

WEEDS

TREES

and TURF

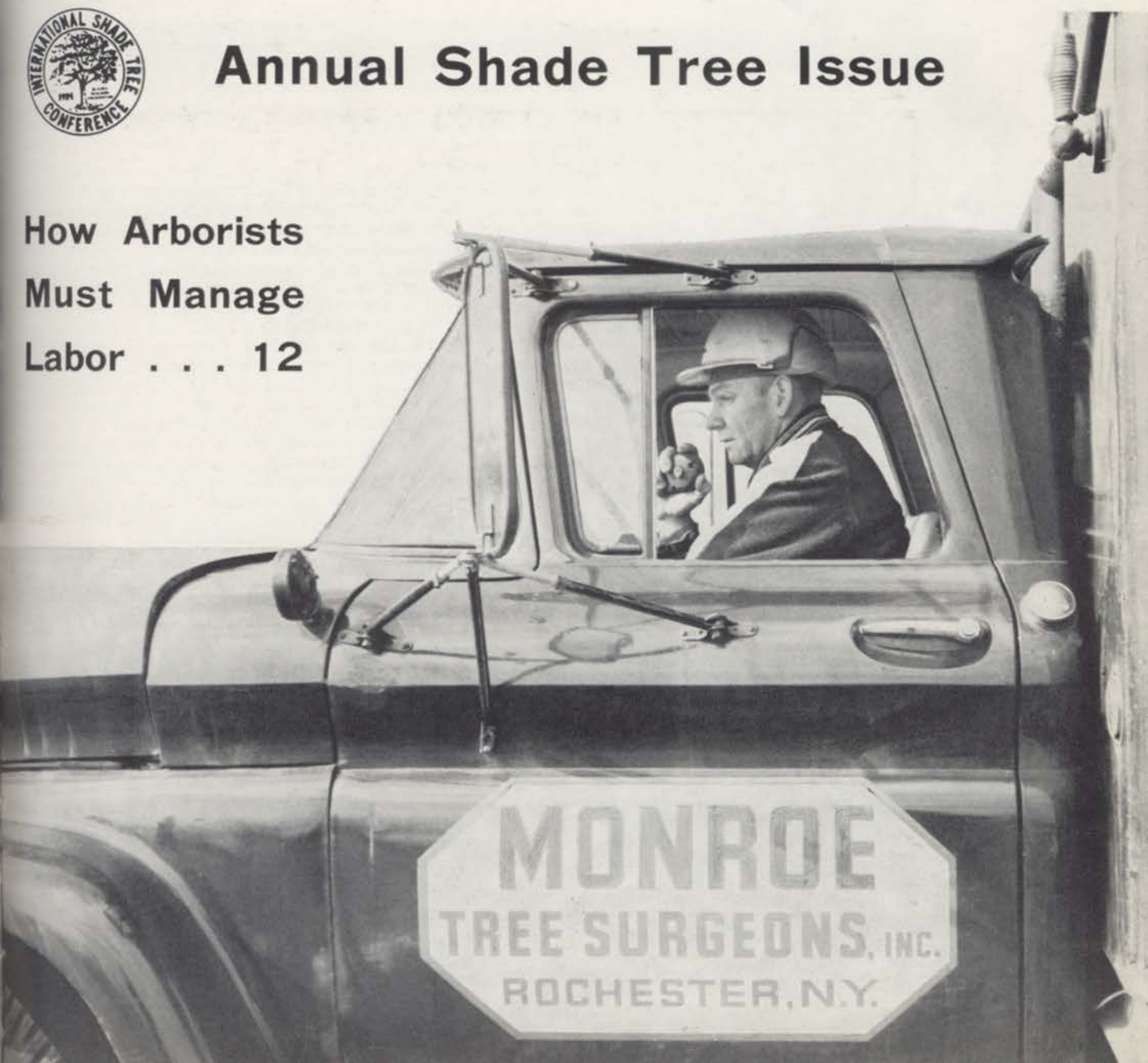
FORMERLY WEEDS AND TURF

August 1965



Annual Shade Tree Issue

**How Arborists
Must Manage
Labor . . . 12**



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WEEDS TREES and TURF

FORMERLY WEEDS AND TURF

August 1965
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On a recent visit to a nature conservancy, we saw a newspaper story about Bidrin for Dutch elm disease posted in the hospitality lodge. The managers wished to tell sanctuary visitors that there was hope for control of this destructive disease of our native American elm. They seemed to approve this technique. (See page 10.)

We ponder a moment to reflect why outspoken nature groups accept one form of insecticidal control and reject others vehemently. Readers are aware of the charges, which began to fly during the historic summer of 1962 when the *New Yorker* serialized Rachel Carson's *Silent Spring*.

Bidrin, despite its *highly toxic* nature, has *little hazard* when used with proper precautions. With your own safety, and the safety of innocent bystanders, both human and animal, firmly in mind, you can apply the protective Bidrin to elm trees.

We are impressed, as the public must certainly be, by the time and trouble taken by the Shell Chemical Company to insure safe application of this new chemical by qualified people.

Perhaps this explains the seeming inconsistency of the "antipesticide." The public accepts treatments where the manufacturer and the industry are obviously taking positive steps to make certain treatments will be safe. But, you say, all chemicals we use must be tested and registered with the government before use. True, but is this enough for the public? Take a lesson from Shell and its applicators; you will see that emphasis on the safety of application of *any chemical* to any plant, be it turf, ornamentals, or weeds in water or on industrial plant sites, will help win public support. In truth, it is this same public which buys protection for prized plantings, or pays for removal of unwanted vegetation. They just want to be certain it's done safely.

The lesson is clear. Attend clinics and short courses to learn of the safe use of chemicals—tell the public that you attend such industry functions. Be knowledgeable of your chemicals—tell the public that you are knowledgeable. Conduct your operations with obvious safety emphasis—inform the public that you do this. Be considerate of other forms of nature which may be affected by your treatments—tell the public that you are considerate. Know the limitations of treatments you offer—tell the public so.

Above all, let your actions bear out what you tell the public.

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, 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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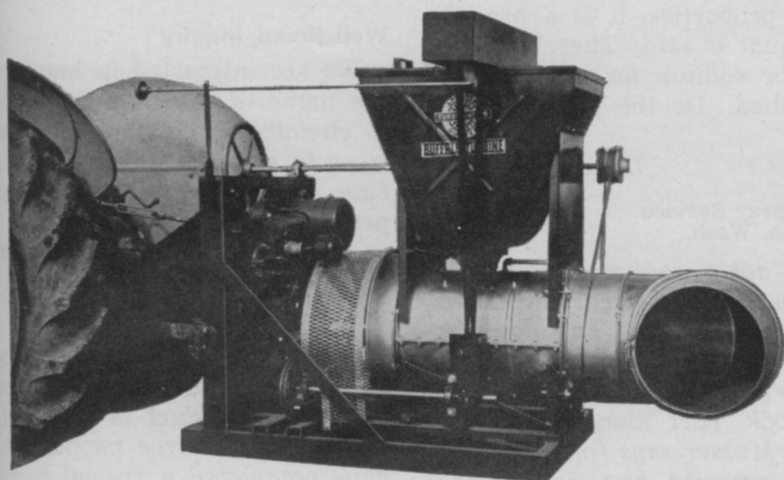
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WTT Mailbox

"Tree" Is Company, Too

I would like to add my word of praise for the new scope of your publication. It is very helpful to have the three subjects covered in one magazine.

Edward A. Connell

Public Relations Chairman
International Shade Tree Conference

* * *

A bit of praise for you is well in order. I receive your magazine regularly, read it from cover to cover, and enjoy it very much. I think your adding of the word "Trees" to the title was a nice touch.

Noel B. Wysong

Secretary-Treasurer
Midwestern Chapter
International Shade Tree Conference

Dislikes Sodium Arsenite

In your February 1965 issue on page 8 of Tom Mascaro's Guide to Turfgrass Renovation, it says "Sodium arsenite or an equivalent material is applied about one week prior to aerification . . . for a complete renovation program." I must disagree. Sodium arsenite should not be mentioned. Due to its toxic properties, it is a hazard. Paraquat is safe. There's no label for sodium arsenite use as described. Do the job safe and sane.

Donald J. Miller

A-1 Spray Service
Tacoma, Wash.

We agree sodium arsenite is highly toxic and hazardous when handled carelessly, but we must support Mr. Mascaro's statement on its use for renovation. The textbook Turf Management by H. B. Musser says (p. 202): "Sodium arsenite has found its greatest usefulness killing undesirable vegetation preparatory to a complete renovation program. . . . It kills plant tissue with which it comes in contact . . . not effective for eradicating grasses with rhizomes. Species like Kentucky bluegrass, Bermuda, and quackgrass will survive extremely heavy dosages."

Dr. Musser's discussion of golf

course fairway renovation on p. 181 of the same text differs only from author Mascaro's in the addition of detail, and the fact that Dr. Musser prescribes a minimum rate of 40 to 50 lbs. per acre for *Poa annua* eradication, while Mr. Mascaro states that 35 lbs. per acre is the usual rate.

We must disagree that sodium arsenite has no label for this use. We quote from a specimen label of one formulation of sodium arsenite by the Chipman Chemical Co.: ". . . used for renovation and selective weed control of certain weeds in turf."

In detail the label reads: "When sodium arsenite is recommended for 'scorched earth' treatment, use 5 to 13 gallons of Atlas 'A' in 50 to 100 gallons of water per acre (Atlas 'A' contains 4 lbs. of arsenic trioxide per gallon). Apply in fall at least 14 days before preparing seed bed for reseeding."

To the best of our knowledge, Paraquat is not labelled for renovation of turf. We do know it is labelled for control of winter broadleaf weeds on southern dormant turf only.—Ed.

Well-timed Inquiry

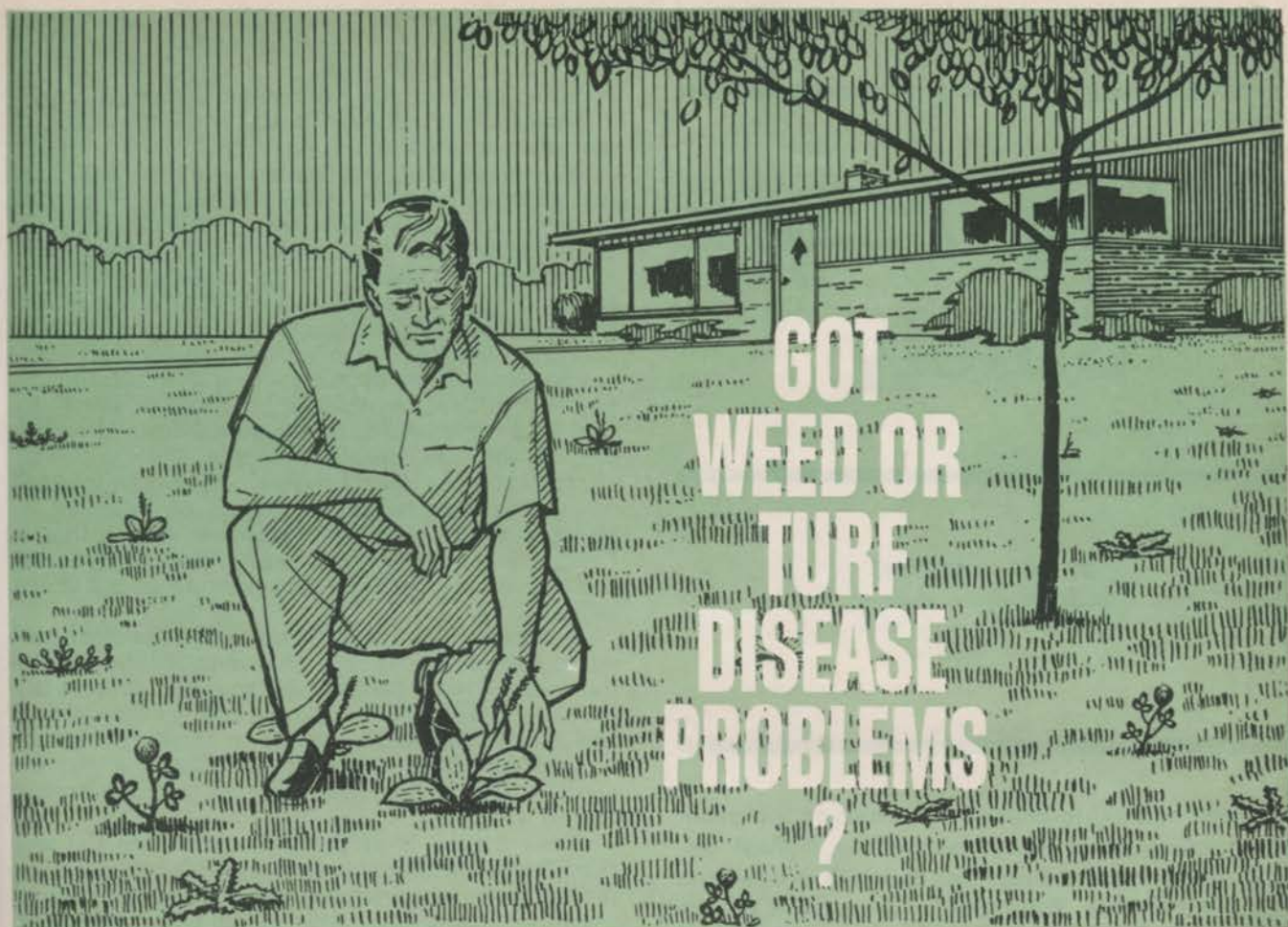
We are interested in knowing the name of the firm that sells a chemical injection for elm trees to prevent Dutch elm disease. Where can we obtain this product?

Don Kamban

Schoenbrunn Evergreen Gardens
New Philadelphia, Ohio

See page 10 for a report on Bidrin, the chemical you mention. This product is sold only to professional tree people who have completed a special training course. Agricultural Chemical Div., Shell Chemical Co., 110 W. 51st St., New York 20, N. Y. can furnish details.—Ed.

Weeds Trees and Turf welcomes expressions of opinions from its readers. Send ideas and comments briefly as possible to James A. Nelson, Editor, Weeds Trees and Turf, 1900 Euclid Ave., Cleveland, Ohio 44115.



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Using Bidrin Safely

By JAN MARFYAK

Accident Prevention Consultant
Wisconsin State Board of Health
Madison, Wisconsin

A leave-nothing-to-chance instruction program for applicators of Bidrin insures the highest degree of accident prevention. Bidrin is a new systemic insecticide from Shell Chemical Co. for control of bark beetles which carry Dutch elm disease fungi. Here is a valuable step-by-step description of proper techniques as shown at the University of Wisconsin.

CAREFUL PLANNING and training have become the hallmarks of pesticide use. The introduction of Bidrin, a systemic pesticide used to control "Dutch Elm Disease" and manufactured by the Agricultural Chemical Division of the Shell Chemical Co., has been accompanied by instruction and demonstration.

Public and private applicators have been trained by representatives from Shell, the Department of Agriculture, and the Department of Entomology of the University of Wisconsin. Joining with this team of experts has been the Hopkins Agricultural Chemical Co., sole distributor of Bidrin in Wisconsin.

A course of instruction was set up to train applicators who would be using the material. Applicators who attended the training sessions were issued permits by the State Department of Agriculture.

Subsequently, applicators were invited to Madison for a practical demonstration on use of the pesticide. Learning by doing, underscored by safe uses and practices, completed the training.

Applicators assembled at 10:00 a.m. in a public park (Fig. 1) and were given practical instruction by Professor Dale Norris, a member of the Department of Entomology, University of Wisconsin (Fig. 2). At the conclusion of his demonstration, and an extended question and answer period, ap-

plicators divided into groups and, under the supervision of experts, began to apply the pesticide to elm trees located in the park (Fig. 3).

For protection, applicators wore rubber suits and gloves and wore either face masks or goggles to avoid accidental skin contamination (Fig. 4). Each man had an opportunity to insert the aluminum tubes into trees which provide the vehicle for transferring the pesticide from the container into the tree. Practical instruction in this phase of the operation is vital since insertion of the tube cannot be done either by measurement or formula. It requires a "feel" which can be developed only by trial and error; the tube must penetrate the bark and tap into the cambium layer.

This step by step process helped to highlight the safe techniques which should be followed by all applicators. Use of a hammer rather than a hatchet was suggested for safety, thereby avoiding the risk of injury from a backswing of a hatchet (Fig. 5).

A special tool, used for inserting the steel conveyor tube provides safe placement of the tube in the tree. It was pointed out that the tube, when properly placed, should be parallel to the ground, and should not be inserted at an angle. Each tube is inserted breast high at a distance 5" to the right or left of the first tube so that the tree is ringed (Fig. 6).

Once a tube is properly inserted into the tree the plastic container, known as a Mauget injector, is then pressed together (Fig. 7) and inserted on the tube with the pesticide at the bottom (Fig. 8). A gentle push on the injector breaks the plastic seal inside the injector and allows the pesticide to flow into the tube. The injector is then inverted and allowed to remain in this position until empty (Figs. 9 and 10).

Once empty, injectors are then removed and discarded in a bucket. Safe disposal of expended containers is important. If they must be transported, the bucket should be covered. After collection they should be burned to avoid contamination.

The aluminum tubes are then removed with pliers; a slight twisting motion with the pliers facilitates removal. These tubes are then placed in a bucket for disposal (Fig. 11). Expended materials should be burned and the transporting container thoroughly rinsed.

Holes in the bark left by the tube are allowed to heal by themselves, but it is important to cleanse the area around them to avoid contamination (Fig. 12). Since Bidrin is highly soluble in water and alcohol, a spray solution of either can be used effectively.

To avoid contact, covering exposed skin areas is necessary, and protection of the eyes with a mask or goggles vitally important. "No smoking" should be observed at all times since the pesticide can be transferred from the hands to a cigarette or a pipe easily.

Only applicators who have been granted a permit will be allowed to use Bidrin, and their permit has been predicated on the course of instruction. A file of all permittees is maintained by the State Department of Agriculture.

Safe application in the use of Bidrin has marked every step in introducing this pesticide in Wisconsin and proves once again that the best method of instruction is the method that is constantly alert to accident prevention.



1. Prof. Dale Norris (left, hatless with jacket) addresses group at Bidrin demonstration.



2. Prof. Norris demonstrates insertion of aluminum tube into elm tree; later used hammer.



3. Divided into groups and under eye of supervisor, applicators begin tree injections.



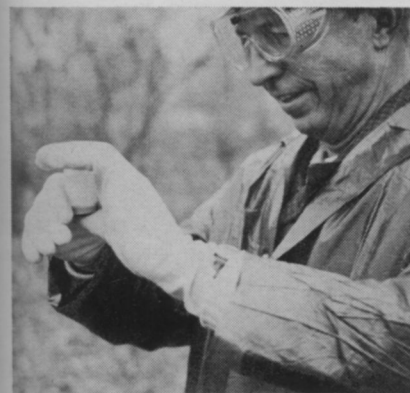
4. Rubber coveralls and face masks are worn by applicators to avoid contact with Bidrin.



5. Hammer and special tool are used to insert aluminum tube into cambium layer of elm.



6. Ringing tree with injectors at five-inch intervals, breast high, assures best results.



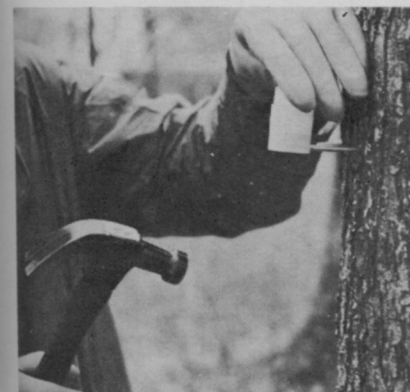
7. Applicator, properly dressed, compresses Mauget injector containing Bidrin. Note gloves.



8. Gentle tapping of hammer inserts container onto aluminum tube, bottom side upward.



9. Container is turned in upright position beginning Bidrin flow into tree's system.



10. Container of Bidrin remains in upright position until tree has absorbed insecticide.



11. Aluminum tubes are removed from tree with pliers; disposal requires precautions.



12. Holes made in tree are sprayed with water and alcohol after tubes are removed.

Labor Management in the Tree Business

By **FREDERICK R. MICHA**

Monroe Tree Surgeons
Rochester, New York

A CLOSE LOOK at labor in the American tree business reveals deep-twisting problems. Problems of how to cope with what we have; how to improve what we have; and how to hold what we have.

There is nothing new or outstanding about these labor problems, for all industry has the same labor situations. Only ours seems to be a little more unique and difficult.

This article will cover *five* important segments of the tree business. There are innumerable others to discuss; but for the sake of clarity and brevity, we shall confine ourselves to:

- A. Tree Climbers
- B. Field help in general
 - 1. Rates
 - 2. Fringe Benefits
 - 3. Lost Time
 - 4. Safety
- C. Labor-saving Equipment
- D. Office Efficiency
- E. Management's Attitude Toward Tree Help

A. Tree Climbers

Let's first look at the heart of the tree business—the "good tree climber."

This skilled person is rapidly becoming extinct. He is more difficult to find, hire, and hold. The underlying makeup of a qualified tree climber is his individuality. Here is a person quite different from any other in any industry. He is, in fact, quite dif-

ferent from others in the same business. On an average, a good tree climber is a floater, sometimes a "prima donna," proud, and very individualistic.

To cope with these idiosyncrasies can be a tremendous task for any foreman, personnel manager, or owner.

Generally a climber works only for wages. He is not concerned with fringe benefits or extra offerings of tree companies. He likes good working conditions and prefers "take downs" to routine tree trimming. Usually a good climber caters to the more difficult tree removals.



Inclement weather keeps men indoors busy with equipment maintenance.



Impressive array of modern equipment includes trucks, staff cars, skyworkers, stump pullers.

Author Micha believes in efficiency and applies it throughout his entire operation.





Radio equipment increases truck efficiency, especially in disaster work.



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In this way he can best utilize his talents.

Most tree companies *must* take it upon themselves to find ways and means to hold good climbers or at least "stem the tide" of constant movement from one company to another.

It is impossible to give a con-

crete answer on how to hold climbers. Possibly one is through the use of increased mechanization, i.e. hydraulic lifts and similar equipment. This will help make the climber more available to jobs he dislikes. Less foul weather work; more opportunity (through training and experi-

Effective labor management in a tree business is crucial to success, Author Micha points out in this pull-no-punches article. There are phases of work where money can and must be saved, but there are other places, equally important, where the author believes more money must be spent. Management must take a close look at its attitudes toward labor. Continued success of the majority of tree firms hinges on decisions coming from self-scrutiny. Author Micha, an experienced arborist himself, presents some valuable money-saving tips for all arborists.

ence) to work up to foreman's levels; and improved fringe benefits, i.e. bonuses and commissions.

B. Field Help

Probably the most maligned work group in the whole tree business is the groundman. These are the men that do the "bullwork" or heavy ground work. They are expected (and sometimes forced) to work in all kinds of foul weather. Some companies consider them expendable; they are *not* usually allowed to think for themselves and they are generally the lowest paid.

This is the group that needs the greatest amount of thought and consideration. Itemized improvements are as follows:

1. Training.
2. Giving sufficient time to thoroughly learn good groundmen's techniques.
3. Plan work loads to allow these men to work inside during foul weather.
4. If work must be done during inclement weather, have sufficient foul weather gear available to them.
5. As the good groundman progresses, prepare a clear path for him to follow onto the next level.
6. Give him tree-climbing training, especially if he

shows a desire to do this type of work.

7. Pay adequate wages, commensurate with jobs of a similar nature. Consider what other companies in the tree industry are paying and pay accordingly.

Since we have reached the heart of the tree labor problem, let's discuss this more thoroughly.

The following excerpt is taken from a talk given by Dr. Paul Tilford, Executive Secretary of the National Arborist Association.

Example of Average Hourly Rates Paid

Midwest and Western Areas

Year	Foreman	Climber	Groundmen
1950	\$1.50	\$1.30	\$1.12
1952	1.76	1.46	1.20
1954	1.91	1.62	1.37
1956	2.10	1.75	1.46
1958	2.20	1.87	1.52
1960	2.22	1.93	1.52
1962	2.25	1.98	1.61
1964	2.40	2.07	1.67
1966*	2.65	2.25	1.85

*(Author's projected rates)

Now let us compare our tree industry with the average of other occupations. This compilation is taken from the Department of Labor Occupational Wage Survey for 1963. (Plus my own 1966 projected wage scale)

Occupation	Akron, Ohio	Projected Midwest 1966
Carpenters	\$3.21	\$3.36
Electricians	3.24	3.39
Mechanics	3.26	3.41
Painters	3.06	3.21
Pipe Fitters	3.24	3.39
Janitors	2.71	2.76
Truck Drivers	2.93	3.01



A well-filled, orderly stockroom prepares a tree business for any need. Here Mike Milazzo (left) and Harold Seaver take inventory. Note peg board on far wall which makes valuable wall space useful.

Reviewing the preceding charts, it would appear field men for our industry are drastically underpaid.

Fringe Benefits Valuable?

During a recent meeting of the New York State Arborists Association, the subject of fringe benefits was discussed.

Needless to say, it was a very interesting topic of discussion. Fringe benefits offered to field personnel ranged from practically nothing, to adequate pension plans plus bonus. The greatest majority of smaller tree companies paid a Christmas Bonus to their men. Even this offering

had its problems, especially when the company failed to give a bonus due to a poor year. This raised havoc with the men because they came to expect it every year. Employees admitted they were not overly fond of this type of compensation.

Other tree companies offered well thought-out pension plans with the company contributing from half to the total amount of pension payments. Most of these companies indicated their pension plan was working quite well. Others stated their pension plans did not work as planned, for it did not "stem the tide" of constant labor turn-over. They felt the tree man in general is not interested in the future, but in immediate cash in hand. All in all, though, pension plans have merit as fitted in each individual company's needs. More exploration of this avenue of approach should be carried out by tree companies in America.

The greatest fringe benefit that the tree men respected and admired was a guaranteed 32- to 40-hour week for the entire year. Those offering this inducement seemed to be having a steadier day-to-day work force.

Lost time was also discussed at the meeting. This likewise did not end with any conclusive result.

All admitted the morning cof-



A private, fully equipped payroll office increases accounting efficiency. Payroll clerk Don Lopa (seated) prepares draft for Foreman Carman De Nardo. Window adds to the office privacy.

fee break was here to stay and no force on earth could curb it for any length of time. All companies participating in the panel felt holding the coffee break to a minimum was the most adequate step they could take. Supervision and qualified foremen were necessary to curb excessive coffee break time.

Other lost time elements were touched upon: travel time, inclement weather, dump time, breakdown time, and tool time. Most tree company owners gave close supervision as the strongest answer to correct lost time situations. One item — inclement weather — brought much response from the participating audience.

Some companies just sent their men home if poor weather persisted beyond an hour after dispatch time. Others paid an hour or two for show-up time. Finally, the more progressive companies used inclement weather for tool and equipment repair and safety meetings.

It would appear that those companies sending men home without pay were in the minority because of the unfairness to the men that took the time to come to work. There is an area here for improvement in the tree industry.

Safety Still Paramount

Safety, a far reaching topic, was insufficiently discussed during the New York State Arborists meeting. It was impossible to adequately cover all of its many ramifications. One of the most important segments of safety is lessening the incidence of accidents.

Hundreds of training programs, devices, and meetings have been used to keep accidents to a minimum. Minimization is still the biggest "bug-a-boo." Only the tried and true method of constant day-to-day hammering, plus close field supervision seems to work.

One company used a unique program of offering a safety bonus cash award for good accident records. It went something like this: For every accident-free month, the foreman received \$20 and the climber received \$5. In

addition to this monthly award, a year-end initial jackpot of \$3,000 was to be split up among all the men working a full year.

For each accident recorded, \$20 was deducted from the total pot. After 12 months, the remaining money was divided. The best-record men received more, and so on down to the last man.

It was reported after three years in operation the total number of accidents was not sufficiently reduced and the program was scrapped for a year end Christmas Bonus to deserving men.

Numerous other programs have been devised and tried. It seems to remain that "on the

stumps, the topping operation will be handled with a two-man crew and aerial lift or tree crane. Follow up simultaneously with a two- or three-man cleanup crew using a brush chipper, a large enclosed dump chipper truck, and a heavy-duty winch truck for the large butts. Finally follow up the same day, or a day later, with a stump grinder and operator. If the contract calls for soil and seeding the stump holes, then some companies will subcontract this more-or-less landscape detail. Other companies may use the new heavy duty 4-in-1 bucket waders on rubber to load most of the heavy wood and brush.



A Dodge Power Wagon with tank, pump, hose, and a guardrailed rear platform is heavy-duty equipment for roadside spraying. In the background is a hydraulic Skyworker for utility line maintenance.

job" safety lectures, constant exposure to safety thoughts and methods, plus close supervision are still the only real ways to eliminate constant accidents.

C. Labor-saving Equipment

Equipment in today's tree business is changing to meet the demands for speed and efficiency. The use of tools, equipment and other devices to save time is now an important part of a well-operated tree company. The aerial lift is one of the best of the latest labor-saving devices.

When 10 years ago it took a five- or six-man crew to do removals and trimming, today two or three men do the same work with a "Bucket."

Let's use an example to point out some of the newer methods of labor utilization using modern techniques.

For removal of 20 to 30 municipal trees (in wires) and their

Average costs for these removals can and do range from \$70 to \$95 per tree, sometimes lower.

Our industry needs more efficient equipment such as:

- A. Large equipment on rubber to grind the entire tree with the exception of the large butt.
- B. More efficient heavy-duty hydraulic loading equipment.
- C. Greater velocity mist spray machines.
- D. New systemic fungicide and insecticide materials and devices so one man can treat trees in all kinds of weather.

D. Office Efficiency

Another area of improvement to the tree business is office efficiency. Here again is a topic of far-reaching proportions. Today,

(Continued on page 32)



Chipping machine installed on service truck makes excellent mulch and compost.

Making Money with Waste Brush

ONE OF THE most effective ways of waste brush disposal on right of way or land clearing throughout the State of New York is by burning. This is accomplished by piling the brush with a bulldozer, where possible, over used tires which are soaked with diesel oil. Once ignited, the bulldozer must continue to pile brush and pack the fire in order to keep it burning.

In many instances where clearing is contiguous to a populated area and where smoke control becomes a problem, contractors find that the use of a fire fan becomes the most effective method of brush and tree disposal. There are two major types of fire fans on the market which have been used successfully throughout the State. One is a simple gasoline powered fan which merely fans the fire. The second is a fan with a diesel oil spray attachment. This type of fan spreads a regulated amount of diesel oil on the fire as it fans it. In dealing with heavy brush, especially evergreen, this type of fan is almost a must.

Another effective method of brush removal is by the use of a tripol boom mounted on a winch truck. By piling the brush across the extended winch cable it is possible to double load ca-

By **FREDERICK W. DONOVAN**

Donovan Tree Service, Inc.
Mechanicville, New York

capacity. This is done by squeezing the brush together with the power of the winch. This type of operation is most effective on short hauls where dumping is no problem to the contractor.

Chips Are Valuable By-product

Where there is a heavy concentration of brush, your waste could become a valuable asset as chips. By use of a brush chipper your brush, properly chipped, makes excellent mulch and compost for orchards, vegetables, berries, and flowers. Absorbent wood chips will carry plant nutrients to cropland, supplying crops with a source of humus that lasts. Rather than dispose

By-products made from trimmed brush can be sold to nurserymen, farmers and horticulturists. Brush, properly chipped, can be used as bedding for livestock or mulch for berries and flowers. Organic content of soil is increased if brush chippings are added with nitrogen fertilizers.

of waste chips in a dumping area, the contractor may do well to check with local farmers, nurserymen, and the like to market these otherwise waste products.

Cow comfort has long been recognized as a leading requisite for the housing of dairy cattle. While research is still being done on the comforts cows prefer, the presence of adequate bedding is well accepted as necessary. If straw is scarce in a particular area, use of sawdust chippings and wood chips have been found to be effective supplements to the bedding supply. In many states, such as Maine, New Hampshire, Vermont, and northern New York, sawdust and chippings have been the only bedding (except poor quality hay) for years.

Wood chips make good litter in broiler houses. They absorb well, give good footing, and are coarse enough not to pack. In the broiler areas of Maine, the contractor will find a ready outlet for his chipped waste products. In addition to livestock bedding, wood chips can be used by the farmer to add to soil organic matter. In Minnesota, wood chips added to the soil along with 60 pounds of nitrogen produced a 363 bushel yield crop,

118 bushels more than in past years.

The nurseryman will find chipped wood very effective in providing him with a protective moisture cover against summer dry spells or winter drying. Wood chips keep moisture in and weeds out. Many contractors feel that even with stockpiling wood chips for eventual sale, money could be saved by the use of a brush chipper. Use of a brush chipper eliminates the ever-present fire hazards, open burning, and the accompanying annoying smoke and ashes. The danger of accidental or mischievous fires is effectively minimized when brush is reduced to chips and quickly removed. The disposal problem itself is done in less time and at less cost than hauling and burning. No time is lost loading and unloading brush to and from hauling-away trucks, thus the contractor is able to dispose of greater quantities of brush with fewer trips to the dump site.

Another asset of chipping is that normally less manpower is required. One man will be able to convert a truckload of brush into a small pile of chips in a fraction of the time it would take to load the truck. Bulky brush is actually reduced to as little as 1/15th its original volume, condensing up to 15 truckloads of brush to a single truckload of chips.

Brush chips are also useful to help solve erosion problems on slopes. The State of Massachusetts has been experimenting with chips as a seeding mulch along their public highways. Chips are used in place of hay or straw and being heavier than the hay or straw, leave less of a chance of blowaway or erosion.

Lately there has been a big demand by nurserymen for wood chips as a mulch for their transplants. They have found that using the chips as a mulch is very effective in their transplant operation. Again the principle of keeping moisture in and heat out has been applied for this type of operation and the result is far superior and less expensive than other types of mulch formerly used.

Why the spring-activated feed plate – an exclusive feature of the **FITCHBURG CHIPPER SAVES YOU MONEY!**



Take a good look at the Fitchburg feed plate. It's patented – no other chipper has this feature. Because the feed plate is *spring-activated*, it "gives" and automatically adjusts to size of wood, up to the machine's rated capacity. Result: No sudden shocks to rotor assembly, engine can be run on lower r.p.m., chipping is smoother, quieter and faster.

No hard-to-control fly wheel. The spring-activated feed plate makes a fly wheel unnecessary. No waiting for fly wheel to speed up, no worries about safety, bearing troubles, or clutch strain. Compare the ease and efficiency of a Fitchburg with *any other* chipper!

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- **SOLENOID SWITCH** (optional equipment). Motor can be idled between feedings. Saves fuel and engine wear.
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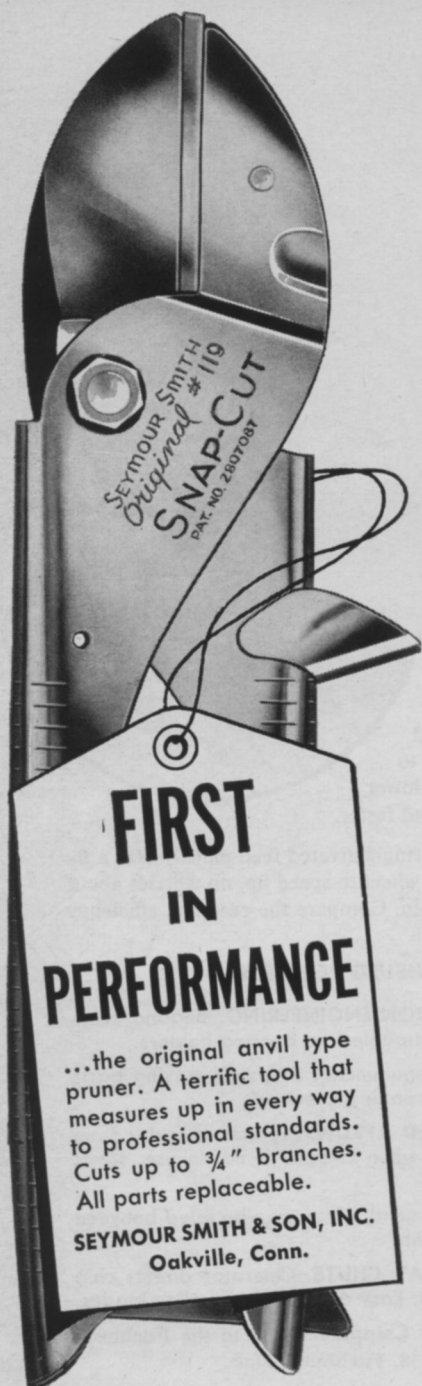
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Lightweight but powerful MAC 2-10 chain-saw said to make arm's length tree work easier, safer.

McCulloch Introduces Two Ultra-lightweight Chain Saws

Two power chain saws in the 10-pound class are now marketed by McCulloch Corp. The 10½ lbs. MAC 1-10 and the 10¾ lbs. MAC 2-10 are said to be 25% lighter than saws of comparable performance.

Although "ultra-lightweight" (as McCulloch calls them) and small, the gasoline powered MAC 1-10 and MAC 2-10 perform all cutting jobs where maximum power and handling ease are desirable, McCulloch claims. Other features include a safety-designed slider-type ignition switch and a right hand automatic starter.

Both MAC 10 saws have a fingertip primer which eases starting and an idle control device which ends the need to hold the throttle open when the starter is pulled. Write McCulloch Corp., 6101 W. Century Blvd., Los Angeles 45, Calif., for further information.

Chemicals Group Meets Oct. 17

The National Agricultural Chemicals Association holds its 32nd Annual Meeting Oct. 17-20 at the Diplomat Hotel, Hollywood-By-The-Sea, Florida.

Know Your Tree and Shrub Pests

For some time the editors of *Weeds Trees and Turf* have been aware of the need for a color identification chart of insects of ornamental plants. Many requests for sources of color guides and booklets reach WTT offices. Suppliers of fine color printing of insect pests are few, and when one is announced, the agency producing such a guide quickly finds its supplies exhausted by orders.

Hearing that Purdue University, Lafayette, Ind., was preparing a four-color insect guide, the editors arranged to have extra copies printed at the same time so that every WTT reader would receive one in his magazine.

These attractive full-color photo prints are original with Purdue entomologists. Controls recommended on the back are in accord with product directions and the latest test results.

Do you know that there are two color phases of the oyster-shell scale? Or that fall webworm is a pest in the spring also, because it has two generations per year? Answers to these and other questions may be found on the reverse side of the facing page.

Eleven species and controls are presented in detail. Each section gives the common and technical name of the pest and lists common plants the insects are found on. Plants shown in each color picture are identified.

There are descriptions of each pest's habitat and range, the season when the insect is most plentiful, and some habits of each. Controls included are both mechanical and chemical; chemicals of choice are listed.

Requests for extra single copies will be accepted as long as supply lasts. These are free as a reader service. Write to Reader Service Department, *Weeds Trees and Turf* magazine, 1900 Euclid Avenue, Cleveland, Ohio.

COMMON TREE AND SHRUB PESTS

FOR SAFE AND EFFECTIVE USE OF INSECTICIDES, ALWAYS IDENTIFY THE PROBLEM CORRECTLY.



1. Oystershell scale



5. Bagworm



8. Elm leaf beetle



2. Flatheaded borer



6. European pine shoot moth



9. Twig girdler injury



3. Fall webworm injury



10. Yellow-necked caterpillar



4. Boxelder bug



7. Red-headed or
LeConte's sawfly



11. Spruce mite injury

DESCRIPTION AND CONTROL

1. Oystershell Scale (Brown Race), *Lepidosaphes ulmi* (L.). Picture shows mature scales on twig.

Commonly found on hybrid lilac, poplar, redbud, dogwood, ash and fruit trees. The insect overwinters as a white egg beneath the scale. There are two generations each year with young scales present in early June and again late July. The grey race (often present on common lilac) has only the spring generation.

Control with oil sprays during dormant season or with malathion or DDT sprays when the young are present.

2. Flatheaded Apple Tree Borer, *Chrysobothris femorata* (Olivier). Picture shows mature larva in tree trunk.

A common pest of maple and fruit trees. It often kills trees the first **two** or **three** years after transplanting. There is one generation each year. Adults are present in May and June.

Prevention is better than control. Spray or dust tree trunks with DDT or dieldrin. Wrap trunks of newly set trees with paper or burlap. Fertilize and water adequately.

3. Fall Webworm, *Hyphantria cunea* (Drury). Picture shows typical webbing on walnut.

A widely distributed pest that feeds on many kinds of fruit, shade and woodland trees. Hairy caterpillars feed inside the web. This pest has two generations each year. Webs are present in both late spring and early fall.

Damage may be prevented by spraying or dusting with DDT. The insecticide must penetrate the webs.

4. Boxelder Bug, *Leptocoris trivittatus* (Say). Picture shows adult and nymph (adult has wings, nymph on left does not).

Adults and nymphs feed principally upon seed-bearing boxelder trees, but are most important as a nuisance in and around homes. In the fall, bugs collect on sunny side of buildings before moving into walls and other protected places to overwinter. They continue to crawl about on warm days throughout the winter.

Control bugs on trees and those which cluster outside buildings by spraying with dieldrin.

5. Bagworm, *Thyridopteryx ephemeraeformis* (Haworth). Picture shows overwintering bags on juniper twig.

A common and destructive pest that feeds on both evergreen and deciduous plants. The eggs overwinter in the bags and hatch in late May and early June.

Control by picking off and burning the bags during the fall, winter and spring. Spraying is necessary for large trees or extensive infestations. Use malathion, diazinon, toxaphene, lead arsenate or DDVP. Spray as soon as possible after the eggs hatch.

6. European Pine Shoot Moth, *Rhyacionia buoliana* (Schiffmüller). Picture shows overwintering larva in terminal pine bud.

An introduced pine pest of increasing importance throughout Indiana. The brown, black-headed larvae feed in the buds and cause dwarfed, malformed trees.

Control by spraying with guthion or DDT in mid-June and repeat in ten days. Prune off and burn infested buds and terminals in early July.

7. Red-headed Pine Sawfly (LeConte's Sawfly), *Neodiprion lecontei* (Fitch). Picture shows mature larvae and cocoons on pine terminal.

This is a common species of sawfly which defoliates pine trees by eating the old needles. There are two overlapping generations with colonies of larvae present from late May until late fall. The insect overwinters in brown cocoons.

Control by spraying or dusting with DDT when the larvae are young.

8. Elm Leaf Beetle, *Galerucella xanthomelaena* (Schrank). Picture shows adults on damaged elm leaf.

Adults and the small yellow to black larvae skeletonize elm leaves during the summer. Chinese elms are particularly susceptible. There are two generations each year, and damage becomes evident in late July. In the fall, adults move into sheltered places to overwinter, frequently becoming a problem in homes and other buildings.

Control on elm trees by spraying with dieldrin in mid-June and again in late July. Heavier concentrations of dieldrin applied around doors and windows helps prevent migration indoors.

9. Twig Girdler, *Oncideres cingulata* (Say). Picture shows girdling damage on oak twig.

Twigs and small branches of nut trees and a few shade trees may be girdled in late summer by grayish long-horned beetles. Trees may be deformed and nut crops reduced.

Control by gathering and burning all severed branches in late fall. These contain the eggs and larvae. Spray with DDT at 2-week intervals starting in late August.

10. Yellow-necked Caterpillar, *Datana ministra* (Drury). Picture shows a typical colony of the caterpillars.

These caterpillars attack the foliage of fruit and ornamental trees, especially pin oak. When disturbed, the larvae elevate both ends of the body. There is a single generation each year, and most damage occurs in July and August.

Control by spraying or dusting with DDT.

11. Spruce Spider Mite, *Oligonychus ununguis* (Jacot). Picture shows arbor vitae foliage damaged by the spruce spider mite. Note the discoloration, webbing, and eggs. Mites are not insects but are closely related to them.

The spruce spider mite attacks most evergreen trees and shrubs causing the foliage to turn white, yellow or brown. The overwintering eggs hatch very early in the spring. Damage usually starts at the base of the plant and progresses upward and outward.

Control by spraying as needed with a miticide, such as Kelthane, chlorobenzilate, Tedion, or Ovex.

The information given herein is supplied with the understanding that no discrimination is intended and no endorsement of products by the Indiana Cooperative Extension Service is implied.



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30% Faster!

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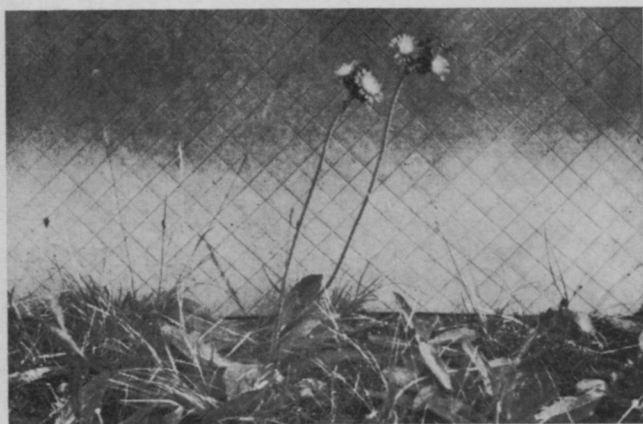
Hawkweed Control

with

Turf Herbicides

By S. W. BINGHAM

Associate Professor of Plant Physiology
Virginia Polytechnic Institute
Blacksburg, Virginia



Hawkweed, *Hieracium* sp., is shown above in flower. Mature weeds, below, have tops of seed-bearing, small cottony tufts, resembling dandelions.



Hawkweed, or mouseear hawkweed, as this species is also called, can be difficult in lawns. Controls are listed in this article. Author Bingham also relates surfactant effect on control. It is possible to add surfactants, lower herbicide dose, increase control, and save money. Readers will recall WTT's feature on surfactants in the January 1965 issue. Ed.

HAWKWEED (*Hieracium pilosella* L.) is a perennial plant which forms a carpet of stolons and leaves. Leaves form a basal rosette and are hairy on both surfaces. The stolons are thread-like and bristly. Hawkweed develops in dense spots spreading by both seed and stolons. In these studies seedlings emerged over a period from July to October. They formed basal rosettes of leaves but did not produce stolons during the first fall growing season. Stolons of older plants pegged down new rosettes during this same period forming a chain of rosettes linked together. Hawkweed overwinters in the rosette stage. They send up scapes about 6 inches tall and flowers during May and June. The flowers are bright orange, and the spotty appearance is noted distinctly at this time in many turf areas. Seed heads resemble dandelion but are much smaller. It presents a weed problem primarily in lawns, pastures, other turf areas, and abandoned open land in cool climates.

Hawkweed control studies were conducted near Blacksburg, Virginia, in an area that contained a heavy stand of this weed. Since hawkweed is a problem that occurs mainly in turf, herbicides normally used on turfgrasses were selected for these studies. Herbicides included were 2,4-D, dicamba, silvex, MCPP, 2,4,5-T, picloram, and ioxynil. They were applied at three stages of growth: (1) seedling establishment and stolon production of older plants, (2) maturing rosette and degenerating stolons, and (3) flowering stages (July, September, and June, respectively).

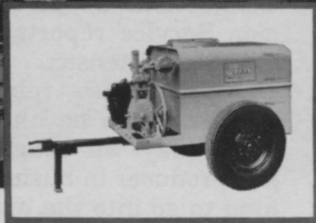
As is the case for many weeds, the flowering stage was observed to be the time that is least desirable for treatment with herbicides. This appears to be the most resistant stage of growth. Some control of hawkweed was observed with each herbicide, but dicamba and 2,4-D were most effective. A mixture of these herbicides was not substantially better than dicamba alone.

The herbicides were more effective when applied at a time during vegetative growth of hawkweed. Thus, it responded best to dicamba and 2,4-D when applied in July, next in September, and least during June.

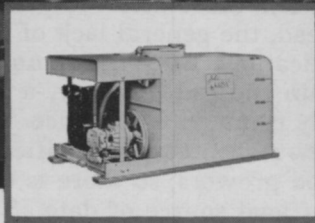
Since hawkweed is a very bristly and hairy plant, the effect of various amounts of surfactant in the spray mixture was studied. In general, increasing surfactant increased the control obtained with each rate of dicamba used. A proprietary formulation of dicamba at one-fourth lb./A with 4% additional surfactant was as effective as one lb./A with no additional surfactant. The benefits of added surfactant decreased as the rate of the herbicides was increased.

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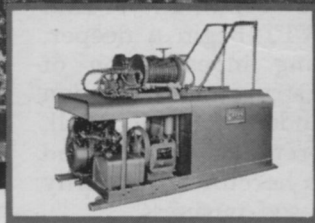
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WTT Survey Shows Sod Industry Headed for Vast Expansion, Increased Sales

America's sod growing industry stands at the foot of a giant ladder which leads to new levels of expansion. This is the consensus of state agriculture departments, sod growers' associations, and many individuals engaged in the burgeoning professional turf business.

Prior to the introduction of the monthly Sod Industry Section in July, *Weeds Trees and Turf* instituted an extensive preliminary survey of sod growers to determine the extent of their operations, as well as their needs and plans. Research into all 50 states turned up a vast spectrum of information—much of it diverse and even contradictory. But the survey did point out some definite trends in the sod growers' community. And it helped WTT begin a deeper, more probing investigation of the sod industry, an investigation currently underway which will, eventually, report the details and scope of the heretofore virtually unexplored sod business.

If nothing else, the initial sur-

vey proved that many industry members really know little of the extent of American sod production. Many state agencies tend to underestimate their own state's sod production, claiming that much of the sod used in that state originates elsewhere. For example, one Wyoming extension agent claims that "There has been an increase in the past three years of sod shipped in from Colorado, Nebraska, and South Dakota." Yet an official of the South Dakota Department of Agriculture reports, "There are no commercial sod producers in the state."

Communications Lacking

This seeming contradiction does not really imply controversy between the states. It reflects, instead, the general lack of communications and information within the sod industry, a relatively common occurrence.

Few states require certification of sod growers, so there is often no official source of data. Since today there are only a limited

number of large sod producing companies in any one state, there are few state sod growers' associations. Even state or regional turf associations do not have complete information about sod growers among their membership.

Does all this mean, then, that America's sod industry is in a disorganized and rudimentary shambles? Not at all. It merely shows that sod production in the U.S. is in a germinative stage of development. As a small Ohio grower put it, "New companies are springing up all over."

"New" is one of the most common words in the sod industry's vocabulary. "We are so new that it is difficult to determine dollar value (in the industry)," the Connecticut Cooperative Extension Service reports.

Ohio Extension Agronomist Don W. Griffis reinforces this opinion when he bluntly states, "Each day we hear of another sod producer in business or planning to go into the business . . . Without a knowledge of the

New Bentgrass Assn. "Off n' Running" in Oregon



Conferring officers for new Exeter Bentgrass Assn. in Albany, Ore., are, from left: Fenn Emerson, secretary-treasurer, Albany; Bill Rose, president, Woodburn; and Loren Hoven, vice-president, from Jefferson.

Bill Rose of Woodburn, Ore., has hoisted the flag to announce operations are now underway for the recently formed Exeter Bentgrass Assn. in Albany, Ore.

Rose was recently named president of this organization, which plans to promote better understanding of Exeter bentgrass, to maintain genetic purity of grass, and to assist in dissemination of information about the value and use of this new seed.

Exeter, developed and tested in Rhode Island, has proved to be an outstanding turfgrass, Rose says. A limited supply of seed will be available for consumer use this season.

Further information is available by writing to Exeter Bentgrass Assn., P. O. Box 356, Albany, Ore.

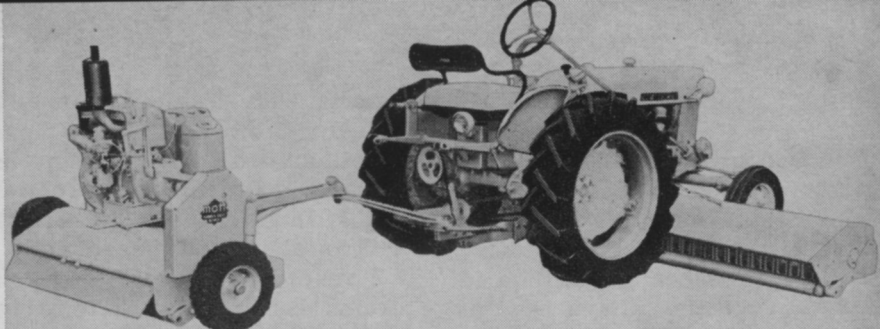
number of sod producers or the volume of business of these, I could not estimate with any accuracy the economic size of the sod industry. I am sure it is a sizeable industry, perhaps an unrecognized industry."

This picture, nebulous as it is, mirrors tabulated knowledge on the sod industry; known facts are virtually nonexistent. "Information on the sod industry is lacking not only for the country as a whole but within the states themselves," Henry W. Indyk, N.J. Extension Officer capsulized. "At present, this is a rapidly growing industry and any statistics compiled would become outdated rather quickly."

1,000 Sod Farms

Preliminary returns from early studies led WTT's research staff to project that about 105,000 acres are planted to sod on about 1,000 farms across the nation. (WTT estimates the average farm has 84 acres and each state has slightly more than 20 farms.)

Reports indicate, though, that there is no such thing as the



Light- and medium-duty mowing is accomplished quickly when 5-ft. LBS-5 is teamed up with 4-ft. HS model of Mott hammer-knife mowers. This arrangement gives the operator a cutting swath of 8½ feet employing smaller, lower-powered tractor for greater operational economy. Free-swinging flails have patented, self-cleaning cutting angle which also fold back when meeting with an obstruction and lessens tendency to throw stones or other objects that may be hidden on ground. Renovating and leaf mulching attachments are available as optional equipment. Complete information on this equipment may be obtained from Mott Corp., 500 Shawmut Ave., La Grange, Ill.

"average sod farm." Producers include nurseries which plant small plots to sod, farmers who cut up pasturelands and sell the turf, and large professional sod growers who conduct research and develop species. The table below, of sample figures from representative states, emphasizes the variations. The representative data below show the reported minimum number of farms in each state and the minimum total acreage.*

State	Farms	Acreage
Arizona	5	75
Arkansas	10	100
Florida	46	12,000
Georgia	33	300
Illinois	50	5,588
Maryland	250	7,000
Michigan	100	15,000
New York	20	3,410
Pennsylvania	10	1,000

*Based on estimates from officials in various states.

Conservative estimates put the sod industry's income at \$100 million annually. But reports from individual states hint that

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this guess may be exceedingly low.

James B. Beard, assistant professor of crop science at Michigan State University, believes that Michigan's sod industry alone approaches \$50 million in annual revenue. Elwyn Deal of the Maryland Extension Service estimates that state's annual dollar volume in sod to be about \$2 million. Florida claims to have an \$11 million capital investment in the sod industry. Massachusetts typifies states with little or no sod production where sales of sod shipped in from other areas still reaches several hundred thousand dollars.

Regional Prices Vary

If the variations in aggregate figures seem wide, the differences in sod prices are even more extreme. An Ohio sod grower

reports that Merion bluegrass sells for from 65c to \$1.00 per sq. yd. and the price is rising as demand goes up and supplies fall. He adds that bentgrass markets for about \$1.85 per sq. yd.

These prices for northern strains contrast significantly with the prices of southern grasses as reported in a 1963 Florida study. St. augustinegrass then cost less than 25c per sq. yd., bermudagrass was 38c per sq. yd., and zoysiagrass sold for 67c per sq. yd. In all regions the primary market for sod includes landscape contractors and homeowners as well as golf courses and some industrial accounts.

With this wide fluctuation in size, volume, and prices, the reasons for the lack of mutual understanding become clearer. Some states (Florida and Wisconsin, for example) exempt sod

from the definition of nursery stock. An Iowa horticulturist notes that in his state there is more acreage sold from pasture grown sod than from nursery grown sod. Reports from the Pacific Northwest indicate that sod production is relatively small because climate conditions usually favor good growth from seed-planted lawns.

These varied reports again affirm the substantial lack of communication within the industry. And this Sod Industry Section seeks to fill the void in what is obviously a growing field.

Vast Potential Market

Sod uses are many. WTT's introductory survey uncovered sod producers who sell to golf courses, parks, highway departments, and other industrial/municipal/institutional markets. One New Hampshire grower provides the sod used at Boston's Fenway Park stadium. Even in the Northwest where seed-planted lawns flourish, Norman Goetze of the Oregon State University extension service speculates a "real potential for the sod industry because of the difficulty in maintaining (turf) on heavy wear areas such as golf course tees and football fields."

The future is bright for the multimillion dollar sod industry in America. The comment of a New England agronomist wraps up feeling across the nation. "Frankly," he confided, "there is a market for more sod growers in this area if someone is interested in growing grass sod under good conditions."

And that is the purpose of this new Sod Industry Section: to help both present and potential sod growers develop their businesses. Future editions will include studies of preferred grass species, seeding and fertility rates, weed control practices, and market development tips. There will also be "portraits" of leading sod producers.

Sod growers have asked WTT about turf equipment, seed mixtures for specific areas, trade associations, and business practices. Coming issues will answer these and other questions important to the sod grower. As



This Cyclone Model 99 is a new pull-type broadcast spreader/seeder designed to spread fertilizer, seed, and other materials without stripes and double overlaps. Cyclone makes a manual model also.

Cyclone Spreader/Seeder Out

A new Model 99 pull-type broadcast spreader/seeder designed to give the same spreading results as older Cyclone Model B is now being marketed by The Cyclone Seeder Co.

Hopper capacity is 100 pounds of average material; it is constructed of galvanized steel and finished in baked enamel. Spreading mechanism consisting of feed guides, rotary agitator, and control cable is made of stainless steel.

Designed for spreading fertilizer, seed, granular herbicides,

granular insecticides, ice melters, soil conditioners, etc., Model 99 can achieve a spread width up to 10 feet, depending on the material being dispensed.

Another spreader, Model 100, is a new push-type spreader/seeder and is equipped with wheelbarrow-type handles for manual operation. It has the same features as the pull-type. Spreading mechanisms of both machines are ground driven.

Applicators interested in obtaining more information on these products can write to the company at Urbana, Indiana.

results of the current WTT production and sod industry surveys are compiled, a more distinct image of the American sod business will emerge. WTT stands ready to record the action as the expanding industry begins to climb its giant ladder into turf significance. Comments from readers will be most welcome.

Dutch Elm Disease Spreading Westward, Pathologist Warns

Dutch elm disease, which has caused widespread havoc in the Midwest, is steadily inching farther west, according to a recent warning by Dr. L. E. Dickins, extension plant pathologist at Colorado State University, Fort Collins.

The dreaded malady already has spread into most eastern Kansas counties, and a number of cases are reported for the first time in eastern Nebraska counties, the doctor points out.

Although this westward movement may take some time, "we cannot overemphasize the potential hazard to our elms," Dr. Dickins cautions.

There are no known cures for the menace, the pathologist explained, but a number of preventive measures are known:

(1) Control native and European elm bark beetles which carry the fungus; (2) assure tree's health by proper pruning, fertilization, and watering; (3) clean up old elm wood piles, and strip bark from logs and stumps to prevent bark beetle buildup; (4)

burn all dead elm trees; and (5) use mixed plantings with resistant tree species to reduce disease hazards.

A symptom of Dutch elm disease is wilting or flagging of one or more branches high in a tree's crown. Sapwood of wilted branches becomes brown-streaked, and leaves will probably fall prematurely.

Dickins says these symptoms are not always reliable, therefore suspected infestations should be confirmed by laboratory analysis. He asks that all such specimens in Colorado be mailed to him at the Fort Collins campus. Select wilted, but still living branches, 1/2 in. or more in diameter, and wrap them in foil before mailing.

GSCAA Moves Offices to Ill.

Headquarters of the Golf Course Superintendents Association of America were moved to Des Plaines in suburban Chicago, Ill., on July 1. The old offices at Jacksonville Beach, Fla., closed.

L. R. (Bob) Shields Jr., president of GCSAA, announced that the new address is 3158 Des Plaines Ave., Des Plaines, Ill. 60018. The new telephone number is (312) 824-6147.

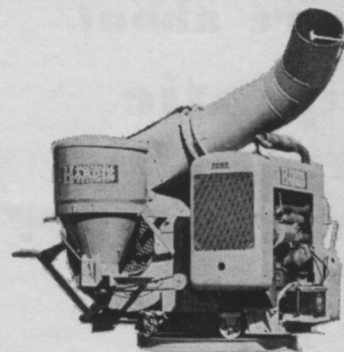
"We are moving our base of operations to Des Plaines to a more geographically central location to provide better and faster service to our members," Shields told WTT.



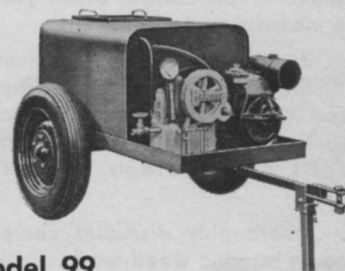
A new ground sprayer for applying invert emulsions has been developed by the Minnesota Wanner Co., Minneapolis. Exact proportions of water and brush killer are mixed in a small chamber in spray gun under pressure, producing a very viscous white mixture which is also very adhesive. This process develops such desirable results as controlled droplet size and heavy viscosity that does not lend itself to drift in form of fog or mist; it cannot be washed off by rain. Its white color makes it easy to observe while application is in process according to company. Complete information is obtainable from Kent Wanner, Minnesota Wanner Co., 5145 Eden Ave., Minneapolis.

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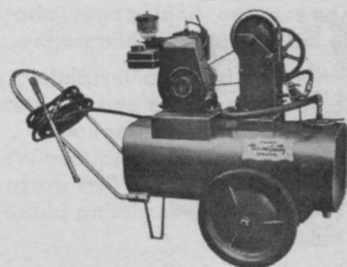
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Aquatic Weed Control Gains World-Wide Perspective At 5th Hyacinth Control Society June Meet in Palm Beach

"Aquatic weed control is a colossal world-wide problem," Dr. E. C. S. Little, A.R.C. Weed Research Organization, Oxford, England, told 70 experts (representing 7 states and 2 foreign countries) at the fifth annual Hyacinth Control Society meet at the Seabreeze Holiday Inn, in Palm Beach, June 28 to 30, 1965.

Dr. Little described the plight of the Egyptians, who are trying to restrict the range of waterhyacinth, a beautifully-flowered, but prolific, floating weed, to waters above the Khartoum Dam on the Nile River. They spend almost \$1.5 million each year. "But the waterhyacinths are getting past the dam into the lower valley," he said.

Political upheavals can disrupt the methodical control of pest weeds, Dr. Little pointed out. When Belgium managed the Congo, the government spent about \$4 million to control waterhyacinth. "Since Congolese independence and the turmoil which followed, all the money and effort has been wasted, because the weeds have grown back as bad as they ever were," the British weed expert said.

Continuing his round-the-world tour of weed problems, Dr. Little explained that *Salvinia auriculata* covers vast portions of Lake Kariba in Southern Rhodesia, and other water bodies. This weed serves as a resting place for cercariae life stages of certain trematode blood flukes, which parasitize snails and other animals, including man. Cercariae are the same type of organism which causes swimmer's itch (shistosome dermatitis), though the swimmer's itch organism does not penetrate and develop further within humans as some other species of blood flukes can and do. When cercariae escape the confines of infected snails, the cercariae attach to floating *Salvinia auriculata*. Anyone touching these plants risks having the parasites penetrate his skin. Penetration and development of these cercariae within

humans causes the disease bilharzia, for which there is no known cure. It usually leads to death. Bilharzia afflicts many people in Asia, Africa, and South America, though the weeds may not be associated with it.

A Hyacinth Habit Change?

Experts in the United States are concerned because waterhyacinths have been observed, on the one hand, tolerating water of increasing saltiness, and on the other, tolerating colder water. Waterhyacinth is a fresh water weed. But William Wunderlich, chief of the Aquatic Growth Section of the Army Corps of Engineers, New Orleans District, noted that today waterhyacinths are found in water much saltier than they could tolerate a few decades ago. Now rafts of waterhyacinths which float into the Gulf of Mexico stay alive much longer.

"Thirty years ago," Wunderlich also disclosed, "waterhyacinths were found only as far north as Baton Rouge, Louisiana (the plant is originally South American). But, today, we find them as far north as Arkansas."

Biological control of aquatic weeds is being investigated in countries other than the United States. British fisheries expert, W. H. L. Allsopp, who promoted the use of manatees, or sea cows, to control aquatic weeds in British Guiana, pointed out that manatees are slow to reproduce, but live long, up to 150 years.

Manatees are large, up to 1½ tons, mammals which have adapted to water. They have been captured at lengths up to 19 feet.

The Society learned that three manatees placed in display pools in Georgetown, British Guiana, between 1879 and 1890 are still alive. From 1890 to 1921, the manatees bore offspring to make the total five. By 1941, two were born, and by 1965 three more were added (one of the total has died, making a total of nine).

Weed controllers in British

Guiana originally captured 79 of the docile, herbivorous, aquatic mammals, and put them into canals in 1962 to eat weeds. Most have escaped since, because barriers in the canals were not maintained. British Guiana, too, gained independence, and the new government failed to follow through.

Allsopp, who is employed by the Food and Agriculture Organization of the United Nations, cannot continue manatee research because no funds are forthcoming. However, he firmly believes that these beasts can be effective biological controls against aquatic weeds.

Dr. Peter Sgueros, Florida Atlantic University, Boca Raton, is presently studying manatees over a three-year period, under a project sponsored by the Flood Control District. He hopes to determine their utility as biological controls. Five manatees were captured and introduced into canals near Fort Lauderdale in May of 1964. He reports that they have chewed their way through half-mile long sections of infested canals every two months. They eat all the weeds, even to the roots, Dr. Sgueros reported.

"Shifty" Weeds Stymie Experts

Five years ago, experts hoped that weed problems could be tackled and solved in a short time. But time and the plants have proved otherwise. Experts hadn't counted on the phenomenon now called ecological shift (See WTT, March 1964, pg. 16).

"First we developed a spray to kill southern naiad, then elodea moved in (shifted) and took over," reports Robert Blackburn, of the U. S. Department of Agriculture laboratory, Fort Lauderdale. "We became so interested in controls that we overlooked these ecological shifts. I don't know why they occur," Blackburn confessed.

With each success, new problems are created; relatively speaking, experts know less today than they did five years ago.

The need for a no-drift spray gun prompted the Army Corps of Engineers in the New Orleans District to develop an instant on-

off trigger. William Wunderlich is the chief of the weed control section.

Old guns, Wunderlich explained, produce a fine mist when first triggered. They do not spray a coarse stream until the gun barrel is twisted. Fine spray droplets may drift on air currents and contaminate nearby crops or other desirable plants.

The new gun, which Wunderlich says costs only \$30.00 to assemble, produces a coarse stream when first turned on. It gives precise on-off control for operators.

No date was given for the next meeting. Future plans of the Hyacinth Control Society will be announced in *Weeds Trees and Turf*, the newly-elected president, Zeb Grant, director of operation and maintenance, Florida Flood Control District, reported.

Vermeer Builds Tree Mover

A completely automatic tree moving machine that digs, balls, transports, sets, and plants large trees has been introduced by the Vermeer Mfg. Co., Pella, Iowa.

The new Vermeer TM-700 Tree Mover makes it possible for nurserymen, landscape contractors, tree firms and general contractors to dig, move, and plant a large 7" or 8" diameter tree in very short time with no hand

John Bean Offers Catalogs

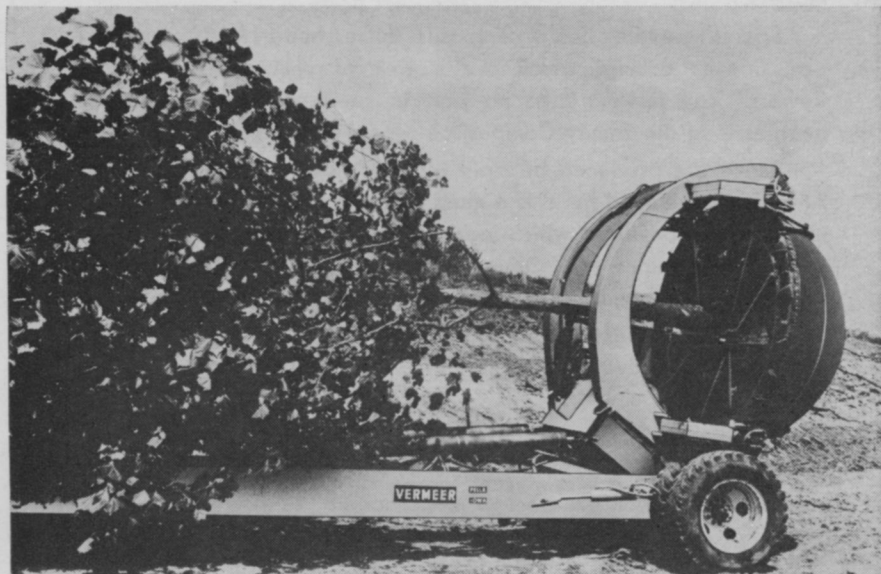
Free catalogs of John Bean power sprayers are now available from John Bean Division, FMC Corp., 1305 South Cedar St., Box 9490, Lansing, Mich. 48909. The new catalogs picture and report the complete line of John Bean sprayer models, attachments, and accessories.

labor, the company says.

The machine is a tree transporter equipped with two hydraulically operated "cutting cups" that dig the tree ball surrounding the tree in minutes. The machine then hydraulically lifts the tree and its ball out of the hole and lays it forward on the carrying trailer for transport. At the planting site, the tree is lifted upright and set into the receiving hole. The entire operation is controlled with a series of hydraulic levers.

According to Vermeer, this machine is highly suited to volume tree moving operations. The tree mover digs out the tree, and sets it into the balling stand with wrapping material in place, ready to receive the ball. Trees can then be lifted onto flatbed trucks for delivery to new planting area.

For additional information, literature, and demonstration, interested readers may write to Carl Boat, Sales Manager, Vermeer Mfg. Co., Pella, Iowa.



New on the market is this fully automatic tree moving machine which is equipped with huge cups that cut their way into the soil around and under the tree. The machine lifts the tree out and transports it to a new location where it sets tree into hole. Machine's "bite" is 7' in diameter, 40" deep.

Spanish Needles

(*Bidens bipinnata*)



Spanish needles is an annual which reproduces by seeds (1). This weed is found in open woods, waste places, in gardens, fence rows, and grain stubble fields. It is a very troublesome weed in the South.

There are several other species of the genus *Bidens* which may be confusing. They are all generally known as stick-tights, beggar ticks, bur-marigolds, etc., because the matured seed heads and seeds will stick to fur or clothing. *B. bipinnata* has deeply lobed bi-pinnate leaves. Many other species have simple, deeply lobed leaves. For reference other species are: *B. frondosa*, beggar-ticks; *B. cernus*, stick-tights; *B. polylepis*, beggar-ticks; *B. vulgata*, tall beggar-ticks; *B. connata*; and *B. comosa*.

Stems (2) of Spanish needles are erect and smooth. The plant branches in upper portions. Stems are a rather drab green.

Leaves have petioles that are borne opposite on the stem. Bipinnate leaves have leaflets which are also deeply lobed. An example of a singly pinnate leaf is black locust with its many oval leaflets.

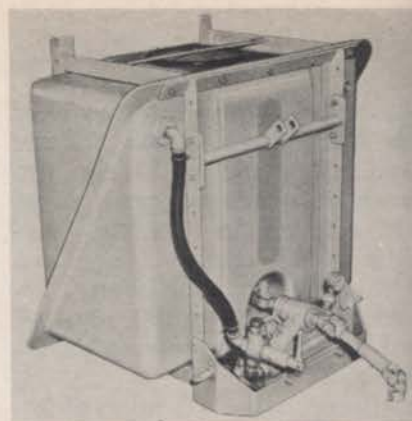
Spanish needles has a composite flower head (3) of many tiny disc flowers around which are a row of yellow petal-like ray flowers. Ray flowers take no part in seed production. Spanish needles is in the family Compositae along with daisies and asters.

Seeds are produced beneath the disc flowers after pollination. At maturity the seed head is a mass of sharp, pointed spines, ready to attach to anything which passes by. Each 1/2 inch long seed has 3-4 stiff spines (4). Other species of *Bidens* may have 2 to 4 spines on each seed.

Spanish needles is susceptible to 2,4-D, 2,4,5-T and silvex as well as nonselective herbicides more likely to be used where this weed is found.

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)



PTO's 100-gal. tank is made from GlasStran, a new F. E. Myers development. Three pump sizes are available for the new PTO unit.

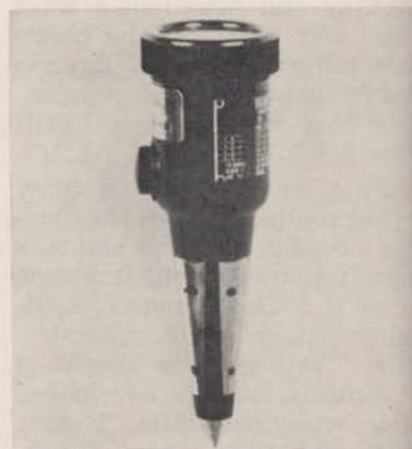
Myers Has New 'PTO' Sprayer: 100-Gal. Tank

A new tractor-mounted, three-point hitch, "PTO" sprayer with a 100-gal. corrosion-proof spray tank has been developed by The F. E. Myers and Bro. Co.

Available with choices of 12, 6, or 3 gpm "Du-All" spray pumps, it is designed for a variety of vegetation maintenance applications.

According to company spokesmen, GlasStran won't rust or corrode, and is not affected by weather or modern spray chemicals. It weighs less than steel, thus there is less ground compaction and lower tractor fuel consumption.

For more information write The F. E. Myers & Bro. Co., 400 Orange St., Ashland, Ohio 44805.



Kelway Soil Tester Model B-3 measures the acidity of soils in field or laboratory. The 3 by 7 in., 8 oz., fully guaranteed unit uses no chemicals or reagents. When inserted in soil a reading appears within a minute. Kel Instruments Co., Inc., P. O. Box 446, New Brunswick, N. J. 08903 can furnish more information.



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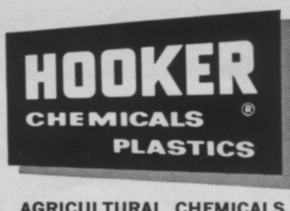
Tritac is not corrosive to standard equipment. It is safe to handle, as its

toxicity towards mammals is low.

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Liquid Tritac is available in cartons of six 1-gal. cans; also in 5-gal. cans and 30-gal. drums. Granular Tritac is packed in 25-lb. bags.

For more information, please write Agricultural Chemicals, Hooker Chemical Corporation, 408 Buffalo Avenue, Niagara Falls, N. Y. 14302.



ISTC Western Meeting Emphasizes Public Concern for Natural Beauty

Everyone involved in tree preservation will benefit from stronger educational, financial, and appreciational support of trees, Dr. Katherine K. Muller told delegates at the Western Chapter meeting of the International Shade Tree Conference. Dr. Muller, who is director of the Santa Barbara Botanic Garden, emphasized the importance of the preservation and encouragement of natural beauty and the need for improvement of cities. She cited the recent abundance of White House statements as evidence of the national concern for trees.

Dr. Muller's address, keynote of the June 20-23 convention in Santa Barbara, Calif., concluded with one crucial question. "Why," she asked, "isn't the concept of trees as a community asset so generally accepted that it does not need the constant attention given it by the ISTC?"

Although the four-day conference did not try to arrive at a solution to this question, many of the subsequent programs dealt with this and related problems. For example, Leslie S. Mayne, graduate forester of Burlingame, Calif., presented a paper on "Education and a Licensing Law" in which he rhetorically asked, "Who should be educated?" He answered, "We

should attempt to educate both the tree owner and companies doing tree work. Tree owners should know that there are high and low standards; they should know that we have knowledge and judgment for sale. Therefore, they should not expect free advice and they should know that there can be no comparative bidding on tree care projects without precise specifications."

Mayne added that charging for advice and judgments rendered is the crux of educating tree owners. Customers' attitudes

WTT thanks Walter J. Barrows, past president of the Western Chapter, who submitted the information on which this report is based.

change when they realize they are paying for advice. Tree owners not only pay considerably more attention to the advice, but also have more respect for the tree serviceman. Furthermore, owners will gradually understand that there is a great span in standards of tree care knowledge among those who profess to be tree experts. Mayne believes that this understanding will make tree owners more discriminating and also establish



Walter J. Barrows, past president of the Western Chapter, greets ISTC Executive Director Dr. L. C. Chadwick (right) at Santa Barbara Convention.

higher standards for tree experts. Licensing is one way to achieve these higher standards, but Mayne's conclusion emphasized that it will take diligent work to enact a licensing law for California arborists.

Computerized Planning

Data processing for the identification of plants dominated the dinner meeting of the Commercial Arborists section of the conference. Landscape architect Mike Pahos introduced George Oki of Oki Nursery, Sacramento, who described how data processing can be implemented in a shade tree master plan and operating program.

Thirteen former chief executives of the Western Chapter gathered for the Past Presidents' Breakfast which opened the Tuesday, June 22, activities. Later, Keith L. Davey, president of Davey Tree Surgery Co., San Francisco, and Ed C. Shearer, vice president of Farrens Tree Surgeons, Inc., Jacksonville, Fla., addressed the educational session. Delegates also spent Tuesday on visits to "Lotus Land," horticultural gardens, MacKenzie Park, and Dos Pueblos Ranch.

Wednesday, the final day of the conference, was packed with events which again emphasized the scope and importance of the arborist's work. The educational session spotlighted new developments in chemicals for street and ornamental tree maintenance and commanded enthusiastic audience response. Afterwards, Dr. L. C. Chadwick, executive director of the ISTC and director of horticulture, Ohio State Uni-



A gathering of gavel as newest and oldest Western Chapter presidents swap stories. Orval C. Bond (left) headed Chapter in 1964, Maunsell Van Rensselaer in 1963, George K. Freeman in 1937, and Ralph D. Cornell in 1935 and 1936. Nine other former chief executives attended the meeting.

versity, presented his program on the ISTC and the Arboriculture Industry.

Natural Beauty Campaign

Attention shifted again to the emphasis on scenic America as Miss Pearl Chase, former chairman of the Santa Barbara Plans and Planting Committee, presented her program on the White House Conference on Natural Beauty. She quoted President Lyndon Johnson's goal: "We must not only protect the countryside and save it from destruction, we must restore what has been destroyed and salvage the beauty and charm of our cities. Our conservation . . . must be a creative conservation of restoration and innovation."

"The Value of Arboreta to the Trade" continued the theme of the relation of tree workers and the public. Dr. Brian O. Mulligan, director of the University of Washington Arboretum at Seattle, and Dr. William S. Stewart, director of the Los Angeles State and County Arboretum at Arcadia, presented a program in which they outlined the chief purposes of arboreta and botanic gardens: (1) education of the local public; (2) research; and (3) preservation of at least a part of the original native flora.

Mulligan cited growing public interest in arboreta. He enforced his statement with examples of the Brooklyn Botanic Garden, which receives over ten thousand questions annually and the Seattle Arboretum, which gets about 2,400 inquiries a year.

Ed Combatalade of the Sacramento Municipal Utility District concluded the educational program of the convention with a discussion of public relations. He based his talk on three things the successful tree man must do: remember the customer's name, smile, and "be yourself!"

Awards End Conference

The Awards Committee used the final session of the meeting to mete out recognition. Awards of Merit went to Ed Price, Assistant to the President, Davey Tree Surgery Co., San Francisco; Dr. Katherine K. Muller; Maunsell Van Rensselaer, Director,



Ed Price (right), new president of the Western Chapter ISTC, introduces the other executive officers: Brian Fewer (left), editor; C. E. Lee, secretary-treasurer; and Jack Rogers, vice president.

Saratoga Horticultural Foundation; and Miss Pearl Chase.

Awards of Commendation were given to Kenneth Hadland, Superintendent of Parks, Las Vegas; and Brian Fewer, Landscape Architect and Street Trees Supervisor, Department of Public Works, San Francisco.

Dr. Chadwick then installed the incoming officers. Ed Price becomes president, taking the reins from Orval C. Bond, Santa Barbara Park Superintendent, who planned and coordinated this year's conference. Jack

Rogers, Street Trees Supervisor, Department of Public Works, City of Los Angeles, moves into the vice presidency. C. C. Lee, Land Clearance Supervisor, Southern California Edison Co., is now Secretary-Treasurer. Brian Fewer assumes the role of Editor, and Horace Bosworth becomes Director at Large.

Fresno, Calif., was named the 1966 ISTC Western Chapter convention site; San Diego the location for the 1967 convention; Phoenix, Ariz., in 1968, and Portland, Ore., in 1969.



SPRAY IT SAFE . . .

Specify PRATT products to give your trees the level of pest-proofing protection and horticultural health that their value warrants. Arborists and custom sprayers—the professionals who have to be certain of the right results—depend on the complete, premium quality line of safe and sure PRATT dormant and summer oils, emulsifiable concentrates for hydraulic and mist blowers, and oil base concentrates for thermal fog equipment. Send for the circular that tells you why—and how: "PRATT'S SHADE TREE SPRAY BULLETIN." It's free.

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International Shade Tree Conference
August 15-20, Washington, D. C.



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(from page 15)

on an average, small- to medium-size tree companies have a bookkeeper-combined-payroll clerk and one or two secretaries.

Many businesses are over-staffed with office personnel. I cite an example of a medium- to large-size tree and landscape company. At one time, between the tree and landscape business,

it had a comptroller, two bookkeepers, two secretaries, and a receptionist. By hiring a more efficient secretary, leasing out payroll to I.B.M., radio-equipping trucks, and hiring an independent accounting firm, this business was able to pare down the office staff to two people.

As you can see from the photograph, this secretary uses many laborsaving devices: radio phone, telephone-switchboard, sound box to garage, and field tape recorder (from which to type let-

ters and verbal orders). All these devices, and more, can go into making a more efficient organization, thus reducing overhead.

One of the greatest assets to tree companies is to radio-equip their trucks. Hundreds of times a week the savings go on as problems are answered, road locations given, and new work assignments made. With radio equipment companies can check crews' progress, report emergencies, and handle assignments almost immediately by giving detailed information to foremen on the scene.

E. Management's Attitude

In conclusion, management's attitude and its attitude towards employees is, and must be, the prime consideration to improve our industry. Gone are the days of a huge labor pool from which to draw men. Today, the overall industry in America dictates the patterns we must follow. I do not advocate unionization. I feel the tree business as a whole must improve its wage structure along with better working conditions, fringe benefits, and create a more stable lifetime job status.

Tree companies do not have to constantly raise their prices to meet the above needs. They can do this by giving every phase of their operation close scrutiny; look for efficiency, hire more efficient personnel, improve records and inventory materials, lease time-consuming tasks to others, sub-contract work in which they are inefficient, attend management schools, hire outside organizations to aid in efficiency studies, and finally be broad minded enough to try new techniques, devices, equipment, and advice to help them become more efficient.

Today most small tree companies cannot afford to work for 30 or 40 good tree customers. These customers are fast becoming extinct. Estates are splitting and tree firms must multiply their customers 10 or 20 times in order to stay solvent and maintain rates.

Therefore management's attitude toward labor will be dictated by its own forward thinking attitude to improve itself and its business.



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Meeting Dates



- Rutgers University Lawn & Utility Turf Field Day**, New Brunswick, N.J., Aug. 11.
- Rutgers University Golf & Fine Turf Field Day**, New Brunswick, N.J., Aug. 12.
- International Shade Tree Conference Annual Convention**, Washington-Hilton Hotel, Washington, D.C., Aug. 15-20.
- Midwest Regional Turf Field Days**, Purdue University, Lafayette, Ind., Aug. 16-17.
- Northeastern Weed Control Conference Golf Course Superintendents Field Day**, University of Rhode Island, Kingston, R. I., Aug. 25.
- Northeastern Weed Control Conference Lawn and Utility Turf Field Day**, University of Rhode Island, Kingston, R. I., Aug. 26.
- Pennsylvania Grassland Council "Forage Progress Days"**, Milton Hershey Farms, Hershey, Aug. 27-28.
- First Annual Turfgrass Management Conference**, College of Tropical Agriculture and Turfgrass Association of Oahu, Kuykendall Hall, University of Hawaii, Honolulu, Hawaii, Aug. 26-27.
- Northeastern Weed Control Conference Turfgrass Field Day**, Virginia Polytechnic Institute, Blacksburg, Va., Sept. 8-9.
- Sixth Annual Alabama Turfgrass Short Course**, Auburn University, Auburn, Ala., Sept. 9-10.
- Illinois Turfgrass Field Day**, University of Illinois, Urbana, Sept. 10, 13.
- Mississippi Valley Golf Course Superintendents' Association Monthly Meeting, Field Day and Equipment Demonstration**, Westwood C.C., St. Louis, Mo., Sept. 14.
- Northeastern Weed Control Conference Mountain Lake Right-of-Way Maintenance Conference**, Mountain Lake Hotel, Pembroke, Va., Sept. 14-16.
- Penn State Turfgrass Field Day**, on campus, University Park, Pa., Sept. 15-16.
- Northwest Nurserymen's Indian Summer Session**, Salishan Lodge, Gleneden Beach, Ore., Sept. 17-19.
- Tennessee Nurserymen's Assn. Convention**, Holiday Inn, Nashville, Sept. 19-20.
- Washington Association of Ground Sprayers, Inc., Sprayarama '65**, Seattle Civic Center, Seattle, Wash., Sept. 20-21.
- Northwest Turfgrass Association Conference**, Hayden Lake, Idaho, Sept. 22-24.

Sprayarama '65 Set for Sept. 20-21 in Seattle

Sprayarama '65 opens Sept. 20 at the Seattle Civic Center in Seattle, Wash. The two-day conference of the Washington Association of Ground Sprayers, Inc. promises a schedule packed with information and interest, according to Jack Daniels, president of W.A.G.S.

After registration and welcoming remarks, the first session on Monday afternoon, Sept. 20, begins with discussions of "Turf Diseases" by Dr. Charles Gould, "Turf Fertilizers and Weed Controls" by Dr. Roy Goss, and "Weed Control in Ornamental Plantings" by Art Myhre. All three speakers are turf researchers at Western Washington Experiment Station at Puyallup, Wash. Tom Hall of Colloidal Products, Yakima, Wash., speaks on "Surfactants" to round out the session, which is followed by a question and answer period, social hour, and banquet.

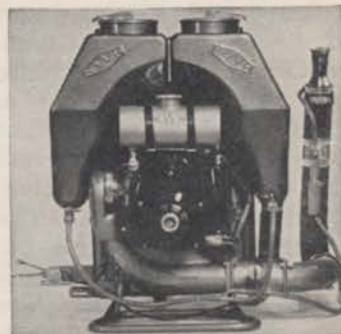
Equipment Display on Program

Tuesday's session, chaired by Art Mekas, King County Extension Agent, begins with Washington State University pathologist Otis Maloy whose topic is "Plant Diseases." Jack Warren, of Chemagro Corp., considers "Systemic Insecticides" and Jim Overton, Miller Products, describes "Public Relations and Pesticide Applicators." Larry Nipp, president of the National Spraymen's Association, is scheduled to deliver the final address, "The Potential of Contract Operators in Turf and Ornamental Field." Sprayarama '65 concludes with a general open discussion of applicators' problems and solutions and an equipment display coordinated by John Beheyt, Donald Mock and Stan Raplee of W.A.G.S.

Information and reservations for Sprayarama '65 are available from W.A.G.S. president Jack Daniels in care of the Washington Association of Ground Sprayers, Inc., 2820 South 150th, Seattle, Wash. 98188.

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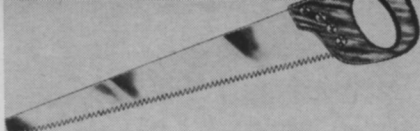
Knowing Your Trees

by G. H. Collingwood and Warren D. Brush, *The American Forestry Association*, Washington, D. C., 1964, 348 p., \$7.50.

With over 900 illustrations, this guide to tree identification will be valuable to arborists and contract applicators.

Included with species descriptions, listed by common names, are common synonyms, scientific names, habitat descriptions, and U. S. distribution maps. Photos that accompany each description are certain to aid the reader to rapid tree identification. There are black-and-white photos of typical trees and their leaves, bark, flowers, and fruit. Devereux Butcher, experienced writer, editor, and photographer, compiled and arranged the illustrations.

Various species have been grouped into zones of hardiness. The zones are shown on a map on the inside front cover and are based on differences in average minimum temperatures. Each



Long, needle sharp teeth are set deep into the heat-treated charcoal steel tempered blade of this new, full size pruning saw from Seymour Smith & Son, Inc. Design of this economy model (No. 322) avoids binding in green wood. Additional information is available from Seymour Smith & Son, Inc., Oakville, Conn. 06779.

species included in this reference work is assigned a hardiness zone. Readers may predict, with some degree of accuracy, the successfulness of various trees in specific areas based on the zonation map and may select trees which may be grown in any particular locality, sometimes outside their natural range.

The index is unique and will be especially helpful to the novice. Species are listed by both common and scientific name; hardiness zone and page number are listed with each entry. While not an expensive publication, it could become an invaluable addition to an identification library or as a useful fieldbook.

Agricultural Chemicals Div., Amchem Products, Inc., Ambler, Pa., has appointed John P. Finch and Robert H. Pritchett sales trainees. Both men will supplement Amchem's sales force; Finch in Illinois, Indiana, and Michigan; Pritchett will work in Tennessee.

The Ansul Co., Marinette, Wis., has promoted two men in its chemical division. Philip J. Ehlman has been named administrative assistant to the general manager, and George B. Stevens is new manager of Ansul's product development department.

Union Carbide International Co. has announced the appointment of R. E. McKenzie as agricultural chemicals sales manager. He succeeds Dr. E. R. Marshall, who has been promoted to marketing manager for the division's agricultural products. McKenzie, who has been with the organization since 1952, will move to Union Carbide's world headquarters in New York, N.Y.

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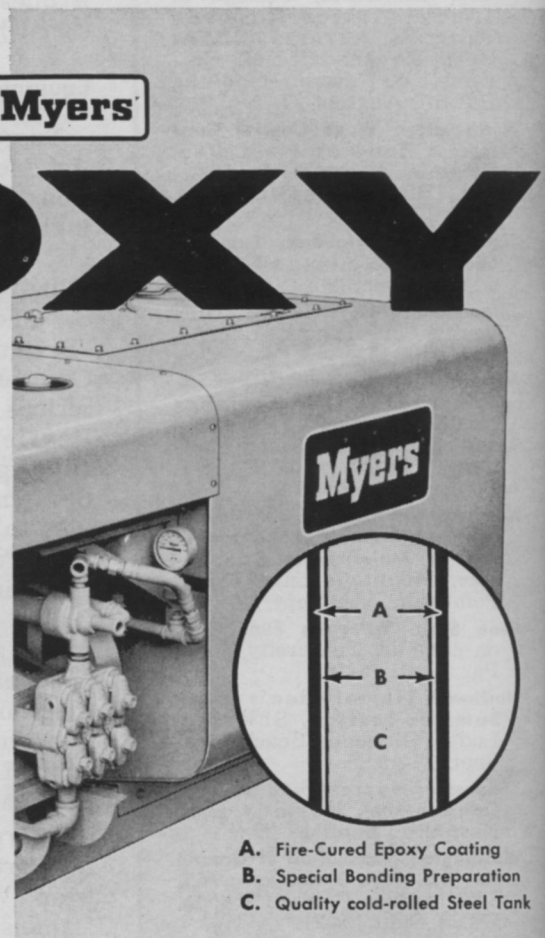
Myers offers a complete line of Epoxy-protected power sprayers to meet all your contract spraying needs — from 12½ gallon wheelbarrow units to big 1,000 gallon sprayers. Available with a range of rugged, high efficiency pumps designed specifically for spray applications. Capacities to 100 GPM, pressures to 800 PSI.

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Ornamentals; Scientists Launch Investigations

Cuban insect pests have invaded the United States and scientists at the University of California have begun chemical warfare studies on how to combat them. The invaders, Cuban laurel thrips, threaten ornamental fig trees in southern California coastal cities.

These thrips feed upon new, tender leaves, which become deformed and greatly reduce the ornamental value of the trees. Severely infested trees may lose half of their leaves and growth is stunted.

The economic significance of the thrips was emphasized by Walter S. Barrows, field manager of a landscape firm that cares for Santa Barbara's ornamental fig trees and other landscaping. He estimates that all of the county's 5,000 valuable ornamental trees may have to be replaced if the Cuban laurel thrips are not controlled. "Since each tree is worth \$450, this could mean a loss of as much as \$2,250,000 in Santa Barbara alone," he points out.

Chemical to Fight Thrips

Meanwhile, three researchers at the University of California Agricultural Extension Service have prepared and experimentally applied a new insecticide which they hope will reach and kill the destructive insect where conventional chemicals fail. They are Jack L. Bivins, Santa Barbara County farm advisor; Andrew S. Deal, Extension entomologist, Riverside, Calif.; and William R. Bowen, technician, Riverside.

"We are using a systemic chemical," Bivins explained. "This is a compound that is taken up by the roots of the tree and becomes part of the tree's sap system. It is the only way we can get at the thrips, because the insect hides inside the leaves, which roll up tightly as the insect feeds on them."

Preliminary tests with the new chemical have controlled thrips

in only 40% of the cases, but Bivins, Deal and Bowen hope to improve this figure through better application methods.

Offers Leaflet on Thrips

Cuban laurel thrips are considered so serious and so difficult to kill that the University of California has issued a publica-

Entitled, "Cuban Laurel Thrips," the leaflet is available free from the Agricultural Extension Service (farm advisor) in most California counties.

Authors of the leaflet, Leland R. Brown and Clark O. Eads, of the U.C. Riverside department of entomology, report that Cuban laurel thrips were first discovered in San Diego County in 1959. Within 5 years the species rapidly spread through Los Angeles,



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Just \$399 - This Month Only!

The famous Solo Motor Scythe, complete with 3½-foot cutter bar, normally sells for \$480 f.o.b. Woodside, N. Y., but for WTT readers who order during August '65 with the coupon below and send along their check or money order, we will ship it for only \$399, f.o.b. Woodside, and include 1 extra cutter blade. *Quantity is limited and subject to prior sale, so place your order right away.*

Solo also has a complete line of equipment for every phase of the vegetation maintenance industry.

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Orange, Ventura, Santa Barbara, San Bernardino, Riverside and San Mateo counties.

Entomologist Brown noted that the Cuban laurel thrips, although recently found in San Mateo, San Bernardino and Riverside counties, is not yet a pest in these areas. It is considered a pest only in cities from Santa Barbara southward along the coast. This includes cities with coastal climates, such as Anaheim, Orange and Santa Ana. Drier inland communities have not yet been affected.

The pest, common in Cuba, Mexico and many Caribbean islands, usually attacks laurel fig or Cuban laurel, *Ficus retusa*. In California thrips attack *Ficus retusa* and its cousin *Ficus nitida*.

Cuban laurel, or laurel fig, abounds in southern California because it is a handsome, small ornamental tree which resists smog and dust. It grows at the rapid rate of a foot per year but its roots do not spread out to break pavement.

Fore Registration Expanded

Fore, turf and ornamental fungicide introduced by Rohm and Haas Co. in April, recently received broader registration from the U.S. Department of Agriculture. The Dithane-45 fungicide may now be used on turfgrass for the control of rust, Pythium blight, and algae and on gladiolus for leaf and petal spot.

USDA originally registered Fore's use on turfgrass covered by dollar spot (*Sclerotinia*), Fusarium blight, red thread, slime



Porta-Clipper, lightweight back-pack unit, can shave more than 50% from pruning time and labor, Vandermolten Export Co. claims. The 2 horsepower outfit features a unique power-take-off which safely permits the operator to loop the flexible drive shaft over his head in order to bring it to his left or right. This facilitates hedge cutting and shearing in difficult positions. Porta-Clipper has special padding and carrying construction for more comfortable operation. The Knapsack Power Unit easily adapts other workheads such as a brush cutter, rotary weed cutter or rotary pruning saw to the drive shaft. Vandermolten Export Co., 378 North Caldwell, N.J. 07007, has full details available to those who write.

molds, copper spot, Helminthosporium melting out, Rhizoctonia brown patch, and Fusarium snow mold. Complete information about Fore is available from A & S C Dept., Rohm & Haas Co., Independence Mall West, Philadelphia, Pa. 19105.

Rohm and Haas Moves Offices

Rohm and Haas Co., chemical manufacturers, has changed its Philadelphia headquarters from Washington Square to Independence Mall West, Philadelphia, Pa. 19105. New telephone number is (215) 592-3000.

Literature you'll want

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

Bindweed Control in Oklahoma, E-668, Agricultural Mailing Room, Oklahoma State University, Stillwater.

Lawn Diseases, How To Control Them, Catalog No. A 1.77:61/3, 1964, 16 pp., color il., 15¢, Supt. of Documents, U. S. Govt. Printing Office, Washington, D. C. 20402.

Chemical Control of Brush and Trees, Catalog No. A 1.9:2158/2, 1964, 23 pp., il., 15¢, Supt. of Documents, U. S. Govt. Printing Office, Washington, D. C. 20402.

Common Poisonous Plants of New England, Catalog No. FS 2.2:P75/5, 1964, 23 pp., color il., 35¢, Supt. of Documents, U. S. Govt. Printing Office, Washington, D. C. 20402.

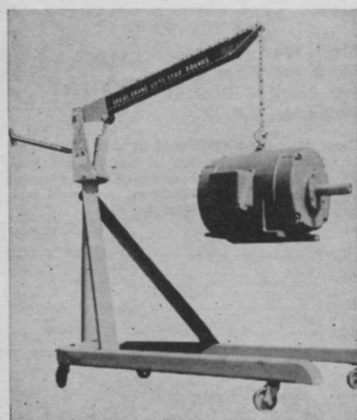
Clover Mites, How To Control Them Around The Home, Catalog No. A 1.35:443/3, 1964, 6 pp., il., 5¢, Supt. of Documents, U. S. Govt. Printing Office, Washington, D. C. 20402.

New Weedicide From Signal

"Calsonate-W," a new chemical said to control weedy grasses, broadleaf weeds, and other nuisance plants around all non-crop areas, is now available from Signal Chemical Mfg. Co., Inc.

This weedicide can be diluted with water for wet spray application, at costs as low as 55 cents per gal., or spread in dry pellet dustless form, the company says.

For more detailed information on Calsonate-W write to Signal Chemical Mfg. Co., Inc., 5020 Richmond Rd., Bedford, Ohio.



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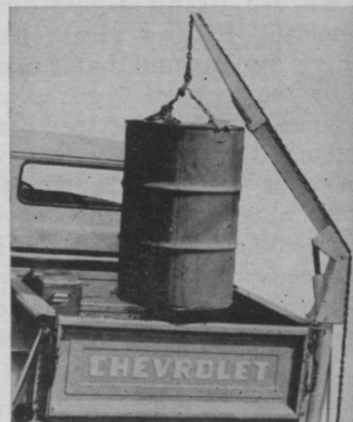
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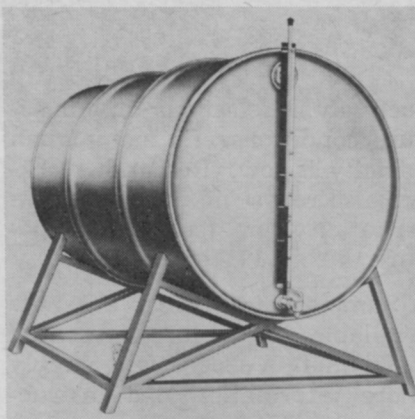
Velsicol Sold to C&NW Railway for \$90 Million

Velsicol Chemical Corp. was sold to the Chicago and North Western Railway Co. for \$90 million in late June. The Norwest Corp., a wholly owned subsidiary of the railroad formed for the purchase, bought all the capital stock of the privately owned chemical producer.

Velsicol, a 30-year veteran manufacturer and distributor of insecticides, herbicides, and fungicides, had a consolidated pre-tax net income for 1964 approaching \$9,675,000. For the five years ended Dec. 31, 1964, it averaged about \$10 million net annually.

North Western chairman Ben W. Heineman announced that Velsicol's management staff will be retained. "We are very pleased with the high calibre of Velsicol's management and there will be no changes in the personnel or the policies that have been responsible for Velsicol's fine record," he noted.

"With the present manage-



This new gauge-faucet unit shows at a glance the amount and level of any liquid in 30- and 55-gal. insecticide drums, according to its manufacturer, Rieke Metal Products. It is said to serve a dual purpose; as a reminder to reorder when liquid is low, and as a dispenser. For more information, write Rieke Metal Products Corp., 500 W. 7th Ave., Auburn, Ind.

ment, it is our objective to expand Velsicol's established position in the rapidly growing and basic herbicide and insecticide industry," Heineman added. He also pointed out that Velsicol and its subsidiaries employ about 1600 people in plants in eight states.

Advertisers

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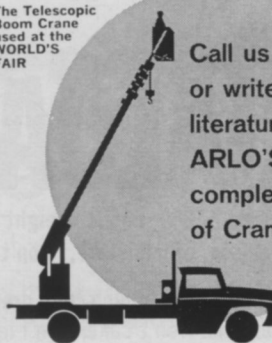
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Glenbar, a newly Velsicol-developed preemergence herbicide, has proven its strength against barnyardgrass, jungle-rice, smooth crabgrass, redtop foxtail, common lambsquarter, redroot pigweed, carpetweed, annual bluegrass and purslane.

Glenbar (OCS-21944), said to be extremely insoluble in water and not readily leached from the soil surface, has performed ef-

fectively in relatively high moisture conditions. Its mammalian toxicity is low. Research workers also report no dermal or eye irritation from extensive exposure during 1964 trials.

Samples of Glenbar are now available to qualified research personnel. Velsicol will supply more information and instructions about Glenbar to those who write them at 341 East Ohio St., Chicago, Ill. 60611.

Trimmings

What's In A Name? With all the changes taking place these days in the vegetation maintenance field, through the introduction of new chemicals and equipment, it's no wonder once-appropriate names for research outfits no longer seem right. Officials at the Ohio Agricultural Experiment Station in Wooster decided its name no longer reflected what it does, so effective last month, it is to be known as the Ohio Agricultural Research and Development Center. Director Roy M. Kottman says Ohio is the first state to make the move to update the name of its research facility in line with modern research and development activities. Congratulations to Roy and his co-workers who continue to make valuable contributions to the field of vegetation control.

* * *

Starts Anew. Even though Prof. Monroe Evans Gardner officially is retiring from North Carolina State University, he's by no means hanging up his hat. The well-known researcher, teacher, administrator, and friend of nurserymen already has two jobs lined up. And, once the word got out Prof. Gardner would be available, "nibbles" started to roll in to make use of his know-how. One of the organizers of the N.C. Association of Nurserymen, Prof. Gardner is more convinced than ever there is a tremendous future for contract specialists able to satisfy needs of an exploding population. Looks like this 61-year-old veteran will be digging in deeper than ever as a promoter of commercial service in his field of specialty.

* * *

It's a Beauty! We don't like to get commercial in this column, but if you don't have a copy of the new "What's That Weed?" folder, just issued by O. M. Scott & Sons, send for one. It includes 21 of the most definitive, full-page, color photographs we've ever seen. Wonderful for training neophytes. Closeups include: dandelion, plantain, buckhorn, thistle, curly dock, chickweed (hairy and smooth), clover, ground ivy, purslane, oxalis, spurge, knotweed, nimblewill, coarse fescue, crabgrass, foxtail, and goosegrass. The 7x9, 24-page booklet sells for 35¢, but WTT readers will be sent one free if you write: Dr. Joseph E. Howland, Editor, Lawn Care, Marysville, Ohio.

* * *

An Old Adage. If you've got a job to do, choose a busy man. Seems members of the American Seed Trade Association are convinced this is the way to get things done. They picked W. R. Herron as new president at their recent convention in Minneapolis. One of the founders of Seaboard Seed Co., and now vice president of Stanford Seed Co., both in Philadelphia, "President" Herron travels far and wide promoting the seed industry. During the past year he's been to Paris twice to help set up an International Seed Trading Plan. Soon he'll be off representing the U.S. seed industry at the Tokyo Trade Fair, and then flies to the Federated International Seedmen's Convention in London.



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Soil Conditioner Absorbs 150% of its weight in water, provides controlled release of moisture, won't compact.

At last here's a soil conditioner/mulch/top dressing that ends turf moisture problems. Won't cake, won't leach away. DIALOAM is a granulated, diatomaceous earth composed of millions of microscopic water-life plants and fossils. DIALOAM absorbs up to 150% of its weight in water. Moisture release is gradual, just right for healthy grass... a life-saver in dry weather. Particles tend to work into the earth giving it a porous, loamy texture that leads to strong, healthy turf. Try DIALOAM on your turf this year! Write for more information.



SINCE 1843



EAGLE-PICHER

The Eagle-Picher Company
American Building, Dept. W-8
Cincinnati, Ohio 45201

Now...a breakthrough in weed control!



New UROX[®]-B Weed Killer is completely water-soluble!

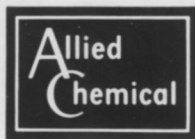
Urox-B Concentrate dissolves entirely in any amount of water, even hard water. Because it *stays* in solution (unlike wettable powders), Urox-B can be applied by means of economical spray equipment providing very little agitation. Your savings can be considerable, both on equipment investment and application costs!

New Urox-B maintains *long-lasting* weed and grass control, too. Its strong residual action saves you repeat application costs.

Next year, instead of a full treatment again, you'll

only need to apply a low-cost booster dose.

Get the new weed killer that costs less going on—works effectively to clear weeds off—stretches your weed control dollar on every job! Ask your General Chemical representative about liquid Urox-B, or write for information to:



GENERAL CHEMICAL DIVISION
P. O. Box 353, Morristown, N. J.

Ansar[®] kills weeds!

Today "Ansar" is America's number one post-emergence herbicide. It's available in a wide range of formulations to meet your specialized needs. For example:

"Ansar 529" (a liquid solution with surfactant added) is a selective herbicide, remarkably effective in eradicating Johnson Grass and most other weeds in cotton and non-crop areas. It's non-toxic, easy to apply, harmless to cotton and surprisingly economical.

"Ansar 560" is a general herbicide—a long-awaited replacement for 'weed oil.' It completely eliminates weeds along roadways, ditches, fence rows and around

buildings and storage areas. "Ansar 560" is more economical than weed oil . . . and far more effective.

There are other "Ansar" products to meet special needs . . . and in the future there'll be more! In the development stage are "Ansar" herbicides for use in orchards, vineyards and many other crop areas.

So keep in touch with your county agent and your local farm chemicals dealer . . . and keep your eye on the big "Ansar" X trademark. It's a product of

THE ANSUL COMPANY, MARINETTE, WISCONSIN.



"ANSAR" IS MANUFACTURED BY ANSUL, SPECIALISTS IN WEED CONTROL