SPECIAL TURF ISSUE
Columbine Budget Control
Shade Tolerant Kentucky 31
when your season rolls around...

be ready to roll with a NUnes sod harvester

• With a NUnes 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 Loquot Avenue, Patterson, California 95363, Phone (209) 892-6311

For More Details Circle (115) on Reply Card
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.
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 godsend. 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 research 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 stimulate 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.

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**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 1 1/2 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.

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
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.
TODAY 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 Federal 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 blue-grass 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, Chewing 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-

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 1.1/2 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.
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 .10% of 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 ⅛ 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 (or about ⅛ 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

WEEDS TREES AND TURF, January, 1969
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 magnification, 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 Tec, 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
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 adjustable handles, extra-life engine, up to 5 H.P., machined steel blade and ball bearing steel wheels.

For additional information, write Dept. WT 4303 Poplar Level Road Louisville, Kentucky 40213 Area Code 502 - 459 3810

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 stagers 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 it’s 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 SOD
KENTUCKY BLUEGRASS

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
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 spraymen 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.
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.
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 per-
centages. Collins is planning to
replace this incentive system
with one giving an award every
month to each sprayman achiev-
ing 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 su-
pervisors are eligible for bonus
payments based on the gross bus-
iness 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 commis-
sion 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 ques-
tions, 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 con-
tract for $60," Collins says. If
they really want the service,
they will call and ask for it.

Advertising Used

Collins uses newspaper and ra-
dio advertising to build business,
and once a month has a direct
mail distribution. Some of the
direct mail pieces are news-letter
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 supple-
ment of eight pages, and color
on front and back pages, to be
distributed by the Orlando SEN-
TINEL-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, Col-
kins 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 esti-
mate, which later proves accu-
rate, of the amount of business
he can develop in the area.

One of the phases on which the
Collins company places much
stress is complaints. No spray-
man is permitted to handle a
complaint by himself. His super-
visor must be notified and is re-
sponsible 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 fol-
lows the same principal in han-
dling complaints within the
company.

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 re-
spect, Collins explains.

Two men handle the schedul-
ing 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.

WEEDS TREES AND TURF, January, 1969 17
LANDSCAPING 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 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?

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-feet 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
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:

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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 B₁ 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 lowboy 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.

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)
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.

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Budget Control

Budgets 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 Langsine, aids in tabulating records for monthly reports to club officers, and for budget use.

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 face 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.
mits charting moves for new efficiencies. Noting that trap maintenance was running more than 2000 hours every season, the operation was checked closely for a time and 300 hours per season were cut off this type maintenance.

Besides hourly work records, monthly statements are furnished to Club officers on maintenance costs, golf shop profit, golf cart income, and green fees.

Currently, records on watering costs are helping to show the validity of a new automatic watering system. The proposed system, which is estimated to cost almost one-quarter million dollars will cut 30 percent off water use. It can be shown that the system will amortize itself over a long period. The plan includes radio receivers or channels for each station, with a probability of several hundred channels. Columbine is fortunate in having telephone and electricity available on each hole, which makes such a plan feasible without being unduly high in cost.

Interesting on the Columbine Course are hard-surfaced (some gravel and some asphalt) cart paths. No one is allowed to stray off these trails. The 70 carts thus do not damage turf. These carts are washed and waxed twice weekly with a jet-spray. One man can service 20 carts per day.

The current system of record keeping was started in 1959. It was felt that it would be valuable as a public relations tool with the Board of Directors and would facilitate the mammoth rebuilding and improvement job believed to be necessary on Columbine's 18-hole course. Pinpointing costs and spreading improvements over a period of years have developed what is now a well planned and challenging course. It was selected for the '67 PGA tournament, which incidentally had been planned for the previous year but was stymied by the mammoth Denver flood of 1965.

Turf quality is important in the thinking of Columbine's Golf Course superintendent and he has become a specialist in turf care. A regular program, with heavy outlays for fertilizer and chemicals, is carefully followed. This is one reason for seeking a watering system which will help put the right amount of water on with more efficient timing.

Records, Voorhies believes, are the basis for developing an overall management system. Being able to predict unusual expenditures gives the superintendent a status with club officials which aids in developing programs which are mandatory if a course is to show progress in terms of improvement and satisfaction to those who use it.

Master sheets, such as this specimen, are used by Voorhies for keeping records by jobs performed during each pay period. Employees are paid twice monthly. Note that job code numbers pinpoint the type of work done and the date and time spent for each employee.
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

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.
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


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 efforts to the organization.

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

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WEEDS TREES and TURF magazine
Circulation Department
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Cleveland, Ohio 44102

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For free sample packet and more information write
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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

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. 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

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<td>6.9</td>
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<td>Chewings fescue</td>
<td>7.0</td>
<td>4.3</td>
<td>8.0</td>
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<td>6.1</td>
<td>7.7</td>
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<td>Ky. bluegrass</td>
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<td>9.4</td>
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1 Mean of seven selections
TABLE 2. Turfgrass Species Ranked According to Turf Quality (1 = Best, 1964-1967 Data Combined)

<table>
<thead>
<tr>
<th>In Shade</th>
<th>Under Full Sun</th>
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<tr>
<td>Rank : Species</td>
<td>Rank : Species</td>
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<tr>
<td>1. Tall fescue</td>
<td>1. Pennlawn red fescue</td>
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<td>2. Pennlawn red fescue</td>
<td>2. Chewings fescue</td>
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<tr>
<td>3. Chewings fescue</td>
<td>3. Tall fescue</td>
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<tr>
<td>4. Kentucky bluegrass</td>
<td>4. Kentucky bluegrass</td>
</tr>
<tr>
<td>5. Common red fescue</td>
<td>5. Common red fescue</td>
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<td>6. Experimental red fescue</td>
<td>6. Experimental red fescue</td>
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</tbody>
</table>

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 adapted 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.

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For More Details Circle (110) on Reply Card

WEEDS TREES AND TURF, January, 1969
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 14 1/2 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 1/2" 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. Clipplings 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.

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.

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.
VINE MAPLE
(Acer circinatum)

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.
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 Leandrc California
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 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 Fontainbleu 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


SMA Elects New Officers

Emilio L. Fontana, city forester 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 B₁ 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 moving 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

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For More Details Circle (101) on Reply Card
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 turfgreen 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
(Spissistylus festinvs)
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 ssp.)
Virgina: Killed 20 loblolly pines at Accomack County location and 3-4 trees in each of 3 Caroline County locations.

A SAP BEETLE
(Conotetus 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 outbuildings during day.

AN EPIPSACHID MOTH
(Tetraloeph asperatella)
Maryland: Collected from oak near Sudlersville, Queen Anne's County. This is a new county record.

A GELECHIID MOTH
(Coleotechnites thyjaela)
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
(Periplcpra 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 severely infesting 50 phildendrons in nursery at Lockhart, Orange County. This is a new Florida Department of Plant Industry host record.

FLORIDA RED SCALE
(Chrysomphalus aonidum)
Florida: All stages severely infesting 50 phildendrons in nursery at Lockhart, Orange County. This is a new Florida Department of Plant Industry host record.

A WEEVIL
(Nemoces inceptus)
California: Adults heavy in rhododendron nursery stock at Fort Bragg, Mendocino County.

Tree Insects

GIANIT BARK APHID
(Longistigma caruae)
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 postulatus)
Cause much damage to minosa trees at Houston, Harris County. Many Megacylilne 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.

Winter Golf? Visited with Ken Vo- orhies 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 moving 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. Sound much better than the Cleveland weather of the moment.

Trimmings

The Toronto Daily Star recently revealed that 1,634 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.

WEEDS TREES AND TURF, January, 1969

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Meeting Dates


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.


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


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

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


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


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


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

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

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


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. 5-7.

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


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