WEEDS and TURF

AUGUST
1964

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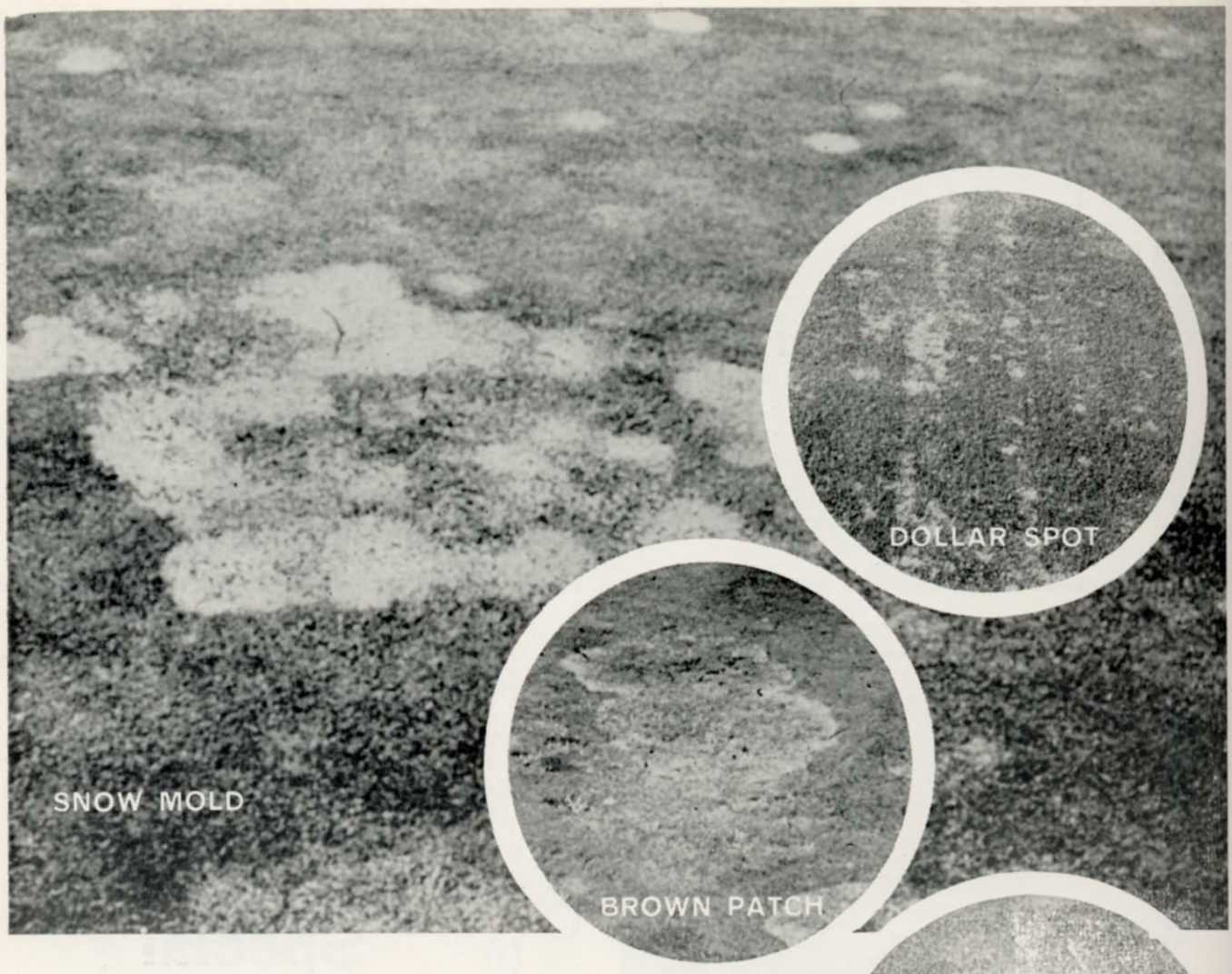
Special SHADE TREE Issue



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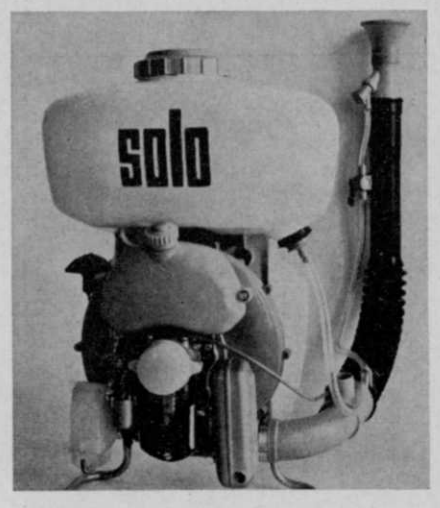

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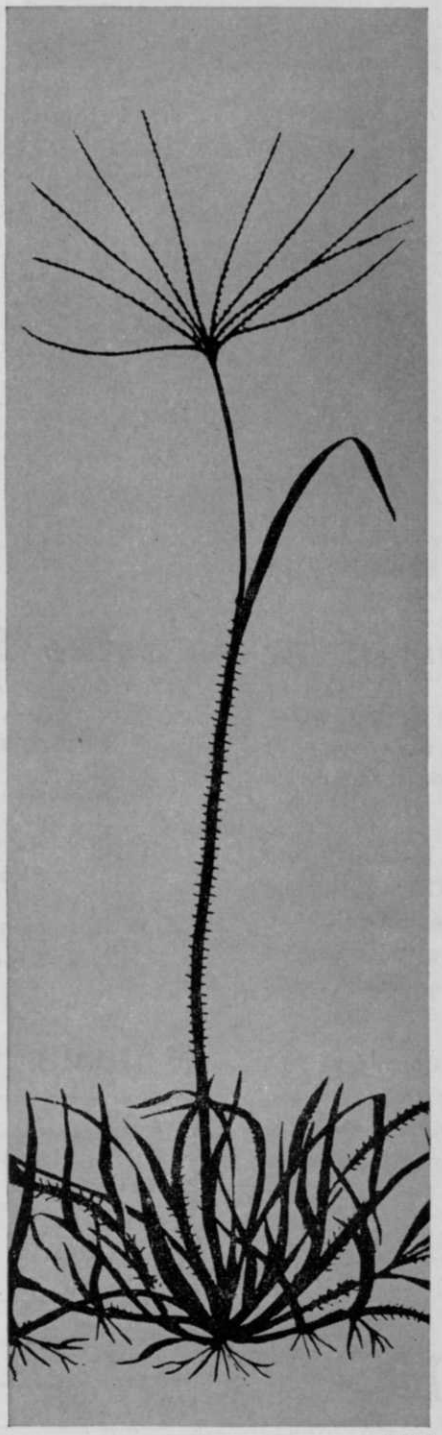

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A salute to the ISTC!

This month members of the International Shade Tree Conference are meeting at the Shamrock Hilton Hotel in Houston, Texas, for their 40th Annual Convention, August 16-21.

In an age when the relentless tide of urbanization sweeps farther and farther into the countryside, the public has cause to be most grateful to this dedicated group. And vegetation maintenance professionals also should doff their hats in salute to this group's fortieth anniversary, which marks four decades of notable progress in tree science.

Purposes of the ISTC are "to improve the practice of tree preservation; to stimulate a greater interest in the planting and preservation of ornamental trees; and to initiate and foster scientific investigation into the various problems encountered in the practice of tree preservation." These quotes are directly from the group's constitution.

Certainly these are commendable reasons for forming an organization. Under Secretary-Treasurer Dr. Lewis C. Chadwick, the Conference has grown in membership and in importance, and has served the nation, and its trees, hard and well.

The constitution goes on to state that the group will also promote an annual convention where ideas may be exchanged and where delegates may profit from each other's experience. And the constitution states further that the annual convention will provide manufacturers of materials or equipment a place to introduce and demonstrate their products to practicing arborists.

So the ISTC, while striving primarly to disseminate scientific knowledge and to foster a respect for and an active interest in trees, also recognizes the importance of industry in the advancing technology of tree care. This last factor is in itself commendable.

The staff of *Weeds and Turf* salutes the International Shade Tree Conference, its current president Dr. Spencer H. Davis, its respected secretary Dr. L. C. Chadwick, and the officers and members who have worked together to bring the organization to its present level of excellence and dedication.

We hope this 40th convention will herald a new era of success and achievement, and we pledge our pages to the utmost cooperation with the aims of this fine organization.

WEEDS 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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Arborists' Big Job:

Cut Out the "Little" ACCIDENTS

Results of another *Weeds and Turf* field research project.

Safety rope is the best accident preventer for climbers. But while keeping eyes peeled for trouble aloft, this article says, look out for the routine practices which may cause mishaps.

TREE workers have an appalling number of accidents each year. Lost job time of tree trimmers is regularly 6 to 7 times as great as for other industry averages. Tree companies, as a result, have to pay higher insurance and workmen's compensation rates.

Earlier this year, officers of the National Arborist Association encouraged *Weeds and Turf* to look into the accident record and statistics of the tree service industry and try to come up with some solutions to this expensive problem. NAA supplied us with accident records from 1958 to 1962 which were compiled by the Ohio State Industrial Commission. These accident records are very revealing.

A quick look at the itemized accident causes in these statistics shows that the majority of tree company accidents do not happen to workers doing the hazardous work for which the industry is famous.

Veteran climbers don't often get hung up in ropes. Specialized trimmer-lift workers don't fall from buckets. Line clearance men are cautious near energized wires; electrocution deaths are rare compared to the rash of accidents which occur while workers perform "safe" jobs on the ground.

The overwhelming number of accidents result from careless use of tools, clumsy misfootings, strains from overexertion, and not watching what fellow workers are doing.

Watch 18-25 Age Group

Records show that men between 18 and 35 have most accidents; this is understandable because strenuous work requires young men. But the group 18 to 25 has 25% more accidents than the 26 to 35 group. What kinds of accidents are these men involved in?

Ohio's Industrial Commission statistics show men most often *fall from, slip on, pick up,* or are *hit by* things which cause *bruises, lacerations, fractures, sprains,* and *strains.* There are other less common injuries also.

What can tree companies do to try to cut down these small but numerous accidents? Although arborists must pay a high insurance premium for all of their employees under 25, it would not do to refuse young men jobs. They will someday learn to climb, cable, brace, and work from a trimmer lift; their training for these jobs must start early.

It appears though that companies train their men for specialized work, but neglect training for commonplace work. Owners should not take for granted that a new employee knows how to lift a heavy log correctly, that he knows how to use a hand saw without injury, or can carry an axe or even a gouge without injuring himself or someone else.

An obvious need for industry-wide safety reorientation exists. Routine jobs cause more accidents. Men have to be taught, not just told, how to do simple jobs safely.

Six Points for Safety

We have in mind a 6-point program to help reduce accidents:

1. Screen New Employee Attitudes
2. Hold Safety Seminars
3. Teach by Example
4. Use Safety Posters in Trucks
5. Put Colored Adhesive Sticker Reminders on Misused "Safe" Tools
6. Start an Employee Safety "Court"

Careful screening at applicant interviews will show managers whether young men can handle themselves and tools responsibly. Close estimation of the applicant's common sense will reveal if he will perform the way

(Continued on page 18)

Pictorial Guide to
Tree Crew Safety

This man uses a chain saw where he has plenty of room to move away in case the saw bucks, and avoids the other side of the log because of cramped quarters and stubs sticking up from the ground. Note gloves, tucked-in sleeves.

When working on a street with a trimmer lift (above left), groundmen serve as flagmen to keep traffic moving smoothly. The trimmer is signalled when traffic approaches so he won't drop brush on passing car. On the right above, groundmen coiling rope keep a sharp eye peeled for weak spots in rope, and call the foreman for an inspection of questionable strands.

Axemen should carry tools properly at side, away from co-worker as this crewman is doing. Don't swing tools and don't carry them over the shoulder. The partner's responsibility here is not to walk behind, but to stay at the side out of the way of the axe.

To avoid gasoline spillage this Asplundh man uses a plastic funnel which screws into the filler hole of his chain saw.

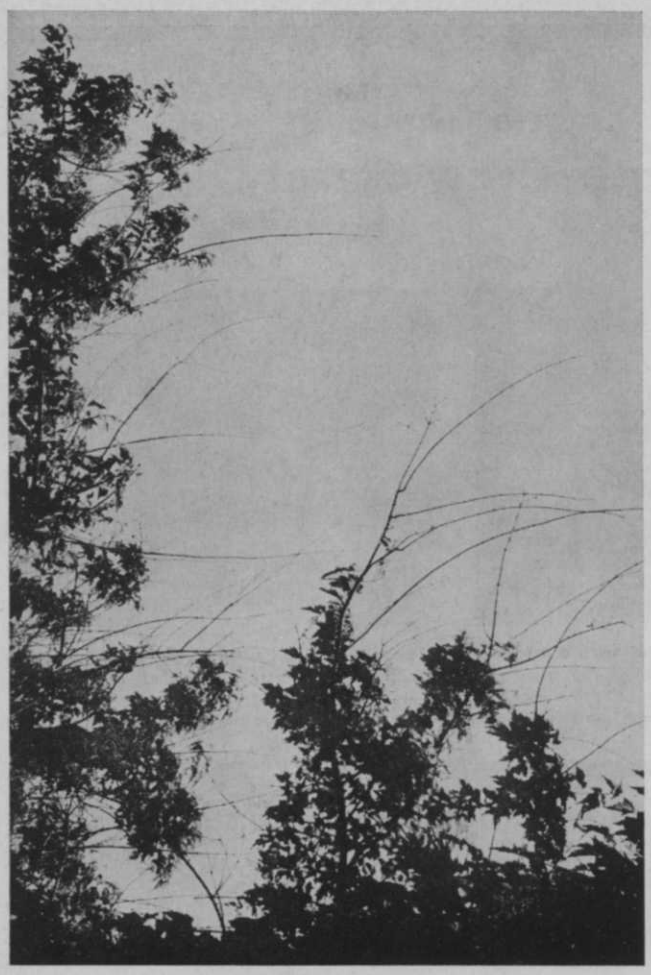
The groundman is properly attired for feeding brush into chipper. He wears helmet and goggles, stands back from hopper, and keeps his hands away from hopper by handling brush by the smaller branches. Modern chippers have every possible safety measure built into them, but the operator must nevertheless be properly attired, and follow even the most routine safety precautions.

Photos by

Weeds and Turf

After climbers are in trees, remove ladders immediately and place them safely out of the way, preferably on the trucks where racks are provided. This way they won't get knocked over nor will anyone fall over them.

A good groundman will steady the ladder while climbers ascend. This man stands on the ladder and pushes his weight forward to keep it from bouncing. There are two safety ropes in this shot because there are two men in the tree.



Dieback of exotic maples from winter cold in Maine. The entire subject of noninfectious tree diseases is rapidly being put into its proper importance in tree maintenance.

Conspicuous cracking of paper birch stem. Whether caused by cold, heat, or lightning, repeated opening following annual healing has already stimulated formulation of a "rib."

Noninfectious Tree Disease, Part 1

Effect of Cold Injury and Freezing

By DR. RICHARD CAMPANA

Professor of Botany, University of Maine

Orono, Maine

IN SPITE of the dramatic and conspicuous destruction wrought by such well-known infectious tree diseases as Chestnut Blight, White Pine Blister Rust, Elm Phloem Necrosis, Dutch Elm Disease and Oak Wilt, it is possible that over longer periods of time, diseases of noninfectious origin may cause greater losses than infectious ones. Infectious diseases are those whose primary causal factors are bacteria, fungi, or viruses, and infection is the establishment within living tissue of such disease-causing agents. By contrast noninfectious diseases are caused independently of such pathogenic agents.

Although some noninfectious diseases are the direct or indirect result of man's activities, most of the causal factors leading to disease are the diverse and natural aspects of the environment to which a tree is exposed. Here it may be well to explain the concept of disease which we will consider.

A disease is considered to be a sustained process of physiological changes, harmful to the living organism affected. These changes are expressed in physical and/or chemical alterations of trees affected, and their outward manifestations are symptoms of internal trouble. Diseases of trees (and of men) were regarded by the ancients, as expressions of the "Anger of the Gods." Later, in Biblical times the influence of adverse weather in causing plant disease was recognized generally. So solid was this view that as late as a hundred years ago, before the germ theory of disease was accepted, most plant diseases now known to be infectious were attributed to adverse weather.

Following the knowledge that disease may be infectious and that known infectious agents are microorganisms, the concept developed that disease was essen-

tially of infectious origin. With the ultimate discovery as infectious agents, of those self-duplicating submicroparticles, the viruses, the infectious disease acquired a new dimension that reinforced the association between disease and infection. Often the terms infection and disease were, and still are, linked together as essentially interdependent.

From that time, the concept of disease, resulting from any other cause than infections, has had but grudging acceptance by both pathologists and laymen. But the discovery that viruses and other infectious agents may be transmitted by insects, and that insects are much affected by the environmental influence of temperature and moisture, led to a reappraisal of the influence of the environment as a primary cause of disease without infection.

Later, it was discovered that certain plant vitamins are necessary to prevent certain human diseases, and that nutritional elements are needed to prevent plant disease.

With this information and the knowledge that availability and absorption of such elements are dependent on the chemistry of the soil, the concept of noninfectious disease was strengthened. More recently, a continuing series of new and troublesome tree diseases have been found for which there are no known infectious agents.

Examples of such diseases studied intensively within the past two decades are: White Pine Needle Blight, Birch Dieback, Pole Blight of Western White Pine, Sweet Gum Blight, Little Leaf Disease of Southern Pine, Ash Dieback, and Maple Blight, Dieback or Decline.

Disease Cause Twofold

Even more recently the knowledge that natural (as well as manmade) radiations may cause diseases of noninfectious origin, has emphasized the point, that a perfectly valid concept of tree disease must include the noninfectious as well as those truly infectious. The purpose of this paper is to explore some of the basic factors, which are the direct or indirect causes of noninfectious disease and how they operate. Considerations of time and space make it necessary to limit the discussion to the imbalances of temperature and water. Cold injury and freezing are discussed in this installment.

Cold Injury

Which of the natural environmental factors significant in direct plant injury is most harmful to trees in causing disease? Probably low temperature brings the most trouble, because it is known to be a limiting factor in geographic distribution of species of trees as well as other plants. In addition, temperatures damaging to trees occur over wide geographic areas and affect millions of individuals of many species. Over an extended period of time, in temperate zones, almost all species of trees may be affected, but there is much variation both between and within species and strains.

Depending on latitude and climate, freezing damage may and does occur at any time of the year. With numbers of trees affected, it is probably most significant on trees in the spring, and is rather rare in summer. After growth has begun, late spring frost may be sufficiently light, so that only thin tissues at leaf margins or between veins may be killed, or it may be severe enough to kill all leaf and stem tissue of new growth.

In the former case, leaves of deciduous trees may appear ragged with interrupted margins and uneven holes. In the latter case, all the new tissue is collapsed, is discolored brown or black, and may break off and fall within a short time. Terminal growth of the year will be lost, and the growth pattern of the tree may be distorted.

Early frost in the fall is much less serious. In its mildest form, it may cause nothing more than premature defoliation, especially to those species whose buds for the next year are set, whose growth has ceased, and whose gradual period of hardening off is well advanced. Species whose growth continues until actually stopped by frost will have succulent stem tissue killed back. With such trees this is considered to be a natural phenomenon. With early frost then, these species are little affected from normal onset of cold weather. Between these extremes, however, are trees whose growth has stopped, terminal buds having been set, but whose tissues are still succulent because hardening has not occurred to any degree. With dieback occurring on this type of species, the terminal buds for the following year often will be lost, and growth may be distorted, as with late spring frost.

For the individual tree, midwinter freezing is probably the most injurious of all cold damage. Trees so affected may suffer dieback of twigs and roots, radial cracking of trunk or branches, or killing of cambial tissue between bark and wood of stems. Since all freezing injury involves drying of tissues as water leaves the cells, such tissue collapses if soft, or contracts if hard. Some tissue is killed outright, some is weakened sufficiently to be susceptible to easy invasion by weakly parasitic fungi, and some is so altered, that it may develop abnormally when growth begins. As the name implies, "dieback" results from death of small, thin terminals, and with increased severity extends inward toward larger stems or roots. Extent of dead tissue is easily detected before new growth begins, by a line of sharp demarcation at the interface of living and dead tissue.

Cold Causes Radial Cracks

Radial cracking or "frost cracking" of stems is, of course, a well-known and conspicuous indication of excessive or sudden cold. Under such conditions a woody stem is affected in a curious way. As the outer tissues of the stem freeze, this tissue contracts faster than deeper, inner tissues. In a vertically oriented stem, such as a standing tree trunk, shrinkage of woody tissue from loss of water is greatest in a horizontal plane. Contraction, through drying of the outer shell, creates a tensile force on these outer cells. At the same time, because of their insulated location in the stem, the inner lying cells are not under such extreme tensile forces. The dynamic stresses between differential contraction of inner and outer wood, force the outer tissues of the stem to separate, and separation occurs along radial lines where cleavage is easiest mechanically. Such cracks occur suddenly with an explosive force and a sharp cracking sound. They may extend from one to

(Continued on page 22)

Encouraging the "V-type" growth in this elm did not add to its natural beauty, and put additional strain on the main crotch.

A Review of

Shade Tree Pruning Practices

For Streetside Line Clearance

BECAUSE of a seeming lack of foresight either on the part of power companies which did not put electric wires underground, or on the part of city street planners and tree planters, there exists today a major need for tree service companies to keep power lines free of encroaching vegetation. This job involves, for the most part, pruning or trimming tree branches so they do not grow into energized wires.

Pruning shade trees prevents, corrects, or improves an undesirable situation. With power line clearance, the problem is tree contact with elevated wires. Contact can: 1. break the wires; 2. cause the wires to "pit" and become weakened; 3. burn the tree; 4. cause a short circuit; or 5. otherwise cause power outage and lack of service.

While it is true that telephone companies are also concerned with tree plantings along their streetside rights of way, their interest is involved mainly with branches which can fall and break wires, and branches which rub wires. Reasons 1 and 5 apply to telephone line clearance also, but it should be remembered that communication wires are not "hot" as are power lines and do not require clearance because of short circuit danger. Telephone wires are often cabled and covered with insulation so any light contact has no effect on transmission. While some operations are done only for electric power line clearance, others apply equally to communication line clearance. In this article, we will concentrate on power lines, because their reasons for streetside clearance are "broader."

Of the three prime reasons for shade tree pruning—(a) appearance, (b) safety, and (c) health—safety is the major reason trees near power lines must be periodically trimmed. In this safety category is included the maintenance of power service in addition to the well-being of people and property beneath the wires and trees.

An emphasis on safety pruning does not give reason to ignore the appearance and health of trees being trimmed.

Five Basic Pruning Types

There are five basic operations which line clearance crews must perform in their routine work. 1. Cutting back ("topping") for overhead clearance. 2. Side trimming for adjacent clearance. 3. Undertrimming ("lifting") for clearance beneath limbs. 4. Directional trimming ("trimming through") to provide "windows" for wires through a tree interior. 5. Removal of dead overhang.

Here we shall use the phrase, "cutting back," as a trimming operation, as opposed to the term "topping," which sometimes denotes the same operation. Topping, however, more often implies the frowned-upon practice of drastic removal of a trunk leader and most of a shade tree crown. This operation seriously injures both appearance and health of a shade tree.

Here is a survey of some problems encountered in keeping streetside shade trees clear of utility lines. A result of another *Weeds and Turf* field research project, the article is meant as a refresher for "old pro's" and an introduction for neophytes or crewmen. *Photos are by Weeds and Turf.*

A saw, not a pole pruner, should have been used on this ragged maple. Snipping away rising twigs, the trimmer left many spindly ones dangling from heavy limbs above, some of which should have been selectively removed.

Cutting back is a procedure of selective removal of leaders from the crown of a tree. This prevents contact with energized wires above the tree. The operation is usually done with a pruning hook, hand saw, and sometimes with a chain saw, if the leader is particularly large. When done properly on an individual branch basis, cutting back becomes a highly refined type of tree trimming. It is both the most permanent and most inconspicuous type of pruning.

Severed leaders are drop-crotched (pruned off at a point flush with an adjacent leader) below the intended height of a tree. Cut back leaders are out of sight and are shaded by other smaller twigs which have simply been tip pruned. The full form of the tree is maintained.

Since the advent of the highly versatile aerial bucket lift, many trimming operations can be easily performed from outside the tree instead of inside. Some trimmers, however, when they get outside a tree, seem to forget what they learned about trimming a tree from the inside.

Ill-trimmed trees have all branch and twig ends snipped off at a common level. Unsightly bare wood of pruned branches protrudes through the sparse leaf cover atop a tree. Overall result of such practice is a bowl-shaped or flat-topped tree which does indeed give overhead clearance, but which leaves the tree scalped and in need of repair. Cutting back can be effectively performed with an aerial bucket lift provided trimmers move in close to the crown to drop-crotch low enough.

Side trimming to accommodate wires close to the edge of a tree is delicate work and should be done with ingenuity and artistry. Reasoning behind side trimming is that indentations can be cut into tree crowns and softened by judicious pruning above and below the indentation. This is done when wires are not actually traveling through the tree interior. Side trimming allows trees and wires to exist side by side.

Tree trimmers simply invite trouble when they mistakenly remove a lateral limb as a side "trim" to accommodate wires which would get along perfectly well with light side trimming. Limb removal leaves a "window" from the outer crown to the main trunk. Although this practice may be thought of as an easy way to avoid trimming a particular tree for a few years, disfigured trees along roadsides generate criticisms of utility companies, frequently the tree trimmer's best customers.

Trees with upright habit, such as elms and sycamores, that are tall enough, can have their lower crown lifted so wires can clear beneath the tree. Since these trees normally grow tall, they should not be suppressed beneath wires, rather guided around them. Once undertrimmed, overhead cutting back is no longer needed each year; retrimming is minimized except for dead overhang removal.

Directional pruning is probably the most skillful and most desirable pruning from the standpoint of both trees and wires. When wires are strung through a tree's interior, skilled trimmers can make "windows" through the street trees to give wires free passage. This is desirable along city streets because both trees and wires are accommodated with minimum injury or displacement of either.

The amount of trimming for directional pruning must be conservative and well thought out before cuts are made. Removal of a single branch instead of two smaller twigs may make too large a gap and defeat the whole purpose of trimming through, which is to make the operation as inconspicuous as possible. Trimming through the top of a tree may eventually cause too great a "V" and weaken the main crotch of the tree.

Dead limb overhang removal is usually an undertrimming operation, though sometimes trimmers must prune stagheads high in a crown. Dead limbs must be removed not always because they are touching wires, but because they may break and fall onto wires, thus interrupting power service.

Dead limbs should be pruned (drop-crotched) to a point behind dead wood tissue. Removal of only part of a dead limb is purposeless. When dead wood overhangs energized wires, it must be moved away from wires and lowered by ropes.

One rope can be used if limbs can be crotched so they don't hang over electric wires. When the limb is cut, it will swing away from wires. When a single rope is used, more than one groundman should hold the rope

or else the line should be snubbed (wrapped) around the tree trunk a couple of times to increase the amount of holding resistance. One man can usually control the lowering speed of a snubbed rope.

Attaching a single lowering rope to a dead limb in a position where it will be somewhat balanced can be dangerous for a climber because dead wood is structurally weak. Rope should be tossed over the limb and pulled in with a pole; then a running bowline knot, pulled taut, secures the rope to the limb.

A man in an aerial bucket lift can more easily attach a lowering rope, if such a lift is available. Trimmers on aerial lifts should remember that the whole weight of large limbs should never be tied onto the lift bucket.

If an overhang cannot be swung away from power lines with a single rope, two lowering ropes must be used along with one or two guide lines. One line, the butt, is tied to the thick end of the limb and passed over a sturdy crotch, then to the ground. The second line, or fall line, is attached to the far end of the limb. One or two guide lines are fastened in the middle or on both ends respectively. Climbers must not attempt to hold or control either lowering ropes or guide lines after cuts are made and the limb swings free; this is the groundmen's job.

At the outset of this article we pointed out that line clearance is safety pruning, and that the other two reasons for pruning, appearance and health, cannot be neglected. There is a problem which limits the amount of conscientious work tree trimmers can do; this is contract restriction.

Many Agencies Trim Trees

Problems arise when tree expert companies are contracted to service trees interfering with power lines. Their contracts and permits usually state only that they will clear limbs and branches away from wires. Power line tree trimmers cannot do any extra work requested by property owners even when asked. Once the lines are free, the job is finished.

Most tree companies take the time to make their trimming job as neat as possible, but if trees are on public property it becomes the job of city tree crews, not power company employees, to beautify them. If trees are privately owned, individual residents must purchase private service to have complete pruning.

Therefore, since power line tree crews are not permitted to service whole trees, the jobs they do must be as neat as possible. Tree crews who leave a privately owned tree in need of corrective pruning, when the tree truly did not need pruning at all (were it not beneath power wires), create ill will among the utility's customers.

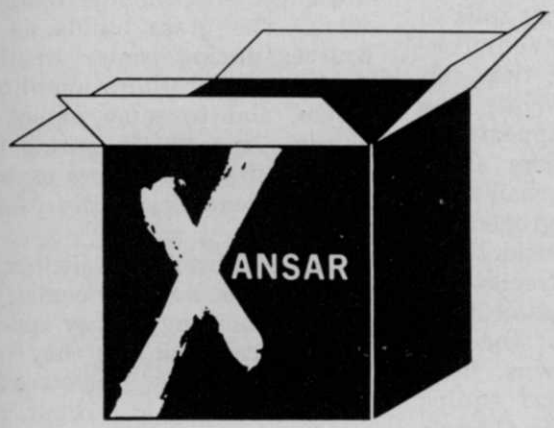
Private power companies usually receive blanket permits from cities to trim municipal trees when power lines are erected on tree lawns, parkways, or other city property. Where only municipal power lines and municipal trees are involved, an interagency understanding is all that is needed for tree trimmers to perform their work. No extra permit is needed from streetside residents.

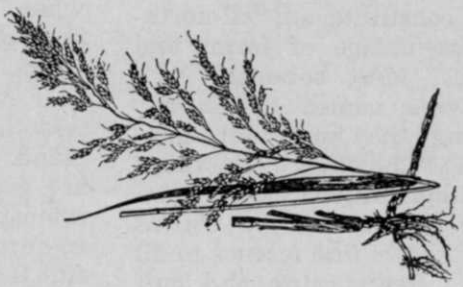
Trimmers usually refrain from trimming trees when homeowners complain that they don't want the trees trimmed. Even though the residents have no legal complaint, the trimmers usually pass the trees by and report the location so a city man can call and "keep peace in the family."

When lateral electrical wires extend over private property, however, rights of way must be obtained by a power company or municipality trimming crew from each resident. This is a time-consuming job done to comply with law and preserve power company customer good will.

That more than one crew must work on a tree (in some instances) is unfortunate. But line clearance crews cannot work for two employers at the same time, and wires must be cleared more

(Continued on page 19)





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Turfgrass Portraits II:

Fine Fescues

By DR. ROBERT W. SCHERY

Director, The Lawn Institute

Marysville, Ohio

This is the second in a series of nine articles on basic traits and maintenance procedures for common turfgrasses. Next month author Schery discusses bentgrasses.

FINE fescues, the red fescue group, constitute an "all-northern" assemblage of forms and varieties. Most botanical varieties were named in Europe, including the important commercial "Chewings," *F. rubra commutata.* Hitchcock (*Manual of the Grasses of the United States*) shows fine fescues in all except a few prairie and gulf states. But they are most at home in the more northerly regions, volunteering widely in western Canada. "Meadows, hills, bogs and marshes in the cooler parts of the Northern Hemisphere, extending south— to the San Bernardino Mountains—New Mexico— the Allegheny Mountains and Atlantic coastal marshes to Georgia."

Chewings fescue was for many years cultivated in New Zealand, and imported into the United States. Poor production or shipping conditions during the long boat haul often resulted in inferior seed, and today main source of Chewings is from Oregon, of top quality.

The fine fescues have many remarkable attributes that make them first-rate lawngrasses, especially useful when combined in seed mixtures with Kentucky bluegrass. In the lawn, fine fescues are of delicate texture, dense, dark green. The tightly clustered culms (tillers) bear thin, somewhat wiry basal leaves, which tend to curl (the margins roll in) during dry weather. The loosely fibrous, reddish sheaths are persistent near the crown, a good distinguishing feature.

To a greater or lesser extent these fescues spread by rhizomes, although not so notably as does Kentucky bluegrass, the extent depending partly upon variety and partly upon cultural conditions. Seedheads are never much of a problem on densely seeded lawns regularly mowed.

Except that their lasting qualities are poor in hot climates, fine fescues are exceedingly well adapted. They thrive on everything from peaty, boggy soils to dry, sandy, or rocky environments. As to fertility, they can take it or leave it. While fine fescues have better appearance when fertilized, seldom is it necessary to use more than 2- or 3-lbs. elemental nitgrogen/M/year with them,—considerably less than voracious species demand. In a seed mixture they are good insurance for the less intensively tended lawns. This exceptional hardihood equips fine fescues to survive in difficult locations—sandy, wind-swept spots, for example; or dry, sterile parts of the lawn; and in the shade, in competition with tree roots, where the going is too tough for other grasses.

Obviously, fine fescues are excellent low-maintenance grasses, self-sufficient, recuperative.

Fine fescue seed is of medium size, small enough to be a bargain by the pound (over a half-million seeds to the pound), yet large enough to pack sufficient food for seedling vigor.

In seed mixtures fine fescues make green cover relatively quickly; the need for quick-sprouting impermanent nursegrasses is accordingly diminished.

Fine fescues are similar in appearance to Kentucky bluegrass, these two important species blending well together, profiting from the same general care. Fescue loss, when it occurs, is usually in hot weather, especially if the turf is succulent from generous nitrogen fertilization. But spring leaf spot that so besets bluegrass is not so serious on fescue, a good argument for fine fescue in a bluegrass blend. Nor are the fine fescues touchy about pesticide treatment at recommended rates, lending themselves to selective elimination of pests. Occasionally there may be temporary browning or thinning, with some of the less usual chemicals such as Zytron.

Growth Pattern

Fescues follow essentially the same growth cycle outlined for Kentucky bluegrass in Portrait No. 1 (*W&T*, July, p. 12). Autumn is most favorable for new plantings, and for improving old turfs. The grass builds its resources during cooler weather, thickens by proliferation of new tillers, and to some extent by rhizome spread. In spring this husbanding of resources pays off in a resplendent, tightly packed sward of new shoots.

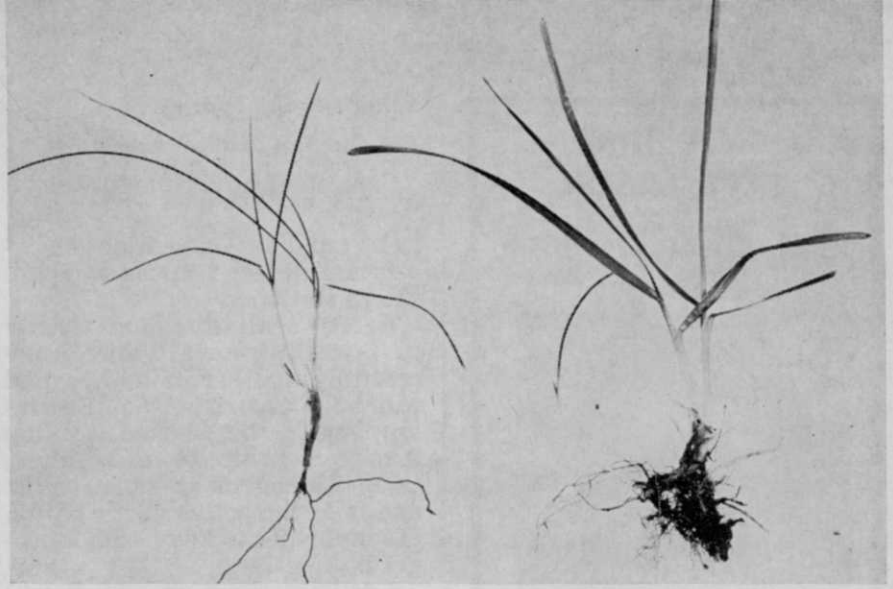
Fine fescues mow a little more difficultly as summer comes, the leaf tips tending to fray and develop "gray hair" as they turn more siliceous. Hot weather decimation may also occur, giving an irregular turf with thriving patches alternating with slumping grass. To lessen disease avoid heavy nitrogen fertility in hot weather, and mow considerately high—1½ inches would be the minimum.

Adaptation and Preferences

Fine fescues can be recommended in just about any area where Kentucky bluegrass survives. They might not be quite so tolerant of the wind-swept plains as is bluegrass, although even in eastern Kansas and Nebraska certain selections behave satisfactorily. Unexpectedly, they have been reported to do reasonably well in difficult coastal plain sites as far south as the Carolinas! But fine fescues are at their best in cooler regions, or at higher elevations. They do

make very attractive temporary winter cover in the South, handled then as an annual.

Maintenance requirements with fine fescues are certainly not onerous. Casual fertilization suffices, and fescues may even resent heavy feeding. A pound or so of elemental nitrogen per M is suggested for autumn, an equivalent amount through spring and summer depending upon soil and climate (avoid hot weather feeding). Irrigation is not vital, except on sand or insofar as is needed to maintain the turf attractively green; fescues sit out drought well, revive when conditions turn favorable. Weeds can be removed safely with the 2,4-D family of chemicals, and fine fescues are reasonably tolerant of crabgrass preventers and crabgrass killers.



A fine fescue plant (left) and a Kentucky bluegrass plant (right) as they appear in typical mowed turf. Note most of the distinguishing features and similarities discussed in the text here and last month, when Dr. Schery examined the bluegrasses.

Propagation

Fescues are propagated by seed. Total disappearance of fine fescue seed in this country nearly matches that of bluegrass, between 20- and 30-million pounds annually. In the last few years about half of this has been imported, chiefly from Canada. Most imported seed is without varietal distinction, marketed as "Creeping Red fescue."

Domestically, a well-managed fine fescue industry has sprung up in the Pacific-Northwest, principally in Oregon. Some Creeping Red fescue is grown, but improved varieties such as Chewings, Illahee, Pennlawn, Rainier and others have been developed. Fields are carefully tended, with weed control, fertilization, hygienic burning, and solicitous harvesting. Seed can usually boast at least 95% purity and 90% germination. Not uncommonly it will be entirely weed-free and over 99% "pure."

Fescue is usually sowed 3 or 4 lbs./M or in seed mixtures (usually with bluegrass) 2-3 lbs./M. The seed handles nicely in modern spreaders, and if the seeding is watered and mulched, fescue plants will be visible in about a week of warm weather. Fine fescue seed may lose germination if not kept dry, especially it it gets hot. For safekeeping storage should not exceed room temperature for a prolonged period.

What to Watch Out For

The usual lawn afflictions bother fine fescue, too. Fortunately, under the "modest living standards" fine fescues generally fall heir to, pests are not apt to be so troublesome as with pampered swards.

Couch lists over 25 diseases that can be found on fine fescues. Of these only summer loss is serious (presumed due chiefly to Helminthosporium). Helminthosporium ("leaf spot") can be at least partially prevented with conventional fungicides such as Actidione-thiram, Captan, Dyrene, Maneb, Tersan OM, Thimer, etc. Biweekly treatments during summer may help hold turf through its most difficult time of the year. But seldom is the disease so serious on moderately fertilized grass as to cause complete loss. Brown patch, Pythium, and snow mold in winter may occasionally cause trouble. Rust is not a problem.

Sod webworms, grubs, and occasionally chinchbugs attack fine fescues. Treatment is conventional,—thorough coverage with an insecticide to which the pest has not developed resistance. Chlorinated hydrocarbons such as chlordane and dieldrin can be soaked into the soil for grub control; in most areas these are still effective against sod webworms, but where not, phosphatics such as Diazinon, or newer insecticides such as Sevin, may have to be used. A switching-around with insecticides is especially necessary with chinchbugs, creatures of well-recognized ability to develop resistance.

Varieties

Varietal distinctions between fine fescues are not easily evident. Now one variety, now another, seems to have slightly better quality. Differences are chiefly physiological, for almost all varieties look quite alike in the lawn. Pennlawn was developed at Pennsylvania State University, from the natural crossing of three disease-resistant selections. It is well thought of in the eastern United States. A Minnesota seedhouse has had especially good luck with Rainier. Chewings and Illahee (an Oregon selection) have been long regarded with favor. Olds and Trinity are other names less frequently encountered. At the Lawn Institute we have been hard put to see much difference between varieties, all domestic ones performing ably when properly tended.

In summary, the fine fescues are a basic component of North American fine turf, especially in seed mixtures for home lawns. For difficult and uncertain conditions they have few peers. Summer thinning, and resentment of low cutting, are the only weaknesses of much concern.

Arborists' Big Job:

Cut Out The "Little" Accidents

(Continued from page 8)

he's taught. On-the-job showoffs usually end up as compensation statistics.

Safety seminars, held weekly or biweekly, have worked successfully in other industries, and can help arborists, too. Seminars should be started by top management to be most effective. Management must enlist and hold the active participation of employees to keep such a program effective.

Lectures don't work. Visual aids and demonstrations help men retain what they're taught. Seminars should combine technology with safety, e.g. "How to use lopping shears safely." One lesson on lopping shears, then a lecture on "Be Safe," will not come across.

Employees can also participate in demonstrations for the benefit of their co-workers. Graphs of past years' accidents compared with current performance will give men a competitive feeling.

Set Proper Example

On the job, field supervisors and foremen have to know and practice safe working habits. They must set examples for newer employees. They should reprimand workers using unsafe methods. Foremen who let minor infractions slip by, open the way for minor accidents—the kind that inevitably cause injury and increase insurance rates.

Tree companies usually work from widely spaced trucks, which may or may not be stored overnight at a main office. Safety posters on an office wall don't help the man in the field. However, posters installed in truck cabs (away from public view) remind men to and from work of the company's safety message. These posters have to be changed regularly so they don't become sour.

Many of the tree experts "safe," easy-to-use tools cause accidents: hand saws, pole saws, power saws, shears, axes, brush hooks, and even gouges. Small checklist labels stuck on exposed parts of these tools will attract attention and remind men to make certain the tool is operable, to see that there are no other men near who could be harmed, or that the operator has no loose sleeves or pants cuffs which could catch in the tool, etc. Checklist instructions are a very helpful learning method.

Both truck posters and tool checklists are meant to supplement safety seminars and shouldn't be substituted for such meetings.

Our last suggestion is Employee Safety Courts. Several men (employees) sit on a "jury," and periodically hear reports of accidents from those involved. They determine the degree of guilt; whether there was negligence or whether the person involved did foresee hazard and take necessary precautions. For instance, a man who dropped a power saw onto his own toe and was injured because he forgot to wear his steel-toe shoes, would be found guilty of negligence; he would receive a designated number of points against him.

Discipline for reaching the maximum number of points is usually decided by management. This court system has worked in other industries and should work for arborists also.

If tree service accident statistics could be separated, the half tabulating those hazardous jobs arborists perform, we believe, would be more respectable. Supervisors have taught their specialists to recognize hazards and work safely with them. Although safety training for aerial workers cannot be neglected or reduced, groundmen have to be shown how to do their jobs properly, too.

Calchem Builds Pilot Plant

A pilot pesticide plant designed by the Ortho Div. of California Chemical Company to accelerate market and process development of its new pesticide products is under construction at Richmond, Calif. Completion is scheduled for January.

According to W. G. Toland, Manager, Research and Development, this intermediate facility between ordinary pilot plant operation and complete commercial installation, will provide a practical study of process techniques and equipment which can be used in the design of full-scale production facilities.

Streetside Tree Pruning

(from page 14)

often than private homeowners are willing to pay for.

Tree crews have a double duty to protect the good will of their contract employer, and, just as important, the good reputation of their own company.

Consider Health of Street Trees

Health of a tree cannot be overlooked even when trimming for safety. All pruning cuts under 1-inch diameter should be made neatly so they will heal rapidly. In the case of limb removal (over 1-inch diameter), flush cuts of laterals heal faster when no stubs or heels protrude. Stubs tend to decay and pave the way for invading insects and fungi. Deep cavity wounds are sometimes caused by stubs left when trees are trimmed.

Limbs are removed with four separate saw cuts. The initial undercut, 12 to 18 inches from the parent limb or trunk, is followed by a jump cut 1 or 2 inches farther out. This procedure removes the bulk of the limb by natural breaking and prevents saw binding. Undercutting keeps the bark from peeling when the cuts are made without lowering ropes. The stub is sawed flush by two cuts, first under then over; this should be made as near the parent limb as possible without sawing the bark of the parent limb. All cuts over 1-inch diameter must be painted over with a wound dressing. Dressing must completely cover the exposed wood but should not be applied onto the live bark.

Heavy-duty, compressed-air pruning hooks used with aerial lifts can sever branches larger than 1 inch very easily. Because these cuts ("shiners") are made with a pruning device does not, however, mean that they need not be painted with wound dressing.

Another point to consider about tree health is internal disease. This consideration is especially important when trimming trees such as the London Plane, *Platanus acerifolia*. The possibility that a tree is diseased with cankerstain organisms should not be overlooked.

Tools can be sterilized in denatured alcohol after each tree is pruned to prevent the spread of internal disease to other trees. A trimmer who prunes a diseased tree (in any season), and then goes on to trim healthy trees, may infect the tree with every saw cut, because of the disease organisms on his saw, pruners, and in his scabbard.

Pruned limbs from diseased trees or disease-suspect trees should be disposed of separately from normal trees. Experts advise that diseased Plane trees, for instance, be burned as near the site of cutting as is feasible.

In summary, tree expert companies under contract to power companies perform what is commonly called safety trimming along home-lined streets. They cannot for the sake of the trees, their customers, or employers, neglect the overall appearance and lasting health of the trees they prune.

These Siberian elms, author Zukel says, were pruned to the same size in April. Trees on the right were sprayed to drip point with MH. This photograph, taken in August, shows degree of growth inhibition.

Slowing Tree and Shrub Growth With Retardant MH-30T

by DR. JOHN W. ZUKEL

Biologist, Naugatuck Chemical Division
United States Rubber Company, Bethany, Connecticut

SIX YEARS ago utility companies spent 125 million dollars a year hand pruning tree growth under transmission lines. The rise in labor costs and addition of new customers has rapidly increased these costs. Pooling resources through the Edison Institute, utility companies have been supporting research since 1958 to reduce hand pruning costs.

A similar hand pruning problem of trees and shrubs exists for cities, parks, and homeowners. No cost estimate is available in this area but the expenditure is considered excessive by cost-conscious maintenance men.

Chemical plant growth inhibition started with Naugatuck's discovery of maleic hydrazide in 1947. To date there have been over a thousand research reports published on various uses of maleic hydrazide (or MH). These include many references to tree and shrub inhibition.

For example, vegetative growth inhibition of peach, cherry, and apple trees was reported from Pennsylvania in 1951 and Michigan found that red maple, American and Chinese elm, and weeping willow were inhibited by MH spraying.

The experiments on shrubs include treatment of a 100-foot pyracantha each year for 13 years. Pruning labor has been markedly reduced and the shrub showed no adverse effect from the treatment.

Our research group started a demonstration program using maleic hydrazide on shade trees under power lines and in city streets in the western states in 1963. This work was done in cooperation with cities and utility companies, such as Pacific Gas and Electric Company in San Francisco, the largest in the West, neighboring Oregon, and Washington.

Some 2000 trees were treated in 1963. These included sycamore, willow, alder, poplar, oak, eucalyptus, mulberry, black walnut, maple, sweet gum, elm, and tamarack.

The first year of commercial use, 1964, was the result of response from the 1963 experiments. This year the demonstrations were extended throughout the United States.

Results

The one application per season to either trees or shrubs controls growth for that season. The inhibiting properties of MH-30T gradually wear off and regrowth occurs.

Methods of Application

The formulation of MH, MH-30T, is diluted 1-1/3 gallons in 100 gallons of water and sprayed to the drip point. The tree is first trimmed to the proper shape and treatment is made when regrowth is out for two to four weeks. The MH is absorbed through the green leaves, then moves to the new growth areas to inhibit further growth.

Best results are obtained when vigorous new growth is sprayed. In spring, treat trees after the leaves have expanded and new growth has started. In areas where new growth follows summer trimming, the spray is applied when the new growth is two to four inches long.

For tree top control under utility lines MH-30T is applied at least halfway down the tree. This procedure prevents development of shoots from the interior of the tree. The same principle holds if side or bottom control is desired. Half the distance within the tree should be sprayed on the side where inhibition is desired.

Inhibition of Shrubs and Ivy

The plants should first be pruned back into the desired shape. After regrowth of 2 to 4 inches has taken place, spray to the drip point with 1-1/3 gallons of MH-30T in 100 gallons of water.

MH-30T can also be used in spring as soon as new leaves have expanded to inhibit further growth.

The following shrubs can be treated: privet, pyracantha, Myrtus, Xylosoma, Viburnum, Eugenia, Pittosporum, Cissus, Hahns ivy, Algerian ivy, honeysuckle, forsythia and icicle plant.

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Noninfectious Tree Disease

(Continued from page 11)

several feet in length along the trunk, and are most often within ten feet off the ground on the north side of a tree. However, they may occur at any height and on any side.

Most frequently such cracks provide openings for invasion of insects, bacteria and fungi. But apparently many heal without infection, or at least there is no evidence of any for many years. If healing is clean, fresh callus tissue in the following spring and summer will often close-over the opening. But once weakened, the stem may crack again under more mild conditions than at first. Such cracks may be repeatedly opened following successive healings, by nothing more than swaying of the tree by the wind. Since the callus tissue tends to protrude more and more with each opening, after several years a pronounced "frost rib" may develop, representing an exaggerated protrusion of vertical woody growth running up and down the trunk for several feet. In addition, many frost cracks become infected with wetwood bacteria, so that bacterial exudations themselves may predispose the stem to repeated cracking, and many frost ribs are characterized with a constant seepage of foul-smelling sap from such exudations. Wetwood infections may also predispose stems to frost cracking, but the reverse is probably most common.

Internal evidence of cold injury involves activity of cambial cells following damage. Where the cambium is not killed completely, it is stimulated to abnormal growth and the formation of frost rings. Since some of the cambial cells are killed, or some of the first cells produced from them may die, the tissue may contain collapsed cells, and to that extent is physically distorted. For reasons not well understood, many cells produced from damaged cambial tissue fail to differentiate properly when growth first begins, so that in the early part of the growth ring there is often much undifferentiated tissue composed exclusively of parenchyma cells. One explanation may be that the separation of the bark from the wood leads to growth of excessively large new parenchyma cells. The combination of collapsed dead cells and the soft undifferentiated parenchyma cells results in excessively broadened rays, misalignment of rays in the wood with those of the previous year and generally distorted tissue.

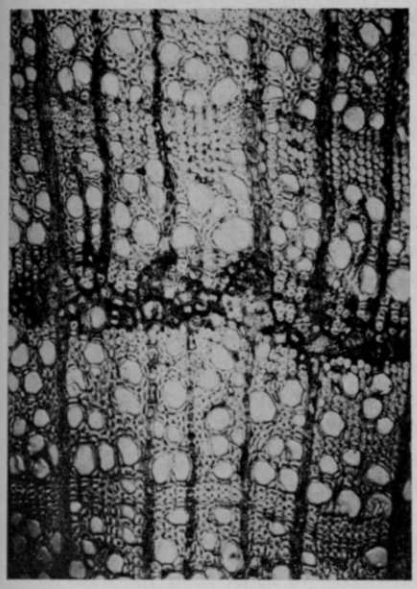
Unless killed completely, the stem may recover its growth balance shortly after growth begins, when a solid ring of cambial tissue is established through regeneration. Then as growth becomes regular, excessive parenchyma disappears, differentiation becomes normal, and rays become straightened in the advanced areas of the growth ring.

Sometimes, however, whole areas of cambium are killed outright in basal stems of trees. Because the water-conducting tissues of the previous wood are unaffected, growth above the injury may begin and advance normally for some time. Eventually, if the entire stem was girdled, the top will die. If only a portion of the stem was killed, the stem may die partially, completely, or not at all, depending on circumstances. Tissue weakened or killed by cold ordinarily will be invaded by a wide variety of insects, bacteria, and fungi. It then becomes a race between weak predators or parasites and the regenerative powers of the tree that will determine the outcome. Not the least of the determining factors influencing the situation at this point are the climatic factors involving temperature of water.

Dramatic closeup of frost ring in woody tissue of apple, showing misalignment of rays, broadened bases of rays in the early growth of the ring, and excessive number of darkly colored parenchyma cells.

Mechanics of Freezing

The phenomena of freezing injury to plant tissues is basically one of dehydration. Water in plant tissue is either between the individual cells (intercellular water) where it is pure, or within cells, (intracellular) where because of dissolved salts, sugars, minerals, proteins, and other substances it is anything but pure. Pure, intercellular water freezes at or near 32° F, whereas intracellular water freezes only at much lower temperatures. For many years it was believed that freezing expanded the water in plant cells causing them to swell and rupture, but it is now known that plant cells actually contract. The first thing to happen in the freezing of plant tissue is the formation of ice crystals between the cells. This decreases the vapor pressure around the cells, causing water within cells to diffuse out through cell walls by osmosis. As the intracellular water moves out into the intercellular spaces, it freezes, adding to the ice crystals already there. This decreases the turgor pressure within the cells, causing them to contract. With ice formation between cells and shrinkage of cells, the ensuing dynamic stresses and tensions may be sufficient to cause physical rupture of tissues. If the cells remain intact, they become less vulnerable to freezing damage, unless the temperature continues to drop; containing less water, their freezing point has decreased. Such cells may remain "undercooled" without actually being frozen, even at temperatures below freezing, because of high content of fatty substances in cell membranes and proteins in the internal water. Both of these conditions have the net physical effect of insulating the water from freezing. But if the temperature drop is extreme, and especially if it drops suddenly, ice crystals may eventually form inside cells, rupturing the cell protoplasm and membrane, thus killing the cells. According to one authority such an extreme situation has not actually been observed under natural conditions, but the



Protrusion, in this closeup of a frost rib in cross section of an elm stem, is associated with bacterial wetwood and heart-rotting fungi.

conditions making it possible are known to occur.

Following direct freezing of plant tissue without formation of intracellular ice, the affected cells may recover or not. If the contraction of the internal protoplasm has been severe, protoplasmic coagulation may occur to a degree that is irreversible, and the cells may die. The extent of recovery possible will depend on the manner of thawing, during which the cells can be injured further. On thawing, the intercellular ice melts first, causing a flow-back of water into the cells with a subsequent swelling of the protoplasm. If the rate of thaw is rapid the swelling may be so sudden that the cells may rupture. The manner in which cold-affected cells become sensitive to turgor pressures not affecting them previously, and the decreased elasticity of the cell membrane to moisture changes following injury, indicate that freezing even without intracellular ice in some way alters the permeability of the membrane.

Synthetic studies of slow freezing damage indicate, that following intercellular ice, ice forms between walls and membranes first, in cytoplasm next, and in the vacuole last of all. The nucleus is the last of the protoplasm to be affected. Within the cell then, the degree of susceptibility appears to be largely positional, since in mature cells the vacuole lies at the center of the cellular complex. For the most part, however, cellular damage results from collapse of cells alone, without internal freezing, and from tearing or bursting of tissue following freezing of intercellular water and subsequent thawing.

Although the mechanism of freezing injury is similar for plant tissues generally, all cells and tissues are not necessarily affected in the same way. Apart from heritable differences not expressed structurally, differences in susceptibility and sensitivity result primarily from differences in structure of tissue, and location and exposure of species. Some plants are affected only mildly or not at all because of their capacity to become "hardened." Hardening involves a gradual conditioning through repeated exposure to slowly increasing coldness. During this period there is time for newly formed tissues to mature fully, and the cell walls of both inner and outer tissues become impregnated with various degrees and types of exposure-resistant chemicals, such as: the cutin of shiny leaves; the suberin of corky bark; the cellulose of all plant cells; and the lignin of woody cell walls. In addition, there is a gradual loss of water, so that hardened tissues are relatively dry. Woody plants generally begin hardening off immediately after growth ceases and become progressively cold resistant with approaching frost. These species are characterized by formation of truly terminal buds on ends of branches, in contrast to "pseudoterminal" buds. The latter type are typical of species which do not cease growth until literally stopped "cold" by freezing temperatures. Interestingly, some of these same species, such as the willows, are among the first to resume growth in the spring. This practically guarantees their premature exposure to a certain degree of late frost in the spring, but such species appear to be relatively resistant to such frost, suggesting an adaptation to these conditions.

Destruction of terminal meristems by freezing changes the distribution of auxin which regulates the growth of lateral branches. As with death of terminals from any cause, dormant meristematic tissues in the living stem below the injury may be stimulated to activity. The result may be a profusion of so-called water sprouts appearing as lateral branches in an irregular pattern, or the internal formation of aggregations of tightly packed and sometimes distorted cells, whose growth is short lived. The net effect of such internal tissues may be to interfere with the normal development of food and water-conducting tissues (phloem in bark, and xylem in wood).

The net affect then of freezing may include: partial death of leaf tissue to vigorously growing plants; dieback of terminals; death of cambial tissue, abnormal cell formation, with formation of frost rings in woody plants; failure of new cells to differentiate, with the formation of excessive parenchyma; formation of callus tissue; stimulation of dormant meristematic activity; and complete death of all or parts of individual trees.

Part II will appear in a later issue—Ed.

Plans Being Completed for 12th Fla. Turf-Grass Conference

Final arrangements are now being made for the 12th Annual Florida Turf-Grass Management Conference set for Gainesville, August 25-27, on the University of Florida campus there.

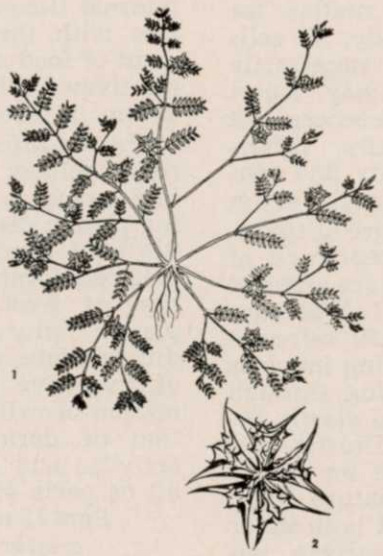
In addition to details announced in W&T last month (p. 20), spokesmen now announce that speakers and turf professionals for the event will be drawn not only from Florida, but from surrounding southeastern states and the Caribbean.

Included in the annual seminar are separate sessions devoted to the specific interests of various turfgrass management groups. Included are discussion groups covering golf course turf; horticultural spraymen and lawn service agencies; retail dealers and garden supply houses; industrial sites; and nurseries.

Those who wish to attend may write for further information to: Dr. Granville C. Horn (or John C. Cabler), 401 Newell Hall, University of Florida, Gainesville; or Walter D. Anderson, Executive Secretary, Florida Turf-Grass Association, 4065 University Blvd. North, Jacksonville.

PUNCTUREVINE

(Tribulus terrestris)



Puncturevine, an annual which reproduces by seed, is variously known as sandbur, bur nut, and tackweed. It is found on barren soil, waste places, and roadsides in North America; it is somewhat more common on the sandy soils of arid regions. Puncturevine is listed as a noxious weed by several states. It has been called the "most disliked weed"; and this dislike is reflected in the Latin origins of the technical name, which roughly means "affliction from the earth."

A member of the caltrop family, Zygophyllaceae, puncturevine has a circular prostrate habit of growth. Radiating stems trail away from the crown to a distance of 8 feet, hugging the ground, forming dense mats.

Stems are freely branching, and may turn upwards at the ends when plants are in competition for light. Stems are covered with fine hairs which give plants a silky, shiny-green coloration.

Leaves are opposite on the stem. Each leaf is made up of 4 to 8 pairs of small, oblong, rounded leaflets; these, too, are hairy.

Solitary, small, bright-yellow flowers, each with 5 petals, are found in the axils of leaves (where leaf meets stem). These short-stalked flowers open only in the mornings. Flowering begins when a plant is still small and continues on new growth throughout the growing season.

After blooming, seeds are formed inside spiny hulls or burs. Each flower will form 5 flat, spiny burs. Each horny bur contains 2 or more seeds and is armed on the outside with 2 sharp spines. These spines are tough enough to penetrate shoes, and bicycle tires.

Seeds remain in the soil, sometimes many years, before germinating under favorable conditions.

The root is a simple shallow taproot.

One-half to 1 lb. of 2,4-D per acre applied before puncturevine flowers, and while it is actively growing, will kill the plant.

Applied after blooming, 2,4-D will kill the plant, but will have no effect on the seeds already formed inside the matured burs, nor on the spines of this vicious weed's seed pods.

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)

LA Agency Plans New School to Teach Aspiring "Plantsmen"

A new program sponsored by the Los Angeles Department of Arboreta and Botanic Gardens will seek to train would-be professional gardeners and landscapers in the fundamentals of horticultural science.

Known as the Arboretum Gardener School, the program will last for 42 weeks, and will be offered in the Agency's facilities at 301 North Baldwin, Arcadia, Calif. Starting date is September 28.

Division of the course into both lecture periods and on-job training is expected to offer students a well-rounded background in the subject. Included in lecture periods are discussions of botany, plant identification, plant propagation, turfgrass culture, insects, and diseases.

In the practical phase, greenhouse practices, nursery skills, and related techniques will be taught. There will be field trips to commercial nurseries and botanical gardens.

On completion, officials will award course completion certificates, and will assist in job placement for qualified graduates.

There is no charge for this unique course. Those interested in enrolling should write to Dr. Louis B. Martin at the address given above for further information and an application form. Interviews may be arranged by appointment.

"Fairway Food" New From IMC

A new fertilizer which combines natural organic nitrogen, and IMC Pot O'Gold ureaformaldehyde, has been introduced by International Minerals and Chemical Corp. Called IMC Gold Cup Fairway Food, the turf nutrient is said to provide quick response and slow, steady feeding.

Proportioned phosphate content assures root formation and root growth, IMC says. The material is packaged in 50-lb. bags.

For more information write Lawn and Garden Department, International Minerals and Chemical Corp., Skokie, Ill.

make a killing with TRITAC™

Profit from this powerful new herbicide for control of bindweed, Canada thistle, Russian knapweed, hoary cress, leafy spurge

Bindweed on May 23, 1963, just before Tritac treatment . . .

looks like this on August 14, 1963. Rate: 15 lb. (7½ gal.)/A.

You can effectively custom-treat an acre for a season or more with as little as four to eight gallons of Tritac.

Used along highways, fence rows and other noncrop land, this economical new herbicide controls certain deep-rooted perennial weeds under a wide range of climatic conditions.

When you want quick foliage top kill or want to prevent seed formation, use Tritac-D(TM)—the basic formula plus 2,4-D.

Both Tritac and Tritac-D are noncorrosive and low in toxicity to mammals.

Tritac, for the first time, is now available in a new granular form called Tritac-10G.

Liquid Tritac is available in cartons of six 1 gallon cans; also 5 gallon cans and 30 gallon drums; granular Tritac is packed in 25 pound paper bags.

Hooker sodium chlorate. This original one-shot weed killer is available in steel drums of 50 and 100 lb. net.

Technical help. Our agronomists will be glad to work with you.

Write us, describing your problem. For technical data, please mail us the coupon.

FOR MORE INFORMATION, check here and mail with name, title and company address:

☐ Tritac
☐ Tritac-D
☐ Tritac-10G
☐ Hooker sodium chlorate

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408 Buffalo Avenue, Niagara Falls, New York 14302

HOOKER CHEMICALS® PLASTICS
AGRICULTURAL CHEMICALS

Expanded Hyacinth Controls, New Spray Systems On Society Agenda at Tallahassee, June 28-30

Will chemicals alone defeat the mammoth aquatic weed "plague" in the Gulf and southeast Atlantic states? This question pondered by delegates to the fourth annual Hyacinth Control Society meeting in Tallahassee, June 28-30, began to weigh more heavily as speakers presented some new ideas in the works to control runaway water weeds.

A promise of better things to come was evidenced by Julian J. Raynes in his description of the 6-year-old program—Expanded Project for Aquatic Plant Control—authorized by Congress in 1958. Raynes is with the Master Planning Branch of the U. S. Corps of Engineers which carries out the expanded program to come up with improved control methods.

Expecting renewal of the Project after two more years, Raynes stated, "At a time when every effort is being made to conserve and utilize natural resources for their highest and best use, the losses incurred because of obnoxious aquatic plants on our waterways, streams, and tributaries are of great importance when we consider that water resources are not depleted or used up, but can be used over and over again by the public."

A serious problem in the Carolinas, Raynes said, is alligatorweed. Under the guidance of the Corps' program a promising insect has been introduced for control of this weed pest. The insect is a South American flea beetle, genus *Agasicles*. It has passed all tests to date and found to be host specific for alligatorweed. It is hoped that this attempt at biological control will lessen the alligatorweed problem in the South.

New Spray System Bows

Drift has, since the introduction of growth regulator chemicals, such as 2,4-D and relatives, been a great problem for applicators of these herbicides. Improved formulations introduced from time to time somewhat lessened the danger of accident. Now, a new application method seeks to eliminate this worry altogether, Dr. R. E. Ogle, Hercules Powder Co., Wilmington, Del., revealed.

The new system is called the Rhap-Trol Spray System and has as its principle a water-in-oil emulsion rather than an oil-in-water type. This is called an invert emulsion.

"Although invert emulsions have been recognized since 1931," Dr. Ogle explained, "only recently have the mechanical developments in equipment enabled us to apply them commercially."

"The system provides for continuous mixing and emulsion formation in small chambers of bi-fluid mixing nozzles," Dr. Ogle detailed. "This is carried out by bringing the chemical (oil-based) and water through separate lines to the mixing chambers where a thick water-in-oil emulsion is formed and sprayed simultaneously."

Such a system according to the Hercules expert, will prevent drift because the uniform droplets are produced large enough to fall directly to the target, yet small enough to cover the target plants adequately.

The Rhap-Trol Spray System can be adapted to any size operation, from aerial application to a single man walking with a back pack sprayer, Hercules claims.

Dr. Ogle also outlined the facts that the system eliminates premixing; the system applies thin as well as thick emulsions; a uniform swath is produced; and there is little washing away because the oil droplets provide better contact.

Follow Rules for Safety

With the commonly used phenoxy herbicides, such as 2,4-D, 2,4,5-T, and dalapon, there is little excuse for these materials to injure either persons or desirable plants when simple rules are followed, Dr. J. R. Orsenigo, Associate Horticulturist, of Florida's Everglades Experiment Station, Belle Glade, told the group.

Proper instruction in the use of protective clothing, and sensible applicating methods, prevent injury to personnel and the public. "Low toxicity herbicides are available for most situations, and there is little justification for using inorganic chemical, except in unique cases," Dr. Orsenigo advised the conference delegates.

A major reason for attending conferences such as the Hyacinth Control Society meeting is to find out how other workers do similar jobs. Delegates were pleased to hear William E. Wunderlich, Chief of the Aquatic Growth Control Section of the New Orleans Corps of Engineers District, describe portions of his control efforts in Louisiana.

"Excellent kills of waterhyacinths have been obtained using a 40% amine salt of 2,4-D applied as a ½% solution (by weight) in 100 gallons of water per acre. This figures out to a 4 lb. per

Society officers' attention was caught by a display at their June meeting. James D. Gorman (left) secretary-treasurer, Herbert J. Friedman, new vice-president, and John W. Woods (right) 1965 president pondered the merits of different hyacinth control methods presented.

acre application rate," Wunderlich calculated.

The Louisiana Engineers use a system where they draw chemical from its shipping container and water from the stream in which they're working through a self cleaning filter. Chemical is mixed and applied simultaneously. Applicating craft moves at a speed of 2 mph.

"Standard spray pumps are used. These are piston type with a capacity of 10 gallons per minute (gpm) which are capable of operating at 400 psi; working pressure is usually 350 psi," the engineer continued.

"High pressures help penetrate the vegetation and give good coverage to small plants which would be otherwise sheltered if the spray rained in from above. Our guns are mounted on swivels so that the recoil is absorbed and good aim can be maintained through the spray-day without overtaxing the stamina of the operator," Wunderlich revealed.

Sweeping Cone Gives Coverage

The New Orleans controller stated that the spray pattern is important and showed how his men achieved good coverage.

Experienced waterway navigator, Captain Noah Tilghman (right), Palatka, Florida, talked about pre-2,4-D era travel over hyacinth-infested waters with Gene Brown (left), U. S. Corps of Engineers public relations section, Jacksonville, and Julian J. Raynes, also of the Corps, from Atlanta, Georgia.

"We move the gun from side to side in such a manner to provide a cone in the horizontal plane. On one-half of the movement, the gun is directed in a straight line to strike the plants below the leaves and to penetrate through the stems to reach small plants. The return swing in the gun is more rapid and is at an elevation that will permit the material to fall on top of the upper leaves of the taller plants. Thus the pattern takes on the appearance of a cone with the lower sweep slightly flat and the upper portion curved," Wunderlich concluded.

The Hyacinth Control Society elected as president for 1965 John W. Woods, Chief, Fisheries Division, Florida Game and Fresh Water Fish Commission, Tallahassee. Former president Herbert J. Friedman, who is president of Southern Mill Creek Products' Co., Tampa, Fla., stepped into the vice presidential spot of the Society. James D. Gorman, director of the Hillsborough Mosquito Control District, Tampa, remains as secretary-treasurer. New editor of the annual Hyacinth Control Journal is T. Wayne Miller, director, Lee County Hyacinth Control District, Fort Myers, Fla.

New directors of the Society elected this year are Dr. Robert D. Blackburn, Crops Research Division, ARS, USDA, Fort Lauderdale, Fla., and A. C. White, technical specialist with California Chemical Co., Orlando, Fla.

Future plans of the Society will be announced through this magazine, *Weeds and Turf* was told.

Phelps Dodge Offers Two Books For Aquatic Weed Controllers

Two books on aquatic weed control are offered free to interested controllers by the Phelps Dodge Refining Corp., producers of copper sulfate.

One, *Controlling Plant and Animal Pests in Farm Ponds with Copper Sulfate*, is a 32-page book which tells how copper sulfate is used in small ponds. This book is beautifully illustrated with 19 color plates showing before and after treatment, applicators mixing and applying chemical, and some weed identification.

Tables which give proper application rates are also included. Brief discussions of control variables such as water hardness and temperature tell why precautions have to be taken with copper sulfate. Control of leeches and swimmer's itch organisms concludes this helpful book.

The second one, *The Use of Copper Sulfate in Control of Microscopic Organisms*, by Dr. Frank E. Hale, is a concisely prepared 44-page work, useful in part to aquatic applicators. Though directed to those concerned with pure drinking water, some organisms, namely microscopic algae, are "weed" pests in their own right. After describing the "sight and smell" characteristics of the various tiny plants and animals, the author discusses copper sulfate, how it kills, and how it is applied.

In addition to rate tables, there are 48 plates showing most common microscopic aquatic organisms in actual microscopic view. Not all of the organisms are of interest to aquatic weed controllers, but there are enough to make the book valuable.

Both books may be obtained free from the Phelps Dodge Refining Corp., 300 Park Ave., New York, N. Y. 10022.

Next month in W&T

How to Use Dormant Cane Broadcast

Meeting Dates

Wisconsin Park and Recreation Society Meeting, McKay Nursery, Waterloo, Wis., Aug. 13.

Rutgers University Turfgrass Field Days, New Brunswick, N. J.: Lawn and Utility Turf, Aug. 12; Golf and Fine Turf, Aug. 13.

International Shade Tree Conference, Shamrock Hilton Hotel, Houston, Tex., August 15-21.

Iowa Nurserymen's Assn. Meeting, Town House, Cedar Rapids, Iowa, Aug. 20-21.

Florida Turf-Grass Assn. 12th Annual Turf Conference, Gainesville, Aug. 25-27.

National Agricultural Chemicals Assn. Annual Convention, The Greenbrier, White Sulphur Springs, W.Va., Sept. 8-11.

Alabama-North Florida 5th Annual Turfgrass Short Course, Auburn Univ., Auburn, Ala., Sept. 10-11.

Canadian Agricultural Chemicals Assn. Annual Meeting, Chateau Laurier, Ottawa, Quebec, Sept. 13-16.

Midwest Regional Turf Foundation Field Days, Purdue Univ., Lafayette, Ind., Sept. 14-15.

Ohio Agricultural Experiment Station, Lawn and Ornamentals Day, Columbus, Ohio, Sept. 15.

Illinois Turfgrass Foundation Field Day, University of Illinois, Urbana, Sept. 18.

Society of American Foresters Annual Meeting, Hilton Hotel Denver, Colo., Sept. 27-30.

Mississippi Nurserymen's Assn. Meeting, Hotel Heidelberg, Jackson, Oct. 2-3.

Central Plains Turf Grass Foundation Meeting, Umberger Hall, Kansas State University, Manhattan, Oct. 21-23.

Washington State Weed Conference, Chinook Motel and Tower, Yakima, Nov. 2-3.

National Fertilizer Solutions Assn. Meeting, Statler-Hilton Hotel, Dallas, Texas, Nov. 3-5.

National Weed Committee of Canada, Eastern Section Meeting, Quebec City, Nov. 5-6.

Northwest Chemical Applicators Assn. Annual Conference, Chinook Hotel, Yakima, Wash., Nov. 30-Dec. 1.

National Weed Committee of Canada, Western Section Meeting, Royal Alexandria Hotel, Winnipeg, Dec. 1-3.

North Central Weed Conference, Inc., Meeting, Kellogg Center, East Lansing, Mich., Dec. 14-16.

Ohio Chapter-ISTC Proposes More Ag Station Small Tree Evaluation

There is a need for more knowledge about small flowering and ornamental street trees, members of the Ohio Chapter of the International Shade Tree Conference resolved at their summer meeting, July 8, at the Kingwood Center, Mansfield.

Dr. L. C. Chadwick, horticulture professor of Ohio State University, Columbus, and secretary-treasurer of the Shade Tree Conference, presented the resolution and the reasons the Ohio Chapter proposed them.

It is widely known that large street trees, such as American elm and silver maple, commonly planted in the past, have proved susceptible to diseases, such as the destructive Dutch elm disease. Suggestions for substitute trees, the Chinese elm, for instance, have drawbacks also, from a power line maintenance standpoint. For these reasons, the Ohio ISTC feels that more species and varieties of small flowering and ornamental street trees need to be selected and evaluated for future city planting.

The Chapter has resolved to approach the Ohio Agricultural Experiment Station and ask for additional land on which to test, over a ten-year period or longer, selected trees for hardiness, disease resistance, and aesthetic advantages, such as color, shape, blossom, etc.

Seek Power Company Aid

Besides cooperation from the Experiment Station and the State University, the Conference Chapter hopes to enlist aid of state power companies and power company associations, because these groups have a prime interest in promoting smaller trees for streetside planting.

The vigorous Ohio Chapter has volunteered to perform the professional tasks of planting and maintaining trees in the evaluation plots, and hopes the Experiment Station will carry out the academic job of diagnosis and evaluation. At present this monumental proposal is in the discussion stage.

A second forward-looking resolution that the Chapter will present to the Extension Service of the State University system is a proposal for increased extension attention to the urban and suburban desire for knowledge about ornamental horticulture, floriculture, and landscape design. Reasoning behind this proposal is the increased move to suburbia and the request for knowledge on the parts of both individual citizens and the arborist, nursery, and landscaping trades.

Tree Safety Committee Named

Other news from the summer meeting includes the announcement that a safety committee has been appointed, consisting of representatives of major tree service companies, in close cooperation with the National Arborist Association, to help cut down on industry accidents. This move came when the Ohio Division of Industrial Safety and Hygiene volunteered the services of an expert to the industry provided the industry first established a sturdy base from which to launch a broad safety program.

This offered help is an upshot of the Ohio Safety Congress, which met earlier this year, and included, for the first time in its history, an emphasis on tree service safety.

After the business meeting, delegates toured the grounds of Mansfield's Kingwood Center, a civic-oriented cultural garden. Many new ideas were taken home from this and other tours.

Poly Film Stops Weeds

One particular development of the Center, which landscapers and nurserymen were interested in, was the use of black 1½-mil polyethylene plastic sheets as weed preventers in mixed annual flower beds. As Center director, Dr. R. C. Allen, explained the procedure, the plastic is laid over prepared flower beds and either a top dressing or broken, aged corncobs are spread over to obscure the plastic from view. Then gardeners punch holes in the plastic and insert the flowers into the soil. Very few weeds enter the flower beds, although quackgrass is able to penetrate the plastic (it will not penetrate a 6-mil sheet).

Total costs are approximately the same for herbicides and the plastic method, Dr. Allen dis-

A chlorotic silver maple twig was examined by Dr. Paul Tilford (left), Executive Secretary, National Arborist Association, and Dr. L. C. Chadwick, Secretary-Treasurer, International Shade Tree Conference, during the Ohio Chapter meeting. Delegates traditionally bring their most recent problems to these experts for counsel.

closed, but the extra advantage which the Center appreciates is that no concern for different tolerances of flowering annuals to herbicides is needed.

The group of 110 delegates then toured via car caravan a local landscaping job, a nearby landscape nursery, and the plant of the F. E. Myers & Bro. Company, sprayer manufacturers, in Ashland, Ohio.

Penn State Finds New Turf Disease, Called Fusarium Blight

A new turfgrass disease, called the "most troublesome in northeastern U. S.," has been isolated and identified by researchers at the Pennslyvania State University Department of Plant Pathology and reported by Dr. Houston B. Couch, Associate Professor, in the Spring-Summer 1964 edition of the Agricultural Experiment Station Bulletin.

When the odd disease, now called Fusarium blight, was first found in 1959, Dr. Couch relates, it could not be controlled by any of the commonly used fungicides. Researchers looked for the disease the following year and found it prevalent in eastern New York, New Jersey, Maryland, and Delaware, as well as Pennsylvania.

According to Dr. Couch, "affected turfgrass stands first show light-green areas that are either circular, crescent-shaped, or streaked. Initially, these discolored sections of grass range from 2 inches to 1 foot in diameter. Within a few days, they may enlarge to a total breadth of 2 feet or more.

"As the disease progresses, the color of the grass fades to a dull tan, and eventually to a light straw color. In the final stages, distinct streaks and uniformly blighted circular patches of grass will be scattered throughout the lawn. Also, centers of green grass, apparently healthy plants, occur in circles of dead grass and have taken the name 'frogeye.' The 'frogeye' pattern is characteristic and a key field diagnostic feature.",

This new disease shows one of the clearest relationships between disease susceptibility and fertility. Bluegrass, bentgrass, and red fescue grown under high nitrogen fertility or deficient calcium levels were far more susceptible than those grown under normal balanced nutrition, the report continues.

The pathogen is the fungus, *Fusarium roseum*, the same organism which causes stalk rot of corn, and carnation stem rot. *Fusarium* can cause severe foliar blighting of turf in only 72 hours when temperatures are favorable. Bents and red fescues are commonly attacked at 75-95 degrees F. *Fusarium* found on Merion Kentucky bluegrass is most active at 85 degrees F. In its most aggressive phase, Dr. Couch describes, the pathogen

causes rotting of roots, crown, stolons and/or rhizomes.

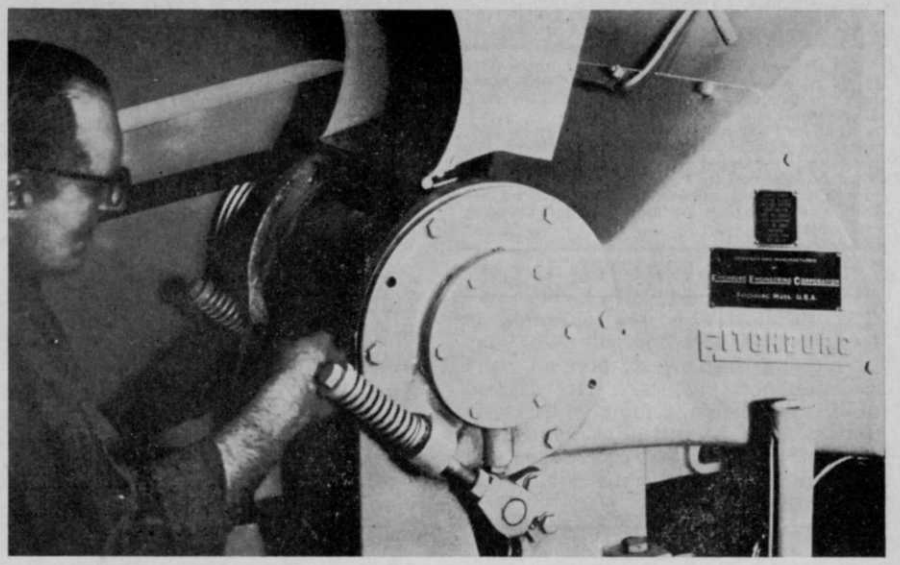
Commonly used fungicides tested did not work on *Fusarium*. One product, Dithane M-45, produced by Rohm & Haas, *prevented* the disease when used at 4 oz. per 1,000 sq. ft.

Suppliers Personnel Changes

American Potash & Chemical Corp., Los Angeles, Calif., has acquired the services of John F. Devlin as sales representative in the firm's marketing division, according to LA district sales manager John R. Jones. Devlin, formerly with Union Carbide, will be stationed in the company's New York office.

California Chemical Co. has named J. A. Rice, Jr., Assistant National Sales Manager for garden and home products of the Ortho Division. In another field move, Ortho placed J. E. McKillop as new assistant to the western regional sales manager, D. P. Hogan, also in the garden and home division. Both men will operate from Cal Chem's San Francisco office.

U. S. Borax and Chemical Corp. recently designated Warren G. Coray to fill the newly created post of executive assistant in the firm's marketing department at Los Angeles. In other field changes, Borax moved W. Woodrow Wilson in as manager of the firm's Chicago region.



A new way to service cutting blades on the Fitchburg Brush Chipper, said to save labor, has been announced by the manufacturer. Above, the operator shows how hinged section of patented 2-way chute can be folded out of the way on trailer models to provide fast and easy access for changing blades, honing or removing blades for sharpening. This time saving feature, of special interest to shade tree commission engineers, tree surgeons, and line clearance contract applicators, is available as optional equipment on all Fitchburg trailer-model chippers, the company says. For details, write Fitchburg Engineering Corp., Dept. WT, Fitchburg, Mass.

Classifieds

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

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

HELP WANTED

OUR COMPANY is now operating in termite and pest control. We wish to expand into weed control, turf maintenance, tree care, etc. If you qualify to form and manage this new department, kindly give education details, experience, reference and personal data. Write Box 512, Havertown, Pa.

FOR SALE

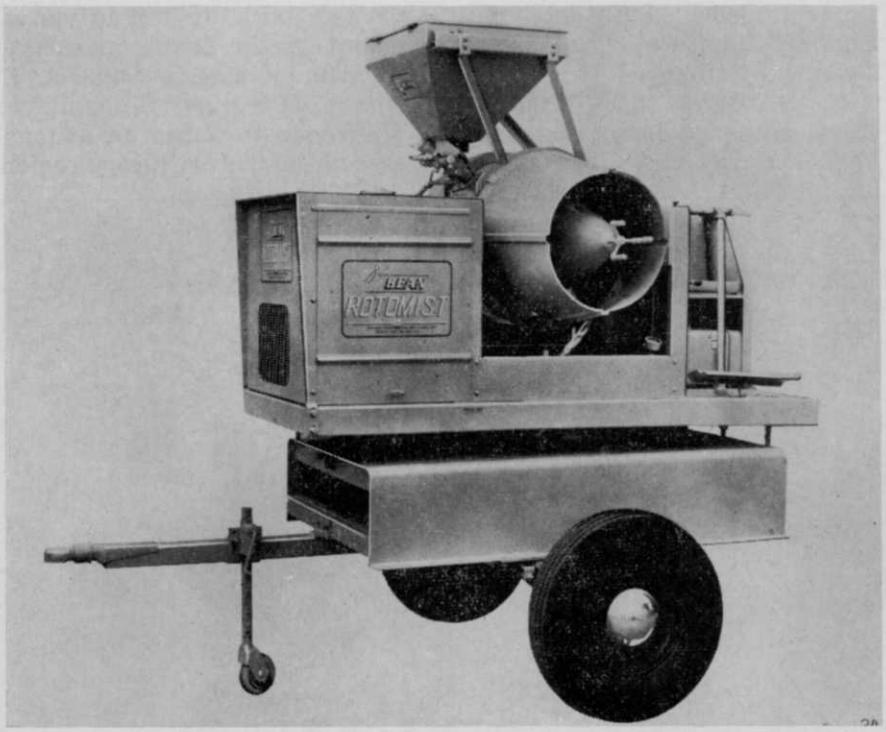
GOOD SPRAY business. Two old trucks with pumps and tanks, both in good shape. Austin S. James, 321 So. 12th St., Payette, Idaho, 83661.

Colo. Mites Serious This Year

Spider mites are appearing on many ornamentals this season, and they are beginning to cause serious damage in some parts of Colorado, according to the state's Extension Entomologist, Bill Hantsbarger.

Indications of mite damage, Hantsbarger says, include yellowing of leaves, a small amount of webbing on the foliage, and a dusky or dingy look on affected branches (which later turn brown).

For control, the Coloradan recommends miticides such as Kelthane, chlorobenzilate, dimite, or malathion. For smaller plantings, the new Scope or Morgro systemic insecticides are recommended.



A dust and granule attachment is the latest addition to the features of the Model 91 Rotomist sprayer, a product of John Bean Div.

Dust and Granule Application Added to Bean's Rotomist 91

A new duster and granular attachment has been added to the John Bean Model 91 Rotomist, the manufacturer said recently.

Designed as a multipurpose sprayer for municipalities and custom operators, the machine is said to be particularly suited for operations with strict budgets.

The versatile machine, Bean says, is adaptable to use for shade tree spraying, fly and mosquito control, sanitation spraying, and leaf windrowing. This model produces 19,000 cfm of air.

According to Bean spokesmen, the Model DG4½ dust or granular applicator attachment is optional at extra cost. The hopper holds approximately 4½ cubic feet, or up to 200 pounds of wettable powder for dusting operations.

The unit can be trailer mounted, as shown in the accompanying photograph, and can be rotated 360 degrees.

More information is available in catalog L-1452 from John Bean Div., FMC Corp., Lansing 9, Mich.

Advertisers

INDEX TO ADVERTISEMENTS

New Walker Power Truck, a small-wheel, multipurpose vehicle which is said to be useful as a rolling workshop, cargo hauler, or (with attachments) as a small dozer or rotary mower for turf, has just been developed.

Power Truck Has Many Uses

A new small-wheel multipurpose vehicle, the Walker Power Truck, has been introduced by the Walker Manufacturing Co. Of interest to vegetation maintenance personnel is the fact that the machine, with attachments, converts to a rotary mower, and that it is useful as a mobile workshop and as a personnel carrier.

Specifications include a 2-cylinder, 50 cu. in., air-cooled gasoline engine; 42 amp alternator; automatic clutch; automatic hydraulic brakes; and heavy-duty precision steering.

Wheel base is 56″ and cruising speed is 40 mph, the manufacturer reports.

The Walker machine has a single-control foot pedal, so drivers merely push it to go, release to stop. There is also a foot-controlled brake for quick stops.

Complete details on the Walker Power Truck are available from the company in Fowler, Kansas.

Turf Scholarship Set in Miss.

A new scholarship in turfgrass management has been established at Mississippi State University by the Southern Turfgrass Association, which has membership in Alabama, Arkansas, Louisiana, Mississippi, Missouri, Tennessee, and Kentucky.

Amount of the stipend, to be given each year, is $300. Applicants should write to Dr. L. N. Wise, Dean, College of Agriculture, Mississippi State University, State College, Miss.

Root-Lowell Offices Moved

Root-Lowell Corp., has transferred its general offices from Chicago to Lowell, Mich., location of the Root-Lowell factory, according to R. F. Brush, president.

Roadside Tree Ailment Study Set at New Hampshire Univ.

Scientists at the University of New Hampshire have embarked on a three-year program to study the decline of trees along busy highways.

At the school's Agricultural Experiment Station in Durham, 400 young pines and maples have been planted to face the onslaught of different ice melters, including salt and commercial types in use on roads in winter.

Plant pathologist Avery E. Rich will also spray the anti-ice materials on the pines in simulation of treatment trees receive from passing autos in winter months.

Rich has long studied the effects which salt and other materials exert on trees along roadways. Last year, he reported that salt, among other factors, is responsible for a weakening of some maples along roads.

Trimmings

Down on the Sod Farm. We recently had a chatty letter from W. W. Nordan, who operates Nordan's Grass Farms in Abbeville, Ala. Seems this thriving sod grower learned of *Weeds and Turf* when a speaker at the recent Southeastern Turf Conference recommended it to delegates. Mr. Nordan's stationery, we found, makes an effective advertising medium, for plainly and boldy printed on his envelopes are the legends, "Look at your lawn, everyone else does," and "World's largest lawn grass assortment." No doubt turf managers throughout the South have seen the attractive mailers put out by this progressive supplier of turfgrass sod and seed, and we're grateful to learn he took the advice of the conference speaker and became a W&T reader!

* * *

Convention can't be topped. *While advance planning for the International Shade Tree Conference Convention in Houston this month has assured that the affair will be one of the year's top events, we are especially intrigued with the advice of convention local chairman O. J. (Ollie) Andersen. Ollie, it was revealed tongue-in-cheek during the ISTC Ohio Chapter meeting last month, urged tree people to be sure to bring sunglasses, sport shirts, and bathing suits, "even the topless kind." Since the program includes extensive activities for the ladies, including a Texas-style waterski demonstration in the swimming pool, we're convinced that ISTC delegates will be most attentive to poolside ceremonies. In all seriousness, we've heard that Ollie (who runs Trees of Houston) really did a fine job in arranging this year's affair, which looks like one of the best ever!*

* * *

Don't fight city hall. Weed control companies should heed the seeming trend in American municipalities to make it unlawful to permit rampant growth of weeds. Most recent news of such rulings comes to us from Phillipsburg, Pa., where the Town Commission agreed to fine property owners $100 if they don't clear up weed growths five days after notified of the situation. This supersedes the town's previous law, which gave owners ten days to comply, and which necessitated a notice from the mayor himself, who probably has lots of things to tend to; now the town health officer makes the notification. So, tell your friends and neighbors who aren't weed-conscious that it is really unhealthy to ignore the pest plants; in this case, particularly, a $100 fine could be most sickening!

* * *

Whee for Whitton. *Congratulations are again in order for our friend Gil Whitton, Pinellas County (Florida) turf expert who's well known to turfmen in the Sunshine State. Gil, who was formerly associate county agent for Pinellas, has been moved to the top spot of County Agent, and will continue his commendable work as advisor to Florida turfmen.*

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