Get rid of unwanted green growth before it cuts into your profits.

The weed onslaught is just about universal.

An expensive headache.

For utilities, railroads, highway departments, the petroleum industry and industry in general.

But there is a way to control that costly green tide—with Tandex® herbicide.

It's a urea-carbamate compound that gives outstanding extended control over a range of weeds and grasses.

But it's more than weed control.

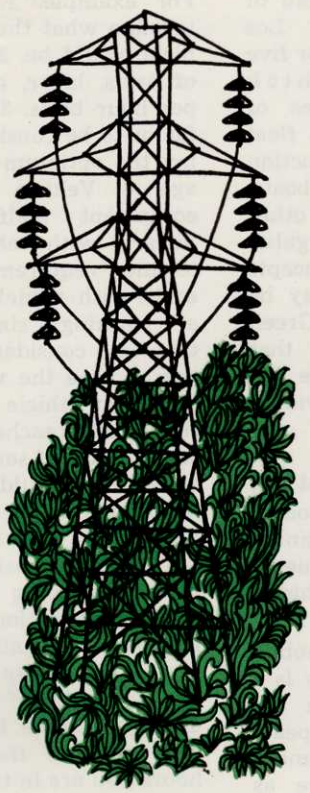
It's brush control, too. If you've got to get rid of really tough brush and woody vines, Tandex gets the job done.

You can spray Tandex or apply it in dry granular form.

Either way you use it, you'll control that costly green tide.

FOR INDUSTRY

FOR RAILROADS



FOR UTILITIES

FOR ROADS

TANDEX HERBICIDE

Agricultural Chemical Division
FMC Corporation, Middleport, N.Y.

FMC

Tandex® is a registered trademark of FMC Corporation

For More Details Circle (157) on Reply Card

WTT COVER STORY

FLEET

Editor's Note: Robert F. Smith is one of three equipment superintendents within the Bureau of Transportation, City of Los Angeles. He is responsible for five maintenance facilities which maintain over 2,900 pieces of equipment. Included in the fleet are cars, trucks, construction equipment, aerial buckets, boats, helicopters, tractors and other vehicles needed by Los Angeles. Many of the management concepts contained in this article may be used by firms within the Green Industry. We would hope that these concepts will provide insight into solving individual equipment problems.

ONE OF THE MOST important and difficult tasks we all have today, is the preparation of our annual budgets. This is particularly true as it relates to replacements of vehicles and equipment.

Everyone who owns an automobile or any other type vehicle today is a transportation specialist. With the little visual change in the appearance of our specialized equipment over the past few years, we as "transportation experts," tend to believe our equipment can run forever with just another set of spark plugs and tires.

Recognizing this as a problem, we must then become more "people-oriented." Our systems, charts and proposals must be aimed at those individuals who can see only the expenditure of funds to purchase the same thing we already have, not considering new designs or more efficient equipment.

The first important factor we must know is the **most economic replacement cycle.**

To demonstrate how you can program vehicle or equipment replacements, we must define and outline the situation in terms of basics. For example, 1. We need to determine what the cost of a new vehicle would be. 2. Maintenance cost of parts, labor, and overhead on a per hour basis. 3. Inflation is not a factor to be considered in determining the optimum vehicle retirement age. 4. Vehicle downtime due to equipment malfunction increases linearly with vehicle age. 5. Maintenance requirements increase linearly with vehicle age. 6. All units are working a single shift. We must take into consideration the percentage of time the vehicle is available by age of vehicle. It is a fact that as the vehicle reaches an age of five to seven years of service, a decrease in availability could occur due to the need for a major refurbishing of the unit.

Take into consideration what occurs by defining the vehicle downtime as a function of vehicle age. It is good to recognize that your maintenance staff may be able to perform a large portion of the repairs to units during off hours. But once the downtime exceeds the available man-hours you are in trouble.

Costs records portray the maintenance hours required according to the vehicle age. As each unit in your fleet increases in age, the maintenance requirements also increase proportionally. Your staffing should be compatible with your fleet size and age of equipment.

The most economical replacement cycle must be based on three main factors:

1. Replacement cost.
2. Maintenance cost.
3. Out of service cost.

The out of service cost is that portion of time for which stand-by vehicles must be provided to meet the requested availability. Considering the vehicle out of service days per year can give you a numeric ratio of stand-by units needed to provide for the out-of-service requirements depending upon the vehicle age.

Once the above data is available, it can be combined. Based on information provided, we can utilize a mathematical formula to determine vehicle replacement.

One system of replacement used by some large fleet owners today is the Formula Basis Replacement System. It is an attempt to integrate several major vehicle costs and usage data into a mathematical formula which will approximately reproduce the cost of the vehicle operation over a constant period.

Thus, two formulas, one for the vehicle under consideration for replacement and another for a comparable replacement vehicle, can lead to a meaningful comparison of actual costs involved. As an example, if the cost per mile (or per hour) to continue operating the old vehicle is greater than the cost per mile (or per hour) to buy and operate a new vehicle, then you should sell the old vehicle. This can be expressed in a mathematical equation as:

$$\text{If } \frac{A+B-C}{X} \text{ is greater than } \frac{A+E-D-W}{Y}$$

then Sell

The designation of the various letters stands for:

A — Original cost of vehicle

B — Cost of repairs needed to continue service

C — Salvage value of the vehicle after completion of service life.

D — Salvage value of new vehicle after it has reached the end of it's expected service life

E — New vehicle cost

W — Current sale value of old vehicle

MANAGEMENT

By ROBERT F. SMITH

X — Total life of old vehicle after repairs needed to continue service (life to date plus extension of life due to repairs — this may at times extend life beyond average replacement expectations).

Y — Total life of old and new vehicle (old to date plus estimated life of new vehicle)

Note: Life can be expressed in miles, hours, months or years for X and Y, but must be the same factor in both formulas.

The second important factor to know is **balancing budget replacement.** With a large fleet one of the most difficult problems faced by managers is the continued fluctuation to our budget requests resulting from differences in vehicle acquisition schedules. One year we may replace thirty units at one time and the next two years, none.

Some smaller fleets have experience and prefer a straight line depreciation so they can plan their replacements ahead.

The last factor to determine is the **most acceptable replacement costs.** Most of us have moaned for years about the fact that we had to install a new engine, a new transmission, or some other costly component just prior to ordering a new unit. Or, conversely, we have deadlined a unit rather than replace one of these major components.

I want to suggest that we have not given full consideration to our total vehicle management responsibilities by following these practices. How many man-hours could you have saved and how many additional hours of usable service could you have obtained had you replaced an engine, transmission or some other single component? Why not capture this cost savings and further reduce your budget by replacing only those items which are generally in need of replacement. For example, records indicate almost no rear-end failures. Most of the body work performed is related to the tailgate assembly. And as engine and transmission replacements are almost a routine item, why worry about them? I would suggest review of your repair records and then consider retention of those items which are routine in nature of those which have an indefinite life.

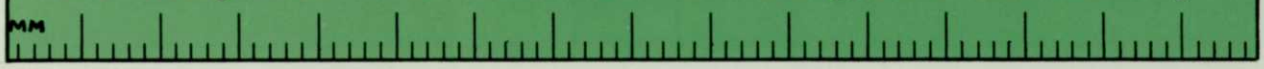
When is it best to lease rather than buy and what type lease arrangement is the most satisfactory? What is the best way to get service for small fleets (5 or 6 vehicles) if the company does not have a full time maintenance facility? These and other questions confront people in our business regularly. It would seem that one of the ways to accomplish this end would be to lease or rent. Let's look at this in some detail.

There are mainly two types of

(continued on page 84)

Equipment management means keeping abreast of new changes in Federal and state regulations. Superintendent Smith points out the new height of this chipper from the ground. OSHA and other laws have increased the safety around machines such as this.

THE METRIC SYSTEM
Its Impact On The Small Engine Industry



By E. L. FISHER
Director of Service
Kohler Company

IF you are 5 foot 10 in your stocking feet this morning, you won't be 5 foot 10 very long.

In five years, ten years, or slightly more, you will be 1 meter 78. When someone asks you how tall you are, you will answer "1 meter 78" — just as easily as you say "5 foot 10" now. On your driver's license, it will be the same — 1 meter, 78 centimeters. If you are elected President of the United States or picked up for vagrancy, the official records will show your height as 1 meter 78.

What I am really saying is **the metric system is on the way.**

Back in 1795 after the Revolutionary War, the United States considered breaking away from the English system of measurements. We were breaking away from England in many other respects. The French, our allies, were promoting a radical new system based on multiples of ten. We had already adopted a decimal coinage system, so there was strong support for the new decimal measurements referred to as the metric system.

Congress failed to act, however; and so we have drifted along using the comparatively complicated English system. How much simpler it would have been if the right decision had been made then. Metric system legislation was introduced in Congress in 1866, 1896, 1901, and many times since. Bills are now being introduced every year, and we can expect passage soon.

Actually, there is no single metric system. France originated the system in the late 1700's, but it has been modified in Germany, in Italy, in Japan, and in other countries to the point that each country has its own metric system — similar to the others but different enough to create problems.

We in this country are working with the metric countries to establish a uniform metric system called the Systeme International, or SI for short. This uniform system is basically metric, it is the one we expect to adopt, and we shall refer to it here simply as the metric system.

Probably not one of us can talk easily in terms of meters, liters, and grams. We have heard the terms. But the metric system is still a bit strange and foreign to us. In fact, it's rather disconcerting to realize that in a few years our Miss America with her "perfect 36" will be gone forever. She will be Miss America with a "perfect 91." But before your imagination starts taking off on that one, let me hasten to add that by that time we will be so metric-oriented that we will think of a "perfect 91" as wonderful, and she will not have changed one centimeter!

Within the small engine industry, we want to know how our transition to the metric system will affect us as manufacturers and distributors and how it will affect our dealers. Will the conversion be costly? Will it be difficult? Will it take much effort on our part to educate our service distributors and dealers?

Let's review the metric system briefly to see how the metric system will affect each of us in our daily lives.

Figure 1 shows some of the basic units of measurement, with comparable metric and English system designations.

Figure 1. Basic Units

UNIT	ENGLISH	METRIC
Length	Inch	Meter
Weight	Ounce	Gram
Temperature	F.	Celsius
Liquid	Quart	Liter
Pressure	PSI	Pascal

Figure 2 shows some of the conversion factors between English and metric linear measurements. This illustrates the difficult part of changing to the metric system. The conversion factors are variable because of the different multiples between inches and feet, feet and yards, etc., in our English system. The difficulty, therefore, is generated by the characteristics of our English system rather than the metric multiples.

Figure 2. Linear Relationships

ENGLISH	METRIC	CONV. FACTOR*
Inch	Millimeter	25.4
Foot	Centimeter	30.5
Yard	Meter	0.914
Mile	Kilometer	1.61

* English To Metric

Figure 3 shows how simple the metric system really is, with various multiples of ten being used whether measurement is lengths, weights, or volume. Some of the multiples are not in common usage but prefixes have been established and are, therefore, part of the system. In the case of the basic unit of length, which is the meter, the other multiples in common usage are the millimeter, centimeter, and kilometer. In the case of weights, with the gram as the basic unit, the milligram and kilogram are the other multiples in common usage.

Figure 3. Metric Multiples

Meter Basic Unit = 1

PREFIX	SYMBOL	UNITS (meters)
Kilo	K	1,000
Hecto	H	100
Deca	DA	10
Meter	(basic)	1
Deci	D	.1
Centi	C	.01
Milli	M	.001

How does the metric system affect our daily lives?

Assume that it's 20 years from now and a new day is dawning. The alarm rings, you bounce out of bed, and the first thing you do is check the thermometer. That's when you enter the metric world. The thermometer reads 10 degrees. That's 10 degrees Celsius. On the old Fahrenheit thermometers it would have been an invigorating 50 degrees.

Perhaps you are familiar with the Centigrade scale from your school

(continued on page 30)

FOR MORE FACTS USE THE POSTAGE FREE CARD

You are invited to use the Reader Service card provided to obtain further information on equipment, materials or supplies appearing in this issue. This card is preaddressed and postage paid.

Your inquiry will be forwarded to the manufacturers in whose products you are interested.

ART EDWARDS
PUBLISHER

FOR MORE FACTS USE THE POSTAGE FREE CARD

You are invited to use the Reader Service card provided to obtain further information on equipment, materials or supplies appearing in this issue. This card is preaddressed and postage paid.

Your inquiry will be forwarded to the manufacturers in whose products you are interested.

ART EDWARDS
PUBLISHER

These two fine-leafed perennial ryegrasses were cut with the same mower. The one on the right shows the fibrous "paint brush" top which is characteristic of ryegrasses. Pennfine, on the left, took a smooth, even cut because it was bred for softer, easier to cut fibers.

Pennfine: the clean-cut perennial ryegrass.

All the new fine-leafed perennial ryegrasses are beautiful. Until the mower comes along. That's the moment of truth for ryegrass. And Pennfine is the fine-leafed perennial ryegrass bred specifically for mowability. You can see the clean-cut look of Pennfine in the photo above. You'll see it in your turf, too.

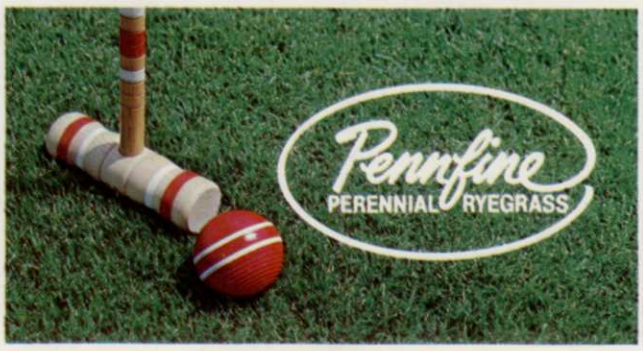
Pennfine vs. other fine-leafed ryegrasses

Developed and released by Pennsylvania State University, Pennfine is the best of the fine-leafed perennial ryegrasses. That's the finding of the trials at University Park, Pennsylvania. Among nine cultivars, Pennfine ranked first in texture, first in density, first in decumbency (low growth), first in tolerance to snowmold and leaf spot. And, of course, first in mowability.

Pennfine mows 'em down

The remarkable mowability of Pennfine — the result of breeding specifically for soft fibers — is demonstrated in the above photograph. It was also proven by the University Park trials. Over a five-year period, Pennfine averaged 8.3 (of a possible 10) in mowability. The next best score was 7.3, and the other cultivars rated considerably lower.

With the finest blade of all the fine-leafed ryegrasses tested, Pennfine is beautiful to begin with. And, because of superior mowability, it stays beautiful. It's also highly compatible with Kentucky Bluegrass, both in terms of appearance and management requirements. If you'd like more information on this clean-cut perennial ryegrass, just send in the coupon.



TO: **Pennfine Perennial Ryegrass**
P.O. Box 923, Minneapolis, Minnesota 55440

Please send me technical information on Pennfine Perennial Ryegrass. ☐ Names of Distributors. ☐

Name_____

Club or Company_____

Address_____

City_____ State_____ Zip_____

Pit Stop For Professionals

Texas Industrial Weed Control Conference Report

TRAINING in equipment use and chemical application procedures continues to be the number one need among commercial applicators. Ask any applicator or spray man, from the most sophisticated to the novice, to rank the items most desired by him in the performance of his job and the overwhelming majority will list training at the top.

Why? No one answer will suffice. The best theory is a combination of factors. Changing laws relating to application of environmental protection chemicals, new applicators coming on the scene, new chemicals on the market, growing awareness of a growing market, more up-to-date application equipment — these and others contribute as reasons applicators give. But in a larger sense, this thirst for training is indicative of an industry poised on the springboard of a newly emerged, highly technical science that demands considerably more qualification and knowledge of its people than what we've had up to now.

Commercial application of environmental protection chemicals is a prescription science where knowledge and experience command attention and where training is a prerequisite to success. Few custom applicators today would attempt to prescribe materials for vegetation control without knowing first the area to be treated and second the effect or end result of each chemical used.

Problem identification and analysis and specific treatment have been emphasized at weed conferences, applicator meetings, by university extension personnel and by chemical and equipment manufacturers. The thrust of all has been more toward specificity with a good deal of actual case study and field demonstrations.

The 8th annual Industrial Weed Control Conference held at Texas A&M University in mid-October was no exception. In two days, delegates were exposed to a barrage of topics, papers, demonstrations and panels the likes of which would educate and train a neophyte to a professional, if he could assimilate all the information.

Sponsored by the Texas Agricultural Experiment Station and the Texas Transportation Institute, this conference represents probably the only one of its kind devoted entirely to industrial weed control. This year's meeting covered the Federal Environmental Pesticide Control Act (FEPCA), aquatic weed control in Florida, OSHA, problem analysis, vegetation control on rights-of-ways, parks and lawns, brush, trees and vines, and total vegetation control.

Conference chairman Dr. Wayne G. McCully, department of range science at Texas A&M, opened the session saying that conferences of this type give us a chance to make headway in weed and brush control.

One of the early speakers was James Pumola of Region VI, Environmental Protection Agency. He reviewed the history of pesticide legislation and outlined the need for the present FEPCA. "This is the first law in which applicators must be licensed in order to apply chemicals," he said.

Pumola carefully reviewed several sections of FEPCA as they apply to applicators. "Pesticides must be classified according to restricted or general use," he said. Scheduling on licensing of applicators for the state of Texas will be established after the regulations are published on December 21. He concluded by saying that it is the intention of EPA to turn over the administration of FEPCA to the states.

Looking at a model program for Texas, Harry Whitworth of the Texas Agricultural Chemical Association told delegates that the primary program is the certification of commercial and private applicators. He said that the tests to be developed for certification "must be of sufficiency to demonstrate the ability of the person to properly apply the product for which he will be licensed."

Whitworth mentioned that currently the authority of FEPCA is at the Federal level. "Enforcement is placed at the state level," he said. "It is incumbent that the state pass an act in the next legislature." He said that help is needed in implementing this bill because environmentalists will bring much pressure on legislators.

Dr. Alva P. Burkhalter, coordinator, aquatic plant research and control, Florida Department of Natural Resources, enlightened those present with Florida's program for aquatic vegetation control. "The department has these functions:" Burkhalter said, "1. control of offenders, 2. training programs for certification of applicators, 3. regulation of plant movement, 4. research — in house and with Federal and state agencies. . . ."

He said that the state's major aquatic problems have been weed species which were introduced into Florida's waters. Water hyacinth, hydrilla, Eurasian watermilfoil, Brazilian elodea and alligatorweed were brought into the state.

Burkhalter pointed out that his state had taken decisive measures to control these aquatic weeds. Use of herbicides, mechanical weed harvesters, biological controls (insects), and herbaceous fish have been used to keep weed growth under control. He explained that a combination of biological and chemical methods appears to be better than either alone. This means that when several factors attack weed growth, the resulting damage is greater than one factor by itself. Thus, where chemicals are used to treat water hyacinth, the addition of the flea beetle enhances the weed killing action.

The opening session dealing with regulatory and legislative action pertaining to the user closed with a discussion of the Occupational Safety and Health Act by Jim Powell, assistant director, OSHA, San Antonio. OSHA deals strictly with an employee/employer relationship. It affects any employer who employs and works in interstate commerce, he said.

Powell said that in simple terms the act requires the employer to

provide a safe environment for the employee. There is no penalty for the employee, he said, only the employer. It allows the employee to make a complaint directly to OSHA without going to the employer first. Noticeably missing from the discussion was specific points as to what OSHA looks for in the no notice inspections. Powell tended to hang his speech entirely on explaining what the law was rather than telling applicators what they should do. More than one applicator commented that many of the important points that might affect his business were glossed over. It might be safe to conclude that those applicators present were given no new facts about how OSHA affects the industrial herbicide applicator.

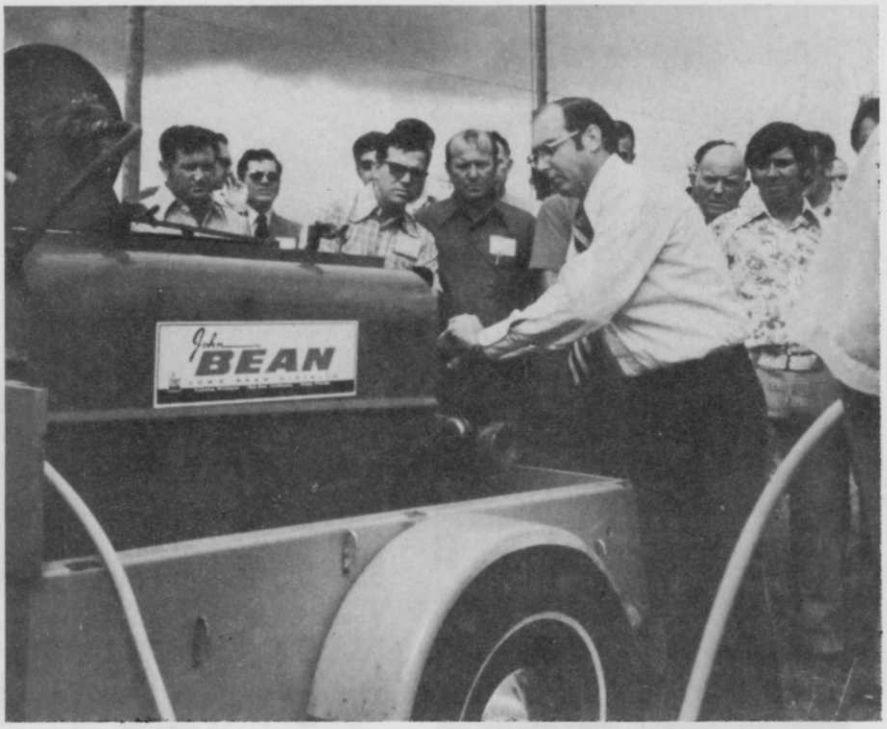
New products were next on the program. Delegates showed much interest in Spike, an experimental herbicide from Elanco Products Company. When registration is approved by EPA, this product will be available in four and fifty pound packages. It is non-corrosive and has an LD_{50} rating of about 500 mg/kg. The product can be applied pre- or postemergence and it is active against herbaceous and woody plant species. Delegates were able to see demonstration plots of this material at the Texas A&M research annex.

Vic Jouffrey, FMC Corporation, told delegates about the John Bean highway boom. It's a boom powered by a hydraulic cylinder which can be adjusted from inside the truck. Jouffrey said that it is made with two movable sections and can be used in conjunction with any sprayer.

Another interesting approach to weed control was the Weed Zapper, a kind of giant micro-wave unit that super cooks weeds from the inside out. Larry Benson of Oceanography International Corporation, College Station, Texas described the process as one method of weed control that leaves no residual. "When the Zapper passes over, weed tissue is destroyed," he said. There has also been research conducted with the Zapper in nematode, fungus and insect control.

Field demonstration and displays of equipment and chemicals were an integral part of the conference. One product which caught the attention of delegates was Lo Drift, a spray additive which reduces the drift potential. Jack Thompson of Amchem said that it could be used in nearly every application of herbicides to reduce drift and keep the herbicide

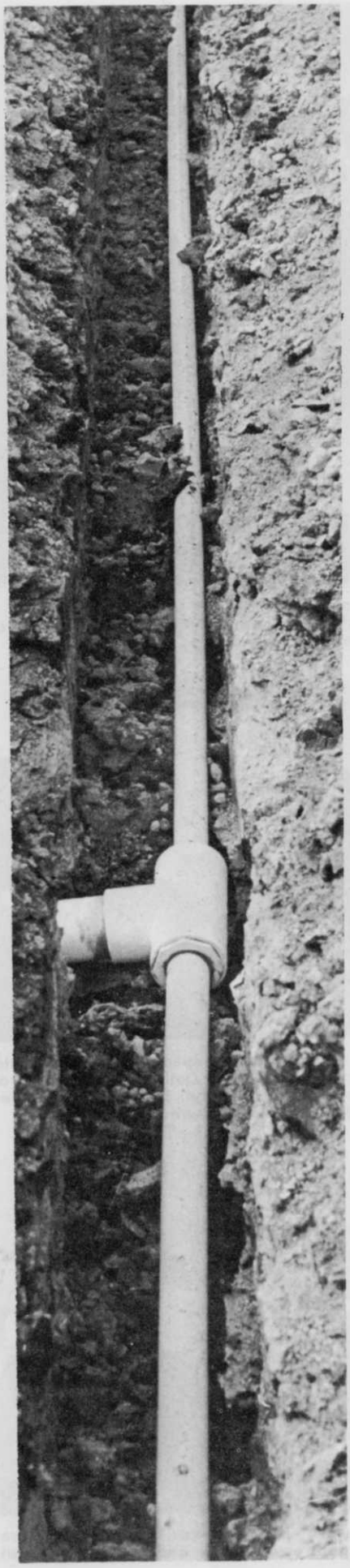
(continued on page 20)



Field demonstrations of sprayers such as this John Bean unit caught the eye of delegates. New equipment is an essential part of any training program. Applicators respond positively to even slight equipment modifications.

During the split session portion of the program, three speakers discussed total vegetation control. Bevan Cates, Van-Waters and Rogers, Dallas, Tex. reported on abatement control, Dr. Allen F. Wiese discussed sterilization, and Robert P. Carter, dept. of soil and crop sciences, Texas A&M spoke on growth regulators.

Lo Drift, a spray additive used to reduce drift potential was demonstrated here. Amchem's ack Thompson showed applicators how to mix and use the material.



About 65 miles of trenching were accomplished. The Dallas/Fort Worth Airport lays claim to the world's largest non-ag irrigation system.

Irrigation Trenching Texas Style

TEXANS, everyone knows, like to do things big!

So it really wasn't much of a surprise when Dallas and Fort Worth announced plans to construct the world's biggest airport.

Located between the two cities, the Dallas/Fort Worth Airport opened in the fall. Covering 17,500 acres, it is larger than New York's Manhatten Island. In 1975, there should be 8 million enplanements. The figure will rise to 24 million by 1985. Including about 18,500 employees, along with passengers, service personnel and visitors, the airport will have a daily population of 100,000 by 1975.

Dallas/Fort Worth Airport is hailed as the best-planned airport facility ever built. And the planning did not neglect beauty. The world's largest airport will have the world's largest non-agricultural irrigation system.

More than $2 million is being spent on the system. Eagle-Formost of Fort Worth is one of the two contractors doing the irrigation job. Eagle-Formost is doing the irrigation work for the airport's spine road system.

Project Manager Dale Ousley says his company's contract comprises half of the total irrigation network. It includes about 65 miles of PVC pipe, ranging from ½- to 4-inches, and 6 million feet of control wire. The pipe is buried from 12 to 18 inches beneath the ground.

All of the work is being trenched, Ousley says.

"We are not doing any vibratory plowing because of the topography. There are no extremely long runs and we need to have the pipe and control wiring in an open trench for inspection purposes."

Ousley's crews are using four different size trenchers, all made by Ditch Witch.

"We have two Ditch Witch C-Model trenchers. They are compact, handlebar units and we use them mostly on traffic islands and other tight areas.

"For the other trenching we are using an 18-horsepower J20, two 30-horsepower V30 and a 65-horsepower R65.

"When we purchased our trenchers, we based our decision on speed, durability, dealer service and potential resale value."

Ousley said another important factor in his selection of equipment was the capability of working on slopes. Ditch Witch, built on a rigid frame, was able to work on extremely steep slopes around the many interchanges. The R65 worked on 3 to 1 slopes.

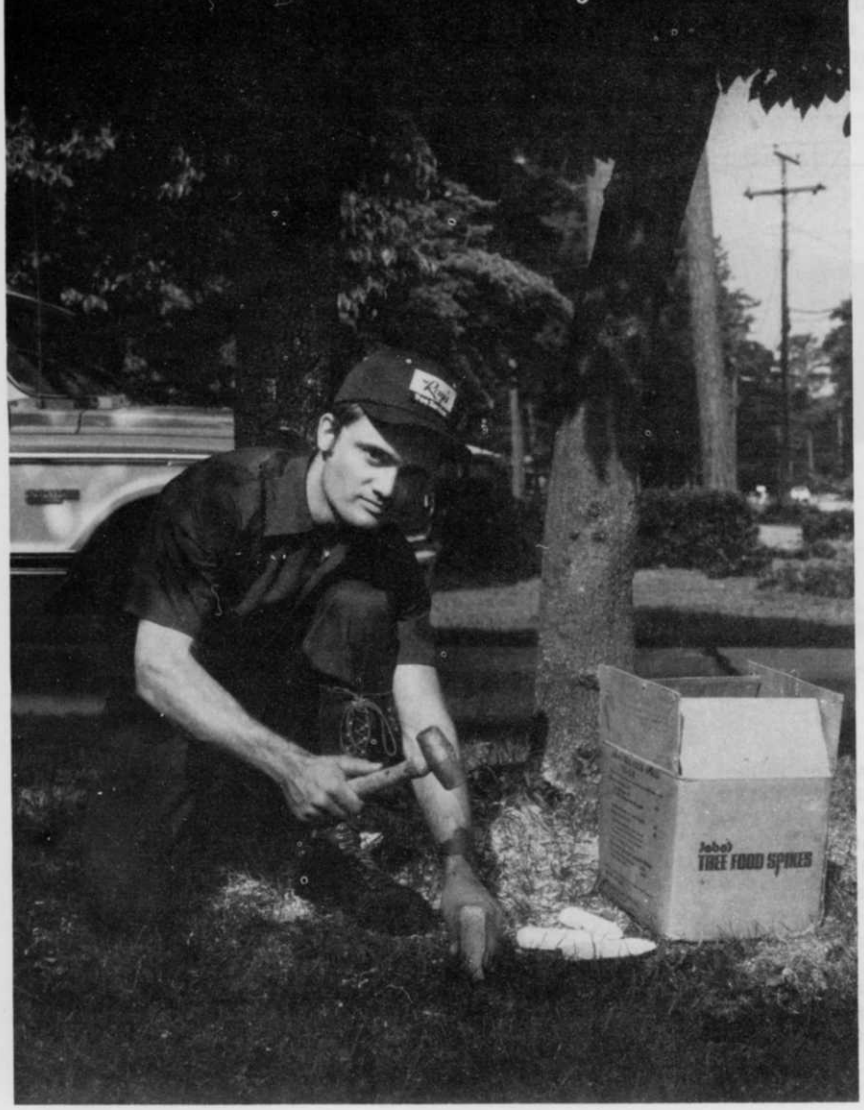
Ousley says the irrigation system is the most sophisticated, workable system in the world. Eventually, its master controllers will be tied in to a computer system.

To whisk people around the sprawling complex, the airport has its own rapid transit system—Airtrans. Electric, 40-passenger rubber-tire cars move through concrete guideways. The average ride to any point is only 8 to 10 minutes.

And as passengers look out of Airtrans, the grass will be a little greener because of a $2 million irrigation system.□

"If you make your living taking care of trees, Jobe's Tree Food Spikes save you time and help your profit."

Ray Kalwara
Ray's Tree Service
Virginia Beach, Va.



"Increment borings have proven to me that you get significant growth with Jobe's Tree Food Spikes. And they're a lot faster than using a drill. My men like them, my customers like them. I like the time they save and the extra money they make for me."
Jobe's® Tree Food Spikes are quicker, easier and more profitable than drilling. Here's proof:

Drilling Method[1]

Bulk 16-8-8 fertilizer—$70/ton *(Example price throughout U.S.)*	
2 lbs./in. of trunk diameter ═10 lbs. x 3.5¢/lb.	$ .35
½ hr. labor @ $4/hr.	2.00
Labor and materials	$2.35

$2.35 ÷ 5" tree = 47¢/in. of diameter

No allowance made for depreciation, amortization, breakage of auger, mistakes, etc.

[1] *Using electric auger*

Jobe's Tree Food Spikes Method[2]

5 spikes 16-8-8 fertilizer—22¢/spike	
1 spike/in. of trunk diameter	$1.10
5 min. labor @ $4/hr.	.33
Labor and materials	$1.43

$1.43 ÷ 5" tree = 29¢/in. of diameter, based on 20 case order.

[2] *Based on results of university field tests and recommendations.*

Give Jobe's Tree Food Spikes a try. Contact your local supplier or write direct.

Jobe's®
TREE FOOD SPIKES
462 East High St.
Lexington, Ky. 40508

PIT STOP *(from page 17)*

on target.

Other displays from manufacturers include sprayers from John Bean and Red Ewald. Chemical suppliers represented were Du Pont, the Agricultural Chemical Division of FMC Corporation and Amchem Products, Inc.

The second day of the conference was designed as a workshop for delegates. Keynote speaker for the session was Turney Hernandez, industrial herbicides product manager, E. I. Du Pont de Nemours & Co., Inc.

Hernandez spoke on "Vegetation Problem Analysis." "As custom applicators you need to decide what your customers needs are," he said. "Does he need bareground, short term control (abatement), selective weeding, chemical trimming, or brush control? Perhaps it is a combination of these types of vegetation control."

He pointed out that there are many different types of herbicides and each is designed to give a different response. The key is to know how each product performs so that selection will give the desired results, Hernandez said.

Hernandez then pointed out the needs of various markets. "For railroads, there's a need to control vegetation in yards, around tressels, in between tracks, and along rights-of-ways," he said. "It has been determined that the efficiency in making track inspections has been increased between 50 and 75 percent when tracks are clear of vegetation." In the case of track components, poor weed control contributes to a general downgrading of the railroad in short order.

The product manager said that plant sites of utilities and rights-of-ways were excellent markets for herbicide usage. Other markets include highways, drainage and irrigation ditches, aquatic weeds, chemical trimming around valuable plantings and ranges.

Using slides to illustrate his points, Hernandez also touched on spray volumes, timing of application and equipment needed in getting the job done. "Keeping the material on the target is an absolute necessity," he said.

He listed these factors as those which affect performance of a herbicide: 1. types of plants; 2. soil type; 3. rainfall; 4. the applicator; 5. temperature; and 6. surfactant. He said that some of the reasons for poor control of weeds are rates being too low, poor agitation, poor selection of nozzles, degraded atmospheric conditions, too little or too much rain, and improper calibration of equipment.

How big is the custom application market? Hernandez said that 80 percent of the non crop weed control chemicals are applied by custom applicators. He concluded by saying that the four principles to successful custom weed control are: 1. measure right; 2. price right; 3. apply right; and 4. follow up right.

Delegates then formed three groups to hear panels discuss selective vegetation control, aquatic control and total vegetation control.

Aquatic Vegetation Control: This panel, chaired by John Gallagher, Amchem Products, Inc., reviewed worked being accomplished in Florida and Texas in the control of aquatic weeds. L. V. Guerra, Texas Parks & Wildlife Department, discussed the control of weeds at Cato Lake. Bill Hogan, Ortho-Chevron Chemical Co., said that there are four approaches to weed control in flowing water. They are: mechanical, biological, chemical and natural. He

(continued on page 22)