

# PRECISION TREE DESTROYER



## PRECISION MODEL 75 TREE DESTROYER

A completely self-supporting system for converting entire trees, trunks, limbs, leaves and all into small chips in a few seconds. Feed through rate is approximately 125 feet per minute. Maximum opening in spout is 22" diameter. No outside power source is required.

### FEATURES:

1. 75" — 3 knife Precision Chipper powered by Cummins 310 HP diesel engine.
2. Hydraulically powered crushing rolls.
3. Heavy duty articulated knuckle boom loader with 20' reach and 400 degree swing, capacity at 15' is 7504 pounds.
4. Hydraulically powered chip discharge spout for spreading or loading chips.
5. Chipper hood opens easily with one man by hydraulic hand pump.
6. Air system built in for air wrench to change knives.
7. Heavy duty stabilizers powered hydraulically on all four corners. Set up for operation in a matter of minutes.
8. Air brakes and lights to ICC regulation.
9. Hydraulically powered reversing conveyor 25' long with 6110 chain.
10. Custom built trailer 35' long, 8' wide and 12'9" overall height.
11. Wheels are dual tandem and 1000 x 20.

Weight approximately 67,000 lbs.



### — Announcement —

After a quarter-century of building custom chipper equipment for the forest products industry, all of which has been of a stationary design, the company has made the decision to make precision equipment—large in design for major work similar to that demanded by the forest products industry, yet mobile enough to serve the major tree company, the municipality and others with big tree removal jobs.

The Management



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# Long Range Weed Control Programs For Improved Environment

By LEO MILES  
Herbicides Specialist, FMC Niagara



Left side of forest road is treated with Tandex® in test program to study effectiveness, and chemical movement. Photo three months after treatment.



Effect of residual acting (root-absorbed) Tandex® herbicide on tough phragmites weeds, left. Untreated weeds at right continue growth.



Difficult to control phragmite species, which thrives in marshy areas, present fire hazard in southern New Jersey. Effective measures have long been sought.

A SERIES OF WEED CONTROL development programs that may hold the answer to some of the environmental problems plaguing the country are now being conducted by FMC Corporation's Niagara Chemical Division in cooperation with various government agencies and private concerns.

The programs are aimed at establishing effective and practical techniques for treatments with a recently developed herbicide called Tandex® which has been found unusually effective in controlling many different kinds of weed species including difficult-to-kill woody plants.

The compound was cleared two years ago by the U. S. Department of Agriculture for a broad spectrum of non-crop uses. It has already shown high potential as a herbicide treatment for industrial sites, highway shoulders, railroad rights-of-way, parking lots, and military and airport installations.

Some of the studies now underway, however, extend far beyond these specific applications. They embrace not only new practices in disease and insect control, conservation and forestry, fire prevention, and halting the rapid spread of noxious weeds but also more efficient ways of applying herbicide materials.

Among the programs now in various stages of evaluation, based on Tandex treatments, the following have been disclosed by Niagara Chemical:

- **Rangeland Improvement**—Treatments at carefully controlled rates and in set patterns are being made to eliminate brush and broadleaf weeds while "releasing" desirable grass species—allowing these grasses to grow and spread for livestock forage and silage harvesting. Its unusually low order of mammalian toxicity makes Tandex of special interest in applications such as this.

Another program that is expected to receive attention is the use of weed controls in wildlife management—to improve existing environmental conditions for wildlife.

- **Forest Fire Control**—Eliminating the understory of brush, small trees and vegetation while leaving unharmed the remaining overstory—a desirable practice in forest management—is being undertaken with Tandex sprays. In the event of fire, this practice tends to trap airborne sparks and embers beneath the overstory, hence minimizing their spread.

The establishment of firebreaks



and fire areas with higher use levels of the herbicide is also being examined. Effectiveness and persistence of the control, safety, and chemical movement on or within the soil are among the factors being studied.

- **Other Forestry Practices**—Control of vegetation on forest roads with chemical treatments is being tested. These roads, which are often populated with small to moderately sized brush and young trees along their rights-of-way, serve not only as access routes but in some cases as firebreaks and back fire areas.

Usage rates that will allow the treated sites to be reforested when planning so indicates are another aspect of the program. The tolerance of forest transplants to chemical residues over a period of time is being established.

- **Disease Control**—Chemical treatments are also being developed to eradicate, at practical levels, woody species that serve as alternate hosts of certain fungous diseases. These include *Berberis* (barberry) species which harbor wheat stem rust and *Ribes* (currants and gooseberries) species that host white pine blister rust.

- **Mosquito Control**—Phragmites, a hard-to-kill reed that populates marshy areas, is the breeding home of many mosquito species. Control programs that can eliminate this weed economically and hence upset the conditions under which these insects thrive are being explored.

The effectiveness of Tandex in curbing Phragmites also suggests uses as a control of semi-aquatic vegetation in man-made waste lagoons and swamp areas. Test work in the eradication of difficult-to-kill weed species in sewage lagoons has been established in the midwest with outstanding results.

- **Stopping Noxious Weeds**—Noxious weeds have become real problems in many parts of the country. They multiply and are rapidly disseminated so that some states have passed laws requiring land owners to control these pests. Leafy spurge, a noxious weed common to North Dakota, is a typical example of the problem these species pose. It was first identified some 60 years ago growing in a Fargo, N.D., street. Today it is one of the state's most persistent and noxious weeds and infests over half a million acres of land.

Spot treatments of Tandex that can be applied by convenient hand shaker have just been introduced by

Niagara to combat such species while they are still small clumps of vegetation—in fields, farm roads, along ditch banks and similar non-crop areas which, left untreated, could develop into major weed-breeding grounds.

Special application techniques have included the use of grid treatments to apply Tandex in pre-determined patterns to eliminate brush and other undesirable vegetation by vertical percolation (downward but not lateral movement in the ground). Such applications would

allow certain grasses to spread over and around the treated areas for not only rangeland and forestry programs but also beautification of undeveloped areas.

Tandex is commercially available as an 80% wettable powder (80 WP) and 4% granular (4G) material for either pre-emergent or post-emergent treatments. Experimental formulations in pill and pellet form that would simplify spot treatments and eliminate drifting or blowing of material are being investigated by Niagara Chemical.

# NEW 72" AND 90"

## TERRAIN KING FLAIL MOWERS

The cutter with the  
"Quick Change" Knives

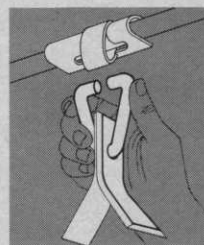
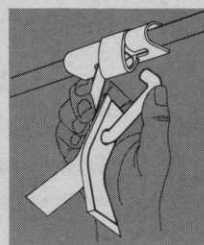
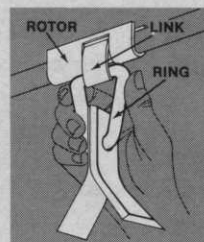
The knives in Terrain King's new Flail Mower can be changed without tools — from a selection that tailors the Flail Mower to your exact requirements. And the knives are reversible for extended service life.

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The Flail Mower adjusts easily for cutting heights from 1-1/4" to 7". It is available in lift or pull models, in 72" and 90" cutting widths.

Many of your mowing needs fall easily within the Terrain King Flail Mowers capabilities. The Terrain King One Complete Mowing System, comprising a wide selection of single unit Rotary Mowers, the 15' and 25' Wide-Swath Rotary Mowers, the versatile Slopemower\* and the unique RAILBIRD®, can handle the rest.



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\*Slopemower and RAILBIRD are trade marks of Astron Corporation, a subsidiary of Engler Manufacturing Corporation.

## For Registration and Monitoring

# Companies Spend Heavily

The outlook for new pesticides is not necessarily a bleak one, nor is it optimistic. We might call it a guarded situation. Most companies in the industry are still spending heavily.

But their major increases in expenditures are for (1) registration

costs, (2) costs of maintaining approved registrations, and (3) testing and continued research on existing products. In short, the big spending is largely to protect chemicals already on the market or presently in the development stage.

Less effort apparently will be expended for (1) screening chemical compounds to determine whether they might contain some pesticidal activity and (2) synthesizing compounds for pesticidal screening — both practices related to discovery of new pesticide activity among chemicals.

These conclusions result from a survey of the industry research and development conducted by the accounting firm of Ernst & Ernst. The survey by the firm was conducted on 33 member companies of the National Agricultural Chemicals Association. The NAC employed Ernst

& Ernst to collect and tabulate confidential data and make their report without disclosing information which might reveal operations of individual companies.

The firm was assisted by a task force committee of NAC directors. On the three-man team was Jim Ross, Monsanto, Ken Givens, Hercules, and R. C. Lindstaedt, Elanco. Data on the study completed in May were released in a Washington, D.C. press conference on May 26. It constituted the first specific data made available on costs in time and money for putting pesticides on the market. This report constitutes a summary of the survey as presented to the trade press. Opinions accompanying data in this report are those of the editorial staff of this magazine and were not necessarily a part of the Washington press session.

Basically, the survey covered the years 1967 through 1970, and in some

**Table 1. Pesticide industry sales for 1969.**

	Pesticide Sales (\$Millions)
Total Pesticide Industry *	\$ 851
Participating Companies **	\$ 693
Percent of Total Industry	81%

\* Per U.S. Tariff Commission Report 7/31/70

\*\* 33 Participating companies

**Table 2. Pesticide sales of 33 NAC participating companies.**

	1967 (\$Millions)	1970 (\$Millions)	% Change (1967-70)
Domestic Sales	\$517	\$602	+16%
Export Sales	122	120	- 1%
Total pesticide sales	\$639	\$722	+13%

**Table 3. Pesticide R & D expenditures of 33 participating companies.**

TYPE OF EXPENDITURE	1967 \$Million	1970 \$Million	% Increase 1967-70	EST. 1971 \$Million
Synthesis & Screening	\$17.7	\$22.0	24%	\$21.3
Field Testing & Development	15.9	22.3	40%	22.7
Toxicology & Metabolism	6.9	9.1	32%	10.5
Formulation & Chemical Development	8.9	12.3	38%	12.8
Registration & Other	2.9	4.2	46%	4.3
Total R & D expense	\$52.4	\$69.9	33%	\$71.6

**Table 4. Relationship between pesticide sales and R & D expenditures of participating companies.**

	1967	1970	% INCREASE 1967-70
Pesticide Sales (\$Millions)	\$639	\$722	13%
R & D Expenditures (\$Millions)	\$52.4	\$69.9	33%
R & D Expenditures as a Percent of Sales	8.2%	9.7%	

**Table 5. Industry estimates of typical pesticide development requirements.**

	1967	1970	% Increase 1967-70
Cost of Discovery & Development	\$3.4 Mil	\$5.5 Mil	60%
Elapsed Time from Discovery to Marketing	60 Mos	77 Mos	28%
Number of Compounds Screened for Each New Product Marketed	5481	7430	36%



instances included plans for 1971. Of total industry sales of \$851 million in 1969, some 81% or \$693 million was made by the 33 NAC members studied in this report.

The 33 NAC companies reported \$69.9 million in pesticide research and development (R & D) expenditures for 1970. This was an increase of 33% over '67. The same group also expects to spend about \$1.7 million more in 1971. But if 5% is allowed for inflation during the past year, this increase in dollar cost will actually represent a decline to about \$68 million — if compared with the \$69.9 million of '70.

Formulation and chemical development increased 38% from '67 through '70. Toxicology and metabolism was up about 32% and both are expected to increase during 1971. Synthesis and screening was up 24% over the three years and is expected to be down in '71.

An important measure of the degree of industry effort — for which the industry deserves commendation — is the number of man years expended for R & D. A total of 2768 man/years was applied to pesticide R & D activities in 1970. This amounted to a 17% increase over 1967. Plans for '71 would indicate almost 100 fewer man/years will be expended than a year earlier. Overall, the data indicate that the upturn in R & D in recent years has reached a plateau.

R & D activities have increased rapidly when compared to sales. Between '67 and '70 sales of pesticides were up 13%. At the same time R & D activity costs climbed 33%. Despite the inflation-effect in both figures, R & D costs were increased more rapidly than sales, all of which indicates that the industry is doing more exhaustive testing and more monitoring of existing products.

By way of summary of this point, almost 10% of pesticide sales dollars are applied to overall R & D.

NAC companies spent \$16 million for regulatory maintenance (as a part of the overall R & D funding) in '70 — or about twice the level of three years earlier. Apparently, '71 will be about the same as '70.

Important in the overall picture is that new developments and new methods of research and evaluative work have made possible more sophisticated testing. These new approaches are costly and probably account for much of the increase in costs.

Another very important segment

# Takes Years to Grow 'Em...

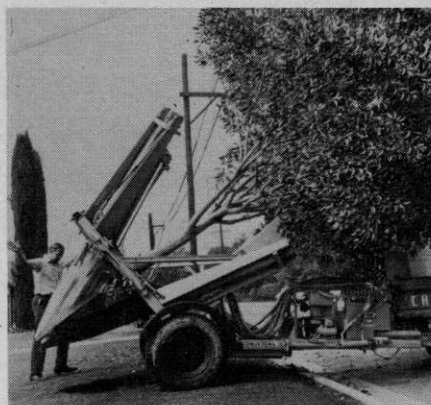


Truck-mounted  
Model TS-66T

only minutes to move 'em with

## Vermeer Tree Spades

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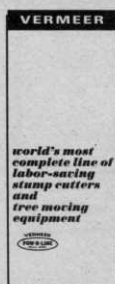


Trailer-mounted Vermeer model TS-44A, above, gently lowers large tree into previously dug hole. Instant shade . . . in minutes!

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**Table 6. History of 57 products from 30 NAC companies including 22 herbicides, 20 insecticides, and 7 fungicides.**

	Averaged Elapsed Time (Months)
From first screening to decision to develop	33
From decision to develop to first registration submission	19
From first registration submission to approval	11
Average R & D man/years From Screening Thru Approval	49 yrs

is that the companies plan to screen some 2800 fewer chemical compounds this year than a year earlier. Likewise, they will synthesize 1400 fewer compounds in seeking to identify pesticidal activity.

More R & D personnel in recent years have been added with advanced degrees. Number on company R & D staffs with doctoral

degrees was up 23%, with masters and bachelor degrees being up somewhat less. Again, a minor decline is anticipated.

Pesticide development requirements in this survey are based on a summary of opinion rather than factual data. Companies in the survey put the cost of discovery and development of a pesticide at \$5.5

**Table 7. Registrations cancelled or suspended for 33 participating companies.**

	1968	1969	1970
Products Removed Entirely From Market	25	18	123
Restrictions Placed On Existing Registrations Which Cancel or Suspend:			
Certain Crop Applications	497	354	331
Certain Product Formulations	(D)	34	37
Use in Certain Geographical Areas	(D)	34	8
<b>Total restrictions</b>	<b>717</b>	<b>388</b>	<b>376</b>

(D) Insufficient Data

million in 1970, up 60% in three years. They estimate some 77 months or almost 6½ years to take a compound from discovery to marketing — an increase of 28% in time over '67. The estimate of the average number of compounds which have to be screened for each marketable product is 7430 — up 37% over '67.

Key points in a summation of this industry study would seem to be that: (1) R & D costs grew faster than sales, now amounting to about 10% of total sales; (2) R & D activity has increased in recent years but a downturn is indicated; (3) Registration costs are the fastest growing segment of R & D; (4) Effort applied to R & D work to monitor current products has more than doubled since '67; (5) There is a dramatic increase in the number of products removed from market; and finally, (6) Time required for registration has increased substantially.

### Golf Course Architect Offers Construction Article

The firm of Robert Muir Graves Golf Course Architect is offering an article published as result of a presentation by the firm to anyone associated with the golf industry.

Mr. Ronald W. Fream of the firm has announced that the article, "Build It Right the First Time," is available by contacting the firm at 3186 Old Tunnel Rd., Lafayette, Calif. 94549. There is no charge.

The original text was first presented to the 1970 Southern California Institute.



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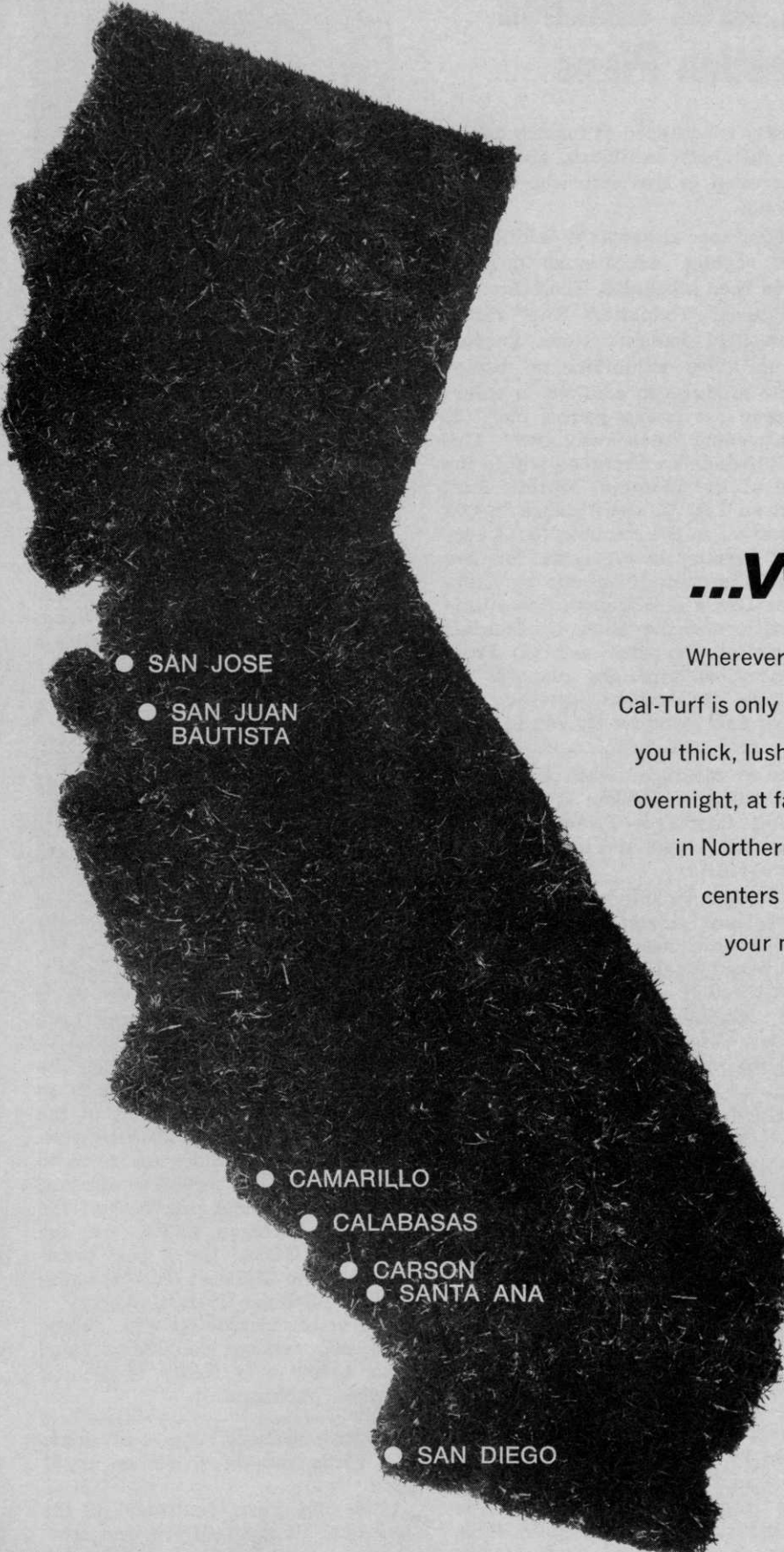
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# Outdoor Demonstration Area Included ISTC Updates Its Convention Plans

Plans for the commercial exhibit at the 47th Convention of the International Shade Tree Conference this August have been updated.

Plans now encompass an outside arena both for display and demonstration of large equipment. This area will be in addition to the regular exhibit hall display section.

Other new items of news to ISTC members and guests who will headquarter for the convention at the Queen Elizabeth Hotel, Montreal, Quebec, Canada, August 7-12, include a reception party for the entire convention. This party, to be hosted by the Montreal Municipal Nursery, will be held Tues., Aug. 10, from 4:30 p.m. until 6:30 p.m. Heavy equipment may be shown at this time also, by any exhibitor who has reserved a booth at the headquarters hotel. No extra exhibitor charge will be made for this showing.

Executive Secretary E. C. "Cal" Bundy (P.O. Box 71, Urbana, Ill.

61801) is equipped to furnish details for members, exhibitors, and others interested in tree care who wish to attend.

Four special events in addition to the regular educational program have been scheduled. These are: (1) A special "Exhibitors Nite" rather than field demonstrations. Purpose is to allow exhibitors to display their products in addition to entertaining via prizes, games, etc.; (2) An evening break-away event. This will include an afternoon trip to the site of the Montreal World's Fair, and an I.S.T.C. street dance in Old Montreal in the evening; (3) A second evening is set aside for two special presentations, one by Clarence Lewis of Michigan State University, and the other by Stauffer Chemical Company; and (4) Post-convention trips are planned for Europe (2) weeks), Quebec City (overnight), and for Ottawa (1 day).



Norman W. Kramer

## Norm Kramer Suffers Fatal Heart Attack

Norman W. Kramer, golf course superintendent at Point O'Woods Golf and Country Club, Benton Harbor, Mich., died suddenly June 3 of a heart attack. He was 44.

Kramer had just completed a tenure as president of the Golf Course Superintendents Association of America. During the past 13 years, Kramer shaped Point O'Woods into peak championship condition for the 1963 and 1965 Western Golf Association Amateur Championship tournaments. He was in the midst of preparing for the 1971 Western Amateur, which is being held on July 28 through August 1.

Kramer has been active as a member and leader in many local and regional turf and superintendents' organizations. When he left Illinois for Point O'Woods in 1959, he was vice president of the Midwest Golf Course Superintendents Association. Since his move to Michigan, he has served as director, vice president and president of the Western Michigan GCSA and the Michigan GCSA. He is past president of the Midwest Turf Foundation at Michigan State University.

Survivors include his wife, Peggy, and two teenage daughters, Lauri and Lynn, who reside in Benton Harbor, Michigan.

stallation systems. Copies of single standards remain available at \$1 each.

Freeman Parr, chairman of the association's standard practices committee, and a number of NAA arborists have recently completed an update of these standards which makes the new publication an asset to the industry.

## Gabriel Chemicals Acquires B. G. Pratt Company

Gabriel Chemicals Limited of New York City has announced acquisition of the B. G. Pratt Company, originator and manufacturer of garden chemicals and arborist sprays. Pratt has been in business since 1904 when the company started marketing Pratt's Scalecide.

Gabriel Chemicals is a basic product formulator in both the agricultural and industrial markets. Together, the companies have more than 300 products registered with the Environmental Protection Agency.

Executive and sales offices of both Gabriel and the Pratt Division are located at 204 Twenty-First Ave., Paterson, N. J.

## NAA Establishes Fee For Home Study Course

The National Arborist Association has set a fee of \$75 per enrollee for non-members who wish to subscribe to its home study program. Members pay \$50.

The program consists of technical and practical aids in the field of tree care and was originally designed as a training course for tree care company staffs. It has been written primarily by staff mem-

bers at Michigan State University and edited by William P. Lanphear, Forest City Tree Protection Company, Cleveland, and now president of the NAA.

Subjects include commercial arboriculture, anatomy and physiology of trees, soils, pruning of shade and ornamental trees (two lessons), identification and selection of trees, and fertilizing and watering of shade and ornamental trees.

Course kits are mailed each enrollee and under supervision of the employing firm, the student proceeds with assignments at his own optimum pace. Each kit includes testing materials to be returned and graded by NAA.

Applications are available from NAA headquarters, 2011 Eye St., N.W., Washington, D. C. 20006.

## National Arborists Publish Tree Care Standards

A comprehensive statement of tree care standards has been published by the National Arborist Association. The NAA for the first time is making these available to the industry as a single publication.

Copies are available at \$4 for the complete set of four Standards which includes (1) pruning, (2) bracing, cabling and guying, (3) fertilizing, and (4) lightning protection in-



## Industry Glossary Available This Month

"Technical Glossary of Horticultural and Landscape Terminology," a new hard cover publication is slated for completion this month.

Published by the Horticultural Research Institute, it contains more than 2100 horticultural and landscape terms, plus more than 700 meanings of botanical names. The new glossary promises to become a major reference work for the industry as well as for consumers.

President of HRI, R. E. Brown, whose organization led in development of the book, reports that most of the compiling was done at Pennsylvania State University. Frank A. Burggraf, professor of landscape architecture at Penn State and students in the department spent 18 months compiling words, terms and definitions. Industry leaders and other university personnel reviewed the work in progress as well as making contributions. Associations concerned with tree care, landscaping, sod production, nursery business, and others also contributed to the publication which concerns each of them.

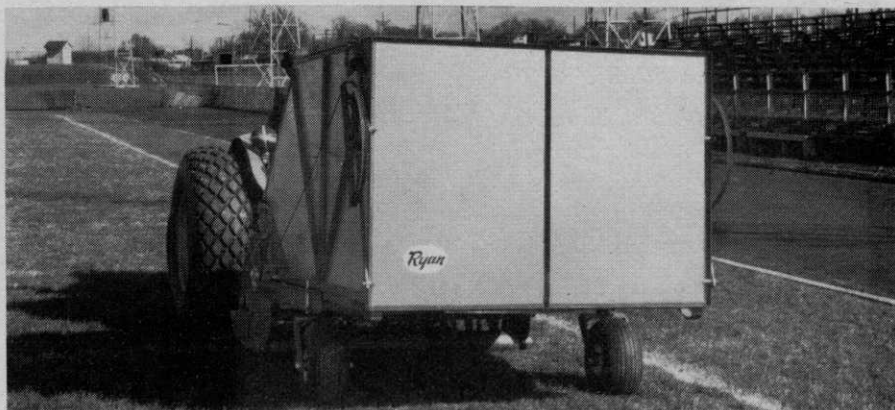
The technical glossary will be made available by HRI at \$9.95 per copy. However, prepublication orders are priced at \$7.50. HRI headquarters is located at 835 Southern Building, Washington, D. C. 20005.

## Gypsy Moth Infestation Found In Florida

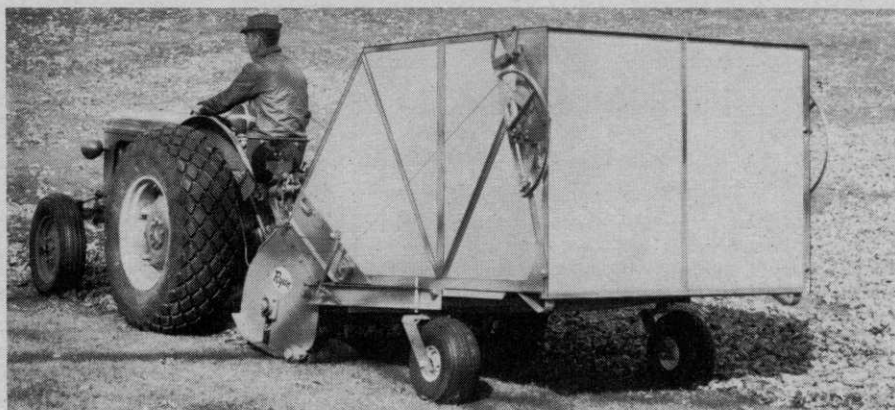
The gypsy moth has hitchhiked into Florida via a mobile home. Egg masses were discovered late last year attached to the housing unit in a trailer park at Pensacola. The unit had been moved to Florida from Connecticut. This season—May 5—an infestation was found and the entire trailer park area is undergoing an emergency treatment program.

Officials of the USDA's Agricultural Research Service report the area is being sprayed with carbaryl. An intensive survey program is also underway in the Pensacola area.

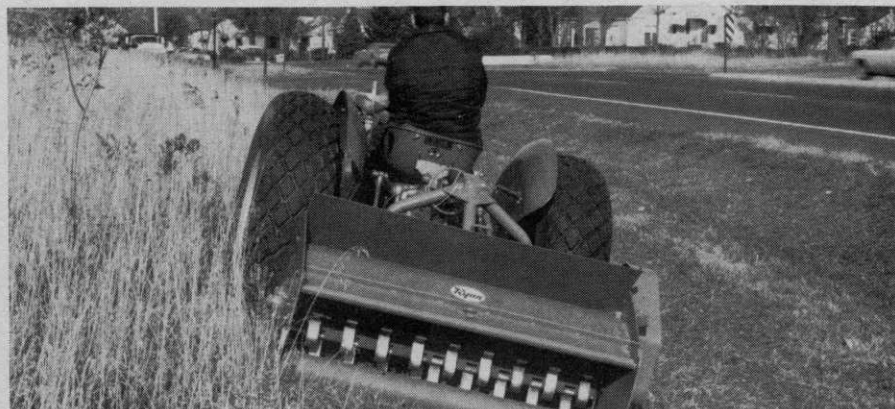
Seriousness of the situation can be gleaned from the fact that gypsy moths defoliated more than 800,000 acres of woodlands in the Northeast last summer. This more than tripled 1969's defoliated acreage and is six times the amount of damage caused in 1968.



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Got an acre or more of turf to maintain? Then you need the Ryan Grounds Groomer. It dethatches, sweeps and mows large turf areas. Even prepares seed bed for overseeding.

The tractor-drawn Grounds Groomer has vertical blades that slice and literally blow lifted thatch, leaves, twigs, pine needles and cones, and other debris into the big 5-cubic-

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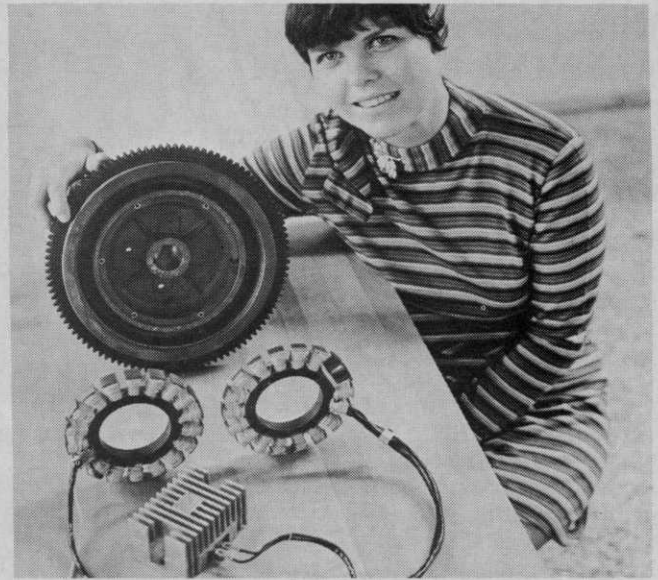
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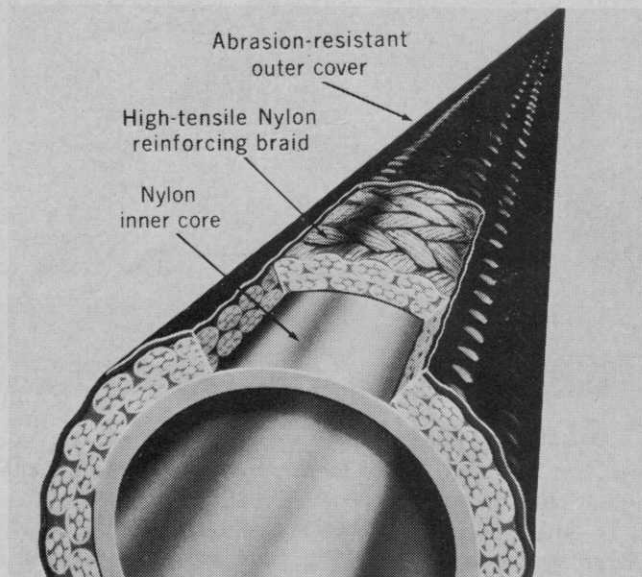
**PLASTIC NETTING FOR EROSION CONTROL:** Conwed Corp., St. Paul, Minn.

Oriented polypropylene netting used in many erosion control applications is but one product featured in new brochure from Conwed. Booklet gives technical details on the full line of plastic netting. Oriented and unoriented plastic netting, lay-flat tubing and rigid tubing are described. Sections on each area include such information as strand counts, hole size, weights, roll widths and diameters. For more details, circle (701) on the reply card.



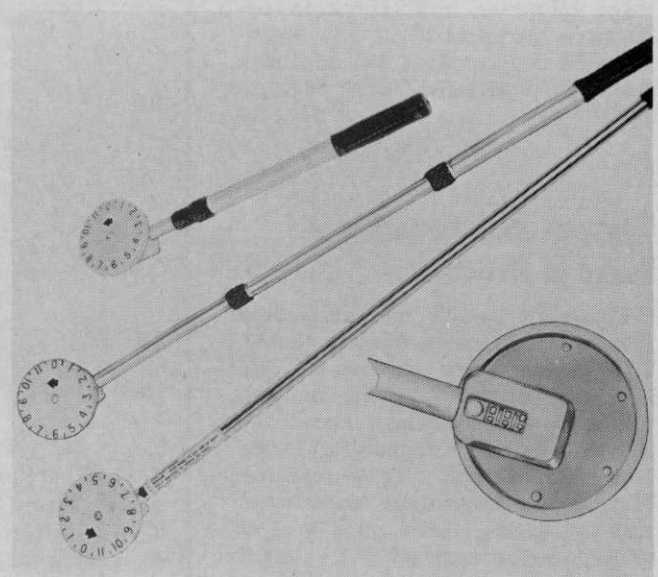
**ALTERNATOR SYSTEM:** Kohler Co., Kohler, Wis.

A 15-amp alternator system now is standard on four-cycle Kohler engines from 6-HP to 14-HP. Provides more electricity for accessories offered on today's engine-powered equipment. To achieve the higher output, Kohler incorporated ceramic magnets and increased number of coils in the alternator. Of the 18 coils in the alternator, 16 generate electricity for battery, lights, and accessories, and two of the coils power the triggering device on engines equipped with breakerless ignition. Regulator-rectifier, which converts the AC output of the alternator to DC, also controls the charging rate for the battery, providing a fully-regulated system. For more details, circle (702) on the reply card.



**NYLON HOSE SAVES WEIGHT:** Aeroquip Corp., Jackson, Mich.

Low-cost nylon hose has been developed by Aeroquip Corp. for use on hydraulic and other fluid-carrying applications. Available in both double and single braid constructions. Double braid hoses have blue thermoplastic tubing, designed to meet or exceed SAE 100R7 specifications. Available with black perforated outer cover or orange non-perforated outer cover for applications near high voltage lines. Both tested at +150° F for 1000 hours in most commercial hydraulic fluids without swelling or degradation. Temperature range for continuous service is -40° F. to +200° F. FC120 Hose is available in 3/16" through 1" sizes; FC172 Hose, in 1/4" through 1/2" sizes. For more details, circle (705) on the reply card.



**MEASURE METER:** Industrial Specialties, Northridge, Calif.

Meters are composed of a 36" rod-handle with plastic hand-grip used to push a 4-inch measuring wheel, to which a footage meter is attached. Manufacturer claims accuracy to within one inch in measuring distances from one inch to 1000 feet. After making necessary measurements along any straight path, around curves, up or down walls, across ceilings, over smooth or rough surfaces, the meter is read, then can be instantly reset to zero with the touch of a button. Made of aluminum and impact-resistant plastic for exceptionally long wear and light weight (only 16 ounces). For more details, circle (706) on the reply card.