

# WEEDS TREES and TURF

September 1967

A TRADE MAGAZINES PUBLICATION



**Gangmower in operation** at Cascade Hills Country Club, Grand Rapids, Mich. See Man-Hour Costing, Page 14

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Arboriculture**  
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**Fence Line Vegetation Control**  
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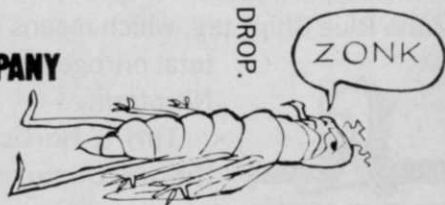
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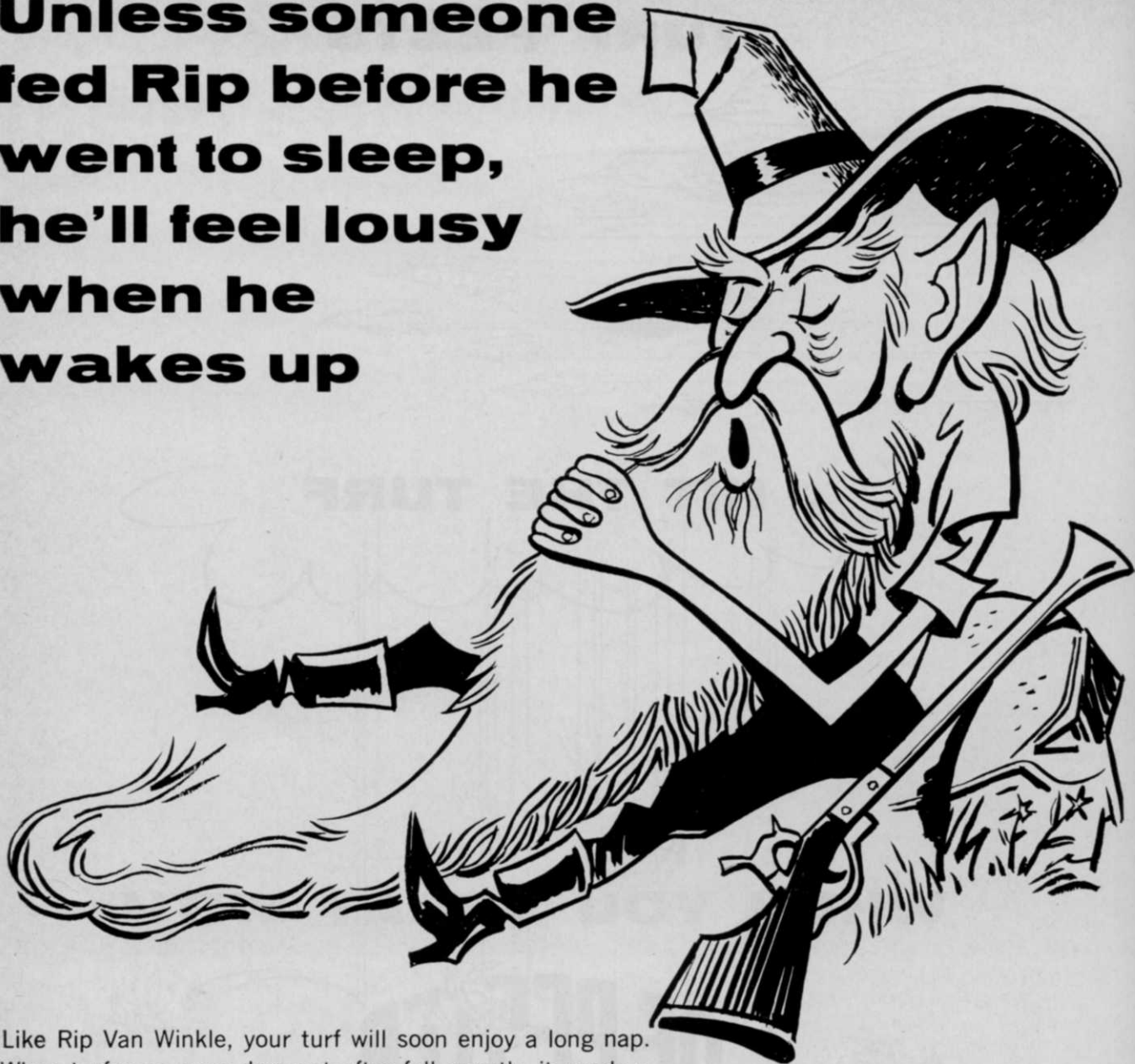
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September 1967  
 Volume 6, No. 9

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Your voice in your industry can seldom be heard except in unison. Most operators in the vegetation care and control business have sat down at one time or another with a state legislator or congressman and discussed quite frankly regulations and laws which affect their specific industry.

Most lawmakers prove to be good listeners. Another common characteristic is their need to know for whom you speak. Do you represent a group? Or are you an individual who just happens to reside in an area which by geography makes you a member of their constituency. In either case, you get your audience. But do you get a commitment for action? This we believe to be the big advantage of association membership.

Most businesses have associations. This is the norm. The history of associations has been such that competitors have found it advantageous to share market information, sales techniques, production know-how, and collectively try new research. The result has been to upgrade the industry and to win acceptance with the public by generally improving quality whether it be a product or service. And when the association needs legislative action, they can operate as a group, not necessarily as a pressure group, but as a cohesive organization with knowledgeable information presented at the most astute time and to the right people.

We are happy to see the sod growers organize into the American Sod Producers Association. A number of state groups are already organized. But many growers are lagging. The notion seems to persist that organization will encourage new growers and further dilute the sod market. Rather, we feel that the opposite will be the result. Standards which come as a natural result of organization can only upgrade the quality of both service and product. Associations in other areas have served to alert the public to expect improved quality and higher standards of service. And the public through the years has proved willing to pay the bill for quality.

We congratulate the 40 charter members of the new sod group. And we encourage all growers to join them. Mr. George B. Hammond of Paint Valley Bluegrass Farm, 71 E. State St., Columbus, O., will gladly handle your queries.

WTT can only point to the effectiveness of the associations it already serves as examples of group action. We believe leading sod producers are moving the industry in the right direction. We hope sprayers will shortly follow suit.



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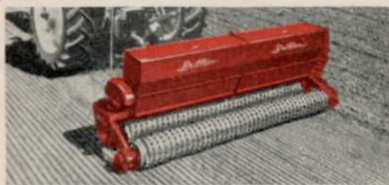
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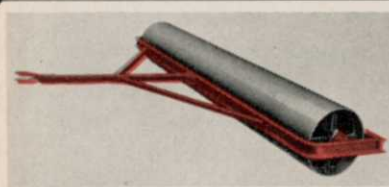
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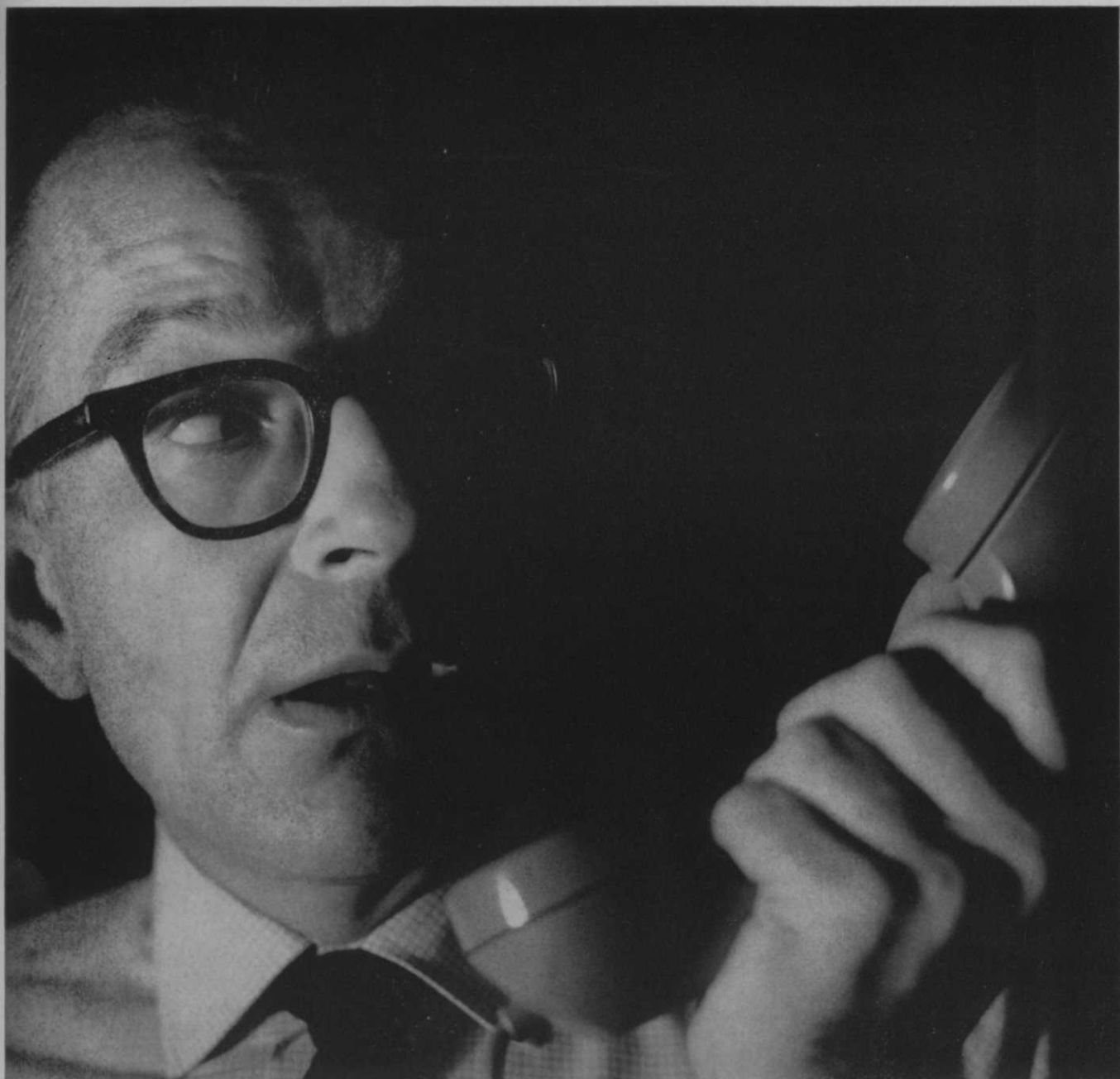
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WEEDS TREES AND TURF is the national monthly magazine of urban/industrial vegetation maintenance, including turf management, weed and brush control, and tree care. Readers include "contract applicators," arborists, nurserymen, sod growers, and supervisory personnel with highway departments, railways, utilities, golf courses, and similar areas where vegetation must be enhanced or controlled. While the editors welcome contributions by qualified freelance writers, unsolicited manuscripts, unaccompanied by stamped, self-addressed envelopes, cannot be returned.





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# Sodman

## Leases

## Land

A FLORIDA sod producer has built a sizable business by leasing farm land and adapting local grass as a lawn turf. He is Jimmy E. Anderson of Ft. Myers, Florida. He markets 125,000 square feet weekly and operates practically the year around.

Ideally, Anderson leases existing grass acreage, fertilizes, irrigates, mows, and generally builds up the grass over a 2-month period. Then he lifts the sod for use at Ft. Myers and adjacent areas.

With this system Anderson avoids the high investment which land ownership in his area of Florida demands. His capital outlay is restricted to equipment, fertilizers, chemicals, and overhead. He normally keeps a 15-man crew on his payroll, some being paid on a piecework basis. Anderson, himself, serves as general manager, sales representative and trouble shooter for the entire operation.

Anderson has been operating his business 6 years. His background consists of youth on a Texas farm, education at a liberal arts college, and sales jobs including Fuller Brush, encyclopedia sales, and Singer Sewing Machine Company. His first experience in the sod business was as crew chief for a landscape gardener laying sod on home lawns. Later he sold sodding jobs and finally decided that oppor-



Jimmy E. Anderson, right, owner of Anderson Sod Company at Ft. Myers, Fla., discusses day's operation with John Cannady, longtime employe of the company. Anderson is equipped to cut, move, and lay 40,000 square feet of sod daily.



# and Adapts Local Grass

A WTT staff report based on an interview with Jimmy E. Anderson, owner of Anderson Sod Company, Ft. Myers, Florida.

tunity for him lay in the production end of the sod industry.

Since going into business for himself, he has literally educated himself on the fine points of Argentine Bahia, the local grass he has adapted as a lawn turf in the area. Besides reading anything and everything available on the subject, Anderson has kept in close communication with university researchers and become active in the Florida Turf-Grass Association. Even more important, he carefully studies his own sod. He uses a carefully kept ledger to plot new cultural practices. The ledger includes dates of leasing, seeding, rainfall, fertilizing, mowing, and final lifting. His treatment of local Bahiagrass in preparation for lifting and sale has practically made it a special Anderson Sod Company grass.

## Bahiagrasses Thrive On Dry, Sandy Soils

Argentine Bahia is one of several Florida varieties of Bahiagrass, all of which thrive on droughty, sandy soils of low fertility. The Argentine variety has a wide leaf blade, a dark green color, and is not as upright in growth as the Pensacola Bahia. Other varieties of Bahia (*Paspalum notatum*) are Wilmington and Paraguay, seed of all being available.

Bahiagrass is a South American native which has proved itself in the Florida Gulf area as

a grazing grass and which is moving inland in nearby states. It is a densely tufted grass with virile underground stems. Leaves are broad and succulent and stands are hardy. Anderson says his experience during the past few years has proved to him that it is a serviceable lawn grass. Little research at the college level has been done on the grass, recognition to date being nil.

However, the American lawn has become the true grass testing

institution. That turf which adapts to an area and proves adequate as a lawn grass, even though it be a weed or strictly a pasture grass in another area or utilized another way, becomes a valuable asset. Anderson's experience proves the point.

Land leasing for sod production is possible in Florida because of the unique nature of agriculture in the area. Nematodes, disease, and fungus force operators to turn land back to

**Forklifts are used** to load palletted sod on truck at site. A twin unit is maintained at the unloading site to keep the operation mechanized. Anderson estimates that each pallet weighs about 3500 pounds.





**Ryan sod cutter** is used to cut sand soil-based sod into 1'x2'x1" strips for loading on pallets. Checking out cutter is David Pipkins, field foreman.



**Pallets are loaded** on a piecework basis at \$1.25 per pallet. Typical of crew members is Marion Brown, above, who can load 40 pallets in a good day.

sod every 3 years. Normally the sod is grazed for a few years, the acreage then going back into intensive cultivation.

Many times, land will be cleared and leveled for truck or other crops. The normal cultural practices necessary for intensive cropping include leveling of the land which makes it ideal for a follow-up sod crop.

Because normal practice fol-

lowing heavy cropping is to turn the land to grass, Anderson is in position to lease a regular supply of 2- and 3-year-old sod, which is the period needed for Argentine Bahia to develop into a useable lawn grass. The arrangement is mutually profitable to Anderson and the farm owner or operator.

Anderson prefers to lease mature sod, since seeding costs in this area of Florida run about

\$70 per acre, and the grass crop has to be maintained over a 3-year period. However, he has leased and seeded but finds it advantageous not to have to carry the financing on seeding over the long period. Normally, he finds plenty of sod land available for leasing and averages 600 to 700 acres under lease at any given time.

Land for sod production is leased by Anderson within a 65-mile radius of Ft. Myers. He has various sources regarding available sod but a prime one is spotting grass by air. His June bill for a chartered airplane used in spotting listed 50 hours of time over the previous 60 days.

Once potential sod is spotted from the air, Anderson returns with truck and sod cutter. If sod is as good as it previously appeared from the air, he tests the soil base with the sod cutter to see if the sand base will hold together for cutting and handling. If so, he explores the possibility of leasing. Anderson prefers to lease by the square foot, but sometimes leases by the acre.

When a grass stand is leased, Anderson decides when he will need the sod. During a 2-month period prior to lifting, he mows, fertilizes, and gives the grass the utmost in care. This includes sweeping up all mower clippings

**During 2-month period** prior to lifting, sod is fertilized, irrigated, and mowed on a regular basis. Final mowing just prior to lifting is made at 3½" height. Clippings are picked up by a vacuum sweeper unit designed by Anderson.





with a specially built blower of his own design. Sod is extensively irrigated during this 60-day period, being lifted after final mowing at a 3½-inch height.

#### **Irrigation Water Needed On Lease Land**

One of the prime requisites of lease land is that wells be available to provide irrigation water. Anderson owns a 2-mile Rainbird overhead irrigation system which he purchased from Anchor Brass and Irrigation at Wooster, Ohio. In some cases he has leased a good stand of sod when irrigation water was not available. Such grass stands have been prepared during the rainy season and sod moved into retail channels at that time. His usual practice is to handle sod from low areas during the dry winter period. Sod on higher land is moved during the summer or wet weather period.

For lifting sod, Anderson uses a Ryan sod cutter, cutting sod into 1'x2'x1" strips. These are stacked on pallets and lifted onto trucks by use of a forklift. With \$15,000 tied up in a trailer truck, he finds it poor economy to keep the truck in the field or at the unloading site more than the 30 minutes needed to load or unload. A twin model of the John Deere forklift is maintained at the unloading site which keeps the operation mechanized on both ends.

During the first 4 years in



Telephone in panel truck permits Anderson to keep in touch with operation at all times. Downtime is kept to a minimum and delivery schedules coordinated.

business, Anderson wholesaled his sod to landscapers. Because of various problems, he has since gone into the retail business and not only sells each job, but has his own crew lay the sod. He still supplies some sod to major landscapers on a contract basis.

Major problems of wholesaling was with financing. Too many landscapers were not turf specialists. Landscapers who operate without adequate financing were often unable to pay for the sod after it was delivered and laid. Others underbid jobs and failed to order enough sod to complete the job. In these instances, Anderson found it necessary to make good their shortages.

Normally his wholesale sod is sold at 2½ cents per square foot. Retail prices which include fertilizing, leveling, and laying of sod average about 7 cents per square foot.

Anderson notes that his operation is unlike that of many sod producers in Florida. A number of varieties of sod are used for various purposes and to fit several areas. While his Bahiagrass is grown on a sand base, this contrasts to several other types. The primary St. augustine grasses, Bitter Blue and Floratine, are grown on muck soils and are seeded much the same as Merion bluegrass in the northern US areas. Like Merion, these sods can be lifted the same season in which they are seeded.

Bahiagrass which has become popular in the southern Gulf coastal region is a low-maintenance turf. It is deep rooted and stands dry weather well. It is also resistant to a number of insects and diseases and thus of value to the homeowner, though it does need periodic spraying and fertilizing.

Like many sod producers, because sod production as it exists today is a new industry, Anderson is still experimenting with cultural practices, methods of handling, and sales procedures. In 6 years, he has proved to be a sound businessman who has developed a local market based on leasing sod acreage and using local, readily available grass.

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## **Survey on Turfgrass Management Training Series**

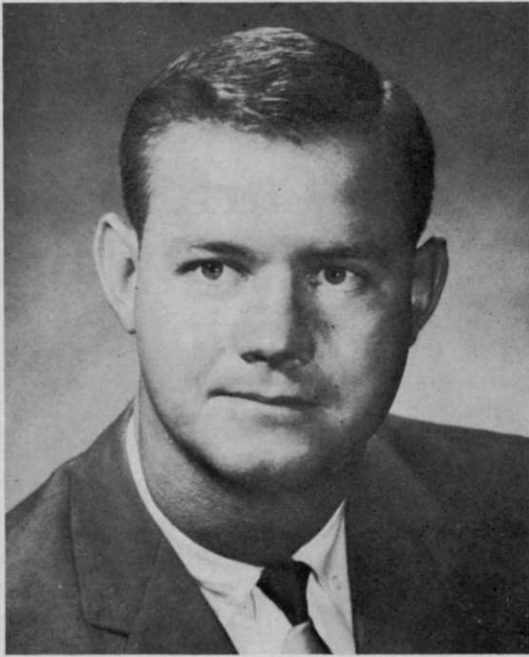
WEEDS TREES AND TURF magazine is making available its series on Turfgrass Management Training which ran earlier this year. This series listed college level training available at 26 colleges and universities across the nation.

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

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

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Clarke W. Davis

# National Secretary Sees Dynamic Growth For Arboriculture

Clarke W. Davis, executive secretary,  
National Arborist Assn., outlines  
association objectives for WTT

## History:

**Davis:** At the 13th annual meeting of the National Shade Tree Conference in Baltimore, August 1937, commercial arborists formally organized. After some discussion, a committee was appointed by the acting chairman, Charles F. Irish, to formulate plans and prepare a constitution to be presented at the 14th annual meeting of the National Shade Tree Conference to be held at St. Louis, 1938. I understand that after much correspondence by the committee, a tentative constitution was written and was taken to the St. Louis meeting. There were about thirty commercial men at this meeting in 1938, and they discussed in length the organization of this group. At that meeting the organization of commercial tree men was established. Several names for the association were suggested, and it seemed to all present the name the National Arborist Association was the best.

## Progress:

**Davis:** At the August 1941 meeting in Washington, D. C., it was decided to employ a paid secretary from outside the association. Dr. Paul Tilford of Wooster,

Ohio, accepted the job as secretary-treasurer. Five years later at the Boston meeting in 1946, it was decided that the association needed and should employ a full-time executive secretary; and Dr. Tilford accepted as of January 1, 1947.

## Status In 1967:

**Davis:** Since its founding more than a quarter of a century ago, the National Arborist Association has remained the only national organization devoted solely to the furtherance of the arborist business. This, in itself attests to the job which has been done by the association for its members. Over the years, and particularly since the appointment of a full-time, paid executive secretary in 1941, the objectives established at the outset have been more than met. As the association has grown to over 200 firms in membership, all have become better informed, better arborists and businessmen, as a result of the information and findings of mutual interests developed through research and the work of special committees and disseminated to the members through the newsletters and an exchange of views

and information at the association's meetings.

## About The Future:

**Davis:** For the well-trained arborist, tree care will continue to be a promising occupation—an occupation that automation should not affect adversely. There is a growing demand for these workers as America becomes more tree-conservation conscious. It takes many years to grow a mature tree and the public is becoming more and more aware of the value of trees and the need for preserving them. With a continuation of our booming economy, more people will be interested in the protection of their trees. There is still a lot of work to be done, as a walk down an average street in almost any residential neighborhood will show. Because of the White House interest in natural beautification, city governments have sponsored an increasing number of community programs of tree care and preservation.

## Automation:

**Davis:** While we realize automation will never entirely engulf our industry the arborist profession cannot afford to neglect any of the major new technological



developments because, as it has been said, not to go forward is to go backward. The maintenance of our standard of living depends on our ability to remain in the forefront of technological progress.

Perhaps there is a lack of information which exists among arborists generally of what mechanical devices are already available to them for adaptation in arboricultural use. Perhaps the reason more machines are not used is because their uses and adaptations are not recognized by many, even though their existence is known. In view of the apparent lack of successful communication between manufacturers and local arborists, it has been suggested that the National Arborist Association, Inc., give consideration to the sponsorship of a symposium for arborists and the manufacturers of mechanized equipment enabling both to present their ideas and possible product solutions.

In some ways machinery and equipment that is already available in industrial and agricultural use, which has been or could be adapted to arboricultural use, must be called to the attention of the arborist and its adaptive uses explained and understood. A further extension of communication between manufacturer and supplier of equipment and arborists could be seriously considered also.

The arborist association plans to profit both the member and the manufacturer-dealer by assembling from the manufacturers descriptive material of their product, assembling the information and making it available to the members as a member service. As new or modified equipment becomes available, new inserts will be provided by the manufacturer and distributed to the association members by the arborist association.

### **Arboriculture As An Industry:**

**Davis:** All service industries will experience phenomenal growth (coming on top of the already astonishing growth they have known in the past 10 years), and America's cities will be transformed. For the arboricultural profession, complete and up-to-

date statistical information is not complete. By almost all yardsticks, however, the industry can be characterized as one of fast dynamic growth and one with prospects of continued future growth.

Well-publicized trends favoring even increased per capita use are: the gardening hobby; more leisure; outdoor living; suburban and other similar housing developments; highway, commercial, and industrial beautification; many outdoor recreational pursuits; and the emphasis on the aesthetic and the arts. Other apparent trends are more merchandising by mass outlets, greater need for knowledge by clients as they become more interested in quality tree care, greater government encouragement in the use of quality arborist firms, and the more businesslike members in the industry who will influence more maturity in production, sales and service. In the next ten years, there will be problems within the arborist industry which we will all have to face. These problems are those associated with fast growth, small competitive businesses, and business maturity.

Fast growth has produced "growing pains" attracting additional competition. Problems associated with the smaller firms will be: capitalization needs; need for cost control; need for inventory control; need for trained personnel; and many price and quality aspects.

### **Regarding Management:**

**Davis:** I believe the owner of any tree firm must be smart enough to know his objectives and strong enough not to be distracted from them. The owner must be a bold innovator not only sensitive to changes in the marketplace but also capable of anticipating the unstated needs of his clients and the consumer. He must have the courage to make decisions in the face of uncertainty and defend his decisions against criticism and second-guessing from others. This includes competition.

I do not believe the owner of a tree firm in the next ten years will be able to oversee all of his operations. Therefore, I do not believe the owner wants to be

a philosopher, a statesman running his own operation. I think instead he will want to be a professional soldier, a man who can take responsibility, a man with courage to get rid of deadheads, with the stubbornness to demand results from crews and people, with the leadership to share their problems and give them credit for the successes and the blame for mistakes. The foreman should also have a stingy streak. His purpose in life, as it should be, is to increase sales and profits. He ought to begrudge every dollar that is not working to bring in another dollar. Finally, I think the tree owner must be impatient, for no company can achieve greatness without leaders who are motivated by their own desire for success. When any man cuts short his vacation because he can't wait to get back into the thick of things, he is showing the kind of impatience which we all look for.

I believe that in today's community and society and in following years, each one of us must cost our operations and in this way become very conscious of marketing. And today's marketing executive, be he a title holder or the owner, faces a baffling dilemma. Change gets costlier every day. Yet not to change can be costlier still. A top position in any market is neither automatic nor permanent; and marketing must continually anticipate change in trends present and potential, expressed and unexpressed, known and unknown. Since one cannot or should not resort to crystal balls, this means learning the business well.

The law of markets is like Darwin's Law of Evolution. Change or perish. With the persistence of scientists we must all probe for new concepts, new insights into consumer behavior, and new marketing techniques; and with the courage of the explorer, we must be willing to turn from the old that is tarnishing to the new that sparkles with promise whether it be marketing procedures, cost analysis, new products, or product improvement. There is a great difference in playing not to lose and playing to win.



Original clubhouse at Cascade Hills Country Club, Grand Rapids, Mich., has been expanded with new addition. Much of construction work for new parking lot, which was part of expansion program, was handled by regular course maintenance crew.

# Man-Hour Costing

## a system based on job hour records

BY J. DAVID HEISS

Golf Course Superintendent, Cascade Hills Country Club, Grand Rapids, Mich.

**O**PERATING costs are skyrocketing today. Even the most carefully planned budget can be wrecked by so-called non-recurring emergency maintenance problems, or by one big

impulse purchase of equipment. Or the board may meet and decide to rebuild a part of the course. This can happen at times without benefit of careful cost projections. When it does, few

golf course superintendents have maintenance budgets which can absorb the blow. Few can assume many extra costs unless they slight some other phase of their regular program.

Working models of new ground grids are shown here by J. David Heiss, course management supervisor at Cascade Hills. Heiss builds grids for board approval prior to any design changes. Costs are carefully projected in advance.



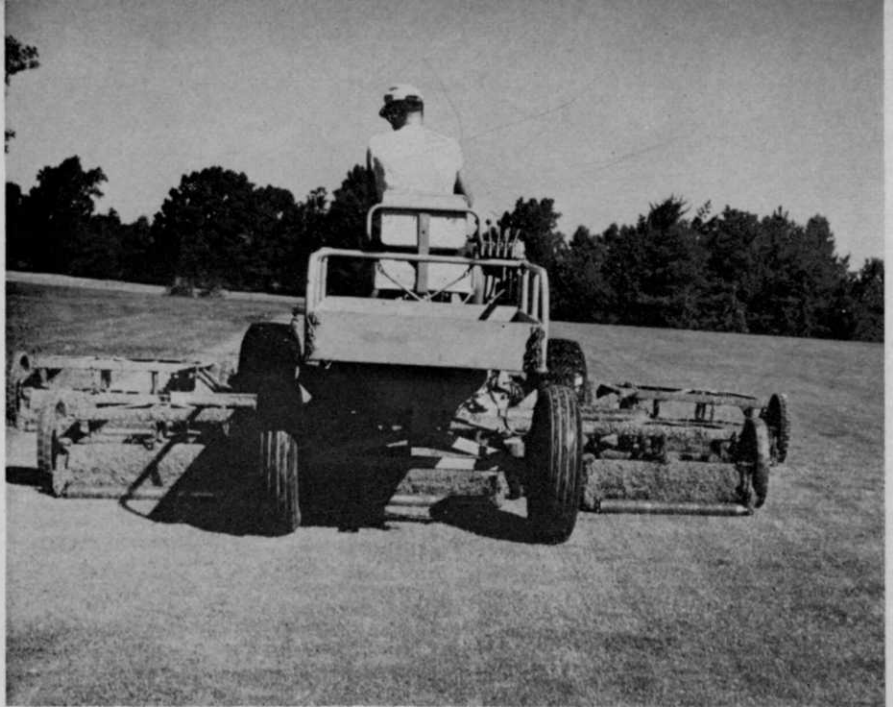
In order to pin down costs, by using current wage rates coupled with past experience, we have set up a system we call Man-Hour Costing. We record the number of hours it takes a man to do a certain job. We keep track of the hours for each job as it occurs. Then we use our records to project future costs or to budget for new maintenance problems as they arise. Our system is used in operation of Cascade Hills Country Club at Grand Rapids, Mich. But it could be used by anyone in the turf business. For example, the same system could apply for industrial park grounds, city or state parks, and other similar type areas.

We have tried several methods of recording labor costs. We

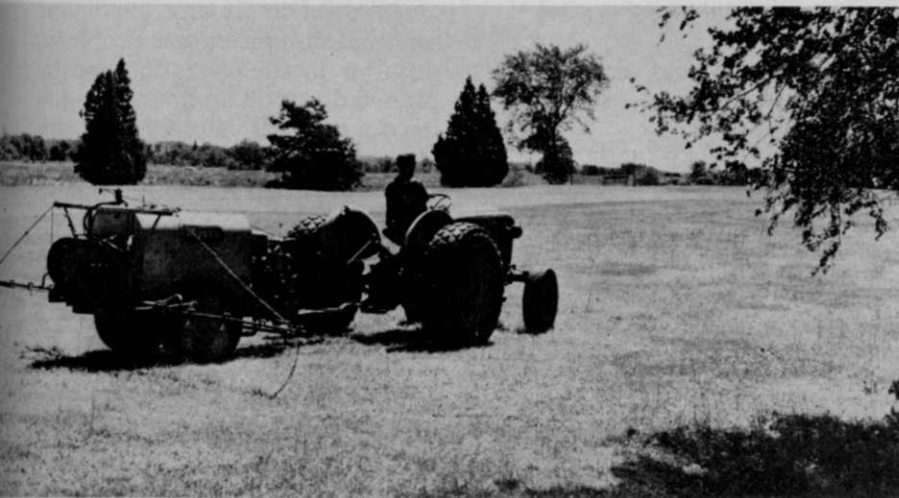


settled on the man-hour system because the hours needed for a given job will vary but little. At the same time, the price you pay per hour may range from year to year. Fringe benefits, too, are unstable factors. A record of actual dollar costs in doing a job may be of little value in coming years. At the same time, the hours needed to do a job change only if you change the size of the area, or if you obtain more efficiency in the men and equipment doing the job.

A time distribution card is the key to our system. This card is issued to each employe once monthly. It has major headings for mowing, spraying, fertilizing and other jobs. We have additional breakdowns under each of these main headings to cover the



**Hydraulic fairway mower** is standard piece of equipment, maintained and operated by Kim Green, regular crew member.



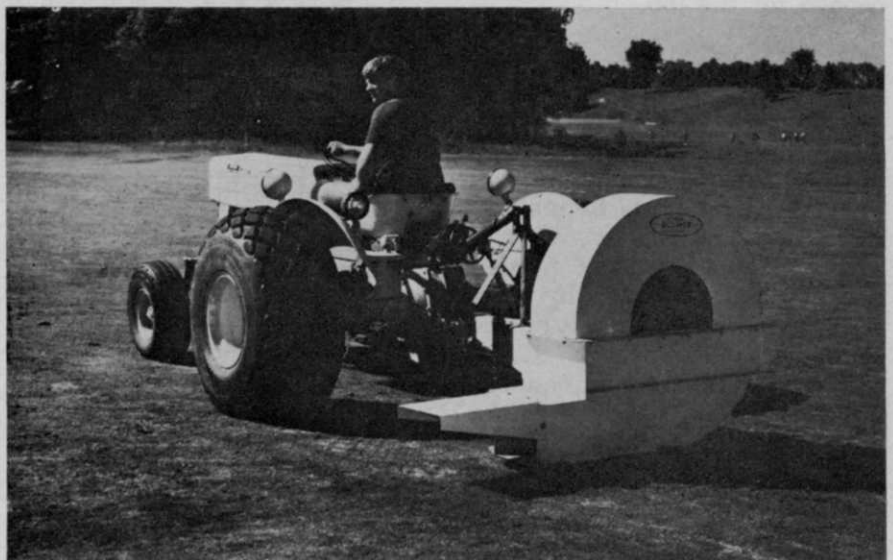
**Spray operator** who handles practically all of this technical phase of maintenance is Cecil Stanford, longtime member of the Cascade Hills crew.

mowed greens, racked sandtraps, or handled watering. Though the time spent on each job is recorded, employes are not paid on the basis of these cards. They are for cost analysis only. A time clock is used to record hours for employe wages.

With an accurate account of time spent for each job, it becomes a simple matter to transpose total hours worked to a master sheet. As hourly figures are recorded, noticeable trends develop for particular areas. It is easy to review time records on any problem areas. Those which consume large amounts of labor will stand out. We have found

exact job being done. For example, when a man is mowing, he can record whether he is mowing greens, tees and collars, fairways, or whatever. Besides these regular maintenance tasks, we have provided blanks on the card for special nonrecurring types of work. These are maintenance jobs which come up only at certain times of the year. Or they may be special or unusual jobs which last only one or two months. These are written in.

Time distribution cards have spaces for 31 days, thereby accommodating all months. At the end of the day, each employe enters his time worked on each job during the day. He may have



**Rogers blower** is used to free fairways of refuse following thatching or aerating. On blower is Bob Hislop, summer employe.



**New maintenance building** does much for employe morale. Building has locker room, lunch area, and storage for equipment and maintenance tools. It also houses the office of Heiss.

that a change in design is sometimes needed simply because the present design is requiring too much hand labor. Many times, the design change is needed to also improve the course. We have made changes in both types of cases. A slight change in design may permit more efficient equipment and less hand labor. If the job is taking too much time, and the design cannot be changed, there may be other possible approaches to the problem within the framework of your men and equipment. A change in maintenance procedure may reduce the hours needed for the job.

**System Helps Project Costs On Area Basis**

We find that a big advantage of the system is that we can easily figure costs of maintenance on an area basis. We project by figuring hours needed per 1000 square feet or by acreage, depending, of course, on the particular job and area. When faced with maintaining an expanded area, as we have in the past and as we are facing at the moment, we can easily project unit costs for the new area. When you know the hours required in each phase of maintenance on a square foot or

acreage basis, you can easily project future costs. By applying current wage rates and fringe benefits you can get a very accurate wage cost estimate. Naturally, downtime and equipment costs must be figured

on a similar basis to give the complete picture.

We believe the Man-Hour Costing System is a step toward standardization of information for the turf industry. Too often, wages are used to compare one operation with another. This is impractical. Labor costs for a golf course with an automatic water system cannot be accurately compared with those for a golf course with manual system. But a breakdown on man hours needed to operate each system gives an accurate basis for comparison. This can be the justification for purchase of the automatic system. When the savings are possible, they can easily be projected to show that the new system will pay dividends.

Man-hour costing can easily be tailored to fit any particular turf maintenance area. Problems peculiar to the operation can be pinned down on an hours-per-job basis. Records supply the information at the end of one year or of 5 years on which to prepare and justify a budget. Lost time is easily spotted. Expansion pro-

*(Continued on page 24)*

**Cutaway of time distribution chart** used to record hours spent daily on each specific maintenance job. Each employe fills out individual card at end of each day. Heiss transfers monthly totals to master sheet for analysis.

GROUNDS		TIME DISTRIBUTION										CASCADE HILLS COUNTRY CLUB												
Name _____		Mowing					Spraying		Fert.	Sand Traps		Miscellaneous					Month _____							
Date	Greens	Tees & Collars	Fairways	Roughs	Trees & Traps	Hand & Banks	Greens	Fairways	Green & Tees	Fairways	Rake	Edge	Club House	Tree Trimming & Removal	Change Cups & Towels	Leaf Removal	Top Dressing	Watering	Aerifying	Construction	Equip. Repair	Miscellaneous		
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# Fence Line Vegetation Control

*a Problem  
researched  
by Minnesota  
highway engineers*

By L. E. Foote and B. F. Himmelman  
Minnesota Department of Highways

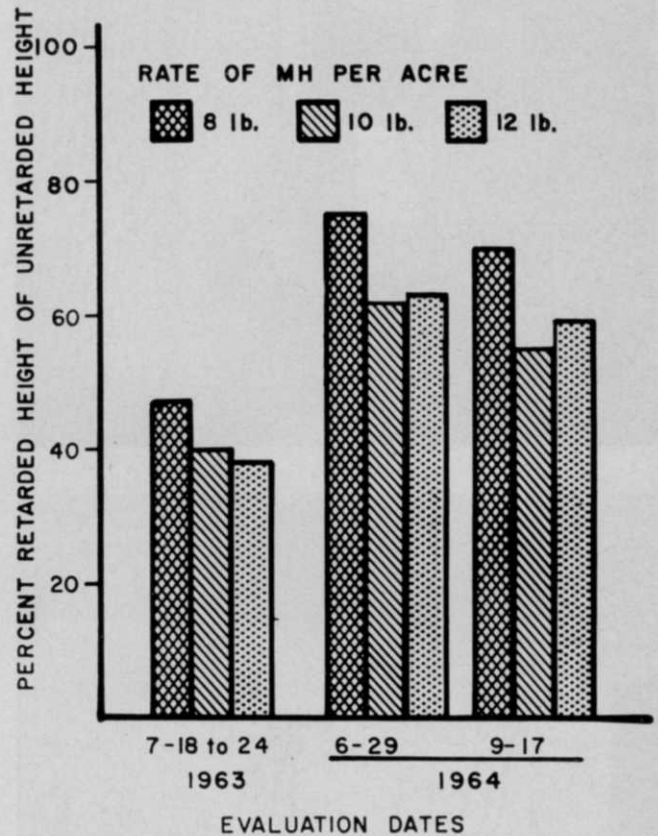


Figure 1. The effect of various rates of MH on height of turf along fence lines over a growing season.

THE amount of roadside area maintenance for which highway departments are responsible has been rapidly increasing. One roadside maintenance problem is fence line growth. Tall, uneven plant growth in fence lines is unsightly and in both urban and suburban areas often leads to complaints by citizens. The problem is also common on industrial sites and other areas where chain link fences are used.

Since mowers can safely operate only within about one foot of fences, other methods of vegetation control must be used. These include hand clipping, soil sterilization, or plant growth retardation. The first is costly and the second often leads to erosion, unsightly appearance and loosening of posts. A study conducted by the Minnesota Highway Department evaluated the effectiveness of a growth retardant, 1,2-dihydropyridazine-3, 6-dione (Maleic Hydrazide, known as

MH), in controlling plant growth along fence lines to reduce maintenance work and improve appearance.

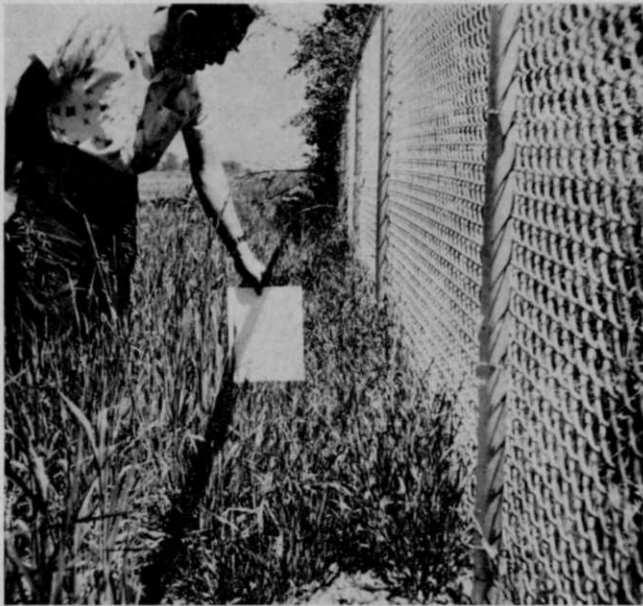
Maleic Hydrazide or MH prevents cell division, but has no effect on cell elongation. Thus it must be applied before seed-head formation has been initiated. Failure to do so will result in no inhibition of growth. Application timing is important. In Minnesota, applications should be made during the 2 weeks in the spring when the grass is 2 to 4 inches in height for best results. Fall applications, both in Minnesota and elsewhere, also have been tried with limited success.

Experiments were established in 1963 and 1964 along fence lines beside interstate highways in the area of St. Paul and Minneapolis, Minnesota. Treatments both years were MH at 0, 8, 10, and 12 pounds per acre. Plots were 2

feet wide, being one foot on either side of the fence.

The MH was applied using a 3-gal. hand sprayer May 15 and 16, 1963, and May 20, 1964. The spray in both years was applied from one side of the fence, but an attempt was made to spray through the fence to the other side. Data were collected from the side on which the spray operator walked. Data were collected from the 1963 experiment July 18, 19 and 24 regarding number of seed stalks, discolored leaves, total leaves, and vegetation height. In 1964, the vegetation height, number of leaves and seed stalks were obtained June 29; height measurements and seed stalk counts again were obtained Sept. 17. All data from both years were subjected to an analysis of variance and the differences discussed are significant at the 5% level of probability.

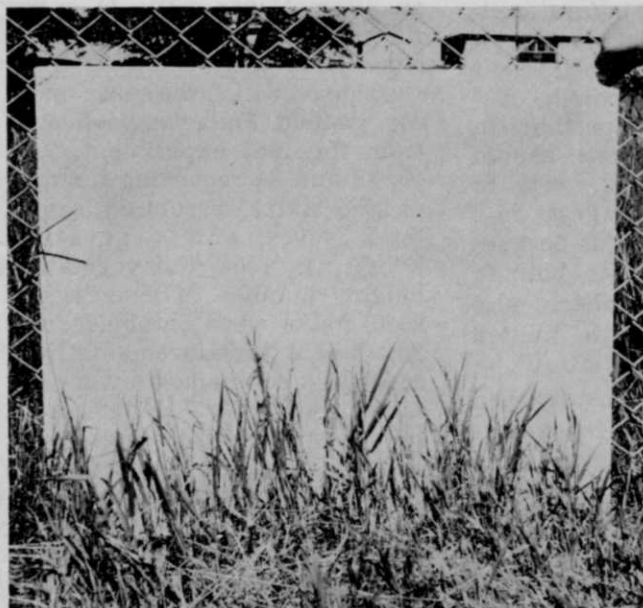
The two roadside fence line turfs treated in 1963 and 1964



**Photo 1.**  
Fence line treated in 1963.



**Photo 2.**  
An untreated fence line, or check, 1964.



**Photo 3.**  
Fence line treated with MH at the 10 lb/A rate, 1964.

varied considerably. The turf treated in 1963 had been established about 18 months previously and was very heterogeneous. It contained a large number of grass and legume species, both planted and volunteer, weeds, and rye which had reseeded from the companion crop. Smooth brome grass was the most commonly occurring grass. The numerous species present afforded an opportunity to study the effects of MH on different plants. The turf treated in 1964 had been established about 30 months previously and was composed almost entirely of smooth brome and Kentucky bluegrass. In both years, the weather at time of application was warm and sunny and vegetation was in a vigorous growing condition.

### Retarded Growth Easily Spotted

Visual observations of the 1963 and 1964 treated and untreated areas showed a definite retardation of plant height (Photo No. 1). The percent height of the treated plants as compared to the untreated plants is shown in Figure 1. The reduction in plant height due to MH was greater in 1963 than 1964. The mean treated height equalled 67% of the untreated height in 1964, and 42% in 1963. Some of the difference between 1963 and 1964 was due to the lower effectiveness of the 8 lb/A rate in 1964 and to the presence of a greater amount of Kentucky bluegrass in the 1964 turf. The findings indicated that MH reached its maximum effectiveness in height retardation between 10 and 12 lb/A, that MH at 12 lb/A had achieved its maximum height retardation effect and the variance in the retarded height at the 12 lb/A rate was largely controlled by the natural potential height of the turf.

The variance of the height of each plant from the average plant height could be considered a measurement of plant height unevenness, and unevenness is objectionable because it results in a ragged appearance. The treated turf was determined by measurements to be more uniform in height than the untreated turf.

An important factor in the use



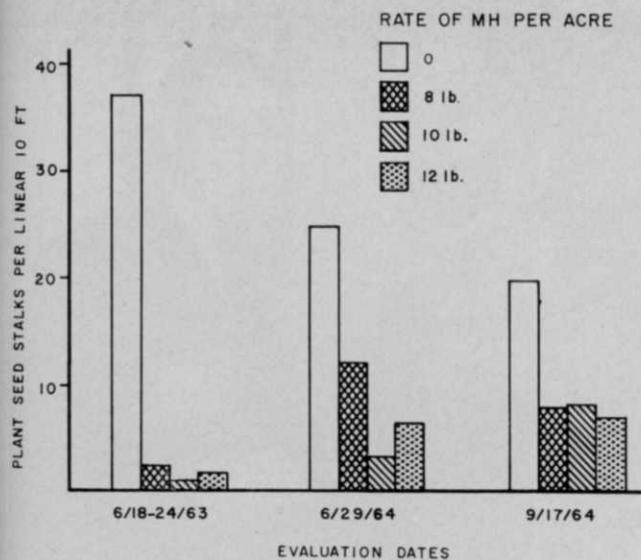


Figure 2. The number of plant seed stalks in turf treated with MH as related to time of growing season.

of an acceptable retardant is the amount of cover or number of leaves per unit area retained after the use of the materials. The number of leaves in the treated turf was not decreased. Living vegetative ground cover is retained with the use of MH. Therefore, MH is probably more desirable than soil sterilants which destroy vegetation and result in bare ground which can erode. Also, lateral movements of MH is no problem as it often is with soil sterilants.

Application of MH greatly reduced the number of plant seed stalks (Figure 2). The reduction was greater in 1963 than in 1964. This reduction in plant seed stalk formation lasted throughout the season. The only grass species which generally produced a near normal number of seed stalks was Kentucky bluegrass.

It would be desirable for MH-treated turf to remain in its natural green state. This was not the case with the fence line application in 1963. The discolored number of leaves appeared to increase linearly as the rate of MH application increased. Redtop and white clover were especially discolored by MH.

Qualitative observations regarding the effects of MH on various plant species were noted. The grasses most severely affected by MH were redtop, Reed canarygrass, rye, smooth brome grass, and timothy in decreasing order of apparent susceptibility. Kentucky bluegrass seemed to be much less susceptible. MH

tended to increase the infestation and size of rust postules, especially on Reed canarygrass and smooth brome grass. Redtop was especially susceptible to MH and often died after treatment. All black medic seedlings in treated areas were killed and white clover was severely affected. Some plant species apparently were not affected or slightly affected (Table 1). Under practical field application

Table 1. Plant species apparently not affected or only slightly affected by MH applications (8 to 12 lb/A).

(Species Not Affected)
Common Burdock ( <i>Arctium minus</i> )
Field horsetail ( <i>Equisetum arvense</i> )
Horseweed ( <i>Erigeron canadensis</i> )
Indian hemp ( <i>Apocynum cannabinum</i> )
Milkweed ( <i>Asclepias</i> spp.)
Motherwort ( <i>Leonurus cardiaca</i> )
Trailing wild bean ( <i>Strophostyles helvola</i> )
(Species Slightly Affected)
Canada thistle ( <i>Cirsium arvense</i> )
Dandelion ( <i>Taraxacum officinale</i> )
Elm ( <i>Ulmus</i> spp.)
Poplar ( <i>Populus tremuloides</i> )
Sumac ( <i>Rhus</i> spp.)
Wild raspberry ( <i>Rubus strigosus</i> )
Willow ( <i>Salix</i> spp.)
Plantain ( <i>Plantago</i> spp.)
Sedge ( <i>Carex</i> spp.)

conditions, MH does not seem to be remarkably uniform in plant response from species to species. Some loss of sensitivity seemed to develop with age and there was a wide range of specificity in

action with regard to both grasses and broadleafed plants.

### High Rate of MH Reduces Mowing

When used at a high rate (10 lb/A), MH may be quite effective in reducing or eliminating mowing or hand clipping in hard-to-mow areas, such as fence lines or under guard rail (Photo Nos. 2 and 3). MH has the advantages of not removing all the vegetation, of not washing into areas where its effects are undesirable, and of not making the areas subject to erosion. MH can be easily, safely and rapidly applied at a reasonable cost.

MH has the disadvantages of having only a short period of time in the growing season when it can be effectively applied, of not being equally effective on all plant species which may be encountered along a fence line, and of requiring an application each growing season.

Other research work by the Minnesota Highway Department has shown that when MH is used over broad areas as opposed to other narrow bands along fences, etc., the effect is less satisfactory due to "release" of undesirable annual grass types.

Mr. Foote is agricultural engineer (agronomist) and Mr. Himmelman who was formerly assistant research engineer is now maintenance pre-operations engineer, both of the Office of Materials, Minnesota Department of Highways. Their work which is reported here was part of the research program of the Minnesota Local Road Research Board, financed jointly with Federal Aid funds, U. S. Department of Commerce, Bureau of Public Roads together with State funds and County and Municipal State Aid funds. The opinions, findings, and conclusions are those of the authors and not necessarily those of the Bureau of Public Roads.



**John E. (Ted) Korves**, left, newly elected president of the American Association of Nurserymen, receives the president's gavel from outgoing President Thomas B. Kyle at the recent annual convention of nurserymen at Bal Harbour, Fla. President Korves is general manager and vice-president of Plumfield Nurseries, Inc., Fremont, Nebr.



**Charles E. Hess**, right, professor of Horticulture at Purdue University, receives the Norman Jay Coleman award from AAN President Thomas B. Kyle.

# American Association of Nurserymen

## Stage 92nd Annual Convention

**M**EMBERSHIP in the American Association of Nurserymen continues to grow. Official report at the 92nd annual session recently at Bal Harbour, Fla., showed 255 new applications for membership during the

year, bringing the total to 1555 member firms for the group.

Reporting for the board of governors, Steve Driftmier, president of the Horticultural Re-

search Institute which is the group's own industry-oriented program, said that analysis of the organization's operating cost

*(Continued on page 26)*



**Governor Lloyd C. Stark**, Stark Bros. Nurseries & Orchards Co., Louisiana, Mo., is shown with Hall of Fame parchment award from AAN.

**Newly elected board of directors** of the American Association of Nurserymen are (standing from left: Joseph H. Klupenger, Director of Region VI, Klupengers Nursery & Greenhouses, Inc., Portland, Ore.; John H. Powell, Allied Associate, Economy Label Sales Co., Daytona Beach, Fla.; William Flemer, III, Director of Region I, Princeton Nurseries, Princeton, N. J.; Harold Crawford, Director of Region IV, Willis Nursery Co., Ottawa, Kans.; Kenneth Altorfer, Director of Region III, McKay Nursery Co., Waterloo, Wis.; (seated) Harold R. Nickel, Treasurer and Director of Region V, Greenleaf Nursery Co., Muskogee, Okla.; Hoskins A. Shadow, Vice President and Director of Region II, Tennessee Valley Nursery, Winchester, Tenn.; J. E. (Ted) Korves, President, Plumfield Nurseries, Inc., Fremont, Nebr.; and Thomas B. Kyle, Sr., director at large, Spring Hill Nurseries Co., Tipp City, Ohio.







Discussing program during Cornell meeting of arborists, landscape contractors and various vegetation care and control operators are left to right: Carl F. Gortzig, Extension Service leader, Dr. A.M.S. Pridham, professor of Ornamental Horticulture, and Dr. H. B. Tukey, Jr., professor of Plant Propagation and Research.

### A. M. S. Pridham Honored At Cornell Conference

Industry groups in the vegetation care and control field honored Professor A. M. S. Pridham just prior to his September 1 retirement during a workshop conference on the Cornell University Campus at Ithaca, N.Y.

Dr. Pridham, a nationally known educator in his field of ornamental horticulture, has completed 42 years in the field, serving as graduate instructor through full professorship at Cornell. In addition to a tree-planting ceremony, New York State Nurserymen Association President George Hren announced establishment of the A. M. S. Pridham fellowship in agriculture.

In response, Professor Pridham related that original trees on the Cornell campus included elms which were a gift from a local farm operator in 1860. He related the early establishment of a Dutch elm disease campus tree committee and steps by the group which included a sustained fertilizer and tree care program. This committee, Professor Pridham said, continues to be active in regard to encroachment of DED and prompt removal of trees as they become infected.

A unique discussion workshop at the Conference centered on



"We are here to dedicate this oak tree to a man who is a longtime friend and member of the New York State Arborists." So said Edward Johnson, above, Hicksville, president of New York State Arborists, as he recently dedicated a winter-planted black oak to Dr. A.M.S. Pridham, professor of Ornamental Horticulture at Cornell University, during a ceremony honoring Professor Pridham prior to his retirement September 1.

the respective positions of husband and wife in such combination businesses. Concensus opinion was that in such cases the wife is usually the most important contact with the public since she answers telephone calls and generally handles communications within the business. The group agreed that the wife is most important in the public relations phase of the business. But

the group also agreed that too often the husband assumes that his wife knows his exact thinking regarding business matters. Also, the group agreed that a wife in a responsible position in the business needs to give instructions in a different manner than her manager-husband. Men employes, especially, respect orders more fully if they are relayed from the husband.

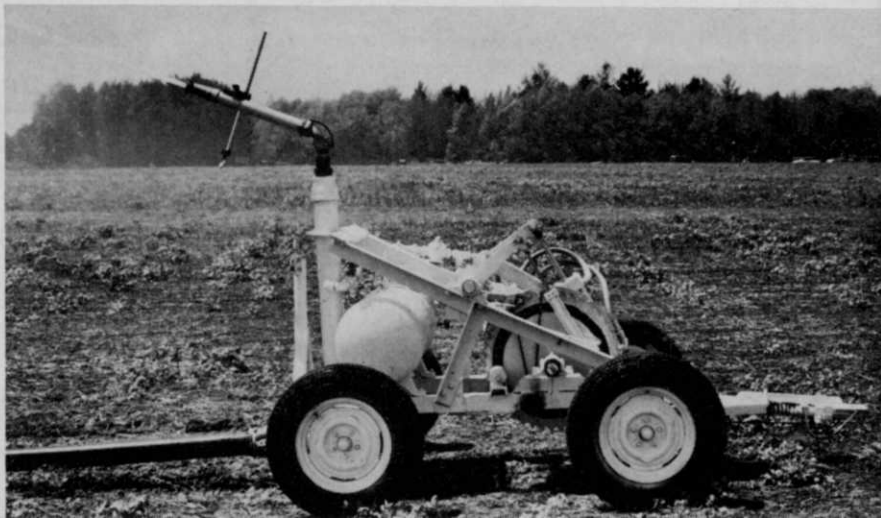
### Self-Propelled Sprinkler Now On Market

A new self-propelled irrigation sprinkler has been developed by Williamstown Irrigation, Inc., Williamstown, N.Y. The automatic unit uses water sent to the sprinkler for propulsion. This eliminates need for a separate engine and fuel system.

According to the maker, the

unit will give an irrigated distance of 1600 feet, regardless of field slope or soil type. The sprinkler, called the Tico Traveler, runs unattended at a pre-selected speed. Rate of travel is zero to 6 feet per minute. Precipitation range is 1/2 inch to 6 inches of water. Gun delivers 100 to 550 gpm, with a diameter ranging from 260 to 425 feet.

Automatic self-propelled irrigation sprinkler which is new on market delivers up to 550 gpm with diameter range up to 425 feet.



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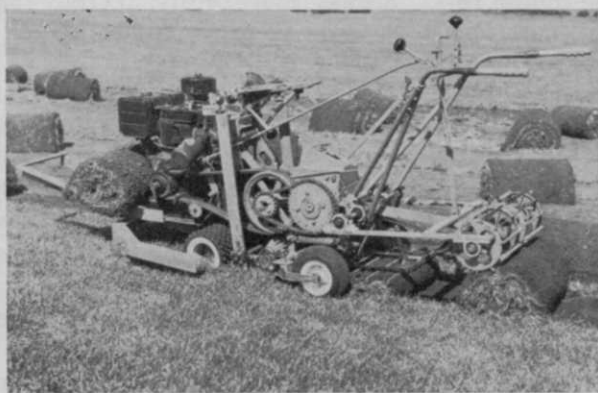
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# Study Shows Long Range Beneficial Effects Of Repeated Ethion Treatment On Turfgrass

By  
 Dr. B. C. DICKINSON  
 Niagara Chemical Division, FMC Corporation

Much information has been accumulated on the effectiveness of individual pesticides in controlling specific turfgrass pests, but little or none has been available concerning the overall, accumulative effects of regularly repeated applications of the same compound to the same turf area. Unexplained summer injury to high maintenance lawns has long posed the question of possible adverse effects from steady and frequent pesticide treatment.

A study conducted by Dr. H. T. Streu of Rutgers University on steady treatment of turfgrass with pesticide compounds has produced interesting findings in regard to the chemical ethion. Results indicate that re-

peated use of this material over a period of time not only has no apparent adverse effects but, rather, provides several important side benefits over and above control of the insects for which it has registration.

In this comparative study, ethion was applied 2 times annually for 4 years to the same red fescue-Kentucky bluegrass turf. The grass was in generally poor condition with heavy chinch bug and sod webworm infestations at the start of the experiment in 1962. By the end of the fourth year, grass in the ethion-treated plots had excellent color, vigor and density and was markedly superior in overall quality to the untreated check plots. The per-



Chinch bug, among the most troublesome of turf pests.

**Table 1. Mean growth indices, percent crabgrass, and clipping yield from turfgrass plots treated with annual applications of ethion over 4 years.**

Treatment	Mean Growth Index <sup>1</sup>	Percent Crabgrass	Mean Clipping Yield in Grams
Ethion	1.64	1.9	339.7
Check	3.23	27.8	183.5

<sup>1</sup>Calculated from 13 observations. Index 1.0 = best growth, color, density; 5.0 = poorest growth, color, density.

**Table 2. Mean numbers of chinch bugs counted per square foot of turf treated with ethion.**

Treatment	Rate Lb./Acre	July 19	August 24
Ethion	16*	6.11	1.4
Check	...	18.7	25.1

\*One-half rate applied on June 22; one-half on July 21.

**Table 3. Numbers of *Tylenchorhynchus* sp. nematodes per 250 cc. of soil counted before and 16, 49 and 84 days following first treatment.**

Treatment	Pretreatment	Days After First Treatment		
		16	49	84
Ethion*	616	480	408	88
Check	810	557	1265	1280

\*First treatment applied on June 22; second on July 21.

cent of crabgrass was only 1.9 for treated turf and 27.8 for untreated. Mean clipping yields, in grams, were 339.7 for ethion plots to only 183.5 for check plots, a good indication of the greater vigor and vitality of the treated turf (Table 1).

Control of chinch bugs was excellent. Counts, for example, showed only 1.4 bugs per square foot in treated areas one month after application of the second half of a two-part dosage. This compared with 25.1 bugs in the untreated plots (Table 2). The study indicated that ethion continues reduction of chinch bugs while most other compounds in the test lose effectiveness. This among other things reduces overwintering populations, hence there are fewer chinch bugs to start damage and breeding the following summer.

The effectiveness of ethion against chinch bugs and sod webworm has been known for some time and been substantiated by numerous other trials—par-

ticularly in Florida where at one time the chinch bug problem was pretty much confined. But a not quite so well known fact borne out by Dr. Streu's study was the chemical's ability to curb nematodes when applied on a regular basis over a long period of time. One particular genus, *Tylenchorhynchus* numbered only 88 per 250 cc. of soil some 84 days after the first of 2 ethion treatments compared to a count of 1,280 nematodes in the untreated check (Table 3).

As noted earlier, crabgrass infestation was definitely held to a minimum in the ethion-treated turf. This was due to the increased vigor imparted to the turf by steady treatment with the chemical, enabling it to grow rapidly.

The chemical ethion was introduced as an insecticide-miticide in 1951, initially aimed at combating mites which had become a serious multicrop problem. Its commercial use on turfgrass is relatively new, having started in 1961. The compound, in addition to registration for

control of chinch bugs and sod webworm, is registered for use in halting Eriophyid mites on bermudagrass. It also shows considerable promise as a weapon against army worm on turf.

Generally, applications at the rate of 7¼ pounds actual ethion per acre are recommended to obtain effective control of chinch bugs and sod webworm. Many tests have shown several months of control at this rate. Where insect populations are unusually severe, higher dosage rates are suggested for best results. Current label registration accepted by the U. S. Department of Agriculture allows the application of as much as 10 pounds of actual ethion per acre when high dosage rates are considered necessary.

---

*Dr. B. C. Dickinson is an entomologist and former director of field research for Niagara Chemical Division of FMC Corporation. He currently serves the Division as Product Manager for insecticides.*

---

#### **Man-Hour Costing**

(from page 16)

grams can be accurately budgeted in advance. In short, man-hour costing can contribute greatly to developing a blueprint for management.

Heiss also serves as a consultant in golf course management. Most clients are operators of privately owned courses. Heiss sets up a management program and works with maintenance personnel in operation of the course. After some two years, he terminates such service, the consultant service resulting in a program which can be handled by a technician, or one which needs a full-time superintendent.

Coming In October  
I.S.T.C. Convention Report  
Optimum Sodding Time  
Winter Weed Killing

## **Faster emerging, faster establishing 0217<sup>®</sup> sod-lift in only 6 months**

Plant 0217<sup>®</sup> Fylking Kentucky Bluegrass in the early fall. If correct management procedures are followed, you can lift it by spring or plant early spring, lift late fall. A vigorous rhizome producer, the fast root propagation and establishment creates tightly-knit sod rolls and strips which retain soil. Its aggressiveness crowds out weeds. Turf quality is rated "best obtainable" by noted authorities.

Fylking is a beautiful, deep green from spring through late fall, maintaining color much longer than any other bluegrass.

0217<sup>®</sup> Fylking is resistant to stripe smut, leaf spot, stem rust, leaf rust and more resistant to *Fusarium roseum* than most other varieties. Five year tests have proven the superiority of Fylking.

For additional information and names of authorized distributors, write Jacklin Seed Co., Inc., Dishman, Wash. 99213.



## **FYLKING KENTUCKY BLUEGRASS**



# New Products . . .

# Designed for the Vegetation Care Industry

**Ramey R-125 hydraulic loader** handles trees cut in 3 ft. to 5 ft. square root balls. Loader is used to lift the tree from the soil and transfer it to truck. Low-boy trailers, which carry up to 20 trees on a 40-ft. base, depending on the tree size, can be used. Loader is also used in setting the trees for planting. Trees can be placed over patios, on side hills, and in high places which normally could not be reached, in a 2-man operation. Write Ramey Self Loaders, Inc., 530 Oregon Pioneer Bldg., Portland, Oregon.

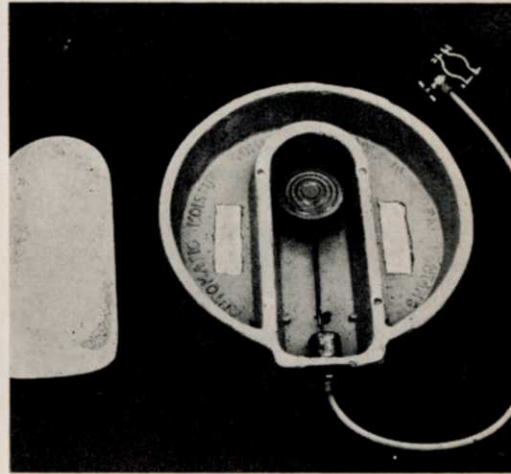


**Jisco lawn and garden auger** is designed for fertilizing, watering and aerating trees. Fits  $\frac{1}{4}$ " hand drill chuck or larger. Drills 18" deep holes. Write Johnson's Industrial Supply Co., 1941 Karlin Dr., St. Louis, Mo. 63131.

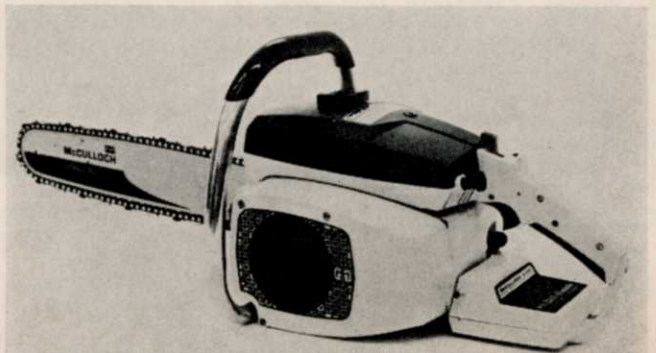


**Weldex** is marketing new utility truck crane. Lifting is done by a Lug-All cable winch-hoist instead of the usual hydraulic cylinder or jack. Produces high lifting capacity, positive and accurate lowering of the load, no pulling-in of load being lifted. Winch-hoist detaches from the crane and can be used as standard come-a-long. Boom rotates 360°. Crane bolts to any size truck. Information from Weldex, Old Westboro Road, Grafton, Mass. 01519.

**Waterguard Moisture Control Unit** automatically produces exact amounts of moisture up to 12 ft. in diameter and 5 ft. below surface. Installed under new or existing trees, device is connected to a water pipe system, via a small nylon plastic hose. Water supply to the unit is controlled by brass float mechanism in "Bowl" of unit. Contact R and W Distributors, 1956 Fifth Ave., San Diego, Calif. 92101.



**Push button, electric-starting chain saw, MAC 5-10E**, weighs 15 pounds. Displacement is 4.3 cubic inches. Takes cutter bars up to 32 inches in length. Electric-starting feature provides easy, convenient, and safe starting. Write McCulloch Corp. 6101 W. Century Blvd., Los Angeles, Calif.





## Meeting Dates



**Pacific Northwest Spraymen's Association, Annual Conference,** Seattle Center, Seattle, Wash., Sept. 15-16.

**Northwest Turfgrass Conference, Annual Meeting,** Harrison Hot Springs, British Columbia, Sept. 19-21.

**Missouri Lawn and Turfgrass Conference,** University of Missouri campus, Columbia, Mo., Oct. 4-5.

**Arizona Agricultural Chemicals Association, Annual Meeting,** Arizona Biltmore Hotel, Glendale, Ariz., Oct. 12-13.

**New England Agricultural Chemical Conference,** New Hampshire Highway Hotel, Concord, N.H., Oct. 24-25.

**National Agricultural Chemicals Association, Annual Meeting,** Holiday Inn, Palm Springs, Calif., Nov. 5-8.

**American Society of Agronomy, Annual Meeting,** Sheraton-Park and Shoreham Hotels, Washington, D. C., Nov. 5-10.

**Texas Fertilizer Association's 1967 Agricultural Exposition,** KoKo Inn, Lubbock, Nov. 9-10.

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

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

**National Fertilizer Solutions Association, Annual Convention,** Denver-Hilton Hotel, Denver, Colo., Nov. 28-30.

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

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

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

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

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

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

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

## Nurserymen's Convention

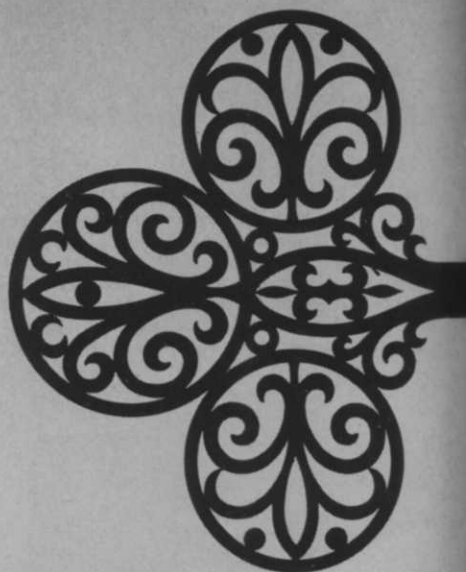
(from page 20)

studies would be completed and published shortly. The survey study includes data on mail order, wholesale and landscape businesses. He also reported that \$2000 of Nurserymen funds were granted Pennsylvania State University for research and development of a digging machine. The Commonwealth of Pennsylvania has also allocated \$20,000 for this project.

A project announced by Driftmier was development of a source book for the industry. This book would list available equipment, the maker, and the price. Most important development during the year, however, he said, was HRI's "Scope of the Industry" survey. Once completed, this survey will accurately point up the size and strength of the industry. Driftmier urged all present who had not already done so to complete and mail the questionnaires in. Though he did not announce returns to date from the original June 12 mailing, he did say that 5470 firms had been contacted for data.

A highlight of the Convention was the naming of former Missouri Governor Lloyd C. Stark of Stark Brothers Nurseries, Louisiana, Mo., as the second recipient of the Nurserymen's Hall of Fame. Governor Stark was born in Missouri in 1886 on his grandfather's homestead. At the age of 17 he was admitted to the U. S. Naval Academy at Annapolis. In 1917, he served his first of two terms as President of the American Association of Nurserymen. It was during this time that he spearheaded the resolution by Congress to establish the National Arboretum in Washington, D. C. In what must have been the highlight of his professional career, the 1967 Hall of Fame recipient was inaugurated as the 39th Governor of Missouri on January 11, 1937. Preceding Governor Stark as the first recipient to the Nurserymen's Hall of Fame in 1966 was Arthur H.

(Continued on page 29)



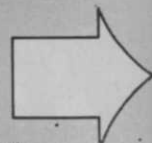
## THE KEY TO EFFECTIVE BRUSH CONTROL

Amchem, originators of 2,4-D, 2,4,5-T and amino triazole weed and brush killers, present in this magazine a series of four single page advertisements outlining the keys, or most effective ways, of obtaining economical brush control.

This "key" series will include the following topics:

1. CONTROL OF MIXED BRUSH
2. AERIAL APPLICATION
3. STEM FOLIAGE APPLICATION
4. DORMANT APPLICATION

## CUT OUT AND SAVE FOR REFERENCE

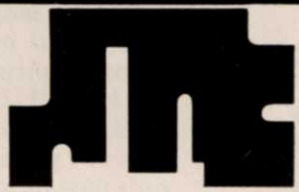


Be sure to watch for the entire series. Advertisements are scheduled for March, April, June and September.

PART FOUR OF A FOUR-PART SERIES

All four parts available upon request.





# THE KEY TO DORMANT APPLICATION

## *Chemical Brush Control Prescriptions*

**DENSE BRUSH**  
(Dormant Cane Broadcast)

**SCATTERED, THIN BRUSH**  
(Winter Basal)

**ACCESSIBLE TERRAIN**

**INACCESSIBLE TERRAIN**

**ACCESSIBLE TERRAIN**

**INACCESSIBLE TERRAIN**

General Mixed Brush  
except root-suckering  
species — Initial Spray

Root-suckering Species  
Locust, Sassafras,  
Sumas, Ailanthus,  
Elderberry

Aerial Spray (Foliage)  
see April issue

4 gallons DINOXOL or 3 gallons  
TRINOXOL per 100 gallons oil.  
Apply to thoroughly wet basal portion  
of clumps until solution puddles  
around the root collar.

Aerial Spray (Foliage)  
see April issue

1½ gallons DINOXOL®  
or TRINOXOL® per  
100 gallons of fuel oil.  
Apply to wet dormant  
canes to ground line.  
Concentrate on root  
collar zone and any  
exposed roots.

Foliage Spray  
see June issue

- DORMANT CANE AND WINTER BASAL SPRAYS OFFER MANY ADVANTAGES.
1. No danger to crops.
  2. No unsightly brown-out.
  3. Longer use of crews & equipment.
  4. Faster coverage — less cost.
  5. Better control of conifers, ash, maple and other resistant species than by any other ground application.



First name in herbicide research  
**AMCHEM PRODUCTS, INC.**  
AMBLER, PENNSYLVANIA



## RED OAK

(*Quercus rubra* var 'Borealis')



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

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

Of all the tree species present on rights-of-way in the United States, the oaks are the most prevalent. The total number of species is estimated at 300 or more, not including known hybrid forms which would increase the figure considerably.

Generally speaking, the oak species found in the United States can be divided into two groups or subgenera—red (*Erythrobalanus*) and white (*Leucobalanus*). The easiest way to tell the two groups apart is by the presence or absence of spines on the lobes of the leaves. The red oak group species almost always have bristle-tipped lobes. Leaf lobes of the white oak group are usually smooth and rounded. The species found in the red oak group are often the more difficult to control chemically. The red oak is a typical example of this group.

The leaves of red oak are alternate, simple, 5 to 9 inches long, 4 to 6 inches wide. They have 7 to 9 often-toothed lobes with sinuses extending halfway to the midrib. The mature leaves are firm, dull green, with yellowish to reddish midrib above, and are pale with a yellowish midrib below.

The flowers appear in May when the leaves are about half developed. These produce acorns  $\frac{3}{4}$  to 1 inch across, with a broad, shallow cup covering only the base of the nut.

The features which distinguish red oak from its hairier relative, black oak (*Quercus velutina*), are the absence of pubescence on the buds, larger acorns with broad, shallow cups that cover only the base of the

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

fruit, and leaf uniformity. Black oak buds are covered with grey woolly hair. The fringed cups are nearly half as long as the rusty-haired acorns. Black oak leaves are somewhat glossier than those of red oak, and on the underside they have tufts of rusty hairs in the axils of the vein and midrib. Black oak leaf sinus depth and lobe toothing varies considerably from one adult tree to another. The bright orange inner bark is a consistent characteristic, however.

Scarlet (*Q. coccinea*) and pin oak (*Q. palustris*) resemble red oak, but their leaves are smaller and more deeply lobed. Their acorns are also smaller. Pale wool covers scarlet oak buds from middle to apex, but pin oak buds, like red oak ones, are smooth. Pin oaks often have many short, stiff lateral branches which give it the name and drooping dead branches below the crown.

Red oak and other members of this group usually require more than one chemical spray for complete control. The recommendation is an initial foliar treatment with 2 pounds each of 2,4-D and 2,4,5-T per 100 gallons of spray, followed by a summer or winter basal spray two years later, using 6 pounds of each chemical per 100 gallons of oil.

Ammonium sulfamate and picloram are used as a foliage spray at 50 to 75 pounds and 1 to 2 pounds per 100 gallons of water, respectively. Follow-up basal sprays of 2,4-D and 2,4,5-T are required for complete kill.



## Classifieds

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

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

### FOR SALE

1955 HALE CENTRIFUGAL, 60-gal./min., 600-lb. sprayer, with approximately 200 ft. of  $\frac{3}{4}$ " and  $\frac{1}{2}$ " hose and 2 guns. Brouse Bros. Nursery, Potshop Rd., R.D. 1, Norristown, Pa. 19401. Phone 275-5682.

### Nurserymen's Convention

(from page 26)

Hill of D. Hill Nurseries, Dundee, Ill.

Dr. Charles E. Hess was named recipient of the 1967 Norman Jay Colman Award, presented each year by the Association to an individual who has made an outstanding contribution to horticultural progress through re-

search. Dr. Hess, Purdue University professor, is editor of the International Plant Propagators Society and is affiliated with the American Association for the Advancement of Science, American Society of Plant Physiologists, American Society of Horticultural Science, International Plant Propagators' Society and Sigma Xi.

John E. (Ted) Korves was elected new president of the Association. Mr. Korves started his nursery career in 1935 as a laborer with the Gurney Seed & Nursery Co., Yankton, S. D. He stayed with Gurney and progressed to Manager of the nursery department, and in 1958 he moved to Plumfield Nurseries, Inc., Fremont, Nebr., where he is presently General Manager and Vice President.

Official registration for the 1967 Convention showed 850 member firms represented with more than 1000 persons in attendance. The 1968 Convention is scheduled for July 13-17 at the Chase-Park Plaza Hotel, St. Louis, Mo.

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Reprints

Available

On

Turf Training Series

See Details

On Page 11

# SOILSERV, Inc.

## PRODUCTS FOR:


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- ★ County and State Maintenance People
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- ★ Landscapers
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- ★ Construction Contractors

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3. Silicone Bird Repellent for cliff Swallows.
4. Granular Herbicides for ornamentals.
5. Special Snail and Slug Baits in bulk.
6. ADVISORY SERVICE FOR SPECIAL PROBLEMS.

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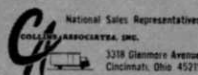
Soilserv, Inc. Box 1817 Salinas, Calif. 93901

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HOISTS



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Portable Elevator Mfg. Company  
920 Grove Street  
Bloomington, Illinois

# Insect Report

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

## Turf Insects

### AN APHID

(*Forda olivacea*)

**California:** Heavy on wild grass in Montalvo, Ventura County.

### BLUEGRASS BILLBUG

(*Sphenophorus parvulus*)

**Nebraska:** Larvae damaging lawns in panhandle area.

### CHINCH BUG

(*Blissus leucopterus*)

**Oklahoma:** Heavy in st. augustine-grass in Choctaw County.

### BLACK CUTWORM

(*Agrotis ipsilon*)

**Oklahoma:** Caused much damage to experimental sod plots in Stillwater, Payne County.

### AN ARMORED SCALE

(*Odonaspis ruthae*)

**Alabama:** Heavy and damaging Coastal bermudagrass in Dale County field. This scale insect, along with brown patch disease, causing severe damage to one large field.

## Insects of Ornamentals

### BAGWORM

(*Thyridopteryx ephemeraeformis*)

**Oklahoma:** Continues moderate to heavy on evergreens in Mayes, Ottawa, Muskogee, Oklahoma, Cleveland, and Washita Counties.

### A SULPHUR BUTTERFLY

(*Phoebis philea*)

**Florida:** First larvae of season feeding on acacia leaves at Gainesville, Alachua County.

### EUROPEAN EARWIG

(*Forficula auricularia*)

**Michigan:** Nymphs and adults heavy on ornamentals at Saginaw, Saginaw County. New problem for area.

### TWO-SPOTTED SPIDER MITE

(*Tetranychus urticae*)

**North Dakota:** On buckthorn hedge at Fargo, Cass County; heavy webbing and browning on elms. Heaviest infestation in several years.

### ROSE CHAFER

(*Macrodactylus subspinosus*)

**Maine:** Locally heavy; damage heavy in several areas of Lewiston and Auburn on numerous plants. Damaging numbers in many locations in Portland and Saco.

## A CONIFER SAWFLY

(*Monoctenus melliceps*)

**Wisconsin:** Common on arborvitae in nursery near Wisconsin Rapids, Wood County.

## Tree Insects

### ELM LEAF BEETLE

(*Pyrrhalta luteola*)

**Alabama:** Larvae very heavy and damaging in Ft. Payne, De Kalb County. **Colorado:** Abundant on elm in Western Slope counties; most larvae entering pupal state, congregating around trunks in protected areas. Foliage injury evident in all areas. Larvae abundant, much foliar damage in Adams County. **Nebraska:** Larvae damaging Chinese elms at Mead, Saunders County. **New Mexico:** Averaged 10-12 larvae per 12 leaves on Chinese elm trees in Albuquerque area, Bernalillo County. Damage heavy to elm trees in Corrales area, Sandoval County. **Pennsylvania:** Heavy on elm throughout State; 75 percent of foliage skeletonized and brown. Pupation begun.

### SATIN MOTH

(*Stilpnotia salicis*)

**Vermont:** Egg masses present throughout State.

### A SATURNIID MOTH

(*Pseudohazis eglanterina*)

**California:** Larvae medium, damaging willow trees in Angiola, Tulare County.

### FOREST TENT CATERPILLAR

(*Malacosoma disstria*)

**Maine:** Locally heavy on poplar trees in Auburn area. Moderate numbers and injury on wild cherry in Fort Fairfield.

### FALL WEBWORM

(*Hyphantria cunea*)

**Maine:** Infestation and damage light in Cumberland County; heavy numbers caused moderate injury on wild cherry in West Paris. **Missouri:** Small webs in southern areas of State. **Texas:** Third-generation larvae heavy, defoliating Chinese elm, peach, and ash throughout Cameron County; damage heavy and unsprayed trees completely defoliated. **Wisconsin:** Second instars light on chokecherry near Sauk City, Sauk County.

### A WEEVIL

(*Phyllobius oblongus*)

**Pennsylvania:** Adults common on elm and other shade trees in northwestern counties; damage moderate to foliage.

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

## Trimnings

**World Trade Center.** Cleveland, O., is claiming the distinction as a result of the importance of the city as a port since opening of the St. Lawrence Seaway. A tree-lined "Avenue of Nations" is being made of lower East 9th street by planting a tree for each nation with a ship calling at the Port of Cleveland. To date, 47 ornamental trees have been dedicated to as many nations.

\* \* \*

**Can Care.** Aerosol cans can be lethal. We constantly read of serious accidents because someone tried to burn or puncture one. At times they may not have enough power to force the product out of the can. But this doesn't mean the can is any less dangerous. Since we all use them in both home and business, we can only point to safety instructions on the can. Disposal by burying or with other trash commercially handled is about the only safe method. In the meantime, caution employes to keep them away from flame and out of sunlight.

\* \* \*

**Employe Responsibility.** Colonial Nursery President Frederick J. Mummert, speaking to a Pennsylvania State University management clinic, related his company policy regarding employes. He tells workers that "Your habits are your business when not working for the company. They're our business when working for Colonial Nursery." Further, Mummert says crew chiefs are kept informed on what is to be done on a job, where it is located, and what arrangements have been made for the job. Most important, he says, they are to make sure the customer is satisfied. Specific "don'ts" which are company policy include no foul language, no drinking on the job, and no speeding in company trucks. Colonial asks employes to have respect for each other and for equipment since these keep a business going.


\* \* \*

**It's Only Talk So Far.** Synthetic lawns were predicted for homeowners within 20 years at the recent national meeting of the American Chemical Society at Miami Beach, Fla. Dr. G. L. Laserson of American Machinery and Foundry in making the statement said, "Use may be expected to increase as economic factors shift in its favor. Personally" he said, "since I do not consider cutting grass a form of recreation, I would love to have a synthetic lawn."

\* \* \*

**Congratulations to Dr. Roberts.** The University of Florida gained one of the nation's leading turf specialists this past month when Dr. Eliot C. Roberts joined the faculty as chairman of the Department of Ornamental Horticulture. This nationally known consultant has previously been on university staffs at Iowa and Massachusetts. His most recent contribution to WTT was a photographic review of the extensive turf training program at Iowa State which appeared in the July issue.





Coming  
in  
December!

## Suppliers:

The Perfect Place to Advertise Your  
Weed, Turf, and Tree Market Products

Reserve Space Now in the

1968

## Suppliers Guide

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

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


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

**3. Repeat Readership.** In the 1968 WTT Suppliers Guide, we have a complete catalog of weed, turf, and tree maintenance chemicals and equipment. Whenever readers are seeking a source of supply, this handy reference book offers them the easiest way to find it.


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Readership

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

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and TURF**

**CLOSING DATE  
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# WTT

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