not watering lawns?

* * *

Weed rather not enter. We're still listening to radio, and recently tuned in a station promoting a weed contest. Listeners are invited to send in weeds which will be judged in three categories: biggest, most unusual, and prettiest. And free crabgrass plants for the winners. Weed rather give up radio.

* * *

Seeing is believing. When in New Jersey for the Rutgers sod field day, we talked to Wiley Miner, head of Princeton Turf Farms, whose Croshaw Farm hosted the June 22 product demonstrations. "Field days are important because we have to see the new equipment in action to appreciate the growth of sod industry techniques," Wiley said with a smile. We weren't puzzled by his comment, but we wonder how he could smile after seeing his turf leveled, rotavated, fumigated, seeded, fertilized, irrigated, mowed, thinned, and harvested—all in one afternoon! We noticed, though, that as soon as the show equipment was off the turf, Princeton's crew went to work to smooth out their prize New Jersey Certified Sod.

* * *

Shotgun fails. "Shotgun" spraying of lawns with drug and grocery store weedkillers is more convenient than effective, says Eugene Heikes, Colorado State University extension weed specialist. He traces the frequent failures of home weed remedies to weak formulations and wrong identification of weeds by lawn-owners, who sometimes assume that if a plant doesn't belong it must be "crabgrass." There's just no substitute for the weed or turf specialist and the well-calibrated sprayer. Now, if CAs could only get homeowners to believe this...

* * *

Our congratulations to the Weed Society of America for its new "Weed Science Newsletter," being edited by that well-known Floridian, Jack Rogers. Since the publication meets a real need, we hope members will soon vote on how frequently it will be issued.

"COPPER SULFATE AND CONTINUAL SAMPLING KEEP ALGAE AT A MINIMUM"

states Alan H. Ketcham, Superintendent of Supply, Stamford Water Company, Stamford, Connecticut



Alan H. Ketcham, Superintendent of Supply and William Bartscht, Watershed Supervisor plan an all-out attack on algae.

"One of the most important activities of water management is a constant check not only of reservoirs but of the complete watershed. In our case, this means an area of 23 square miles, including numerous small lakes and ponds. Because some of these small bodies of water grow algae as if specially designed for the purpose, we treat them, as well as our main reservoirs, with copper sulfate which we have always found to be a most effective algicide."

Chartered in 1868 when it operated one

reservoir and served a city of 8,714, the Stamford Water Company today operates 4 reservoirs and provides water for 90,000.

Supply Superintendent Ketcham says, "Our main distribution reservoir is a lake holding 512 million gallons. We treat this lake with copper sulfate two or three times a year depending on the algae problem. Using a work boat which drags suspended bags of copper sulfate crystals, the operation takes one day and uses about 1,700 pounds of copper sulfate."

"Our inspectors who are regularly in every quarter of the property, are constantly on the lookout for algae growth, particularly in remote shallow sections. When necessary, treatment with copper sulfate is directed at these points of algae concentration. We always try to catch algae at the start of growth and treat at once before it has a chance to spread."

"We have sometimes traced algae problems to untreated residential ponds. We find that the average homeowner does not fully comprehend pond management and maintenance so we try to advise him. This is really worthwhile because whenever

algae is allowed to grow unchecked there is danger of it getting into the main reservoir, and it is always simpler to treat algae confined to a small pond."

"The men on our inspection team are uniformed, travel in radio-equipped cars and work with Health Department men from two states. Water is constantly sampled and examined microscopically. Copper sulfate purchased in 100 lb. bags is stored at the reservoir itself, ready for use at any time."



William Bartscht, Watershed Supervisor, continually samples water from the reservoirs and from outlying ponds.



Shallow ponds soon become clogged with algae unless treated with copper sulfate.

PHELPS DODGE REFINING CORPORATION **P B**

300 PARK AVENUE, NEW YORK, N.Y. 10022

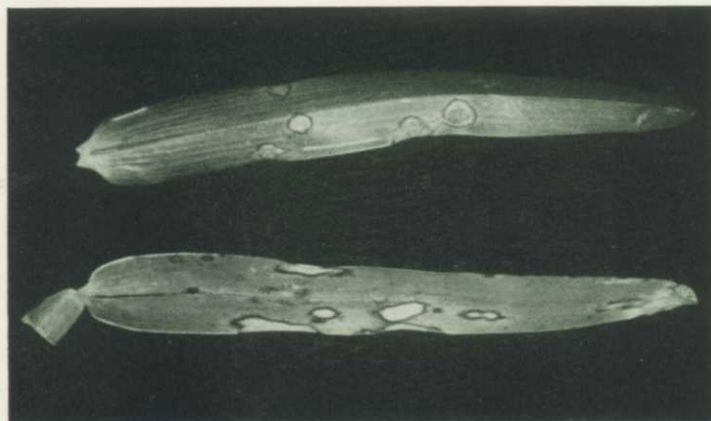


CHEMICAL BULLETIN



FOR SOD WEBWORMS,
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CHLORDANE—America's leading turf insecticide kills practically all grass-killing soil insects, and most surface insects, too! One application keeps soil insect-free for 5 years or more. Chlordane's long residual action gives you better control. Chlordane is easy to work with, has no offensive odor. Ask for Velsicol Chlordane in either liquid or dry formulations.




FOR GRAY LEAFSPOT,
FAIRY RING, PHYTHIUM:

VELSICOL® MEMMI .8EC—effective for warm and cool season grasses, this emulsifiable liquid concentrate gives long-lasting protection against many turf diseases. It mixes in minutes, needs no constant agitation, won't clog nozzles, and it leaves no sediment to clean out of the spray tank. Economical, too. Try it now.

Save turf—save time with the Velsicol *complete line* of quality turf chemicals: Velsicol® "2-1" and Velsicol® Memmi. 8EC for turf disease control; Bandane® for crabgrass control; Banvel® D 4S and Banvel® D+2, 4-D for weed control; Chlordane for insect and crabgrass control; and Velsicol Pestmaster® Soil Fumigant-1 for greens renovation. Ask your supplier for them.

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