

# WEEDS TREES and TURF

JANUARY, 1969



SPECIAL TURF ISSUE  
Columbine Budget Control  
Shade Tolerant Kentucky 31

# when your season rolls around...



## be ready to roll with a NU nes sod harvester



### NU nes Slab Sod Harvester . . .

lifts, cuts, and conveys slabbed sod to loading platform. Handlers can load directly on to pallet as tractor moves.

PATENT APPLIED FOR

- With a NU nes Sod Harvester and three men you can lift, cut, roll and palletize up to 1200 square yards of sod per hour.
- The harvester, developed at Cal-Turf Farms in California, is designed to handle any length of rolled or slabbed sod.
- Field grading of sod is done by the tractor operator, who has clear visibility at all times.
- Hydraulic controls permit quick and easy adjustment for all conditions.
- The sod harvester travels alongside, never on the turf, during harvesting and can pick up and roll sod at any time your tractor can operate in your field.
- Sod can be cut with any type of sod cutter. The long ribbons can then be lifted and cut to any desired length from 24" to 90", size depending on thickness of sod.
- Loaded pallets can be spotted for later field removal and be clear of the next harvest run. If direct truck loading is desired, a conveyor extension is available.
- The basic power train is a Ford LLG-2110 wheel tractor. The sod harvester can travel at speeds up to 17 MPH for quick transportation between plots.
- The efficiency of this all-mechanical operation has been proven on Cal-Turf Farms in Patterson, California, and it can solve the problem of quick and economical harvesting of sod for all turf farmers.

For more information please contact:

**THE JOHN NUNES MECHANICAL HARVESTING CO.**

2006 Loquat Avenue, Patterson, California 95363, Phone (209) 892-6311



For More Details Circle (115) on Reply Card

## The Cover

Ken Voorhies, superintendent at the Columbine Country Club, near Denver checks condition of green.

Voorhies has made great progress with this course during his 10-year tenure and has some practical ideas on turf management and record-keeping. His story begins on page 25.

## Platz Elected President of NFSA for 1968-69

Edward A. Platz, owner and general manager of Plant Food Chemical Co., Cranbury, N. J., was elected president of the National Fertilizer Solutions Association at its 14th Annual Convention and Exhibition in New Orleans.

Other 1968-69 officers elected include: vice president — B. G. (Bob) Boswell, manager of Chemical Division, Goodpasture, Inc., Brownfield, Tex.; secretary — John D. Hershey, sales manager of Molder Rubber Goods Division, Gates Rubber Co., Denver, Colo.; treasurer — Glen A. Brandt, president of Brandt's Fertilizer Service, Pleasant Plains, Ill. W. R. (Bill) Stephens, vice president of Chemical Plants Division, Barnard and Leas Manufacturing Co., Cedar Rapids, Ia., was presented with NFSA's "Man of the Year" Award for his contribution to the association.

## Thompson Pesticide Guide

Thompson Publications has recently published *The 1969 Insecticide, Herbicide and Fungicide Quick Guide and Date Book*, designed to be used as an everyday reference tool for the man making pesticide recommendations. For a copy, priced at \$15, write the company, P.O. Box 989, Davis, California 95616.

# WEEDS TREES and TURF

FORMERLY WEEDS AND TURF

January 1969

Volume 8, No. 1

### Features

Seed Technology, Inc. Develops Turf Analysis Test By Dale Kern .....	6
Professional Image and Service Build Lawn Care Business By Edward G. Dickson .....	14
Kaspar Burgi, Inc., Successful With Massive Tree Transplant By Lou Speer .....	18
Ken Voorhies At Columbine CC Finds Directors Appreciate Budget Control .....	25
Kentucky 31 Tall Fescue—A Shade-Tolerant Turfgrass By Drs. F. V. Juska, A. A. Hanson, and A. W. Hovin .....	34

### Departments

Editorial: Winter Refresher .....	4
Know Your Species .....	38
Classifieds .....	41
Advertisers Index .....	41
Trimming .....	42
Meeting Dates .....	3rd Cover

President and Publisher  
Hugh Chronister

Editor and Editorial  
Director  
Arthur V. Edwards

Managing Editor  
Donald D. Miller

Editorial Assistant  
Kathy S. Thomas

Vice President  
Advertising  
Dan M. Humphrey

Director of Circulation  
Roy Bever

Advertising Production  
A. J. Michel

### Advertising Sales Offices:

**National Headquarters** — 9800 Detroit Ave., Cleveland, Ohio 44102, 216+631-6468; **Chicago, Ill.** 60601—333 N. Michigan Ave., 312+236-9425; **Shawnee Mission (Kansas City), Kansas** 66202—6811 W. 63rd St., 913+722-5900; **New York City** 10017—757 Third Ave., 212+421-1350; **Rosemont, Pa.** 19010—1062 Lancaster Ave., 215+525-1874; **Columbus, Ohio** 43212—1350 W. Fifth Ave., 614+486-9638; **Lansing, Mich.** 48906—4415 N. Grand River, 517+372-5254; **Los Angeles, Calif.** 90005—The Eschen Co., 3142 Wilshire Blvd., 213+382-8391; **San Francisco, Calif.** 94104 — The Eschen Co., 57 Post St., 415+781-7440.

BPA Application Applied For

WEEDS TREES AND TURF is published monthly by The Harvest Publishing Company. Executive, editorial: 9800 Detroit Ave., Cleveland, Ohio 44102.

Single Copy Price: 50 cents for current issue; all back issues 75 cents each. Foreign \$1.00.

Subscription Rates: WEEDS TREES AND TURF is mailed free, within the U.S. and possessions and Canada, to qualified persons engaged in the vegetation care industry and related fields in controlled circulation categories. Non-qualified subscriptions in the U.S. are \$7.00 per year; Canada and other countries, \$10.00 per year. Controlled circulation postage paid at Fostoria, Ohio 44830.

© The Harvest Publishing Company, 1969

The next two months can be among your most profitable. This is the prime season for winter meetings.

On the winter agenda, you'll find association meetings, commercial sessions by suppliers and equipment manufacturers, college sponsored industry sessions, short courses and many special conferences. Regardless of name or sponsor, all offer up-to-the minute data in a specific field.

For the operator who seldom finds time during his own busy season to do more than manage his operation, winter technical meetings are a god-send. He can, usually for the price of a minor registration fee, and in a 2- or 3-day period, pick up the latest research and methods in his field. Further, he will likely get the information direct from the men who are doing the reasearch or field testing work in the particular area.

Besides new test data, meeting programs cover a broad range of helpful subjects. Management tips, coming legislation, rulings on current regulatory laws, business forecasts, pricing data, labor problems, general industry news, and subjects germane to vegetation care and control can stimu-

late enthusiasm for business. Trade shows add more flavor with equipment and general exhibits for demonstrations.

An even more important factor which we have often mentioned is the chance to visit with people in the same business. You get to know them. And, if you haven't attended many off-season conferences, you'll soon learn that these idea-swapping sessions are the most satisfying segment of the meeting.

Values gained from the winter conferences are not restricted to management. Most meetings are geared to be extremely helpful to employees, particularly those key members of your staff who help make your business successful. What better public relations plan can you devise than to include them? You can promote loyalty to your own business and at the same time benefit from the new knowledge your employees can gain at a winter session.

The winter meeting boom is on. Look over the meeting calendars you have on hand, and take advantage of what might well be termed a technical but refreshing type of work break.

# February

## WEED CONTROL PLANNER



### Timing is Everything

In February, regardless of where you are geographically, there are certain steps that you can take in weed and

brush control that will enhance effectiveness of kill and save you money. Make your preparations now. The February list begins this way:

### Steps to Take Now

General mixed brush can be controlled at any season, BUT, if you do it now, it will give better kill on resistant species such as red maple, ash and the conifers. And you will avoid unsightly brown-out and eliminate the possibility of crop damage. Also, labor and equipment are more available now.

### What to Use Now

Use 1½ gallons of Dinoxol® or Trinoxol® per 100 gallons of fuel oil. Thoroughly wet dormant canes to ground line. Tip: Concentrate on root collar zone and exposed roots.

### What Else to Do Now

Check equipment. There will never be a better time. Calibrate. Be sure you know the actual rate at which you spray. Clean out tanks. Replace worn nozzles. Tip: Ester brush killers sink through oil at low temperatures. Agitate thoroughly in preparing large mixes.

First name in herbicide research

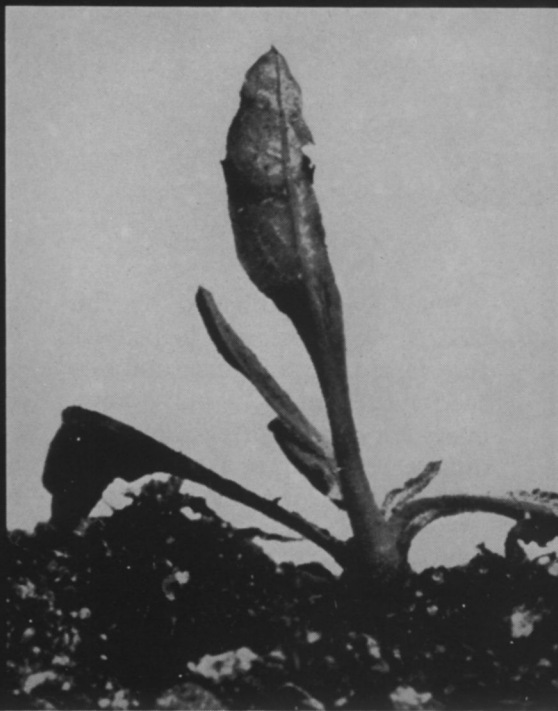


See your Amchem representative for an individualized, month by month prescription for your weed control problems.

AMCHEM PRODUCTS, INC., AMBLER, PA.

For More Details Circle (105) on Reply Card

# Sudden death to all weeds.



Spray once with Assault® and kill off all weeds. Assault begins destroying foliage immediately and penetrates the soil to attack the roots. Regrowth is no problem, either. Assault stays in the soil for as long as 12 months.

But that's only half of it. There are no messy powders to dilute. Just add water to the liquid concentrate and you're ready to spray.

It makes clearing the land a one man job. For details, and for

a free weed identification chart, write: West Chemical Products, Inc., Dept. WTT-1, 42-16 West St., Long Island City, N.Y. 11101.

**GO WEST**

## Assault



For More Details Circle (104) on Reply Card

Dale Kern, author of this comprehensive review of seed testing programs is president of Seed Technology, Inc., an independent laboratory located at Marysville, Ohio. In operation since 1954, the lab does testing from coast to coast in addition to contracts with the governments of Formosa, Germany, and France. Many major seed companies in this country are clients of Seed Tech. WTT is happy to present this forthright analysis by Mr. Kern for benefit of the turf professional.



Seed Technology, Inc. Develops

# Turf Analysis Test

By DALE KERN

**T**ODAY there is good news for you who are professional turf men. No longer are you forced to live with the law of averages when you plant seeds! This law of averages indicates that 20 percent of the professional turf men who seed grass on golf courses will be sowing *Poa annua* up and down fairways next spring. That's one of every five.

Again, the law of averages says 8 percent will be planting bentgrass in fairways. Six percent will be dropping timothy seed from tee to green on No. 7 or maybe the other seventeen. Four percent will be planting sorrel—and 5 percent will infest fairways with chickweed, come planting time in May.

These percentages are dictated by the law of averages. But, this law, like every law, has a loophole.

"Beating the law of averages" wasn't conceived by my profession. The United States Department of Agriculture thought of the idea many years ago. In fact, this department established the standards that the seed industry must meet in order to sell seed.

Standards established by the USDA were designed to protect the farmer from unscrupulous seed merchants. As you know, every lot of seed offered for sale must carry a tag or label.

The seed grower and seed merchant must be sure his seeds are properly labeled before they are offered for sale. So, the grower or merchant submits samples of seeds to laboratories for testing. These laboratories meet the specifications established by law, and provide the seed merchant with a certificate of analysis. Now the merchant can legally label and sell his seed.

This is a good arrangement; except — government regulations and standard laboratory tests **DO NOT GIVE YOU, THE PROFESSIONAL TURFMEN, WHAT YOU NEED.**

Why?

Standard laboratory tests that meet government specifications fail to tell the full story. A standard analysis tag means different things to different people. To the merchant, it means he can legally sell his wares. To the lab technician, it means all his procedures have complied with Feder-

al Seed Act Regulations. To the buyer who will plant the seed, this tag could mean almost everything . . . or practically nothing.

It all depends on how much the buyer wants to know, and how much he is willing to guess.

## More Info Needed

If you want beautiful fairways, with a very minimum of weed problems, then you need all the information possible. You have to know! If, on the other hand, you are satisfied with average results, you can afford to guess.

When you study the analysis tag, how much will you know, and how much will you be required to guess?

Suppose we analyze the tag. It tells, by percentage of weight, (that term is mighty important) the pure seed, crop, inert, and weeds in a sample of seed. It also tells the percentage of seeds that germinated, and date of germination test.

Now, the breakdown.

Item by item; here's what you'll know, and here's what you'll have to guess.

For example, consider a tag taken from a lot of high quality,

blue tag, certified Merion bluegrass seed.

Pure seed	97.85%
Crop	.10%
Inert	2.00%
Weeds	.05%

Again, remember, all of the figures are percentage by weight.

Let's go back to the top line.

Pure seed—97.85%. What does this mean to you as a seed buyer? Simply this: 97.85 pounds in every 100 pound bag is pure Merion bluegrass. The other 2.15 pounds are made up of inert, crop and weeds.

If you know the percentage of pure seed, and the total number of pounds in the lot, it's a matter of multiplying the percentage by the total weight to know the pounds of pure Merion bluegrass you are getting for your dollars. There isn't much to guess about in the "Pure Seed" category.

Back to the tag—this time look at Crop percentage. Here we find the percentage figure .10%.

Now, what do you know?

Well, you know that by weight there is about one-tenth of one percent Crop Seed in the lot. You also know Crop is any seed grown for economic purpose.

Anything left to guess about? You better believe there is! First of all, what kind of crop makes up this one-tenth of one percent by weight?

If you guess Delta, Park, Newport bluegrass, or seeds of Red, Chewings or Illahee fescue, no problem. The plants produced by these seeds will probably never be noticed by the average golfer.

But, if you guess wrong—if the crop seeds are timothy, redtop, tall fescue, ryegrass, Orchard grass or bentgrass—you're in trouble. Most of these are pasture grasses. Their plants are broad-leaved, off-color, fast growing clump or bunch grasses, and appear unsightly to everyone.

#### How Many Seeds

Here is something else in the Crop category you can guess—HOW MANY SEEDS are repre-

## TURF ANALYSIS

A Special Test designed for Golf, Industrial, and Sod Superintendents

Lab No. <u>17759</u>	%	PURITY	GERMINATION
Labeled as <u>MERION KENTUCKY BLUEGRASS</u>		Pure seed	% normal
Lot No. <u>1-3142</u>	98.43	<u>MERION KENTUCKY BLUEGRASS</u>	89
Date <u>JUNE 21, 1968</u>			completion date
FOR <u>SEED CO.</u>			<u>JULY 23, 1968</u>
	.16	crop	Remarks:
	1.41	inert	
	.00	weeds	Tetrazolium %

25 GRAM SAMPLE HAS BEEN CHECKED FOR THE FOLLOWING CONTAMINANTS

Per lb CROPS	Per lb WEEDS	Per lb WEEDS	Per lb WEEDS
<u>91</u> Bentgrass	Barley, foxtail	Heal-all	Velvetgrass
Bromegrass	Barley, wild	Henbit	Wild onion
Clover, alsike	Black medick	Knotweed	<u>217</u> Windgrass
Clover, hop	Camomile	Mayweed	Yarrow
Clover, white	Cats-ear	<u>18</u> Mustard	Yellow rocket
Fescue, meadow	Chess	Pennycress	OTHERS
Fescue, tall	Cinquefoil	<u>36</u> Peppergrass	<u>109</u> PIGWEED
Orchardgrass	Cress	Plantain	<u>199</u> CURLY BLOOM
Poa Trivialis	Dandelion	Puccinellia	<u>18</u> FALSE FLAX
Redtop	Dock	Sedges	<u>109</u> CHICKWEED
<u>72</u> Ryegrass	Erysimum	Shepherds purse	
<u>18</u> Timothy	Fescue, raitail	Silver hairgrass	
Wheatgrass	Fleabane, daisy	Sisymbrium	
<u>0.16%</u> KENTUCKY BLUEGRASS	Foxtail, water	Sorrel	
	Goosegrass	Speedwell	

Poa annua 91 per pound based on a 10 gram examination



### seed technology inc.

SPECIALIZING IN THE ANALYSIS OF TURF GRASSES  
R.F.D. 5

Marysville, Ohio



DALE KERN

Seal No. 016

Registered Technologist

**Example I.** Turf analysis test lists eight kinds of weeds for a total of 888 weed seeds per pound, including 91 *Poa annua*. Also, report shows 181 crop seeds per pound.

Lab No. <u>17759</u>	% PURITY based on <u>1</u> gm.	GERMINATION	
Labeled as <u>MERION KENTUCKY BLUEGRASS</u>		PRELIM.	FINAL
Lot No. <u>1-3142</u>	98.43	in <u>    </u> days	% Hard % Normal
Date <u>JUNE 21, 1968</u>	<u>MERION KENTUCKY BLUEGRASS</u>		89
FOR <u>SEED CO.</u>		No. of seeds used. Germ <u>400</u> TZ <u>    </u>	
	.16	Completion date <u>7-23-68</u> in <u>28</u> days	
	1.41	Charge	
	.00		
Carbon copy	OTHER WEEDS	CROP	
NOXIOUS WEEDS for <u>ALL STATES</u>	based on <u>1</u> gm. rate/oz.	based on <u>1</u> gm. rate/oz.	
NONE FOUND	NONE FOUND	KENTUCKY BLUEGRASS <u>0.16%</u>	
RATE OF POA ANNUA BASED ON <u>1</u> GR			
REMARKS			



CERTIFICATE OF ANALYSIS

### seed technology inc.

SPECIALIZING IN THE ANALYSIS OF TURF GRASSES

R.F.D. 5

Marysville, Ohio

ALL PROCEDURES COMPLY WITH FEDERAL SEED ACT REGULATIONS



DALE KERN

Registered Technologist

Seal No. 016

**Example II.** Standard test following regular procedures for testing and reporting shows no weeds, and .16 percent crop seeds which in this instance are Kentucky bluegrass.

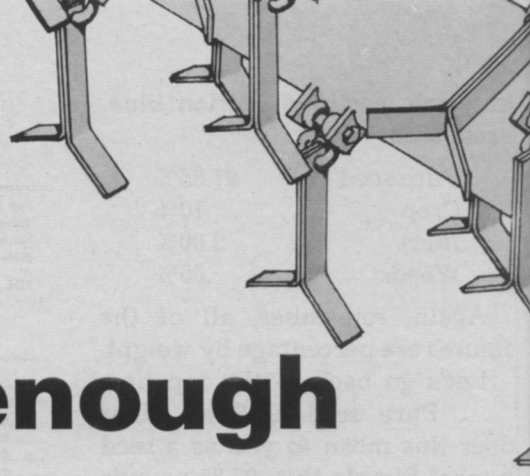
sented in this .10%.

As you know, all crop seeds are not the same size. Some are large, some are quite small. They come in assorted sizes. The .10% represents only about 1½ ounces in a hundred pound bag.

Suppose you are going to seed a new fairway that is about 400 yards long and 50 yards wide.

If .10% by weight of tall fescue (the seeds being quite large and heavy) this would be equivalent to 54,400 plants of this type

# Mower knives thin enough to fine-cut...thick enough to resist breakage



Worth more—  
when you buy, use, trade



### International 70 flail mower with 2444 Lo-Boy tractor

Many purchasing agents insist on the safety of a flail-type mower to eliminate the hazards of thrown debris.

International 7-foot flail mowers not only offer greater safety by driving debris down toward the ground, not out—but give you a good grass-grooming job as well. Easily reversible double-edged knives are thin enough to fine-cut grass which sifts down as fine particles. Yet they're thick enough to resist breakage from cans, stones and sticks.

Mower safety is assured by the husky contoured housing, formed and bead-welded to the heavy frame. A thick rubber safety curtain at the rear discharge end makes sure debris is deflected to the ground. Unlike canvas, this curtain resists ripping, rotting or shredding.

The mower is powered by an International 2444 Lo-

Boy tractor with a 43½-hp diesel or a 47-hp gas, 4-cylinder engine. This tractor is famous for its short, 8½-foot turning radius and low, 50-inch profile. Choose your transmission: standard Hi-Lo with 8 speeds forward, 2 reverse or optional 8 and 8.

See your International dealer for all the details on 70 flail mowers and 2444 tractors—plus IHCC credit plans that easily dovetail with your purchasing program.



**INDUSTRIAL EQUIPMENT**  
Wheel and crawler tractors • loaders • backhoes  
dozers • forklifts • mowers • special duty tools

International and Lo-Boy are registered trademarks of International Harvester Company, Chicago 60611.

*Double up with International 2444, flail mower and 110 hydraulic drive side-mounted mower.*



up and down your fairway.

If this were .10% Orchard grass, it would give you 364 seeds per pound, or 72,000 seeds in your fairway of this type of plant.

Another old pasture grass often found in Merion is timothy. That .10% would produce 254,000 plants of this nature up and down your fairway.

The smallest crop seed we see is bentgrass. Seed is so small that .10% by weight equals 948,000 seeds in the 200 lbs. of Merion bluegrass required to seed that 400 x 50 yard fairway. Yes, that is right, 948,000 seeds providing bent patches all up and down your fairway.

In each case, the .10 percent of the crop seeds just mentioned would be a serious problem.

#### **Inert Materials**

Now we come to inert—the percentage by weight of anything that is not classified as a seed. This could be corn cob, ground up hay, sand, or chaff—we've seen them all.

Here we see the figure 2.00%. The only type of inert likely to be present in the seed you are buying is chaff, which are empty hulls.

Now, let's consider the last item on our now familiar tag. Here we see weeds, .05%.

Simple arithmetic—and you will know the number of ounces or pounds of weeds in a lot of seed.

From this point on the prognosticator can really have a field day. And, I know of no place where guessing wrong carries a greater penalty.

You can guess:

1. What kind of weeds are in the lot?
2. Are the weed seeds large or small?
3. How many seeds does this .05% represent in a 100-pound bag?
4. Are they problem weeds?
5. Will the weeds survive low, frequent mowing and a freezing winter?

6. Will the weeds spread out in all directions by underground stems called rhizomes?

7. Will the texture and color stand out and be unsightly?

If we take that .05% weeds and start seeding our 400 x 50-yard fairway, here's what could happen.

This .05% by weight of knotweed, when expanded to the fairway, would give you 75,000 of these plants to distract from the uniformity of your bluegrass. Suppose it's only .05% of chickweed. These seeds are extremely small and you could place 4 to 5 of them on the head of a pin. Their smallness would account for 560,000 of these plants up and down your fairway. Let's take a look at an old familiar one to all. If the .05% weed happened to be all *Poa annua* seeds that would calculate out to 151,200 annual bluegrass plants to combat. We regularly see these weeds present in that amount. It is obvious that out in the fairway not every one of these problem seeds survive. Many do not germinate, others start to grow and are not strong enough to survive. Still others will lay in the soil for some years before they come forth to plague you. However in these great numbers, enough of them will make it to create real problems.

#### **One Gram Tests**

Now, let's consider one gram of seed. It fills a teaspoon about  $\frac{2}{3}$  full! This is the amount of seed the U.S. Department of Agriculture recommends to be used in making a purity analysis. Every laboratory in the country uses 1 gram of seed (Merion bluegrass included) to determine the percentage of pure seed, crop, inert and weeds.

This one gram is sub-divided from a large amount of seed, and could represent 5 pounds or 5,000 pounds. In spite of the very small amount of seed used, the test is fairly accurate.

When I say this one gram test is fairly accurate, I do not wish to infer that it is always adequate. This is pretty much the crux of our discussion—what is adequate for the farmer, the home gardener, or the housewife is by no stretch of imagination adequate for you as a professional turfman.

Let me explain!

Suppose we take the two items you are most interested in when you buy a lot of seed; namely, weed and crop. As I said before, every laboratory in the country uses 1 gram (or about  $\frac{2}{3}$  teaspoon of seed) in making the test. Now, if no weeds or no crop are found in this very small amount, naturally the tag would read "NONE" under the weed column, and .00% under the crop column. You, as the buyer, would assume when you read the tag that the entire crop was free of weeds and crop.

Unfortunately, in most instances this **JUST ISN'T TRUE!**

If the seed laboratory were to take 10 or 25 times the original one gram and examine this amount of seed, the analyst would come up with quite a different story.

State and Federal agencies recognize the inadequacy of the one gram test. To protect the buyer, these agencies specify that 25 grams be examined for certain weed seeds.

#### **Which Weed Seeds**

The Certification agencies say the seed laboratory must look for certain weeds and list them as they examine the 25 grams. There are two that might be a problem to you; quackgrass and wild garlic. You can forget about the rest; you'll never have a serious problem with them. Keep in mind that this list was designed to cover all kinds of certified seed, not just Merion bluegrass.

What happens when the seed analyst detects other weed seeds that you and he know could be

very bad in your fairway? Now remember, the government and certification instructions say to list **ONLY THE WEED SEEDS SPECIFIED**. Well, the analyst ignores the other weeds—that's what he is instructed to do.

How many crop seeds will the analyst list as he examines this 25 grams? The answer is **NONE**.

The 25 gram examination is for certain weeds only, and that is precisely how the test is conducted. Weed seeds not on the list, and all crop seeds are ignored in the 25-gram test.

We at Seed Technology, Inc., have recognized for a long time that standard tests and simple compliance with government and certification regulations is inadequate. Professional turfmen need more information than this from a Seed Laboratory.

#### **Turf Analysis Test**

From this philosophy and to give precise information, we developed the **TURF ANALYSIS TEST**. This Turf Analysis test is designed especially for the professional turfman in the golf and sod areas. It is not structured to meet government (either state or federal) specifications, neither is it designed for the farmer or any certification group.

The upper one-third of the Turf Analysis test report sheet is the standard purity test, meeting government requirements. The information given in this section is no better (or no worse) than the information you get on every tag. The **BOTTOM TWO THIRDS** lists 49 of the most troublesome crop and weed seeds to the professional turfman, for whom the analysis test was designed.

But, even more significant than the crop and weed seeds listed, is the fact that we *examine 25 grams of seed when making this analysis*, in order to improve the chances of finding crop and weed seeds.

For a comparison of a standard test and a Turf Analysis test, made of the same lot of seed,

see Example I and Example II.

The standard report shows a purity of 98.43; Crop .16; Inert 1.41 and .00 weeds, based on 1 gram sample. True, we did not find any weeds in the 1 gram purity test, so none is listed. On the standard test we then examined the large 25 grams of seed for the noxious or prohibitive weeds on the Certification list and again we did not find any so "none found" is typed on the report. The standard test requires the examination of 1 gram for "other weeds and crop." This we did and reported "none found" under other weeds and .16% Kentucky bluegrass under crop. This from the surface looks like very acceptable lot of seed. Certainly no one would hesitate to seed it.

Now let's take a look at the same seed when subjected to the Turf Analysis test. The 1 gram purity remains the same. The percentage of pure seed, crop and weeds does not change.

However, when we examine the large amount for everything present, the true picture comes to light. When we examined the 25 gram for crop we found 91 bentgrass, 72 ryegrass, 18 timothy for a total of 181 per pound of obnoxious crop seed. When we examine the 25 grams for all weeds and not just the few in the states or certification list, note what happened. Instead of reporting "none found," we list 7 different kinds of weeds for a total of 797 weed seeds per pound. Included in the 797 weeds per pound are such things as 109 seeds of chickweed, and the presence of *Poa annua* at the rate of 91 per pound.

#### **Poa Seldom Wanted**

*Poa annua* is not considered prohibitive for certification and is considered noxious in only a few state seed laws. But we know what a bug-a-boo it is to most turf professionals.

*Poa annua* is a member of the bluegrass genera, and to the naked eye or under low magnifi-

cation, it is literally impossible to distinguish it from other bluegrass. Put this same seed under a microscope and the difference is easy to spot.

Here's the problem: The total viewing area under the microscope is about the size of the head of a thumb tack. Now, how do you glue 48,000 seeds to the head of tacks, and then place all of these tacks, one by one, under the scope?

Obviously, this is impossible. At Seed Tech, we search for *Poa annua* under a microscope. We have combined special vibrators with a microscope, and march the seeds in a single layer under the scope. This enables our analyst to look at more seeds under higher magnification in much, much less time.

A special microscope check is made on approximately 40,000 seeds to tell you how much *Poa annua* is present in every pound of seed. And, we know we're right!

Another interesting operation made in every Turf Analysis test at our lab is the bentgrass check. Bentgrass is an extremely small seed, and has the tendency to lodge or stick to larger seeds and ride over the screens during the cleaning operation.

The bentgrass seed is still riding "piggyback" on the larger seed when it comes into the laboratory. This means the larger seed could, and in many instances does, hide the bentgrass from the analyst's view. You just can't turn over 120,000 seeds to see what's hiding underneath.

We solved this problem at Seed Tech by developing a special piece of equipment that literally shakes the bentgrass seed out of the larger seed. Since the bentgrass seed is smaller, it passes through special screens and is easily collected, and examined under a microscope. We are the only laboratory in the country making this kind of a check.

In the Turf Analysis test, you get the name (and number per



**BUNTON**  
MOWERS • TRIMMERS

The Heavy Duty Line.  
One year warranty on  
complete unit be-  
cause it is  
built for heavy  
duty com-  
mercial  
use.

**BUNTON  
LAWN LARK**

Power turning, trim with either side, six forward speeds, mows without scalping, mows grades up to 45°, rider attachment optional. 24" to 52" cuts. Ask about new 21", 4 H.P. self-propelled.

**BUNTON  
TRIMMERS**

Trim and edge  
with either  
side, 8", 10",  
12" cuts.



**BUNTON  
"C-TWENTY  
ONE"**

Heavy, reinforced  
frame and ad-  
justable handles,  
extra-life engine,  
up to 5 H.P.,  
machined-  
steel blade  
driver and  
ball bearing  
steel  
wheels.



For additional informa-  
tion, write Dept. WT

**BUNTON CO.**

4303 Poplar Level Road  
Louisville, Kentucky 40213  
Area Code 502-459-3810

For More Details Circle (108) on Reply Card

**KEEP  
AMERICA  
BEAUTIFUL**



**"The Pioneer in Foliar Feeding"**

Honored by American Horticultural Council "for demonstrating in a practical way that plants could be fertilized through their leaves; for being the first to develop and market an effective plant food for foliar feeding; and for opening the way to a new cultural practice in horticulture."

**RAPID-GRO**

For More Details Circle (102) on Reply Card

pound) of every weed seed and every crop seed found in a 25 gram sample! This includes a special 10 gram *Poa annua* and bentgrass check.

**New for the Industry**

If you went to your family doctor for an examination along about the time the government set up the first standards for the seed industry, here is about what the good ol' doc would have done: Looked down your throat, checked your pulse and listened to your heartbeat through his stethoscope. And, that's about it.

Since that time the medical profession has developed techniques, instruments and equipment that staggers the imagination. But, the seed industry has not made similar strides which are necessary.

What will tomorrow bring? What are we experimenting with today that will make your profession more efficient and more useful tomorrow? We can list three projects. One is available now. The other two could make exciting news—maybe next year, maybe five years from today.

In the future we see first the use of chemicals to learn if a seed is dead or alive, weak or strong. Second, the use of electronic eyes to count the seeds that germinate and measure the rate of growth. Third, micro photography will enable us to make a fingerprint of a plant or single leaf and identify its variety or trueness to type.

The chemical triphenyl tetrazolium chloride is now being used by Seed Tech to quickly determine the germination potential of a lot of seed. At Seed Tech in 24 hours and for the cost of a carton of cigarettes you can get the known germination. This is our Tetrazolium test. The live embryo shows red, the dead seed remains white. At the present time about all we can give you in germination is the total percentage that will grow. Two lots of seed each germinating 90% can

be quite different. One could be a vigorous fast growing lot and at 10 days 80 plants out of a 100 would have grown to an inch height with an inch long root. In the same 10 days, the other lot might have only 30 plants of equal height and root length. With the use of electric eyes and counters we will soon be giving a germination percentage plus an A, B, or C rating depending on how many and how fast the seeds grow. This could mean cutting the critical time required to establish turf by days through choosing a fast growing lot.

The trend is for more and new varieties of grasses to become available to you. As this continues it will become increasingly important to make certain that the variety is not some old one with a new name and secondly that when you pay a premium price that you get what you're paying for. There is good promise that by making a fingerprint of the leaf surface and then photographing it through a microscope, it will some day be possible to identify a single plant or possibly a single leaf, making certain that you are getting that highly desirable grass that you want. This service will no doubt be forthcoming in the future.

The Turf Analysis test is a break-through in giving information, and more insight into what to expect when you buy a lot of seed. But, no one recognizes more than we at Seed Tech that we must offer more comprehensive tests and analysis in the months and the years, to come.

Coming in the  
February 1969

**WEEDS TREES AND TURF**

State by State

Chemical Applicator

Regulations

instant  
lawns  
with

# MERION

KENTUCKY BLUEGRASS

# SOD

**EASY! FAST! ECONOMICAL!**

MERION SOD is a joy to start with and economical-to-use in the truest sense. MERION SOD is uniformly dark green, thick and cushiony—a denser turf that crowds out weeds and crabgrass. Deeper roots mean less watering. Takes wear and tear and comes right back! No wonder the greatest percentage of sod sold by far is MERION, the preferred sod that is revolutionizing lawn installation.



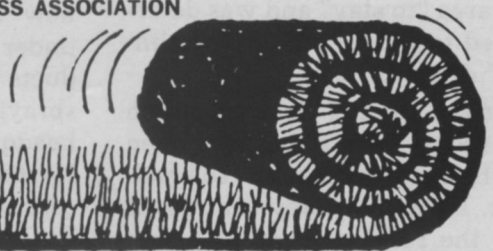
LOOK FOR THE NEW MERION  
SOD TRADE MARK

YOU'LL BE SEEING IT SOON!



SEND TODAY for special Promotional Materials — including . . . offer of Consumer Booklets, Newspaper Ad Mats, Sales Aids, etc. New MERION SOD MATERIAL also available!

MERION BLUE GRASS ASSOCIATION  
101 Park Avenue  
New York 10017





## Professional Image and Service Build

# Lawn Care Business

By Edward G. Dickson

THE day that Astronaut John H. Glenn, Jr., became the first American in orbit, Feb. 20, 1962, was the day that Ronald W. Collins started in the lawn spraying business in the area around Cape Canaveral, now Cape Kennedy.

Space-age engineers and other technicians employed in this Florida missile center were "crying for" service to halt chinch bug inroads on their St. Augustine lawns. R. W. Collins Lawn Spraying, Inc., was in demand from that first day. The business thrived almost immediately.

But Collins was interested in more than just the ready money to be earned. He was in the missile area "to stay" and was determined to sell a "professional image" of his firm.

He put shining-clean trucks on the roads. He put his sprayers in white uniforms, with red headgear. He put low-key canvassers into the residential areas to explain his services and answer

questions about lawn care, with no quick signing of contracts.

Most significant, Collins believes, was the professional role which the company assumed. A concrete spraying program was offered, and with it, an attitude that "we are the specialists in this field, the professionals—we'll tell you what you need in a spray program."

Most of the homeowners in the Cape area were engineers or in some other professional type of work, and Collins feels that they respected his organization for its professional approach.

He has continued to stress the professional image during the growth of the company, which now has some 8000 customers under yearly contract and conducts up to 3000 single custom sprayings in a year. From the headquarters in little Indian Harbour Beach — one of the coastal missile communities—R. W. Collins Lawn Spraying, Inc., has spread in a band across

central Florida to the west coast around St. Petersburg. Some of this expansion has come through purchases of existing spray companies; part of it has been by development of new branches. Collins says frankly that he hopes to become statewide in his operations.

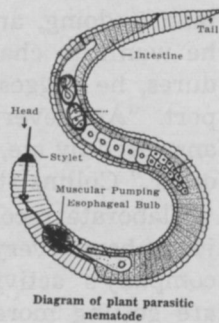
### Varied Contracts

Already, he has been able to meld different types of spraying operations into an organization which can oversee and control these differences. For example, the primary business around Cape Kennedy is in yearly \$60

Owner Ronald W. Collins spends considerable time on telephone and in travel in managing business.



## Some Facts On Turf Nematodes



R. W. COLLINS LAWN SPRAYING, INC.

Booklet produced by Collins explains nematode problem and helps in selling nematode control accounts.



Collins horticulturist Ron Wetzel inspects drainage ditch preparatory to making contract bid.

contracts for chinch bug control in the summer and fertilizing in the winter. The standard contract calls for three chinch bug sprays and three fertilizer applications. But, in the St. Petersburg branch (one acquired by purchase) almost all of the sprayings are custom applications. Lawns in this area are mostly Bahia, and are chinch-bug free. But they need fertilizing and other pesticides, and Collins provides them as required for maintenance.

Treatment of nematodes in lawns, and various types of weed control, both in residential lawns and in industrial areas, are becoming increasingly prominent in the Collins program. Other specialized applications are available, such as fungus control; for mole crickets, army worms, sod web worm; tree and shrub spraying; and citrus spraying.

On weed control, for example, Collins recently handled a \$13,000 contract for the city of Rockledge for clearing drainage ditches of weeds. Another \$13,000 contract with a public utility company was for a soil sterilization program at the utility's distributing stations.

Nematode control has been built up by distribution of a special pamphlet explaining nematodes and the damage they do. Collins uses this pamphlet as a

stuffer in bills to his regular customers, since all contract customers could be prospects for this special treatment. In addition, the pamphlet goes to other prospects on his direct mail list—names which have been acquired by canvassing and from other sources.

Collins feels that the company's internal policies have had much to do with the success in building a professional image in the communities served.

### Good Communications

Communications is emphasized. For every employee, there is a written definition of what his job is, what he is supposed to do and how to do it, and what the company wants to do for him. Every situation which can be anticipated is considered and written instructions are provided.

"I want every decision in this company to be made at the lowest possible effective level," Collins explains. "And I want no overlapping of responsibilities. You have to have faith in the people who are doing the work and expect them to make the right decisions."

The series of manuals, which starts with an employees' handbook and works upward in the management to include operations and training manuals which

spell out all policies and procedures, is the product of the company's experiences over more than six years.

All employees are expected to follow their manuals to the letter. But they are not shut out from suggesting change. Suggestions are encouraged as part of an "open door policy," Collins says. A lot of the regulations and policies included in the various manuals have come about as a result of such suggestions, he explains.

An illustration of how this system of manuals works: in developing a training program, Collins and the men who instruct new employees found, by experience, that if a man in training for spray work is exposed to his duties four times on each subject, he will have absorbed it. Thus, the training program calls for four sessions of instruction on any particular subject, and detailed records are kept to be certain this new man has had his proper allotment of instruction.

### Manuals for Instructions

By outlining duties and procedures, the manuals represent Collins' communication of instructions to his men. His men, in turn, communicate to him on how things are going with a series of reports.



**Ron Wetzel, firm horticulturist discusses spray needs with customer at Indian Harbour Beach, Fla.**



**Evidence of chinch bugs is found by route man Roy Bickey and fertilizer and insecticide mixed.**



**Branch Manager Tom Mincey, left, works with Less Saterwhite in on-the-job training program.**

Each branch manager and each supervisor compiles a monthly report covering his jurisdiction. In it he tells what each man is doing, and how well. If he wants to change any procedures, he suggests it in the report. "And every suggestion is answered by me, one way or another," Collins states.

Elaborate records are kept of just about every phase of the company's activities and these are getting more involved and, Collins believes, more important to effective management as the company expands.

The company now has six distinct operations, or branches, including the headquarters at Indian Harbour Beach. Two of these branches were acquired by purchase of existing firms, and Collins hopes to expand into other parts of the state through more purchases. At the same time, he is advancing his experienced men to develop new territories for him as part of the expansion. One, for example, is Ken Hudson. He started as a sprayman. He built a territory up to 1500 customers. Now he has been put in charge of developing a branch in the Winter Park area.

With the exception of Ron Wentzel, all the Collins people in key positions today have been advanced from the ranks. Wentzel, a graduate horticulturist, came to the firm as a professional. He is in charge of the weed control program, both in sales and in procedures. Some of his other duties are training men to take the state's licensing exam for pest control operator certificate, and keeping supervisors abreast of new developments in the insect control field.

Collins has incentive programs for both spraymen and branch managers.

#### **Bonuses for Associates**

One sprayman, Dick Osborne, has earned more than \$1000 in bonuses in four years, with an



over-all average during that time of having to re-spray less than half of one percent of the lawns he had serviced. Each month, the company awards \$50 to the sprayman with the lowest percent of re-sprays during the month. For the year there are additional awards ranging from \$150 down to \$25 for the best percentages. Collins is planning to replace this incentive system with one giving an award every month to each sprayman achieving a certain record on re-sprays. This system would not restrict the bonus to the best performer, but to any sprayman making a commendable record.

Branch managers and area supervisors are eligible for bonus payments based on the gross business they handle. In the formula by which this is calculated, there is provision for a penalty for each re-spray required in that man's territory.

Collins uses canvassing in building new business, but these men are not paid on a commission basis. They are paid either by the hour or by salary. Often it is the area supervisor or the branch manager who conducts this low-key selling, Collins said.

The canvassers answer questions, suggest possible services, give home-owners tips on how to maintain their lawns, and almost never sign up a customer on that first call.

"We want these prospects to seriously think about the spray service before they sign a contract for \$60," Collins says. If they really want the service, they will call and ask for it.

#### Advertising Used

Collins uses newspaper and radio advertising to build business, and once a month has a direct mail distribution. Some of the direct mail pieces are news-letters type, telling the home-owner how to care for his lawn. When Collins decided to go after a big volume of business in the Winter Park area recently, he arranged

for a special newspaper supplement of eight pages, and color on front and back pages, to be distributed by the Orlando SENTINEL-STAR in that part of its territory which Collins was most interested in. The supplement and its distribution, as part of the Sunday edition, cost about \$1100.

In the territory he serves, Collins has an average of 12 percent of the homes as his customers. He says he can ride through an area and come out with an estimate, which later proves accurate, of the amount of business he can develop in the area.

One of the phases on which the

Collins has standardized on 1000-gallon tank trucks, with 225-gallon drop tanks. The pumps are 25-gallon per minute, driven by the power take-off. Bodies for the trucks are custom built, mostly because each one is changed or improved in some respect, Collins explains.

Two men handle the scheduling for the routes immediately around Indian Harbour Beach. They make up the routings at night, to be able to incorporate the orders for special sprayings which have come in during the day. Thus, most of the special applications are taken care of within 24 hours. Wednesday is



Typical contract spraying application by R. W. Collins unit at Eau Gallie, Fla. Because of weight, trucks are always parked on street rather than using driveways.

Collins company places much stress is complaints. No sprayman is permitted to handle a complaint by himself. His supervisor must be notified and is responsible for taking care of the complaint. Remedial action must be taken quickly. "A complaint honestly handled right away probably will cause no great problem," Collins states. "But if it's not quickly handled, it may become a real problem." He follows the same principal in handling complaints within the company.

weed control application day. This work is concentrated into one day so that tanks need to be flushed out only at the end of the day. As many trucks as are required can be earmarked for the Wednesday assignments.

Regular employees receive two weeks paid vacations, five paid holidays, twice-daily coffee breaks. The company is soon to go into a group insurance plan, covering life insurance, hospitalization and major medical, for its 40 employees.

Kaspar Burgi, Inc. successful with

# Massive Tree Transplant

By Lou Speer

**L**ANDSCAPING history was made recently when a 60-ton oak tree, a specimen *Quercus Lobata* (Valley Oak), estimated to be over 300 years old, was systematically transplanted.

Declared a "first" by landscape professionals, the massive transplant typifies the latest in land planning and architectural designing.

The transplant took place in early March, 1968, in Westlake Village, California, site of a 12,000-acre master-planned community.

The village, formerly one of California's oldest ranchos where colorfully garbed vaqueros once tended the great cattle herds of Spanish dons, straddles the Ventura-Los Angeles county line, north of Los Angeles in the Malibu Mountains.

The move, part of an overall plan to retain the rural atmosphere of Westlake's "city in the country" by saving as many of the Lobata, Agrifolia, sycamores, and other trees dotting the development, is the project of American-Hawaiian Land Co., a subsidiary of American-Hawaiian Steamship Lines.

The moving of the 60-ton oak fell under the direction of Bill Peterson, Westlake's landscape director, and Kaspar Burgi Co., Inc., big tree movers, Los Angeles.

Because of increasing sizes of modern buildings, the growing

trend in the landscaping industry is to get as many trees, and as large ones as possible into the landscape. Parallel with this trend, architects obtain ideas for building textures, and general forms from the trees that are to surround it. This way, the building is pleasantly compatible with its environment.

This being the case, it became the major objective of Westlake's consulting architect, George McLean, to save as many of the development's own trees as possible. To do so would be to preserve the rustic charm, while creating an ultra urban neighborhood.

## Land Planning

Land planning played a highly important role here—fitting the buildings into the existing topography, keeping the grading in as near the same condition as the dons had once known, where possible, providing tree wells and making transplants.

The first Lobata selected for the massive transplant was picked by McLean chiefly because of its particular form. The chosen oak stood ½-mile distant from Westlake Village Inn, where at that time, it was intended to go into the restaurant's planter. Then, too, it was chosen because of the challenge: Could such a large tree as this be moved successfully?

Into the pre-planning went all the knowledge American-Ha-



Six shielded steel cables are used to guy this California massive transplant in place. Tree appears highly successful and limbs have now leafed out. Entire moving preparation and operation required 28 months. Cost was less than \$10,000.

waiian could obtain from tree movers, from putting the hole into the ground, to use of hormones to stimulate bud production. Intermediate steps along the way would call for the usual pruning, boxing, moving of the tree, and backfilling. In addition, there would be the unusual steps necessary because of the size of everything—the tree, box, equipment to move the tree.

The transplanting contract, totaling less than \$10,000 was carefully coordinated between Peterson, and Kaspar Burgi Co. The major equipment supplier for the transportation was Owl

Crane Co., of Compton, California.

The moving procedure began in February 1966. Jim Cowan, Kaspar Burgi Co., was put in charge of boxing. Cowan constructed a 12 ft. x 12 ft. box to house the tree's root system during the transplanting process. He used 2 x 12's, banded on the sides with rods and tighteners.

The tree, which is 50-foot tall, and 50 feet wide, with a trunk exceeding 4-feet in diameter, was thoroughly pruned before the root boxing process began, thus preventing loss of moisture when the roots were cut back.

### Dormant Stage

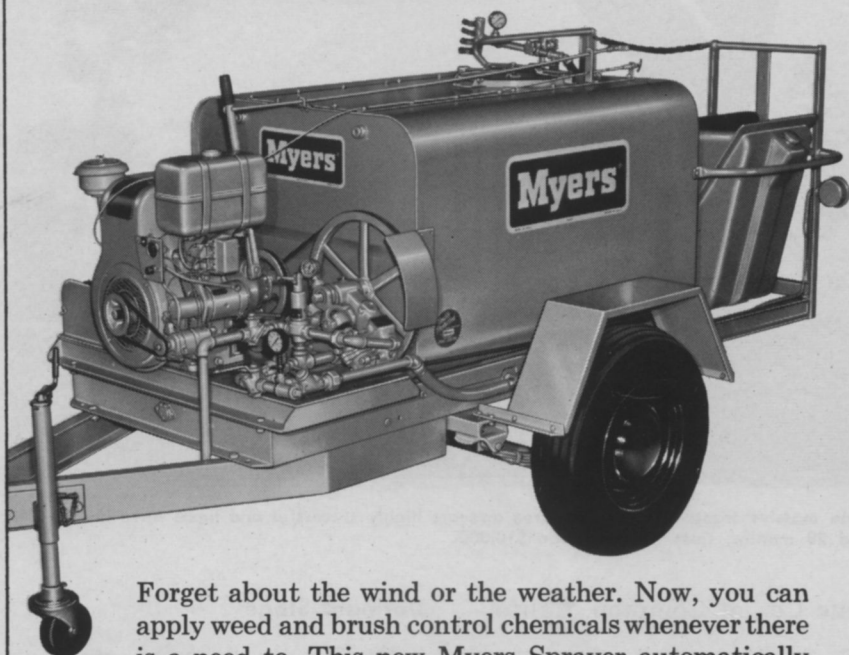
During its dormant stage in early 1966, the roots of the giant oak were partially cut, and two sides of the 12-foot square box put around it. To avoid as much shock as possible, a year's wait ensued before the other sides were added.

Of constant concern to Peterson and Cowan were the tree's transpiration rate, shock effects, and prevention of any disease resulting from the root cutting operation. They discussed the tree much the same as doctors around the bedside of a patient.

The gravest moment came just

# Keep Herbicide Sprays in the Target Area

...with Myers new Du-All  
Invert Sprayer!



Forget about the wind or the weather. Now, you can apply weed and brush control chemicals whenever there is a need to. This new Myers Sprayer automatically mixes, meters and applies Visko-Rhap\* herbicides in mayonnaise-like, drift resistant droplets. No pre-mixing of heavy, hard-to-handle chemicals. No wind drift. Oily, wash-off resistant droplets are deposited right in the target area. Waste is minimized. You cover more acres per day more effectively with fewer refills. Want details? Just call your local Myers Sprayer Dealer, or write:

**Myers** ...the finest name in power sprayers

**THE F. E. MYERS & BRO. CO.** SUBSIDIARY OF **McNEIL**  
400 ORANGE STREET • ASHLAND, OHIO 44805 CORPORATION

\*Trademark of Hercules, Incorporated, Wilmington, Delaware

after the tree was side boxed completely, and began to leaf out. A few of the limbs were late in budding. Some did not leaf at all. Concern grew. When the bottom boxing took place, further shocking the tree, even more limbs might be lost.

During the waiting period before bottom boxing, the tree was watered on a monthly interval and with approximately 200 gallons of water. In addition, it was still getting plenty from the tap root. To insure the health of the tree, Norton's Soil Drench and vitamin B<sub>1</sub> also were supplied bi-monthly.

Characteristically, the Lobata is susceptible to twig gertler. In combating this, all Westlake trees are helicopter sprayed once a year with DDT over a 2-year program.

"We feel," Peterson said, "this gives us 90 percent control over the disease."

#### Water Problem

Bottom boxing of the massive oak began in January 1968. Immediately, another unusual problem popped up. Grading had filled in around the Lobata 6 feet. By the time the diggers cut thru the filling and natural grading, they had a 20-foot deep hole dug, and found themselves down to the lateral water level.

Water seeped into the hole and container. Operations halted. Cowan sent for a pump, and set it up in the hole.

With the pump chugging, the diggers began work again. Carefully, they hacked, with pick and shovel, cutting away piece by piece, ever mindful of hitting the tap root.

"But there was no tap root!" Peterson said. "The largest root cut from the bottom of that 50-foot giant was only 3 inches in diameter. This is one of the valuable things we found out, that the Lobata oak—at least those here—do not have large tap roots."

Peterson says this condition

may be peculiar to just one oak—the Lobata, but feels it is a pretty general condition of all the trees in the Westlake area. Other trees, Agrifolia, sycamores—80 to 90 feet tall—that he has transplanted here also have shown the same rooting tendency, ideal for transplanting.

“I would advise anyone attempting a massive transplant,” Peterson said, “to give consideration to the soil condition where the tree is found. Look for wildings high in creek banks. When you see a tree where it doesn’t have to go very far to water, and in loaming soil, you will find a more fibrous root system rather than a tap root.”

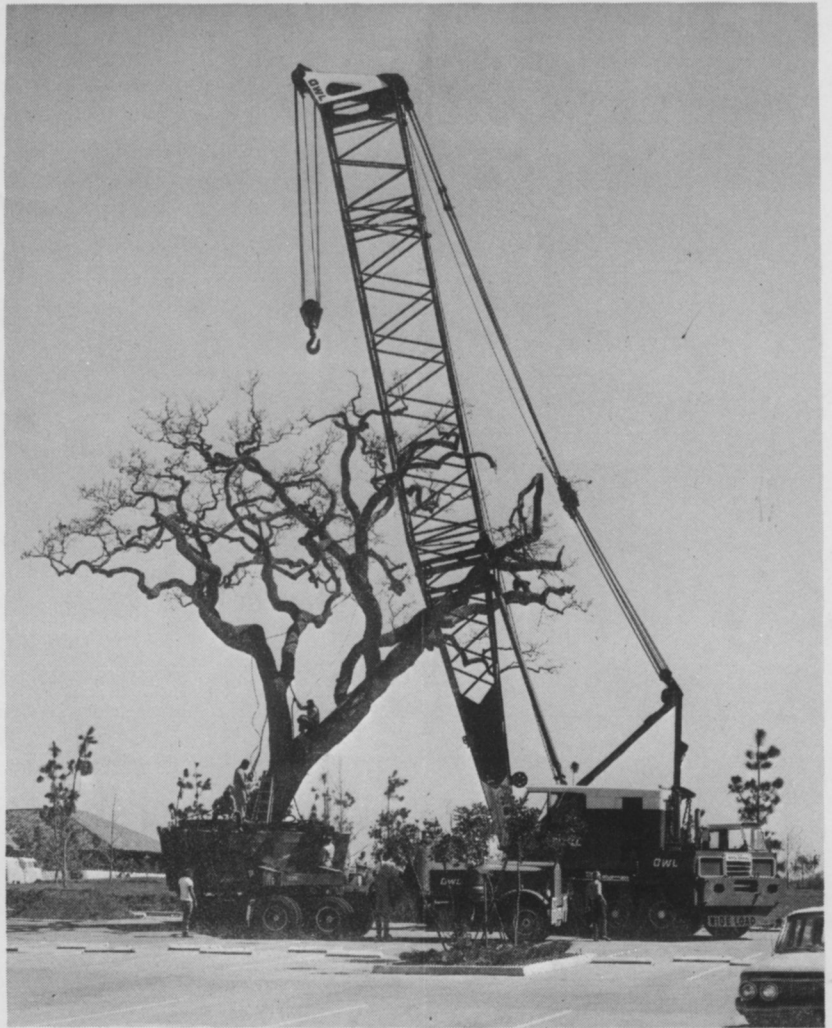
### Move Planned for March

The big move was slated for March 1968. The Lobata hadn’t started leafing out yet, but the buds were starting to swell indicating all was fine.

Kaspar Burgi wheeled in a 115-ton Owl Crane and special low-boy next to the tree, jockeyed into position. Workmen built special skids under the big box so the lifting could be done on these rather than upon the box; other workmen wrapped 15 strands of No. 8 gauge wire around the box for additional strength.

Then the crucial period began, lifting the tree from the hole, putting it on the truck, transporting it to its new home in front of the Westlake Inn, and setting it in place. It had been decided, because of the size of the tree to set it away from the building rather than in the planter as previously intended. The base had carefully been prepared, a 20 x 20-foot hole, 15-feet deep, filled with approximately 5 feet of base rock. Now it waited for the tree.

Could they do it? No one to their knowledge had tried a transplant of this size before. There were so many things to consider. And should one crack develop in the soil area, chances were they had lost their tree.



Once transported to new location in front of Westlake Inn Restaurant, workers prepare the giant 300-year old, oak tree to be lifted by a 115-ton crane into new setting. Moving of the 50-foot high tree made landscaping history.

Huge chains were hooked around the skids, the giant hook dropped in place. The front end of the crane rose four feet off the ground as the tree came up.

### Critical Moment

Slowly, carefully, the boom turned. Even the most minute movement of the crane was enough to send the tree swaying violently because of the tremendous weight in the tree’s top. The lowboy sank 4 inches into the earth as the tree settled upon it. Quickly, big chains were fastened to the box to tighten it down.

Then came the slow crawl, up over the unimproved road, towards the highway. Anxious faces moved alongside the big tree. Though the road had been

prepared as smoothly as possible, each tiny dip sent the huge tree swaying dangerously. Would it fall? Would it remain upright?

It remained. And the box and soil area remained intact. Peterson and Cowan grinned with joy. It took two days to complete the job of moving, setting the tree in place, and backfilling.

The backfilling material was loam, 40 percent clay. Previously, Peterson had been using native material for his transplants, but in this instance chose a mixture.

“Just a little more insurance,” he said.

Of course, the tree was watered during backfilling to eliminate air pockets. Soil Drench and approximately 5 gallons of vita-  
*(Continued on page 41)*



ELANCO

Balar

Grain

Professional use

orses

# Stop crabgrass with pre-emergence Balan. You can afford to pour it on.

**It's easy on the budget and easy  
to apply. Balan makes  
big area coverage a breeze.**

CRABGRASS KILLING POWER! Now you can stop crabgrass economically before it starts. Balan packs more crabgrass killing power in each pound of active ingredient, so it goes further at less cost.

Apply Balan early and you won't see unsightly crabgrass clumps or the dead brown areas they leave in the fall. Maintain a thick, green turf by keeping weed grasses from competing for moisture and nutrients. Get long lasting control of crabgrass, goosegrass, foxtails, and—all other annual weed grasses for \$15 to \$30 per acre. Balan is recommended by many golf course superintendents and industrial and institutional grounds superintendents across the country. Stop your crabgrass problem with Balan.

SO ECONOMICAL YOU CAN USE IT EVERYWHERE. Balan costs \$15 to \$30 an acre to prevent crabgrass. Southern warm season areas require the heavier application rate. Certain extreme warm season areas may require two applications of Balan to provide year-around control. Even so, Balan goes easy on

a modest grounds maintenance budget. And it gives you so much. You can count on dependable performance from Balan because it's waterproof, won't leach away under heavy rainfall or irrigation. Another consideration: Balan contains no poisonous arsenic, mercury or lead to create a hazard when used around public areas.

PLUS A CONVENIENT GRANULAR FORMULATION. You'll find Balan easy to handle, easy to apply with your present equipment.

Granules pour smoothly, won't clog. Isn't it time you took the completing step in your turf-care program? See your turf supply and equipment distributor.

**Balan™**

**ELANCO**

(Balan™—benefin, Elanco)

One of Elanco's dependable  
weed-control crew.

# Your first 100 square feet are on Elanco!



**Free sample! A 4½ ounce shaker tube of Balan Granular. Enough to keep 100 square feet of turf clean of weed grasses for months.**

Return the postage-paid card today. We'll send you full details on Balan, the name of your nearest distributor, and your free sample. Apply the sample evenly over an area approximately 10' x 10'. Do this shortly before crabgrass and other weed grasses germinate. See how your turf grows thicker, healthier without having to compete with weed grasses for sunlight, nutrients and moisture. Balan makes the difference.

OTHER MEMBERS OF ELANCO'S DEPENDABLE WEED CONTROL CREW:

**TREFLAN®**—dependable, long-lasting pre-emergence herbicide to control weeds and grasses in nursery stock or established ornamental shrubbery and flower beds.

**DYMID®**—versatile pre-emergence herbicide to control weeds and grasses in ornamentals, dichondra or ice plant ground covers. Particularly effective against certain winter germinating weeds.

ELANCO PRODUCTS COMPANY  
A division of Eli Lilly and Company  
Indianapolis, Ind. 46206, U.S.A.







Ken Voorhies

Ken Voorhies At Columbine CC  
Finds Directors Appreciate

# Budget Control

**B**UDGETS may make or break a golf course superintendent. Few professionals are subject to more pressure for more favors from clientele than are superintendents. Seldom does a day of the season pass that some good, solid club member does not offer a suggestion for betterment of the course.

A firm budget and the information at hand to put a dollar cost on any maintenance item or course change can solve a lot of problems which involve improvements. Ideas or notions, as the case may be, can be placed in perspective. Solid suggestions, with the proper dollar cost, can be submitted to the greens committee or directors for consideration. Committing these to action then becomes a matter of extra funds, or limiting of some current item to fit them into the existing budget.

For Ken Voorhies, 10-year veteran superintendent at Columbine Country Club, Denver, Colorado, a routine record system

has been the answer. His budget for the coming year can be firmed up within hours, using the past season's records as a base. Most important, Columbine directors appreciate an accurate accounting of funds, broken down by the job. Further, they know that estimates of improvement costs or changes in maintenance will prove reliable.

## Records Are Routine

Of particular interest is the fact that Columbine's superintendent has been able to develop such a system without becoming a slave to records, a timekeeper or an accountant. He uses a time clock system and some simple forms on which he records daily work. These daily work records are totaled by pay periods monthly and then by season. The end result is a dollar cost and an hour figure for each job and for each type of maintenance or course change.

Columbine is one of the top 20 courses which is still operated

under a budget of less than \$100,000 annually. This includes no tournaments, no capital improvements, no new construction. When these are planned as is the case practically every year, past time records show what cost these will entail, almost to the dollar. For example, the recent PGA tournament held at Columbine required 8744 extra hours of labor for grounds and maintenance crews. This was in addition to the regular 24,000-hour yearly workload for the course. Normal labor rates for the area are now about \$2 per hour. Simple multiplication pinpoints costs, for extras or regular work.

The time card is used in conjunction with a time clock. Men punch in and out. However, the time card contains a chart for date, job code, and total hours spent during the day for each type of job.

## Jobs Are Numbered

Job codes are simply numbers which are used to speed up the



CCC bookkeeper, Mrs. Mildred Longsine, aids in tabulating records for monthly reports to club officers, and for budget use.



An employee, Oliver Hutchinson, punches time card at Columbine CC maintenance office. Card includes form for specifying date, jobs, and time.

record system. Codes begin with watering which is No. 11, mowing greens is No. 12, mowing fairway, No. 13, etc. These records are utilized in making final monthly and yearly totals, allowing easy comparisons of variations by year and season. The Columbine Club's fiscal year is Nov. 1 through October 31. Once October hours are posted, a detailed report is prepared and this is used to set up a budget for the new year. This is practically automatic since detailed work and cost records are easily available. Plans for the new year have already been discussed with directors and cost estimates made which then become a part of the proposed budget for the new year.

Records also work to facilitate changes or operational improvements. Voorhies, who checks his course by golf cart four times daily during the playing season, says maintenance can be studied with records in hand. This per-

Labor distribution for Columbine Country Club is tabulated for 1967. Voorhies uses his monthly totals to lace season's work in perspective for evaluation. Note that he can ascertain precisely the hours and types of work done in connection with the 1967 PGA tournament at Columbine.

#### COLUMBINE COUNTRY CLUB GROUNDS LABOR DISTRIBUTION—1967 200 ACRES

WORK NO. DESCRIPTION	Nov. 67 Hrs.	Dec. 67 Hrs.	Jan. 67 Hrs.	Feb. 67 Hrs.	Mar. 67 Hrs.	Apr. 67 Hrs.	May 67 Hrs.	June 67 Hrs.	July 67 Hrs.	Aug. 67 Hrs.	Sept. 67 Hrs.	Oct. 67 Hrs.	Total 67 Hrs.
11 Watering	55	69	0	33	93	540.5	743	774.5	1074	1307.5	703.5	201	5594.5
12 Mowing Greens	16	0	0	0	31	65	164	295.5	256.5	344	166.5	46	1392.5
13 Mowing Fairways	0	0	0	0	0	38	114.5	256.5	108	186	124.5	60	887.5
14 Mowing Rough	0	0	0	0	0	128.5	180.5	278	222	328	154	152.5	1443.5
15 Mowing Tees	0	0	0	0	26.5	79	101.5	248.5	89	132.5	41.5	20.5	739
16 Mowing Bunkers	0	0	0	0	0	19.5	7	66	41	232.5	15	14	395
17 Raking Traps	0	0	0	0	23	108.5	206	561.5	243	426	174	22.5	1764.5
18 Repairing Ball Marks	0	0	0	0	0	0	0	0	93	8	0	0	101
19 Fertilizing	12	24	19	32	146.5	12.5	8	34.5	28	28.5	1	1	347
20 Cutting Weeds by Hand	0	0	0	0	0	2.5	6	105	70	20.5	7	0	211
21 Cutting Weeds by Machine	0	0	0	0	0	55.5	35.5	416.5	65	149	7.5	0	729
22 Weed Spraying	0	0	0	0	0	5	0	91	5.5	0	0	0	101.5
23 Cleaning Ditches	0	0	0	0	8	0	0	46	3	16.5	0	0	73.5
24 Tree Work & Planting	125.5	0	62	0	10	38.5	20	66	8.5	12	0	0	342.5
25 Clubhouse	8	0	6	0	0	22	0	32	14.5	146.5	92	2	323
26 Yard Work	22	8	0	0	0	0	0	0	13	3	0	1	47
27 Shop Work	58	10	31	8	13	12	21	28.5	4.5	1	4.5	1	192.5
28 Clean Up Work	50.5	0	80	2	11.5	10	5	97	116.5	68.5	8	4	453
29 Cleaning Snow	6	0	41	12	0	4	0	0	0	0	0	0	63
30 Skating Rink	0	0	0	0	0	0	0	0	0	0	0	0	0
31 Seeding	0	0	0	0	1	2	2	10	0	0	0	16	31
32 Sodding	0	0	0	0	0	39	253	70.5	25.5	29.5	50.5	69	537
33 Changing Cups, Ball Boxes, Towels and Markers	19	0	4	5	9.5	31	55.5	207.5	159	123.5	44.5	30.5	689
35 Raking Leaves	36	0	0	0	4	4	0	0	85.5	0	0	58.5	188.5
36 Top Dressing	0	0	0	0	0	17	23	0	107.5	146.5	46.5	0	194.5
37 Grinding Top Dressing	8	0	0	0	0	0	0	0	0	0	0	0	8
38 Aerifying	0	0	8	0	0	182.5	8	0	0	64.5	105.5	0	368.5
39 Capital Improvement	0	0	0	0	0	0	0	0	0	0	0	0	0
40 Filling Laterals & Seeding	0	0	0	0	17	3	0	1	0	0	0	0	21
41 Tennis Courts Homeowners	0	0	0	2	0	0	0	0	0	10	0	0	12
42 Cart Paths	39	38	6	6	23	60	12.5	64	14.5	18	12	8.5	301.5
43 Private Carts	155.5	110	87.5	118.5	208	272.5	333	367.5	307.5	413	369.5	345.5	3088.5
44 Repair Water System	46	0	0	20	10	23	16.5	74	61	37.5	40.5	6	334.5
45 Water Pump Repairs	0	0	0	0	0	0	0	0	0	0	9.5	0	9.5
47 Painting	37	14	16	8	0	0	0	56	27.5	0	0	1	159.5
48 Fire Place Wood	0	0	0	0	0	0	0	0	0	0	0	0	0
49 Closing Valves, Water System	0	0	0	0	0	0	0	0	0	0	0	0	0
50 Hose & Sprinklers	0	25	0	0	0	15	0	0	5	0	4	10	59
51 Spraying Greens and Fairways	0	0	0	0	0	31	16	26	11	6	0	0	90
52 Christmas Lighting	0	8	0	0	0	0	0	0	0	0	0	0	8

(Continued in next column)





Dunes Hotel parking lot proved to be a handy location for aerial applicators. Late models of both helicopters and fixed-wing aircraft were exhibited.

## 2nd Annual N-TRIPLE A FLY-IN

National Aerial Applicators  
Meet At Las Vegas, Nevada

THE National Aerial Applicators Association staged their second annual convention at Las Vegas, Nev., the first week in December. Despite the fact that this was only the second such event in the history of this youthful organization, they sandwiched a mammoth amount of business

into a well planned educational program.

The group is growing, which demonstrates that members are finding that pooling their efforts in an association is paying dividends for them. At this 2nd annual event, more than 550 persons were on hand, more than

300 being dues paying members. The remainder were exhibitors, wives, and press representatives.

Outgoing President Robert Phillips, Phillips Aero Ag Co., Ceres, Calif., reported on progress during 1968. He urged members to work with groups such as chemical companies, equipment suppliers, and research organizations who now recognize the association as vital to the industry. Phillips said he believes that the membership can strengthen itself through this kind of cooperation. More and more groups and organizations are becoming interested in working with the association. A prime example given by Phillips was the many chemicals which are now being tailored for aircraft.

On the business side, the applicators formally thanked the overflow number of booth exhibitors which filled all available space in the Dunes Hotel. In addition, exhibitors brought in 2 helicopters and 6 of the latest models of fixed-wing aircraft specifically designed for aerial application.

N-Triple-A leadership for 1969, left to right: William O. Marsh, president; L. H. Mills, vice-president; F. Farrell Higbee, executive director, Walter Ball, secretary; and Charles Stone, treasurer.



These, with the help of the highway patrol, were taxied into the Dunes Hotel parking lot and readily available to N-Triple-A members.

F. Farrell Higbee, executive director of the group was complimented for his effective work during the past year and two offices authorized for him, one at Washington, D.C., and the other at Loveland, Colo. Higbee in private conversation said that 23 state aerial applicator groups are now members and he sees several more state groups as strong possibilities during 1969.

### New Officers

Officers elected for 1969 are all veterans in the field of aerial application. Elected president was William O. Marsh, Marsh Aviation Co., Litchfield Park, Ariz.; vice-president, L. H. Mills, Less Mills Aircraft, La Crosse, Wash.; secretary, Walter F. Ball, Ball Aero, Inc., Huron, So. Dak.; and as treasurer, Charles Stone, Southeastern Aerial Crop Service, Fort Pierce, Fla.

John Neace, Bell Helicopter Co., Fort Worth, Tex., handled the awards ceremony during a Wednesday evening banquet. The mammoth trophy which is the annual Agrinaut Award given by Agricultural Aviation Engineering Co., Las Vegas, Nev., went to the new president, William Marsh. Outstanding service awards were presented to George Sanders, convention chairman, of Agricultural Aviation Engineering, Karl Heimer, and John Neace. Neace who was emceeing the ceremony was pleasantly surprised by being interrupted midway during this presentation to himself be presented a plaque recognizing his close association and effort with aerial applicators.

Best exhibit award went to Jacobs-Page Aircraft Engine Co., with honorable mentions being given Duster & Sprayers Supply, Inc., Amchem, and Agrinautics Agricultural Aviation Engineering Co. Plaques were also pre-

Unique exhibit by Agrinautics Engineering Co., Las Vegas, Nev. NAAA members were given 6 chances to win a prize. Left to right are: L. R. Ferguson, Agrinautics sales manager; E. A. "Slim" Cancienne, executive - secretary of the Louisiana AAA at Baton Rouge; and Bill Britt, B & B Crop Service, Inc., Basile, Louisiana.



New N-Triple A President William Marsh, left, receives "Agrinaut of the Year" award. Making the presentation is John F. Neace, Bell Helicopter Co., Ft. Worth, Tex. Neace was later awarded a plaque for outstanding service recognizing his close association and efforts to the organization.



Outgoing president Robert Phillips, Phillips Aero Agricultural Co., Ceres, Calif., visits with Joseph J. Graham, resident manager for the Insurance Company of North America, and Frank Green, Jr., vice-president of Hutchinson, Green, and Mayo, Inc., Shreveport, La.



sented the outgoing officers including President Robert Phillips; Vice-President Harold C. Tapley, Tapley Flying Service, Shaw, Miss.; Secretary F. Dale Simpson, Simpson Aero Co., Tribune, Kan.; and Treasurer Robert G. Ueding, Ueding Flying Service, Vincennes, Ind.

#### **New Type of Contract**

C. F. Garner, Chemagro, suggested that applicators investigate new areas where their equipment and professional techniques might prove mutually beneficial to their own businesses and to the public. A prime area, he believes, might be ultra low volume spraying for mosquito control. Except in areas where public abatement control programs staffed by professional entomologists are operating, there is a need for help. Aircraft, Garner said, offer the only economical means of control for large areas on a timely basis. He told applicators they could do such a job and would not have to overload planes to do so.

Insurance has always been a major operating cost for aerial applicators. This has stemmed partly from the high risk involved and also from the fact that few insurance companies have specific programs designed to fit the needs of the aerial applicator. To develop more adequate programs in addition to the already improved types of insurance available to applicators today, Joseph J. Graham of the Insurance Company of North America, offered several suggestions. INA's Graham believes that more resource management is needed to be offered by insurance companies to clients such as the aerial applicator. He suggested that the association as a group develop qualification standards for insurance. They can then screen eligible companies and hire one to represent the group. The screening, he believes, should definitely be done by NAAA members. Such a step

could eventually standardize the types of protection needed and at the same time should cost less than members are now paying.

#### **Contract Bidding**

Arthur Gieser, of the Agricultural Research Service, USDA, Hyattsville, Md., reported that the ARS division of the USDA contracts for 15 to 20 million acres of aerial application annually on federal and state cooperative programs. Contracts for most of this work are issued by the various administrative divisions of ARS. In addition, he said that some states issue their own contracts. When an applicator is interested in bidding on a state contract, Gieser suggests that he write directly to the state department of agriculture which is involved.

Gieser offered N-Triple-A members still more advice and general information on the bid program. For example, he said, "When you submit a request to be placed on a bidders list, it is helpful to include the areas or States for which you wish to be considered, the amount of acreage or size of area you are prepared to undertake, the type and number of aircraft you can provide, whether you can apply liquids or dry materials or both, and other pertinent information.

"Occasionally there have been complaints from operators who thought they were on a bidders list, but did not receive an invitation to bid on some programs." Gieser listed several reasons for this:

1. Some operators do not respond to all bid invitations for various reasons: (a) They may be too busy with other work; (b) the acreage may be too extensive for them to handle; (c) the area may be too distant or too small to interest them; or (d) they may not have the aircraft types requested. When a bid invitation is received and you cannot or do

not wish to bid, acknowledge receipt of the invitation. State that you cannot bid at this time; but you wish to remain on the list for consideration when future invitations are issued. A post card or letter is all that is necessary. A contracting officer may remove your name from a bidder list if he receives no re-

#### **For Bid Information:**

Contacts for getting your name on bidders lists of the Agricultural Research Service, USDA. Names and addresses of the Administrative Division offices are as follows:

##### **Eastern Administrative Division**

USDA-ARS  
Federal Center Building  
Hyattsville, Maryland  
20782

This office issues contracts for North Carolina and South Carolina, Virginia, West Virginia, Pennsylvania, and all States north and east of those mentioned.

\* \* \*

##### **Southern Administrative Division**

USDA-ARS  
P. O. Box 53326  
New Orleans, Louisiana  
70150

This office issues contracts for New Mexico, Texas, Oklahoma, Arkansas, Tennessee, and all other Southern and Southeastern States.

\* \* \*

##### **Northern Administrative Division**

USDA-ARS  
400 South Fourth Street  
Minneapolis, Minnesota  
55415

This office issues contracts for all other States beginning with Kentucky, Ohio, and Michigan and all States to the Pacific coast.

\* \* \*

For more information:

Arthur Geiser  
**Plant Pest Control Division**  
USDA-ARS  
Federal Center Building  
Hyattsville, Maryland  
20782

sponse to three bid invitations.

2. Some programs may be so small that it would be wasteful to canvas everyone on a bidders list. In such cases, bid invitations may be limited to those bidders located within a reasonable distance of the work to be done.
3. Some programs may be of an emergency nature requiring immediate applications. Or sometimes, Federal appropriations or State or cooperator funds are delayed. Since we cannot issue bid invitations until funds are available to cover a program, he stated, emergency programs make it necessary to issue telegraphic bids. When a telegram becomes several pages long due to the details that are necessary, the cost would be prohibitive to

send telegrams to everyone on the bidders list. In such cases, the invitations may be limited to those operators who have done this work regularly for us and are known to be capable and equipped to do the job. Although it is the policy to canvas as many bidders as possible, we are not required by law to do so. The solicitations must be adequate to assure a competitive response.

Gieser told the group, "There is no need to belabor the point of increased cost of labor, aircraft, and materials. In spite of this, aerial application prices on our contracts have gone downward almost every year. For example, our first contract on grasshopper control, which was bid on an hourly basis, aerial application cost us about 70 cents an acre. Ten years later it cost about 50 cents an acre. In another 10 years,

the cost was reduced to about 18 cents an acre. Two years ago, we had a sizable area sprayed for less than 7 cents an acre. It is true that many improvements in insecticides and techniques have been made, but have they changed by 4000 percent?

"Obviously, he said," these prices can no longer go downward. There is no one in Government that does not believe everyone is entitled to a fair profit. Everyone is expecting aerial application prices to increase; however, it has reached a point now where prices cannot be doubled overnight. Several bids have recently been rejected because they were considered too high. The most recent example was on one of our programs in Florida. In this case, the first application on a large contract cost less than 9 cents an acre. When invitations to bid were issued for the second application on generally the same area, the lowest bid was al-

## Garber broadcasting equipment

- more efficient
- more profitable

### PTO & Electric Seeders

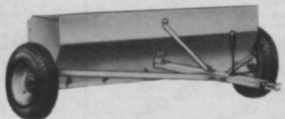
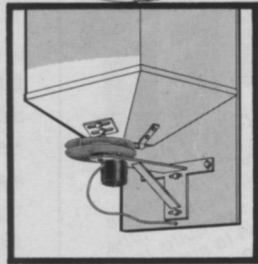
America's finest tractor-mounted seeding units. Assure wide, even distribution over 10 to 25 acres per hour. Fit all tractors—go on and off in minutes. Have positive, easy-to-reach control and permanently attached operating guide. Also ideal for any aquatic application. Made in 26 qt., 3 and 5 bu. models.

### Electric Chemical Broadcasters

Broadcasts all types of dry, granular chemicals. Specially designed twin disc, ball bearing aluminum fan assures wide, even distribution. Metering panel permits instant adjustment of pattern placement while unit is operating. Two interchangeable rubber drive rings let you broadcast over a 10' to 15' or a 15' to 20' swath. Made in 26 qt., 3 and 5 bu. models with 6 or 12 volt motor. Operates off battery.

### 3' & 5' Seeder-Fertilizer Spreaders

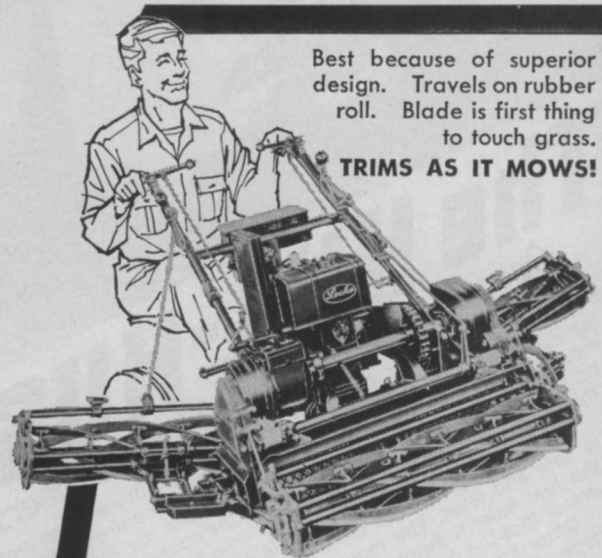
Sows seed, spreads fertilizer or salt evenly, uniformly. Quantity control handle is easily operated from tractor seat or hopper. Application guide gives exact control—stays firmly in position. Can be cleaned quickly and easily. Equipped with 4.00 x 8 two-ply tires.



Write today!

Garber Seeders, Inc., Dept. WT, St. Paris, Ohio 43072

For More Details Circle (106) on Reply Card



Best because of superior design. Travels on rubber roll. Blade is first thing to touch grass.  
**TRIMS AS IT MOWS!**

Where grass cutting's serious business:

**There's nothing like a LOCKE REEL!**

25" and 30" Single Units • 70" and 75" Triplexes • Electric Starters

WRITE FOR FREE BOOKLET  
COMPLETE LINE OF REEL & ROTARIES

**Locke**

Manufacturing Companies, Inc.  
5337-L MacCorkle Ave., S.W. South Charleston, W. Va.

For More Details Circle (109) on Reply Card

most twice that of the first application and the bids were rejected.

"It must be remembered that the decision to accept a bid is not ours alone. These are cooperative programs. Funds are provided by States, counties, and private property owners. Budgeting people look at figures—they are not aware of your problems with aircraft, maintenance,

labor, or weather that influences operations. Budgets during pre-planning are now figured closely, based on the costs of previous similar programs. As stated before, the funds for a program must be available before bid invitations can be issued. When the bids are opened, if the cost for the program exceeds that amount, we could neither accept the bid nor treat only a portion

of the program. To do this would perhaps exclude parts of several counties and property owners who provided some of the funds," Gieser concluded.

The 1969 NAAA convention, slated again for the month of December, will be held at the Roosevelt Hotel, New Orleans, La.

## Michigan Nurserymen Want Effective Licensing Law

The Michigan Association of Nurserymen, Inc. Board of Directors is interested in calling a meeting of the state's leading sod growers to consider stricter regulations concerning the growing and transporting of sod in their state.

Inspection and certification of sod and licensing of growers has been required by law since 1933, but the Department of Agriculture has been unable to effectively enforce the law, especially since mushrooming of the sod industry in recent years. Michigan reportedly raises more than twice as much sod as any other state.

The Plant Industry Division inspects and certifies sod shipped to states requiring such actions, but there has been no inspection or certification of sod shipped to other states or even within Michigan itself.

As it now stands, nursery stock must be inspected and certified before being transported and growers and dealers must be licensed, but a neighboring sod farm may ship turf at will without such safeguards to prevent the spread of pests and plant disease.

The MAN directors feel that stricter regulations would be beneficial to responsible sod growers, but they want to find out exactly what such a program would involve before any enforcing is done.



# The HILL-HUGGER

Operates Safely in Areas Where Others Fear to Tread

This new industrial tractor is as rugged and as powerful as most conventional tractors but with a big difference... its hydraulic sloping controls allows it to easily perform jobs far beyond the safety limits of other tractors. By simply adjusting a hydraulic lever mounted on the tractor's control panel, the operator can adjust the wheels to side slopes up to 30 degrees. As the unit "leans" into an incline, the weight shifts to the wheels on the uphill grade providing a valuable stabilizing feature.

The Slope Tractor will mow steep roadside and highway embankments yet the driver is safe and level. The mower is positioned on the surface being mowed, assuring the rear axle. It automatically follows the inclination of the rear axle, a center mounted grader blade, a grass seeder, sprayer, front-mounted broom, and flail-type mower.

Other attachments include a side mounted auger-type digger and a sickle-type mower. Soon to be available are the following additional attachments:

A rear trencher, a center mounted grader blade, a grass seeder, sprayer, front-mounted broom, and flail-type mower.

"WE COPE WITH THE SLOPE"

For additional information, write: SLOPE TRACTOR, INC., Harper, Kansas 67058



For More Details Circle (118) on Reply Card



## Theories Vary on Cause of Dutch Elm Disease

As the situation of the vanishing American elm worsens and no "sure cure" has yet been developed, scientists studying the matter have come up with theories that may lead to new ways of combatting DED.

The disease, thought to be caused by a fungus carried by the bark beetle, blocks sap circulation until the tree dies of thirst. The bark beetle, however, doesn't appear to be the sole cause of spreading DED from tree to tree.

It is a peculiarity of the elm that its roots connect to roots of other trees of the species when they meet underground. This causes "sap transfusion" from one tree to the next, says Dr. Albert E. Dimond, chief plant pathologist at the Connecticut Agricultural Experiment Station in Mount Carmel. Bud cells of

fungus infection are transferred in this manner, even if trees are as much as 50 feet apart, Dimond says.

Thus, elms not only need to be guarded against bark beetle invasion but must be isolated from contact with roots of infected trees, according to Dimond. To achieve isolation, trenches three feet deep are dug around a tree and treated with a root-killing substance — such as Vapan — or the chemical is injected deep into the ground in areas of possible root contact, he says.

Another theory of DED transference has recently been developed by Dr. Rene Pomerleau of the Forest Disease Research Laboratory in Quebec. He has found evidence that the lethal action of the fungus occurs in the leaves and leaf stems of the elm, rather than in the main sap channel, as previously believed.

In leaves, the sap flows

through tiny channels of the sapstream, similar to the capillaries of the bloodstream, says Pomerleau. It is there, he believes, that fungus buds do the clogging, as was indicated by infested elms in the experimental station. Individual leaves were often partially brown and partially green, as if strangulation was taking place within the leaf itself.

One way to attack this is the injection of fungus-killing chemicals into the tree or the ground around it. Tests at the Connecticut station indicated that injection into the trunk can retard the disease for several weeks, but to date this has not achieved a cure.

In Holland, according to Dr. Dimond, progress has been made toward developing a strain of European elm that resists the fungus, but it does not grow into the vase-shaped pattern that is characteristic of the American elm of Christmas card fame.

## Changing Your Address?

If so, notify our circulation department right away to be certain the magazine reaches you at your new location. The Post Office won't forward your copies. So when you write us, make it at least three weeks in advance of your moving date, and include your old address, as well as the new one. We'll see you don't miss a single issue.

Send old and new address information to:

**WEEDS TREES and TURF magazine**

**Circulation Department**

**9800 Detroit Avenue**

**Cleveland, Ohio 44102**

## OREGON FINE FESCUE THE FAIRWAY GRASS



Oregon grown Fine Fescue is really not that strong . . . in fact it is so fine bladed its muscles hardly show at all. It does grow straight and has a tendency to hold the ball better than most grasses, easy mowing, too! Oregon grown Fine Fescues do well in shade and are slow growing for less maintenance. Good points for any Fairway grass.

*For free sample packet and more information write*

**OREGON FINE FESCUE COMMISSION**

**605 WEATHERLY BUILDING**

**Portland, Oregon 97214**

For More Details Circle (112) on Reply Card

# Kentucky 31 Tall Fescue — A Shade-Tolerant Turfgrass

By F. V. Juska, A. A. Hanson, and A. W. Hovin<sup>1</sup>

A good landscape plan will generally include turfgrasses grown in association with trees. Trees add to the aesthetic value of the landscape but because of shade can reduce the vigor and density of grass. At present, there are few grass species that are particularly well adapted for growing in deep shade.

## Grasses and Shading:

At Beltsville, Md., a study was set up to evaluate seven red fescue selections in comparison with Pennlawn and common red fescue, Chewings fescue, Kentucky 31 tall fescue, and common Kentucky bluegrass under shade and in full sun. In September 1963, the fine-leaf and tall fescues were seeded at 4 pounds per 1000 square feet and common Kentucky bluegrass at 2 pounds per 1000 square feet. The plot size was 2 feet by 8 feet with 1-foot alleys between plots. Black plastic screens 10 feet by 20 feet long which excluded 80 percent of the light were attached to wood frames and placed on supports approximately 2½ feet above the plots over three replications. The other three replications were grown in full sunlight. In each of four growing seasons, the shades remained over the plots from May until the first of November. During this period shades were removed only for mowing and for making observations.

## Soil and Management:

The soil, a silt loam, tested high in phosphorus, medium in potassium, and had a pH of 5.5.

<sup>1</sup> Research Agronomist, Agricultural Administrator, and Research Agronomist, Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Maryland, respectively.



Fig. 1. Two replications of shaded plots. Center plots of grass were not shaded.

Lime was added at the rate of 1 ton per acre in 1964 and again in 1965. Potassium was added to bring this element to an optimum level. Nitrogen in the form of urea or ammonium nitrate was used. No more than 1 pound per 1000 square feet of actual nitrogen was applied at one time. A total of 3 pounds nitrogen per 1000 square feet was applied during the growing season. Both

shaded and unshaded plots were mowed at weekly intervals during the growing season and clippings removed.

## Effect of Shade:

Turf quality scores for each of the 4 years for both the shaded and unshaded plots are given in Table 1. The scores for the grasses varied between years as would be expected because of climatic

TABLE 1. Performance of Some Cool-Season Grasses Under 80 Percent Shade and in Full Sun Over a 4-Year Period (10 = Best Quality)

Varieties	Under Shade					In Full Sun				
	1964	1965	1966	1967	Avg.	1964	1965	1966	1967	Avg.
Tall fescue										
Ky. 31	7.7	7.8	9.7	6.7	7.9	6.7	8.6	9.8	9.3	8.6
Red fescue										
Pennlawn	8.7	5.6	8.7	4.3	6.8	8.3	8.4	9.6	9.4	8.9
Common	7.7	3.8	7.4	3.9	5.7	8.7	7.2	7.3	7.3	7.6
Experimentals <sup>1</sup>	6.5	2.8	5.7	3.8	4.7	7.6	6.9	7.8	6.5	7.2
Chewings fescue	7.0	4.3	8.0	5.1	6.1	7.7	8.7	9.7	8.6	8.7
Ky. bluegrass										
Common	7.0	5.6	6.9	4.3	6.0	7.7	8.7	9.4	5.9	7.9

<sup>1</sup> Mean of seven selections

**TABLE 2. Turfgrass Species Ranked According to Turf Quality (1 = Best, 1964-1967 Data Combined)**

In Shade Rank : Species	Under Full Sun Rank : Species
1. Tall fescue	1. Pennlawn red fescue
2. Pennlawn red fescue	2. Chewings fescue
3. Chewings fescue	3. Tall fescue
4. Kentucky bluegrass	4. Kentucky bluegrass
5. Common red fescue	5. Common red fescue
6. Experimental red fescues	6. Experimental red fescues

conditions and time of year when notes were taken. Ratings were taken once in 1964, twice in 1965, and three times each in 1966 and 1967. The lower quality scores for 1965 resulted from ratings taken in the fall. Scores for 1966 and 1967 were taken in the spring, summer, and fall.

The grasses differed in their response to shade and sunlight. Differences between turf under shade and in full sunlight were evident after the first year. Turf under shade was lighter green, less dense, and more succulent. Average turf quality under shade, over all years, showed that tall fescue was about 14 percent better than Pennlawn and almost 23 percent higher than Chewings fescue. Pennlawn red fescue rated about 10 percent better under shade than Chewings. Lowest average scores for the grasses tested were assigned to experimental red fescue selections, presumably due to the narrow genetic base in this particular group.

In Table 2 all grass species are ranked as to turf quality in shade and sunlight. The three grasses that performed best under shade were also the best three in full sunlight, but not in the same order. Under shade, the turf quality for tall fescue was 23 percent higher than that for Chewings fescue; whereas, the difference between Pennlawn and tall fescue was only 3.3 percent in the sunlight. The most significant observation in this study is the excellent performance of Kentucky 31 not only under shade but also in full sunlight. Results

of this experiment suggest that Kentucky 31 tall fescue is adapt-

ed in the transition zone where a broader-leaved grass is not objectional for turf.

Lack of adequate moisture and soil fertility may restrict the growth and vigor of turfgrasses under heavy shade. The observations included in this report were based on the effects of shade alone, without obvious limitations in either moisture or soil fertility.



## We can help you on any spraying job

You get dependable performance on any spraying job—turf, ornamentals, trees—with Hudson power sprayers.

**Big turf acreage?** Consider our 150-gallon Peerless<sup>TM</sup>. Can cover 10 acres an hour with 20-foot boom. More than enough pressure and output for other jobs—for reaching high into trees. More trouble-free service with features such as Ten-O-Matic<sup>®</sup> pump, stainless steel lined tank. Models on wheels or skids. Tank capacities to 300 gallons.

**Smaller jobs?** Pick a 12½-gallon Sub-

urban<sup>TM</sup> Trail-N-Spray<sup>TM</sup> or 50-gallon Peerless. Hitch to a compact tractor. Handle most any spray material to tackle most any spraying job.

Write us for full details on the complete line of Hudson power sprayers.

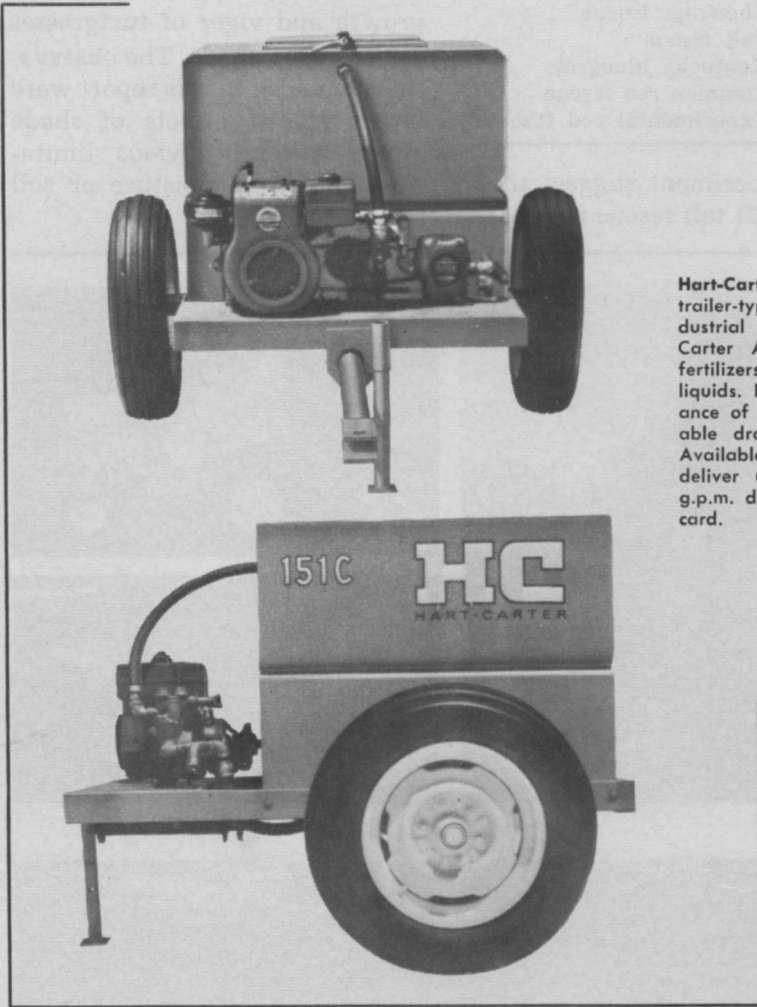
**HUDSON<sup>®</sup>** SIGN OF THE BEST BUY  
**POWER SPRAYERS**

© 1969 H. D. Hudson Manufacturing Co.  
589 E. Illinois St., Chicago, Ill. 60611

For More Details Circle (110) on Reply Card

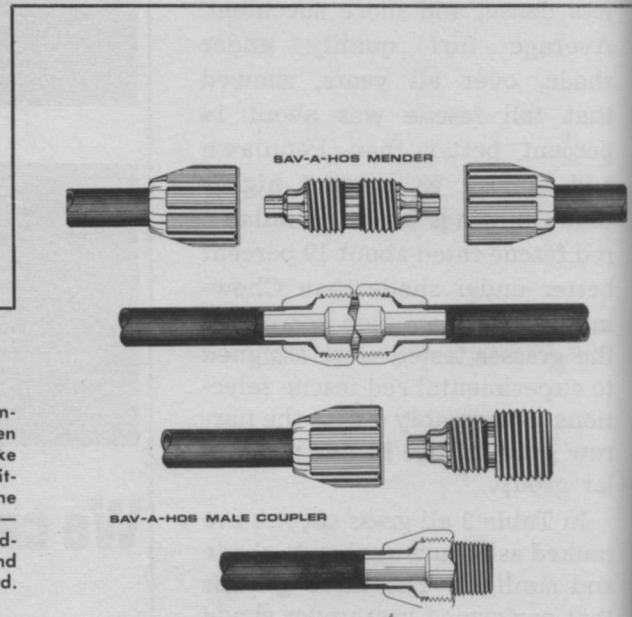
# New Products . . .

## Designed for the Vegetation Care Industry



Hart-Carter Co., Minneapolis, Minn., now offers a new trailer-type sprayer for agricultural, commercial, industrial and municipal spraying. The versatile Hart-Carter All-Purpose high-pressure sprayer can apply fertilizers, disinfectants, control chemicals or other liquids. Features include 15-inch wheels, ground clearance of 14½ inches for use on rough terrain, adjustable drawbars and coated or stainless steel tanks. Available in three 300-gal. capacity models that deliver up to 10 g.p.m. or two 400-gal. units (22 g.p.m. delivery). For more details circle (701) on reply card.

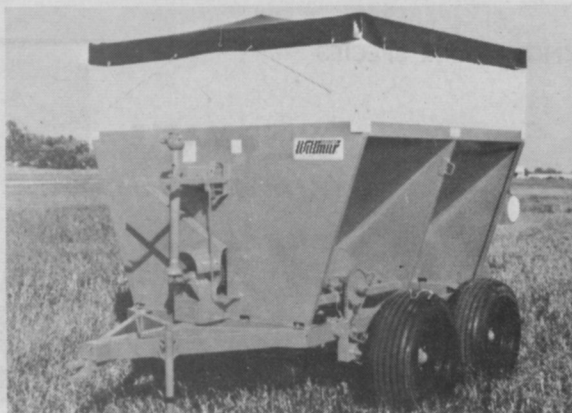
Bloomco, Inc., Portland, Ore., has come up with a new concept in repair couplers and menders for vinyl plastic garden hoses. Installation is easy, says Bloomco. Designed to make their own leak-proof flare without tools or ferrules, the fittings are reusable and won't work loose, according to the company. Fittings are made of durable, light green nylon — compact, streamlined with no bulky edges. Bloomco's menders and couplers fit ½" and 5/8" hoses, retailing at \$1 and \$1.10 respectively. For more details circle (702) on reply card.



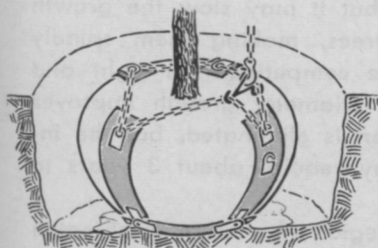
Vermeer Manufacturing Co., Pella, Iowa, has recently introduced its model CL-12 cable plow — ideal for installing lawn irrigation systems without the need to relandscape. Powered by 12-hp air-cooled engine, CL-12 features variable speed for digging in transport and independent power wheel drive for accurate direction control during plowing. Compact, it is easily transported via pickup, van or trailer. For more details circle (703) on reply card.



Mars Industries, Minneapolis, Minn., offers Chem-Spray, new sprayer that can be mounted on most small tractors. Pump produces low-pressure, minimum-drift 42" spray coverage at rate of 10 gals. per acre. Mountings of heavy-gauge steel; 5-gal. tank resists chemicals. For more details circle (704) on reply card.



Willmar Manufacturing has added two 6-ton models to its line of 2, 5 and 8-ton dry fertilizer spreaders. W-6 and W-6A, designed for intermediate-sized jobs, offer accurate spread pattern, dependable ground drive and "lifeguard" finish. W-6A also doubles as a tender. For more details circle (705) on reply card.



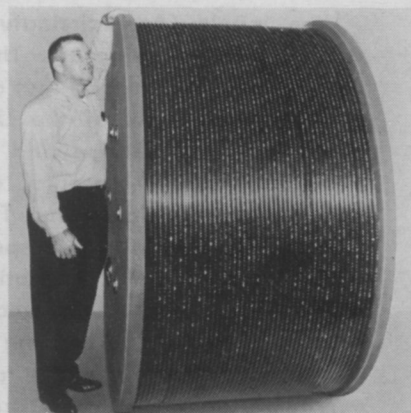
Beseler Equipment Co. of Minneapolis has developed the new Mark IV tree sling to speed up balling moderate-sized trees and large shrubs. Slotted lifting rings permit fast adjustment for ball size; new short lifting yoke is quickly shifted to control tree's tilt when loading or planting. Complete undercutting is not necessary. Wide belt sections prevent damage to ball. Sling folds ruler fashion for storage. For more details circle (707) on reply card.



Bunton Co., Louisville, Ky., offers options for its "Lawn Lark" mower units, such as the grass catcher attachment, shown above, operated by handle control. Clippings can be dumped into windrows or hopper can be emptied directly into containers. Another option shown is Bunton's easily installed riding sulky that allows an operator to ride open areas and medium grades. Standard features of Bunton's "Lawn Lark" line include finger-tip power steering, 7 forward speeds and adjustable cutting heights. For more details circle (706) on reply card.



Kemp Manufacturing Co.'s (Erie, Pa.) redesigned No. 2 "Gladiator" soil shredder processes wet or dry soil, sod, peat, silt and sludge. It offers automatic feeding drum, reversible shredding teeth, 30 to 40 cu. yd. per hour capacity. The 1200-lb. unit is 70" tall, 44" wide. For more details circle (708) on reply card.



Ridge Plastics Co., Jonesboro, Ark., offers lightweight, high-density polyethylene pipe able to be installed by ordinary tractor subsoil attachments at a 24-30' cover. Rated at 125 P.S.I., it won't slit, rot or pin-hole; lasts over 50 years, says Ridge. 10,000 ft. of pipe can be laid in 2 hrs., Ridge contends. Economical, too. For more details circle (709) on reply card.

## VINE MAPLE

*(Acer circinatum)*

Drawing from: California Range Brushlands and Browse Plants, by Arthur W. Sampson and Beryl S. Jespersen. Calif. Agric. Expt. Sta. Ext. Ser. Manual 33.

Prepared by: O. A. Leonard, Botanist, assisted by B. J. McCaskill, Senior Herbarium Botanist, Botany Department, University of California, Davis, California.

Vine maple (*Acer circinatum*) belongs to the Maple Family (Aceraceae). The genus *Acer* consists of about 200 species that are well represented in the eastern part of the United States. Other species occur in Europe and Asia. Maples, well known for their ornamental qualities, are commonly used in landscaping. They also have economic properties, as some species produce hardwood lumber. In the springtime, sugars formed from starch present in the wood rays are secreted into the wood sap. When the wood is tapped at this time of year, bleeding takes place; the sap may be caught and concentrated into syrup for which the sugar maple (*A. saccharum*) is well known.

Vine maple is a reclining or vine-like or small tree, 5 to 35 feet high. Its leaves are simple, their blades 2 to 6 inches long and of the same width,

palmately veined with 5 to 11 lobes, dark green above and paler beneath. The petioles are 1 to 2 inches long and grooved. In the fall the leaves become a rich scarlet. The flowers are reddish-purple, occurring in umbel-like clusters of 2 to 10 or more. The twigs are purple.

This plant grows along stream banks and in well-drained shaded areas from the coastal mountains of British Columbia southward to northern California. It commonly forms an understory in pine, fir and coast hemlock forests from near sea level to an elevation of 5000 feet. Associated with vine maple is bigleaf maple (*A. macrophyllum*), red alder (*Alnus rubra*), and other woody species. Neither vine maple nor the other species may be any real economic problem in old virgin forests, but all of them may interfere in reforestation following either logging or forest fire. Vine maple, a vigorous sprouter, may not be a problem to, for example, Douglas-fir seedlings that require shade when young; but it may slow the growth of well-established trees, making them spindly and weak unless the competition for light and moisture is removed. Diameter growth improves when such competition is eliminated, but the increase in growth may require about 3 years to become significant.

In the Douglas-fir region of western Washington and Oregon, there are two general types of aerial sprays for release of existing conifers or preparation of areas for stocking by artificial means: bud-break spray (when buds are swelling) and foliage spray. Apparently there is but little transport of 2,4,5-T from leaves into the stems, so the foliage sprays are of minimal value. 2,4,5-T esters applied in oil allow both bark and buds contacted by the sprays to be penetrated. The sprays are applied by helicopter using a total volume of 8 to 10 gallons per acre. Such an application does not result in appreciable downward transport of the 2,4,5-T, so only the tops of the vine maples are killed. However, this is often sufficient to give the desired release necessary for the Douglas-fir growing just under the brush canopy. Newly planted fir may require an additional spray 3 to 5 years later.

Along rights-of-way, picloram can be used in conjunction with 2,4,5-T to control vine maple and other woody species when the plants are in full leaf. Fair to good control can be obtained, especially through reapplication. Kill is related to dosage; therefore, amounts can be increased in areas where it will be safe to do so.

2,4,5-T applied in diesel oil to the basal parts of the stem of the vine maple is reasonably effective. Such applications are, of course, limited to sites that can stand a relatively high application cost, such as along rights-of-way.

# STIHL 041 AV *electronic*

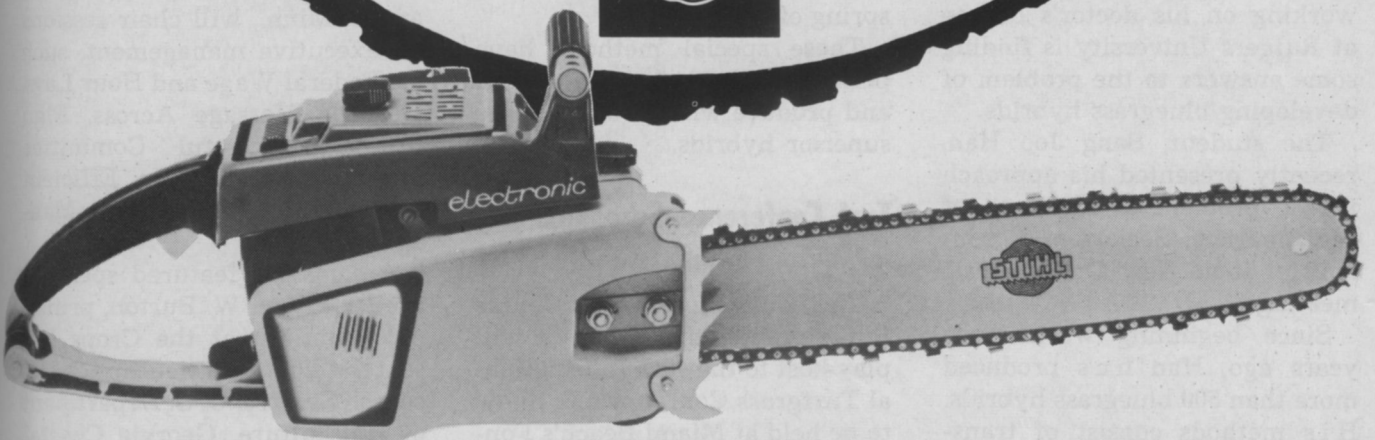
In keeping with our policy of offering the most advanced and most dependable in chain saws — we have incorporated solid state ignition into the STIHL 041 AV Electronic Saw. Other than eliminating the need for points and providing a molded circuit that is impervious to moisture, dirt, and temperature extremes — this model offers big 5 1/2 horsepower performance coupled with a light 15 1/2 pound weight and the fabulous new vibration absorbing AV handle.

## STIHL American, Inc.

194 Greenwood Ave.,  
Midland Park, N.J.  
Phone 201-445-0890

7364 Lee Industrial Blvd.,  
Mableton (Atlanta)  
Georgia

2468 Teagarden Street,  
San Leandro  
California



# new

For More Details Circle (116) on Reply Card

## New Hercules Film Depicts 'Visko-Rhap' Efficiency

Hercules Incorporated has recently made available a 16-mm color film depicting spraying techniques and effectiveness of its drift-resistant "Visko-Rhap" emulsion herbicides.

"Profiles in Spraying," filmed on location throughout the country, enables viewers to observe ways in which these commercially applied herbicides control weeds along roadsides and rights-of-way and in drainage control districts.

In addition to new spraying methods and equipment, the 14-minute film illustrates the drift-, washoff- and evaporation-resistant properties of Visko-Rhap weed killers, even when applied under varying weather conditions, according to Hercules.

Requests for the film should be directed to the Advertising Department, Hercules, Inc., 910 Market St., Wilmington, Del. 19899.

## Koren Student Works On Turf Hybrids

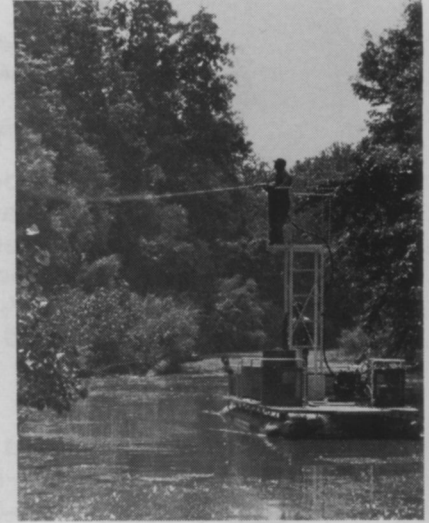
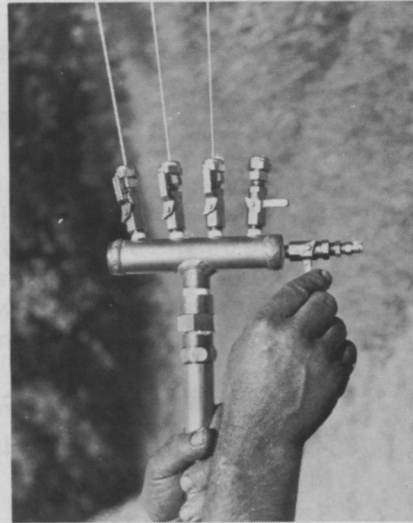
A young Koren student, now working on his doctor's degree at Rutgers University is finding some answers to the problem of developing bluegrass hybrids.

The student, Sang Joo Han, recently presented his approach to the problem to members of the American Society of Agronomy at their New Orleans, La., meeting.

Since beginning work three years ago, Han has produced more than 500 bluegrass hybrids. His methods consist of transplanting bluegrass seedlings to field nurseries in late summer, where they remain until January or February. They are potted and moved to the greenhouse to flower. Just before the flowers are due to open, Han dips each plant into 118° F. water for one minute. This kills the pollen but does not harm the remainder of the flower. Once



Several scenes from Hercules' "Visko-Rhap" film illustrate new methods and equipment used in applying the emulsion herbicides.



flowers open, he dusts them with previously selected pollen. The following year, he then selects hybrid seedlings from the offspring of this mating.

These special methods have permitted Han to make crosses and produce what promise to be superior hybrids.

## Turf Conference Scheduled for Sunny Miami Beach

The South Florida Golf Course Superintendents Association will play host to the 40th International Turfgrass Conference & Show to be held at Miami Beach's Fontainebleu Hotel, January 19-24.

The program—which includes some 40 speakers, special clinics and an equipment segment entitled "The Greatest Show on Turf"—is geared for the benefit of superintendents, although anyone interested in turf maintenance and management is welcome, says Stanley E. Clarke, Jr., past president of South Florida

GCSA.

Dr. James R. Watson, Director of the Agronomy Division of Toro Manufacturing Co., Minneapolis, Minn., will chair sessions on executive management, such as: Federal Wage and Hour Law, Get the Message Across, Plan for a Successful Committee Meeting, Building an Efficient Staff and Better Business Management.

Among the featured speakers are Dr. Glenn W. Burton, principal geneticist at the Crops Research Div., Agricultural Research Service, U. S. Department of Agriculture, Georgia Coastal Plain Station; and Dr. Paul M. Alexander, professor of horticulture at Clemson University (South Carolina).

While husbands attend educational sessions during the day, wives will be treated to a complete program of social activities; so, ladies, start singing "Take Me Along!" so he'll get the message.



## Classifieds

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

Rates: "Position Wanted" 10c per word, minimum \$3.00. All other classifications 20c per word, minimum \$4.00. 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. Bold-face rule box: \$25.00 per column inch, two inch minimum.

### HELP WANTED

**SALESMAN-SUPERVISOR** for complete line of tree work with well established company in suburban Philadelphia. Salary, commission, hospitalization. Heyser Landscaping, Inc., 402 North Park Ave., Norristown, Pennsylvania 19401. Phone 215 275-7104.

### SALES POSITION OPENING IN 1969

An opportunity that comes along only once or twice in a decade.

The "pathfinder" of commercial turf grass growers is now accepting resumes for a commissioned salesman. "There is no salary."

We will open our books and introduce our C.P.A. Firm to establish to your satisfaction that your earnings can and will be guaranteed in the five figures. All transportation and expenses furnished.

Degree in agronomy and/or knowledge of the turf grass industry helpful but not necessary. We will require references.

Must begin, full time by March 1, 1969. Season traditionally ends in December. The two months of January and February will be your own time.

Reply to: Summit Hall Turf Farm, Inc., Gaithersburg, Maryland 20760.

### USED EQUIPMENT

**SPRAYERS, chippers, log splitters** and other equipment at large savings. Let us know your needs.

Equipment Sales Company, 4744 Sunrise Highway, Massapequa Park, N. Y. 11762.

**FOR SALE—1968 Vermeer model 6** stump grinder. Like new, used 16 hours. Save \$300.00. John's Spray Service, Inc., 506 Volusia Avenue, Daytona Beach, Florida 32014.

**WANTED—Used 7 gang reel mower.** State price and condition. Jay Frick, 1301 Hempstead Rd., Dayton, Ohio 45429.

### SMA Elects New Officers

Emilio L. Fontana, city for-ester of Lincoln, Neb., was recently elected president of the Society of Municipal Arborists. The 4-year-old organization's new vice president is Peter B. Childs, supervisor of street trees, East Orange, N. J.

### Massive Tree

(from page 21)

min B<sub>1</sub> were added also. The huge oak was guyed in place with 6 steel cables, shielded at the top, and the deadmen were planted 6 feet deep.

Today, California's first massive transplant — perhaps the world's — appears to be highly successful. It is a living tribute to the landscaping and tree mov-

## Advertisers

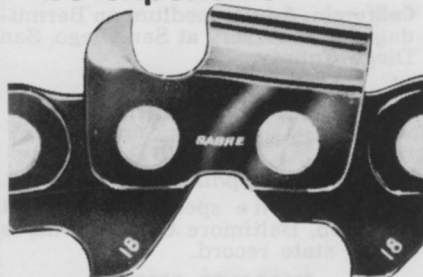
### INDEX TO ADVERTISERS

Amchem Products, Inc. ....	4
Brillion Iron Works, Inc. ....	4th Cover
Bunton Co., Inc. ....	12
Elanco Products Co. ....	22, 23, 24
Garber Seeders, Inc. ....	31
H. D. Hudson Mfg. Co. ....	35
International Harvester Co. ....	8, 9
Jacklin Seed Co. ....	3rd Cover
Locke Mfg. Companies, Inc. ....	31
Merion Bluegrass Association ....	13
F. E. Meyers & Bro. Co. ....	20
Nunes Turfgrass Nurseries, Inc. ....	2nd Cover
Oregon Fine Leaf Fescue Commission ....	33
Ra-Pid-Gro Corp. ....	12
Sabre Saw Chain, Inc. ....	41
Slope Tractor Co. ....	32
Stihl American, Inc. ....	39
West Chemical Products Co. ....	5

ing industry, and perhaps a new era in architecture—to save the trees.

Peterson plans more massive transplants in the near future.

**SABRE**  
proves that quality  
saw chain need not  
be expensive



**SABRE saves you money whenever you replace saw chain...**

SABRE is the tough, high-quality saw chain that saves you money not only when you buy it—but while you use it. Install it on any popular model of chain saw and compare its value. SABRE is the only saw chain with a no-time-limit warranty!

the professional quality chain by



the saw chain people



SABRE SAW CHAIN, INC.,  
840 SENECA ST.,  
LEWISTON, N.Y. 14092

Write Dept. P for complete literature about Sabre Saw Chain and accessories for your saw.

For More Details Circle (101) on Reply Card

BEING A  
GOOD TREE  
MAN IS  
NOT GOOD  
ENOUGH.



"WITH ME, IT IS!"

# Insect Report

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

## Turf Insects

### A BILLBUG

(*Sphenophorus venatus vestitus*)

**California:** Medium in hybrid Bermudagrass in nursery at Bellflower and heavy in tifgreen Bermudagrass in golf course at Pasadena, Los Angeles County. Found on Bermudagrass at Huntington Beach and Fullerton, Orange County, for a new county record.

### GRANULATE CUTWORM

(*Feltia subterranea*)

**California:** Medium to heavy in lawns at Gilroy, Santa Clara County. Worm weather and moisture favored continuation of infestation this season.

### A MARCH FLY

(*Dilophus orbatus*)

**California:** Populations continuing in many locations statewide. Heavy in turf at Oakland, Alameda County, and in lawns of Stanislaus County.

### THREE-CORNERED ALFALFA HOPPER

(*Spissistilus festinus*)

**Arizona:** Heavy numbers overwintering in ditch banks next to Bermudagrass seed fields at Yuma, Yuma County.

### BERMUDAGRASS MITE

(*Aceria neocynodonis*)

**California:** Adults heavy in Bermudagrass at Irvine, Orange County.

### RHODES-GRASS SCALE

(*Antonina graminis*)

**California:** Adults medium on Bermudagrass in nursery at San Diego, San Diego County.

## Insects of Ornamentals

### AN APHID

(*Euceraphis mucida*)

**Maryland:** One specimen found at Monkton, Baltimore County. This is a new state record.

### ENGRAVER BEETLES

(*Ips* spp.)

**Virginia:** Killed 20 loblolly pines at Accomack County location and 3-4 trees in each of 3 Caroline County locations.

### A SAP BEETLE

(*Conotelus mexicanus*)

**California:** Found in rose at Orosi, Tulare County, for a new county record.

### FALL CANKERWORM

(*Alsophila pometaria*)

**Michigan:** Males abundant at Livingston County blacklight station. Females on tree trunks and farm out-buildings during day.

### AN EPIPASCHIID MOTH

(*Tetralopha asperatella*)

**Maryland:** Collected from oak near

Sudlersville, Queen Annes County. This is a new county record.

### A GELECHIID MOTH

(*Coleotechnites thujaella*)

**Maryland:** Heavily damaged a planting of arborvitae at Easton, Talbot County. This is a new State record.

### NANTUCKET PINE TIP MOTH

(*Rhyacionia frustrana*)

**Virginia:** Damage heavy to young loblolly pine throughout Hanover County. Severe on loblolly pine at location in Alleghany County. None at 2 plantations in Rockingham County.

### A WALSHIID MOTH

(*Periploca nigra*)

**California:** Light on juniper at Fresno County, and medium at Redding area, Shasta County. These are new county records.

### AN ARMORED SCALE

(*Phenacaspis cockerelli*)

**Florida:** All stages severe on all 3 Chinese fanpalm (*Livistona chinensis*) in nursery at Keystone Heights, Clay County. This is a new Florida Department of Plant Industry host record.

### FLORIDA RED SCALE

(*Chrysomphalus aonidium*)

**Florida:** All stages severely infesting 50 philodendrons in nursery at Lockhard, Orange County. This is a new Florida Department of Plant Industry host record.

### A WEEVIL

(*Nemocestes incomptus*)

**California:** Adults heavy in rhododendron nursery stock at Fort Bragg, Mendocino County.

## Tree Insects

### GIANT BARK APHID

(*Longistigma caryae*)

**Oklahoma:** Heavy on scattered post oak and blackjack oak trees in Oklahoma County. Ranged up to several hundred per cluster on small branches.

### CERAMBYCID BEETLES

**Texas:** *Oncideres pustulatus* caused much damage to minosa trees at Houston, Harris County. Many *Megacyllene robiniae* adults on mesquite trees in Throckmorton County.

### BRONZE BIRCH BORER

(*Agrilus anxius*)

**Minnesota:** Generally counts in nursery-grown birch trees remain about same as last year. Infested average of 2 percent of trees. State average increased by infestations up to 10 percent in isolated fields.

### EUROPEAN ELM SCALE

(*Gossyparia spuria*)

**New Mexico:** Heavy on American elm at Santa Fe, Santa Fe County.

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, 9800 Detroit Ave., Cleveland, Ohio 44102.

## Trimmings

**Winter Golf?** Visited with Ken Vorhies of the Columbine Country Club a couple of days before Thanksgiving regarding his record system which is featured in this issue of WTT. He told me that his crews were busy mowing greens and that he had watered the day before. Said that play was heavy and that more people should become interested in winter golf in the Denver area. Sounded much better than the Cleveland weather of the moment.

\* \* \*

**The Toronto Daily Star** recently revealed that 1,834 elms stricken by Dutch elm disease will have to be removed from parks, streets and private property in the Toronto area next year — 61 percent more than this year. But who's to pick up the tab? The provincial and Federal governments recently refused to subsidize the tree removal program, according to the newspaper. In the past the dead elms were disposed of under the now-defunct winter works program, with the senior governments paying about half the cost.

\* \* \*

**On the other side of the coin** is Milwaukee. This city recently discovered a way to dispose of logs from trees killed by Dutch elm disease, reduce air pollution and make a profit — all at the same time. Froebel Wood Exports, Glendale, will buy the logs from the city, strip the infested bark — which contains the beetles — and export the wood to Holland, where it will probably be used for manufacturing furniture. Currently the city absorbs the cost of transporting the logs to a dump site where they are burned, adding to the area's air pollution problem. Froebel has agreed to pick up the logs at the cutting sites and pay the city \$1 to \$2 a log, according to size.

\* \* \*

**Speaking of Dutch elm disease** and Milwaukee shipping logs from trees killed by same to Holland, someone is bound to retort that the Dutch are only getting back what they started in the first place. But let's set the record straight. The disease was so named because Dutch plant pathologists were the first to study it. No one is sure where the elm-killing disease originated, although Asia would be a good bet because resistant-type elms are found there. The disease appeared simultaneously in Holland, France and Belgium at the end of World War I and then spread to the States in 1930 via Carpathian elm burl from France.

## Meeting Dates

**32nd Annual Nurserymen's Short Course and Trade Fair**, Student Union, North Carolina State University, Raleigh, N.C., Jan. 5-7.

**Mid-Atlantic Turfgrass Conference**, University of Maryland Cooperative Extension Service, Baltimore, Md., Jan. 6-7.

**Nebraska Turfgrass Conference, 7th Annual**, Nebraska Center for Continuing Education, East Campus, University of Nebraska, Lincoln, Neb., Jan. 8.

**Northeastern Weed Control Conference, Annual**, Hotel Commodore, New York City, N.Y., Jan. 8-10.

**Helicopter Association, Annual Meeting**, Diplomat Hotel, Hollywood, Fla., Jan. 8-11.

**New York State Arborists Association, Annual Meeting**, Grossinger's, Grossinger, N. Y., Jan. 19-22.

**40th International Turfgrass Conference and Show**, Golf Course Superintendents Association of America, Fountainebleau Hotel, Miami Beach, Fla., Jan. 19-24.

**Pennsylvania Shade Tree Symposium, 4th Annual**, Penn.-Del. Chapter of ISTC, J. Orvis Keller Bldg., Pennsylvania State University, University Park, Penn., Jan. 21-23.

**Southern Weed Conference, Annual Meeting**, Statler Hotel, Dallas, Tex., Jan. 21-23.

**American Sod Producers Association Annual Meeting**, Fountainebleau Hotel, Miami Beach, Fla., Jan. 22.

**Associated Landscape Contractors of America, Annual Meeting**, Half Moon Inn, Shelter Island, San Diego Bay, Calif., Jan. 22-25.

**Ohio Shortcourse for Arborists, Turfgrass Specialists, Landscapers, Garden Store Operators, and Nurserymen**, Sheraton-Columbia Motor Hotel, Columbus, O., Jan. 26-30.

**Pennsylvania Nurserymen's Association, Annual Meeting and Nursery Conference**, Holiday Inn, State College, Penn., Feb. 4-7.

**National Arborist Association, Annual Convention**, Sheraton Hotel, Fort Lauderdale Beach, Fla., Feb. 8-13.

**Weed Science Society of America Annual Meeting**, Caesars Palace, Las Vegas, Nev., Feb. 10-14.

**California Farm Equipment Show**, Tulare County Fairgrounds, Tulare, Calif., Feb. 11-13.

**Lawn and Utility Turf Growers Course**, Rutgers University, College of Agriculture and Environmental Science Campus, New Brunswick, N.J., Feb. 17-19.

**Maryland Arborists Day**, University Center of Adult Education, College Park, Md., Feb. 18.

**Maryland Nurserymen's Day**, University Center of Adult Education, College Park, Md., Feb. 19.

**Golf and Fine Turf Growers Course**, Rutgers University, College of Agricultural and Environmental Science Campus, New Brunswick, N.J., Feb. 19-21.

**Maryland Florists Day**, University Center of Adult Education, College Park, Md., Feb. 20.

**Southern Turfgrass Association, Annual Conference**, Sheraton-Peabody Hotel, Memphis, Tenn., Mar. 3-4.

**Midwest Regional Turf Conference**, Purdue University, Lafayette, Ind., Mar. 3-5.

**Maryland Sod Conference**, University of Maryland, College Park, Md., Mar. 5.

**Annual Fine Turf Conference**, University of Massachusetts, High Point Motor Inn, Chicopee, Mass., Mar. 5-7.

**Michigan Turfgrass Conference, 39th Annual**, Kellogg Center, Michigan State University, East Lansing, Mich., March 12-13.

**Midwinter Turf Conference**, University of Maine, Steer Inn Motor Lodge, South Portland, Me., Mar. 19-20.



# NO UGLY seed heads

with



**FYLKING  
KENTUCKY BLUEGRASS**

In spring most lawn grasses sprout green and beautiful turf. Then an ugly problem arises. Seedheads begin to appear with gypsy abandon, turning the green scene into a jungle of wiry straws even sharp mowers fail to sever. This wire-like growth remains an eyesore.

You can always survey your lawns with pride if you grow 0217<sup>®</sup> Fylking Kentucky bluegrass. Fylking shoots up a spring abundance of new green leaves, never produces wiry stems and ugly seedheads. This sensation of the sod and seed industry is low-growing, always mows smooth and thrives on close cutting. Fylking produces thicker, greener turf which is more disease, weed and wear-resistant than any variety yet (proven by 10 years of international testing — rated best obtainable by turf authorities).

Turf-forming qualities make it possible to lift sod in 110 days.

You'll never have ugly seedheads if you specify 0217<sup>®</sup> Fylking Kentucky bluegrass. See your seed distributor. For information or names of authorized distributors, write Jacklin Seed Co., Dishman, Wash. 99213.

For More Details Circle (107) on Reply Card

Crush—seed—and roll  
in one pass

Get full, thick  
stands every time  
at 50% the seed rate  
of other methods



**FOR SOD AND BIGGER JOBS**  
8' and 10' TURF-MAKER tucks seed at 1/2" depth, as recommended for sod farms and other large acreage seedings where natural moisture and growing conditions prevail. TURF-MAKER provides an infinite range of seed settings for precise metering of the finest, costliest seeds.

# BRILLION SEEDERS for Landscapers and Sod Growers

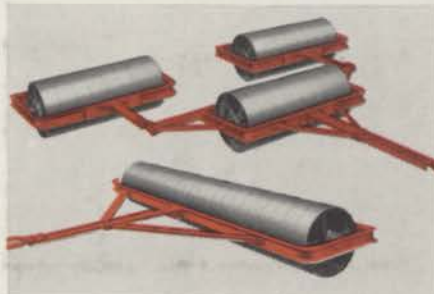
Compare your present method. One man with a Brillion can seed up to 50 acres of lawn or sod per day — eliminates extra operations and equipment — and costly hand labor. In fact, many users report that their Brillion paid for itself on its first job.

Only Brillion offers you the seeder that fits your operation. There's the 5'4" pick-up model for small contract jobs — now available with the *new* optional 230-lb. capacity fertilizer box kit. Or you can choose the Turf-Maker — the most precise grass seeder made for sod growers and larger seeding jobs — in 8' and 10' sizes. Both types are designed to tuck seed accurately and uniformly in the top 1/4" or 1/2" of the soil for fast, complete germination and healthy, profitable yields. And our Smooth-Roller Pulverizers enable you to properly condition new seedbeds as well as established lawns.

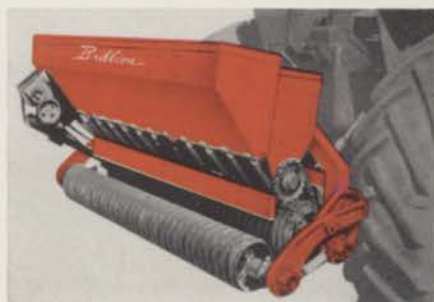
Brillion's large hoppers minimize re-fills. Clean design permits you to hug fences, trees and building foundations to minimize hand broadcasting. In addition to the fertilizer box kit for the 5'4" model, options include transport wheels for the 8' and 10' Turf-Maker, and 3-point Category II pick-up for the 8' size. Mail coupon for additional information.



**FOR SMALLER JOBS**  
5'4" pick-up model tucks seed in top 1/4" of soil, the ideal depth recommended for closely controlled moisture and depth conditions.



**SMOOTH-WHEEL PULVERIZERS**  
for smoothening humps and winter-heaves in established park, golf course, institutional and turn-pike lawns. Choice of 9', 10'6" and 12' single rollers and triple-gang models to 20'.



**NEW FERTILIZER BOX KIT**  
for existing and new 5'4" seeders. Hopper holds 230 lbs. of granulated fertilizer and can be set to broadcast at 25 to 200 lbs. per acre as you seed.



IF BRILLION BUILDS IT — IT HAS TO BE GOOD!

## BRILLION IRON WORKS, INC.

Dept. LS-59-1, Brillion, Wisconsin 54110



Please send information on the following:

<input type="radio"/> 5'4" Seeder	NAME _____
<input type="radio"/> Turf-Maker Seeders	ADDRESS _____
<input type="radio"/> Smooth-Wheel Rollers	CITY _____
<input type="radio"/> Name of nearest Brillion dealer	STATE _____ ZIP _____