

north-south from Syracuse to Binghamton. It now has moved west to Rochester and south into Pennsylvania. Heavy infestations still exist in Long Island and Suffolk County with no significant decline noted. Severe infestations remain in the lower Hudson Valley.

Pennsylvania may take much of the brunt of the gypsy moth onslaught in 1973. Forest entomologist James Nichols reports that infestations are especially heavy in the central regions of the state, including Union, Bedford and Somerset counties. In fact, there are only six counties along the western boundary of the state that don't report some gypsy moth.

Virginia and West Virginia authorities also report some penetration by the voracious insect.

Spread of the gypsy moth is seemingly constant. They attach themselves to cars, trucks, and vehicles. Even wind currents can carry the tiny larva up to 20 or 30 miles and often greater distances. Natural predators are few. Mature larvae, with bristly hairs, are unpalatable to birds. Most entomologists and insect control specialists now agree that complete elimination of the gypsy moth is unlikely.

In New Jersey orchard pest advisor Jay Kilpatrick reports unexpected good luck controlling gypsy moth last year.

"I had two apple orchards last season — one in Manasquan and one in Freehold — both on an Imidan program to control plum curculio, codling moth, and red-banded leaf roller," Kilpatrick says. The large orchard in Freehold is over 200 acres.

"Last season both orchards were heavily infested with gypsy moth for the first time," he reports. "Around May 15 — or just about the time for the regular spray before petal fall — the caterpillar population was at its worst."

Kilpatrick applied between one and 1½ pounds of Imidan per 100 gallons of water. "Larvae were on every leaf, but the single spray knocked them out. Imidan didn't get its registration for gypsy moth last spring until the season had already started," he says. "Even so it showed me what it can do. What's more,

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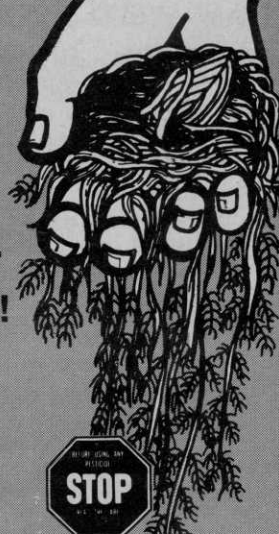
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it doesn't injure honey bees, it's good for aphid suppression, and it has a wide spectrum control of the pests we are trying to get."

Kilpatrick is an orchard pest advisor on the sales staff of Niagara Chemical, Mt. Holly, N. J.

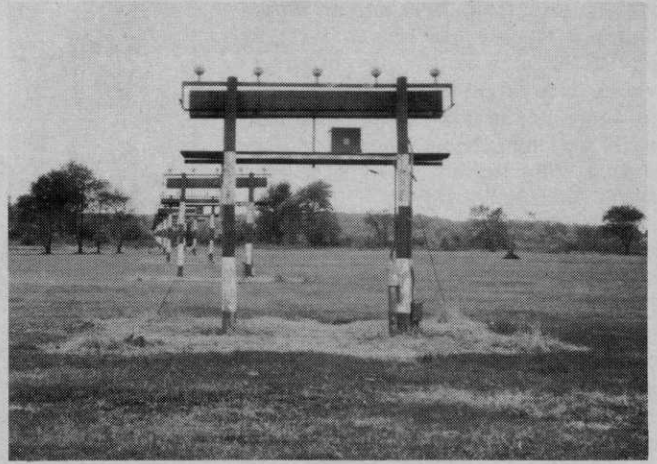
Arborist Wayne Davis of Milford, Connecticut used Imidan on more than 15 residential applications in 1972. "Control in every case was excellent," Davis reports. "I could see no instance of failure—control

was uniformly good and we received no complaints from our customers." Davis indicates he plans to use more Imidan this season.

Elimination may be possible in selected areas using all the natural allies plus the newer, temporarily environmentally-approved insecticides. But the nature of the gypsy moth almost defies anything but containment. That is the real objective of most control programs today. □



Guy wires and poles are much easier to see and mow around after treating the area with herbicides. Mower operators need never get near these objects.



Treated airfield approach lights keep weeds from interfering with the safety of the operation. These lights can now be easily seen by approaching aircraft.

HALT WEED ASSAULT (from page 48)

tract herbicide All other areas are sprayed with Hyvar X.

Weed-free rings around trees and shrubs are produced by digging and mulching followed by a treatment of Simazine at the rate of 2½ to 3 pounds per acre. Hyvar X, applied at the rate of 10 pounds per acre, controls weeds and grasses under fences, around air field landing lights and under ball park bleachers.

The same rate of Hyvar X is also applied to control vegetation in transformer stations, on railroad tracks, around buildings and loading docks and along parking lot curbs.

"Because of limited manpower and large areas to be treated, we're spraying on a two year cycle," says Haug. "And, although it's not perfect, and annual treatments are recommended by the manufacturer,

we're getting fairly good control over two growing seasons with one spray application."

Agronomist Haug had hoped to treat every fence line, fire hydrant, pole and sign post on the base once a year. But, last November, he lost 80 percent of his crew with a cut-back in funds for the Modern Volunteer Army (MVA). Until the reduction in MVA funds, Haug had six permanent employees and 39 MVA temporary assistants. Now his crew

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is down to eight permanent workers.

"This reduction in maintenance manpower makes our chemical weed control program even more important," says Haug. "Without it, we just couldn't keep up with all the work."

Much of that work involves maintaining 3,000 acres of growing grass. Besides using soil active chemicals around mowing obstacles, Haug and his crew treat at least half the acreage with 2,4-D once a year. Although this controls broadleaf weeds which helps reduce mowing, the base's two, seven-gang reel mowers are still on the move nearly seven days a week during the spring and summer months.

Some lawns in key areas on the base require mowing twice a week and many of these lawns have steep banks which are hard to mow. But Haug has found a way to reduce this maintenance headache, too. His men spray these areas with a growth retardant chemical, Maintain CF 125. One application keeps grass from growing for about 10 weeks which eliminates about 20 mowings, says Haug.

Most brush problems on the base are solved by cutting and spraying stumps with 2,4,5-T in fuel oil to stop resprouting. But Haug is looking for a way to eliminate both cutting and stump spraying. In recent field trials, Hyvar X applied to the soil at the base of the brush looks promising, reports Haug.

In total, Haug is very pleased with results of his chemical weed control program. "But our big problem is getting the chemicals down at the right time," he says. "Sometimes we spray too late and miss chances to spray some areas."

To solve this problem, Haug is working on a way to stretch the normal application season. His plans call for the following spray schedule in 1973:

March-April — spray 2,4-D to control broadleaf weeds in half the grass acreage.

May-June — spray Hyvar X bromacil weed killer to control all vegetation around mowing obstacles not adjacent to trees or ornamentals.

September-October — spray Simazine plus Ammate X around trees and shrubs; along curbs and sidewalk cracks; and around mowing obstacles near trees and shrubs.

Based on his success over the past two years, Haug believes this new spray schedule will reduce Fort Dix's grounds maintenance costs even more. □

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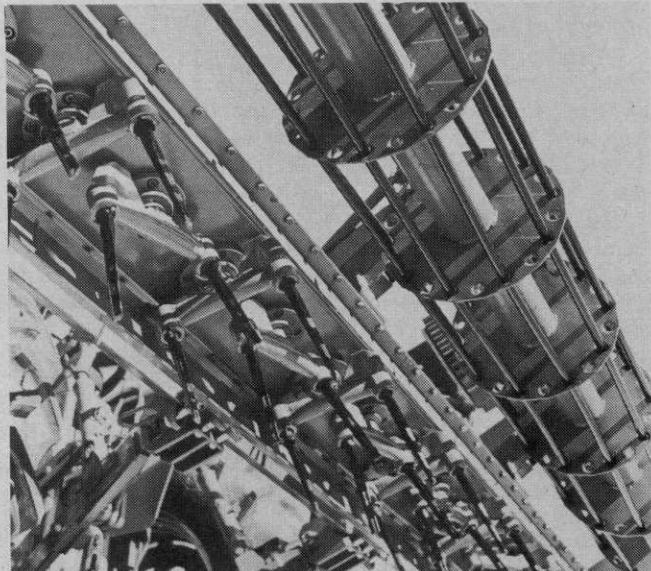
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ELECTRONIC pH METER: Scientific Instruments Div., Beckman Instruments, Inc., Fullerton, Calif.

Everything you ever needed to test soil pH is contained in this kit. Basic feature is the "pHistol" a pistol-shaped meter that provides accuracy of plus or minus 0.1 pH within any three units of standardized values. The meter reads soil pH from 2-12. A 9-volt transistor battery powers the all-solid-state instrument up to one year. Also included in the carrying case are: standardizing solution, a shorting plug to assure electrode accuracy, filling solution and battery. For more details, circle (701) on the reply card.



ROTERRA: Lely, Wilson, N.C.

If you've got a seed bed preparation job coming up, then the Roterra is for you. This power-driven rotary harrow features unique vertical tines which whirl through the soil, counter-rotating with a powerful "eggbeater" action. By raising or lowering the rear crumbler bar (the cylindrical looking device above) working depth of the tines can be adjusted and maintained with consistency from one to nine inches. Unit is designed for easy hook-up of spray nozzles and planter for a three-job-in-one trip. Seven models are available. Widths are 60, 80, 100, 120, 140, 160, and 180 inches. Number of rotors varies with each model. For more details, circle (702) on the reply card.



LANDSCAPE TRACTOR: International Harvester Company, Chicago, Ill.

International Model 2400A industrial tractor was designed for the landscape contractor or anyone else who need a medium-horsepowered tractor. It's available in a regular and Lo-Boy model and can be used for mowing, blade work, scarifying and scraping as well as loading operations. Engine is four cylinders with 157 cu. in. (gasoline) or a three cylinder diesel. Both are rated at 46 hp at 2200 rpm governed full load. Gear box is four-speed, synchronized, constant mesh, spur gear that's followed by a Hi-Lo-Rev sliding spur gear range. Thus tractor has eight basic speeds forward and four reverse. All hydraulic controls are on the operator's right; transmission control are on the left. There are no levers or handles to straddle. For more details, circle (703) on the reply card.



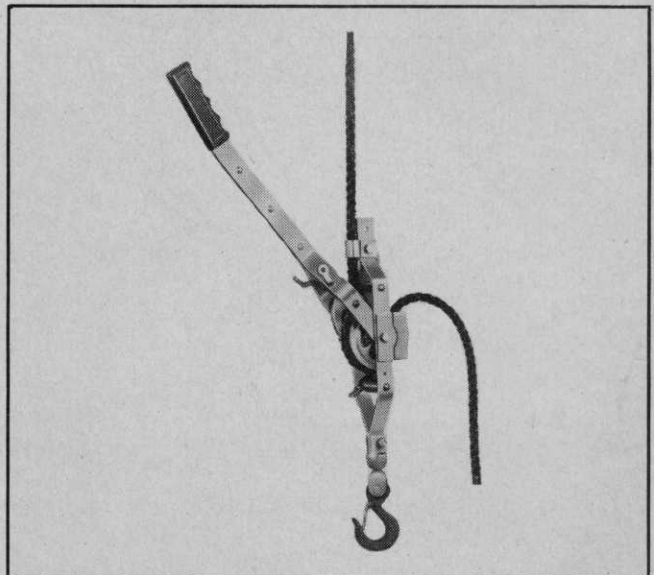
INDIVIDUAL TIRE PRESSURE GAUGE: Jackstraw Enterprises, Fairport, N.Y.

Simply screw this gauge on to the tire valve stem and presto, you have tire pressure at a glance — permanently. Tire pressure can be read quickly and accurately to within one pound by pressing the gauge unit down on the valve stem to activate the pop-up indicator. When gauge is released the indicator returns to its original position. Tires can be inflated or deflated directly through the gauge which functions as a valve stem extension. Each gauge is precision molded of rugged silicon rubber complete with dust cap. For more details, circle (704) on the reply card.



SMALL COMMERCIAL CHIPPER:
Royer Foundry & Machine Co., Kingston, Pa.

Manufacturer of this chipper claims that a new design concept makes for quieter operation. Available in both engine driven and PTO models. Design incorporates a rotating anvil with a combination disc-type chipping rotor and blower. Staggered blades, positioned into openings in the rotor, slice the material into chips and direct them through the blade openings for direct discharge. Rotor serves also as the chipper's flywheel. A torque converted on the engine driven model isolates the engine from sudden cutting shocks. Safety features include a deep-throated feed hopper, power cut-off switch and a protective curtain. For more details, circle (705) on the reply card.



POW'R-ROPE PULLER: Maasdam Pow'R-Pull, Inc.,
Burbank, Calif.

Here's a tool that is limited only by the imagination of the user. Rope puller is available in one-half ton capacity and is available with or without high test polypropylene line as an optional extra. There is virtually no limit to the length of pull or height of lift. Rope passes through the tool without coiling inside. Capacity can be increased further with the use of pulley blocks. For more details, circle (706) on the reply card.



SICKLE BAR MOWER: Jari Division, Mankato, Minn.

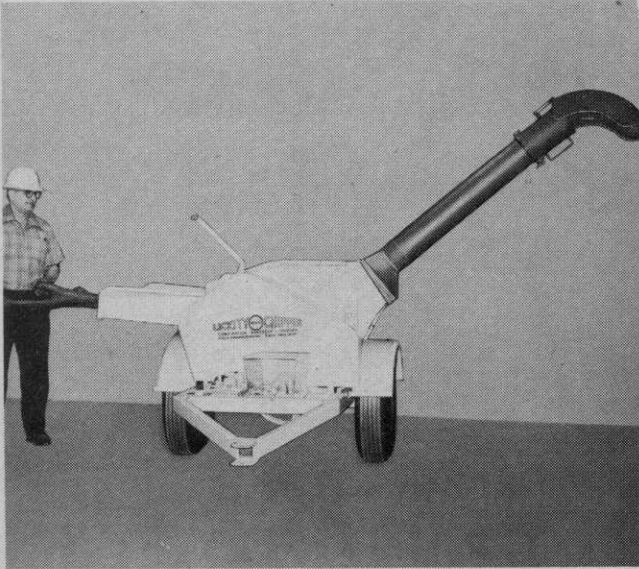
This friend is second only to a dog in faithfulness. Up, down, over, under, along and around is where this unit will travel to keep vegetation problems to a minimum. Unit is self-propelled. Floating sickle bars ranging from 16 inches to 60 inches give a cutting swath to meet almost every application. Mower is equally at home on smooth or rough terrain. Cutting height can be easily adjusted from 15/16-inch to 4 1/2 inches. Mower is designed to take objects such as rocks, wire and glass without danger to the operator, bystander or the machine. For more details, circle (707) on the reply card.



VIBRATORY PLOW: Sod-Master, Minneapolis, Minn.

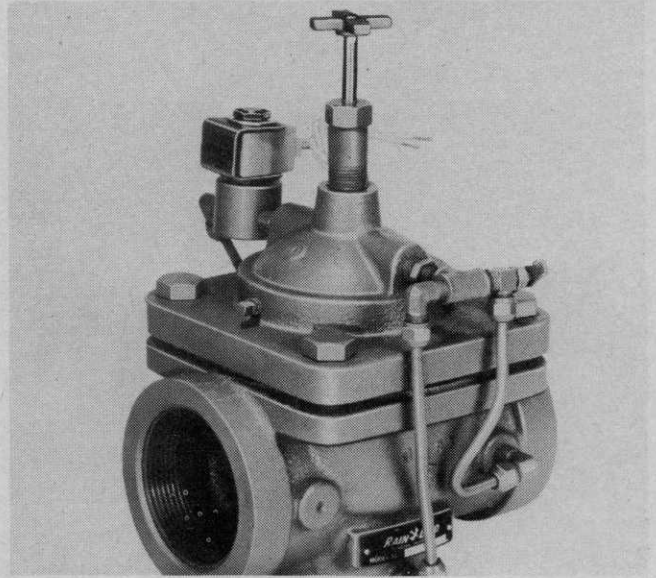
Pipe Piper, the original vibratory plow, is now being used to install lawn sprinkler systems because it fulfills the landscape engineer's requirements. Flexible or semi-flexible pipe up to two inches in diameter can be buried up to a 16 inch depth without removing turf. The two speed machine can bury pipe at a speed of 50 feet per minute in low gear and up to 150 feet per minute in high gear. Machine is easy to maneuver around corners or obstacles and can be operated by one man. For more details, circle (708) on the reply card.





PTO-4 SERIES 2 CHIPPER: Piqua Engineering, Inc., Piqua, Ohio

Larger blower, improved discharge chute, clutch to disengage powered feed roll and dynamically balanced rotor are among the many improvements of the Series 2 Lickity Brush Chipper. Unit will process up to four inches in diameter in soft wood and up to two inches in hard, cross-grained wood. A tractor with at least 30 hp at the power take-off shaft can handle the unit with ease. Chipper utilizes a hammermill type rotor with 18 hardened steel pivoting hammers. The end product is a shredded type chip that makes excellent mulch. For more details, circle (709) on the reply card.



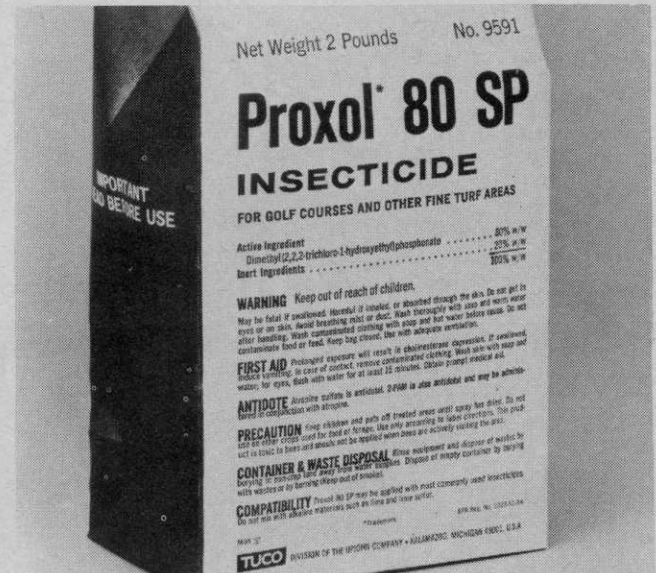
REMOTE CONTROL TEE VALVE: Rain Bird Sprinkler Mfg. Corp., Glendora, Calif.

This remote control Tee Valve was designed for use on large automatic sprinkler systems. It fills the need for a tee valve on above ground solid set irrigation systems. The tee pattern eliminates extra pipe fittings and reduces installation time and cost. Valve is a solenoid operated diaphragm valve with Grit Filter protection. A hydraulic model is also available. The three inch square tee valve is available with flow control and manual operator. Features a replaceable threaded brass seat, stainless steel stem guide and heavy cast iron construction. For more details, circle (710) on the reply card.



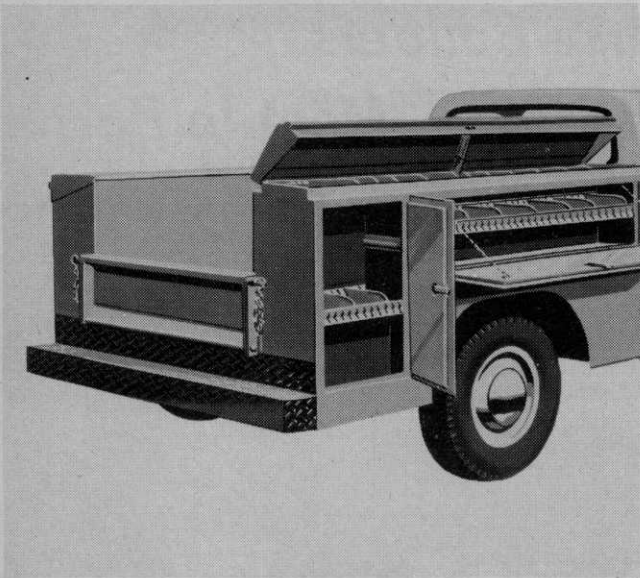
HAND VALVE: Fluid Systems Division, Tescom Corporation, Minneapolis, Minn.

Suitable for service on line pressures up to 10,000 psi, these hand valves are for use under severe, hydraulic/pneumatic control conditions. All metal parts are constructed of SST. Valve seats are Kel F and renewable; "O" ring stem seals are available in a wide variety of compounds. Control knobs are made of aluminum with a choice of seven different colors for use in panel coding systems. The 30-1200 series is available in angle or globe configuration with 3/4 inch or one inch ports for the tube, pipe or super-pressure installations. For more details, circle (711) on the reply card.



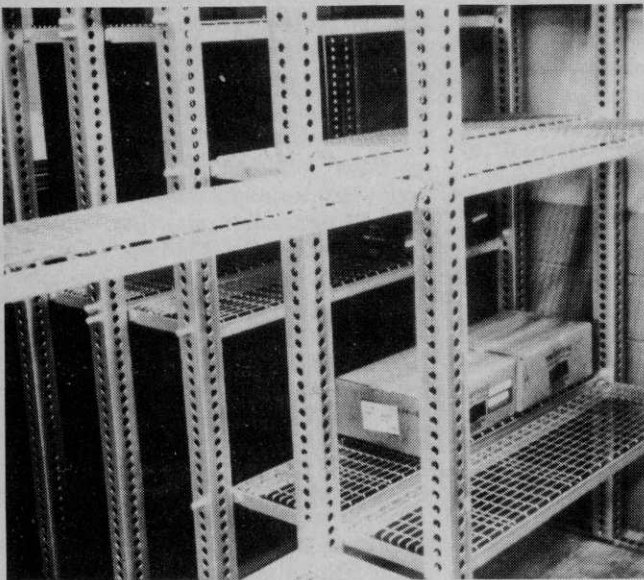
PROXOL 80 SP INSECTICIDE: Tucco Division, Upjohn Company, Kalamazoo, Mich.

Control sod webworms, cutworms and chinch bugs in turf this spring with this new insecticide. Researchers report that the compound is one of the fastest acting turf and ornamental insecticides on the market. It controls insects either on contact or ingestion into the stomach. Sod webworms and cutworms are killed within 48 hours of application. Manufacturer says that Proxol breaks down rapidly and does not accumulate in the environment. It has little effect on beneficial insects when applied according to directions. For more details, circle (712) on the reply card.



MINI SERVICE BODY: Reading Body Works, Inc., Reading, Pa.

If you're the owner of a Ford Courier, Chevy Luv, Datsun or Toyota half-ton truck and need a service body, then this new product will solve the problem. These bodies are scaled-down versions of full size standard and Spacemaker service bodies. Each unit provides organized carrying space for a large variety of equipment in weathertight lockable compartments. Construction is of heavy gauge steels integrally welded. Doors are double-paneled and highly resistant to corrosion. Locks are slam-action in operation and guaranteed to the original owner for the life of the body when properly maintained. For more details, circle (713) on the reply card.



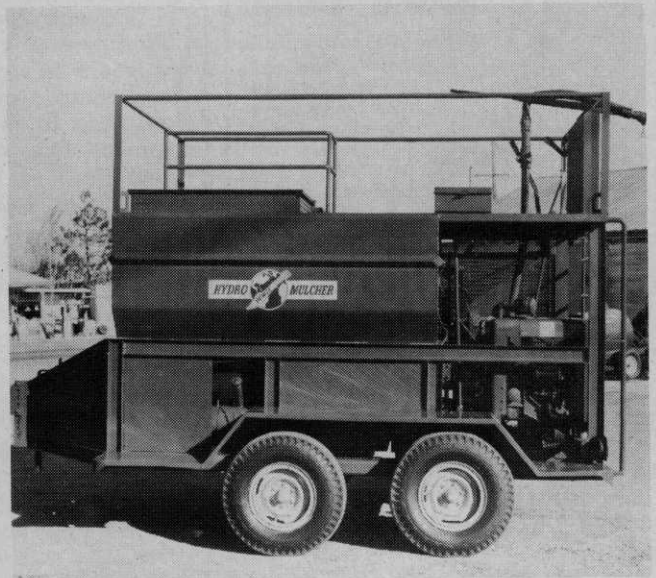
HEAVY DUTY SHELVING: Aeroquip Corporation, Jackson, Mich.

This heavy duty shelving was initially designed for use aboard ocean-going supply vessels. Will hold up to 1,000 lbs. per shelf and can be installed to meet assorted width and height requirements. Available in steel and stainless steel. Pillars of the system fasten to both floor and ceiling and can mount shelving at higher levels than many types of storage racks. For more details, circle (715) on the reply card.



WATERPROOF FIRST AID KIT: General Scientific Equipment Co., Philadelphia, Pa.

It is an OSHA violation not to have a First Aid kit available for employees. This kit complies with the regulations and includes a balanced assortment of supplies. Kit is adequate for up to 10 persons. Contains three times as many small wound dressings and up to twice as many large wound dressings as other kits. Adaptic non-adhering sterile dressings for burns and complete first aid for eye injuries are also included. Case is dust-proof, rust-resistant and has rounded corners. Also has wall brackets and carrying handle. For more details, circle (714) on the reply card.



TRAILER TYPE HYDRO-MULCHER: Bowie Industries, Inc., Bowie, Texas

Here's a trailer type hydro-mulcher that has a capacity of 1,000 gal. It sprays, seeds, fertilizes, mulches, waters, sprigs simultaneously or separately as grounds planting or maintenance requires. Features include: heavy-duty construction, centralized spray tower and console control, longer throw of slurries and more even distribution over large or small areas and embankments. Unit can easily be pulled behind truck for quick set up. For more details, circle (716) on the reply card.



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Golf Course Builders

Meet In Boston

"Everything you wanted to know about golf, but were afraid to ask" was the theme of the Golf Course Builders of America when they met in Boston in January.

The second annual meeting, held during the Golf Course Superintendents Association Conference and Show, featured five speakers representing diverse areas of golf course construction.

Col. Harry Eckhoff, USAF (Ret.), facility development consultant for the National Golf Foundation told an audience of about 30 that contrary to popular belief the executive course trend is not increasing. Only 18 new executive courses opened for play in 1972.

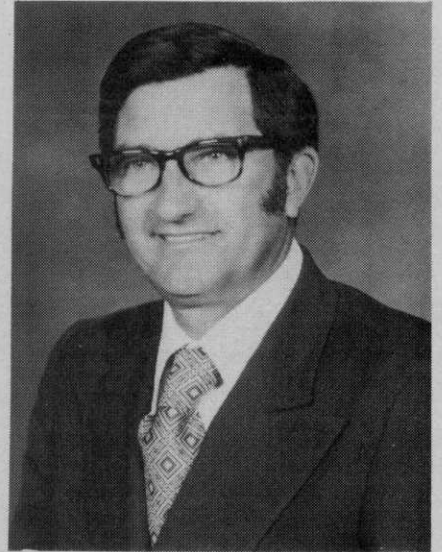
Looking at the overall golf picture, Eckhoff cited potential problem areas. From 1962 to the present, FHA guaranteed loans of \$85.5 million to towns of 5,500 or less population to expand golf courses, he said. About 140 towns are in trouble. They haven't made payments on loans. These towns are scattered throughout 41 states.

The consultant said that another trouble spot concerns housing developers. In some areas the developer requires ownership as a prerequisite to membership in a golf course. This can and has led to complications, Eckhoff noted.

He also said that there was a positive trend in municipal golf course construction. Population growth, urbanization, more leisure time and others were cited as influencing factors. Golf is becoming more popular to people of less financial means. These people cannot afford membership in private facilities, but want to play golf. Thus, the municipal course holds much promise and growth in the future.

Speaking on the importance of irrigation was James J. Kirchdorfer, president, Kirchdorfer Irrigation Inc., Louisville, Ky. He told delegates that planting seed and water must be an almost simultaneous operation. Survival rate is about 90 percent if you water within 10 minutes of planting, he said. Survival decreases to 80 percent if watered within one hour and 40 percent when water is applied within one day.

Kirchdorfer said that one major problem is that superintendents wait until the last piece of pipe is in the



Henry L. Nielsen Jr., Nielsen Construction Co., Warwick, N.Y. has been elected president of the Golf Course Builders of America. He's been in the construction business for 30 years.

ground before testing the irrigation system. Once the pumping station is in the system can be tested. With the irrigation system sound and in operation the golf course will come into play sooner and with fewer problems, he concluded.

Next followed an interesting review of drainage and tile by Eugene M. Witter, sales manager, Hancock Brick & Tile Co., Findlay, Ohio. Golf and drainage practices had their origins in the same country. Both came from Scotland, Witter said. While clay tile has been used widely in agriculture, there has always been problems associated with it. Proper alignment and the weight of the material have made the job of laying tile most unpleasant. However, the advent of plastics have revolutionized the industry. Flexibility in tile and minimum weight can now be achieved, he said. Plastic tubing is currently available in sizes from two inches to 10 inches in diameter.

Profits are the result of volume times efficiency, said Joseph S. Finger of Houston, Texas. He challenged those attending the meeting that "...the future of golf is in the room." We must build better golf courses for less money. "That means efficiency," he injected. "Efficiency is the product of productivity divided by problems."

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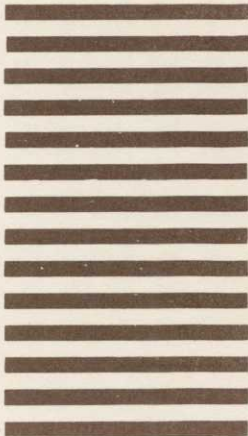
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Finger listed four problems common to golf course builders. Weather was one. Topography is another. He cited the client as a third. "Few are knowledgeable of golf course construction," he said. The last problem area is the golf course contractors.

The golf architect said that it is "time we joined hands — contractors and architects — to get the story across to our clients." We recommend meetings between contractors and builders. Plans and specifications today must be complete and detailed. He said that the need for more detailed plans has grown out of poor construction. Where an architect used to have 20 pages of specs and 20 pages of drawings, he now must have 75-80 pages of specs and 50 pages of drawings.

Finger said many courses today are being built by developers. "It's hard to convince a developer to pay ten percent more to include a golf course builder in the construction," he said. "But the architect and the builder together with proper literature can convince a developer that this is a special type of construction. That's why we must work together."

He noted that even though the total number of golf courses is in-

creasing yearly, the average today is one course per 30,000 people. "At this rate, even with zero population growth, we are going to lose 100 golf courses in 30 years," he said.

A "Dear Abby" for builders chaired by Robert Chakales, Richmond, Va., followed the formal portion of the meeting. This presented an opportunity for delegates to ask questions of speakers.

New officers for the organization are: Henry L. Nielsen Jr., Nielsen Construction Co., Warwick, N.Y., president; Frank A. Underwood, Underwood Golf Course Construction Co., Bowie, Tex., president elect; James Kirchorfer, Kirchorfer Irrigation Co., Louisville, Ky, vice president; Lee A. Bilberry, golf course contractor in Houston, Tex., secretary; and James Shipe, Turf Industries, Bel Air, Md., treasurer.

Valley Tractor & Equipment Named Bolens Distributor

Valley Tractor & Equipment Corporation, 616 Jefferson Hwy., New Orleans, Louisiana has become a distributor for the complete line of lawn and garden equipment from Bolens, Division of FMC Corporation,

Port Washington, Wisconsin.

Valley will handle the Bolens tractor line and the urban/suburban line in the states of Louisiana, Mississippi and Southern Alabama.

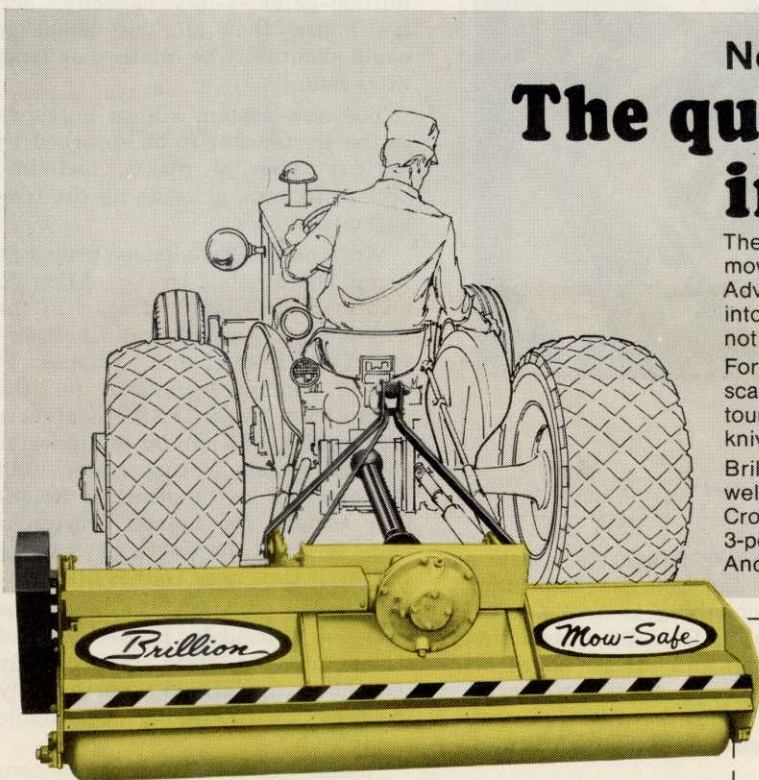
Howard Hampton is president, John Bierbaum is sales manager, Lester Felder is sales manager for outdoor power equipment, and William J. Napier is service manager of Valley, which has been in business in New Orleans since 1947.

In-Line Plastic Valve Component Announced By Toro

The Irrigation Division of The Toro Company, has introduced a new 1½-inch, in-line plastic valve component for its automatic underground sprinkler system line.

The hydraulic, normally-open, piston-type valve is made of high-impact, corrosion-resistant Cyclocal and features a coaxial design for high flow and low friction loss. Both inlet and outlet are regular pipe thread connections.

Toro normally-open valves operate (open) when water pressure to the valve is relieved, and close when a supply pressure is applied from the controller.



New 72" Mow-Safe The quality mower in the 6' class

The new Mow-Safe MS-720 combines safety, precision mowing and maneuverability like nothing else in its class. Advanced Brillion engineering incorporates deflector bar into hood design. Cuttings and debris are deflected down, not out. Protects operator, passersby and buildings.

For even cutting, big 6" diameter roller ends ripple, reduces scalping. Unique float link lets mower follow ground contours. Cutting height adjusts easily from ¾" to 6". Folding flail knives cut clean, swing freely, are easily replaced.

Brillion builds it tough, for long trouble-free life. Frame is all welded. Gear box support unitized with hood weldment. Cross-shaft, drive pulleys and PTO are all shielded. Fits 3-point Category I hitch. Wide choice of options available. And see the 88" Mow-Safe for large-area mowing.



If Brillion builds it—it has to be better!

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Municipal Sewage Recycling Subject of EPA Grant

A \$98,100 grant from the U.S. Environmental Protection Agency has been awarded to the University of Florida's Institute of Food and Agricultural Sciences to test a new method of recycling municipal sewage water through farmland.

The grant, announced by Dr. John W. Sites, dean for research, will be used to expand research already underway in Tallahassee at the city's Southwest Waste Water Treatment Plant. Funds for the study were given to the University, Sites said, because "preliminary tests have been so encouraging and there has been so much national interest in the project."

A major goal of the research is to demonstrate the feasibility of discharging some 2½-million gallons of effluent from the treatment plant over farmland through a sprinkler irrigation system. Heretofore, the daily discharge of waste water, which is about 90 percent treated, has been dumped into Lake Munson west of Tallahassee, causing the lake to become polluted.

Plans are now underway to expand the treatment plant to a 10-million-gallon-a-day capacity, and it's hoped that all the discharge could eventually be retained on land, Sites said.

The new system allows nutrients in the wastewater to be absorbed by various types of plants, including animal forages, growing on the irrigation site.

Work on the Tallahassee project is being coordinated by Dr. Allen R. Overman, associate professor in the University's Agricultural Engineering Department, and Thomas P. Smith, sanitary engineer for the capitol city. Other IFAS researchers are working on a similar waste water disposal system in cooperation with Disneyworld and a sprinkler irrigation system for animal wastes is being tested at the University's Dairy Research Unit near Gainesville.

Overman stressed the need for guarding Florida's fragile ground water supplies from inadequately treated sewage effluent, particularly in areas with highly permeable sandy soils.

"While the land disposal system does offer distinct advantages over dumping treated wastes directly into lakes or streams, irrigation systems with excessively high loading rates could result in nitrate breakthrough to the ground water," he warned.

Brush Chipper and Stump King vs. Dead Wood

Wayne's Dynamic Duo are more than a match for Nature's Dastardly Dropouts. They take on the brashest brush and surliest stumps and cut them down to no size at all.

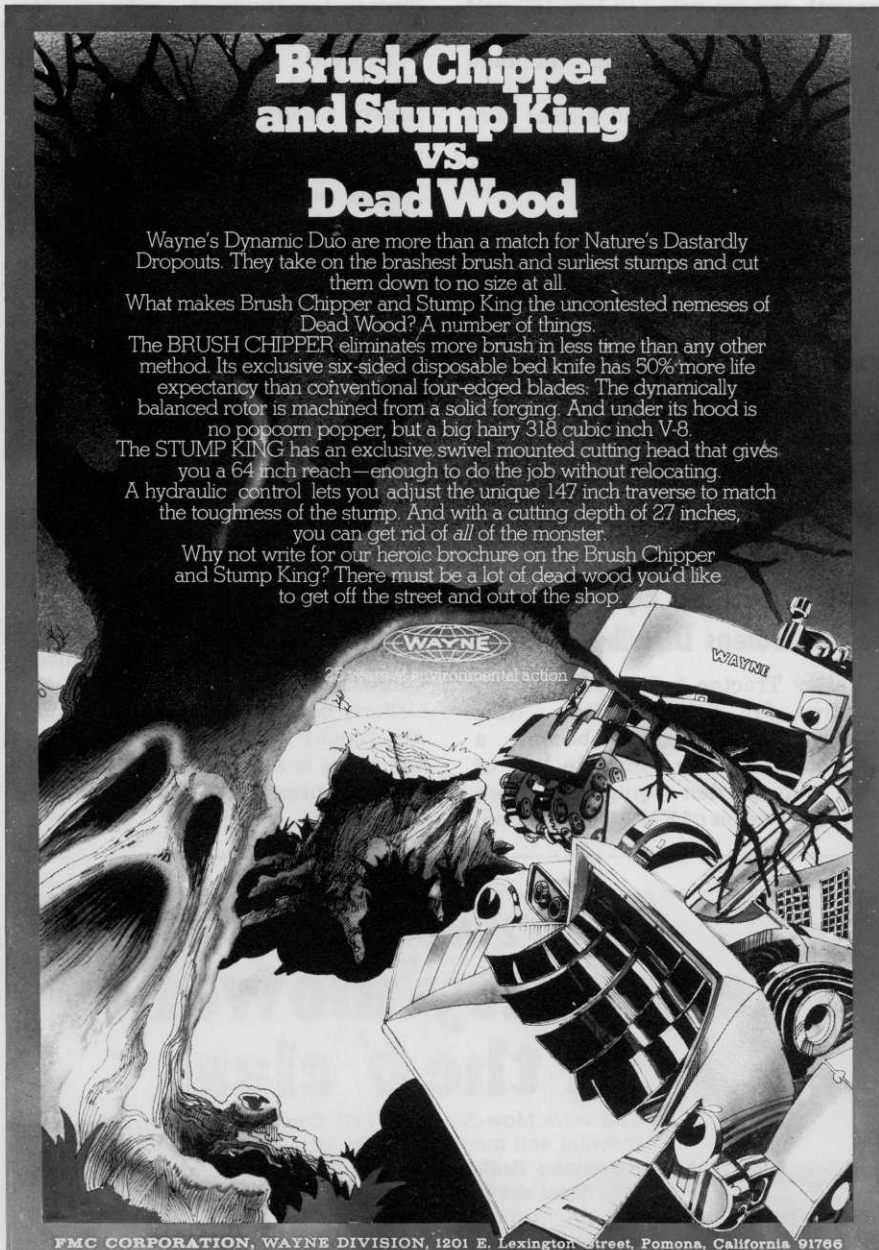
What makes Brush Chipper and Stump King the uncontested nemeses of Dead Wood? A number of things.

The BRUSH CHIPPER eliminates more brush in less time than any other method. Its exclusive six-sided disposable bed knife has 50% more life expectancy than conventional four-edged blades. The dynamically balanced rotor is machined from a solid forging. And under its hood is no popcorn popper, but a big hairy 318 cubic inch V-8.

The STUMP KING has an exclusive swivel mounted cutting head that gives you a 64 inch reach—enough to do the job without relocating.

A hydraulic control lets you adjust the unique 147 inch traverse to match the toughness of the stump. And with a cutting depth of 27 inches, you can get rid of *all* of the monster.

Why not write for our heroic brochure on the Brush Chipper and Stump King? There must be a lot of dead wood you'd like to get off the street and out of the shop.



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Taking A Tree's Temperature

To get a better understanding of how American elm trees react to Dutch elm disease, plant scientists at Michigan State University have been "taking the temperature" of infected trees.

"Since trees don't have a mouth, much less a tongue to tuck a thermometer under, we measure how fast the tree breathes in air and gives off oxygen," says Dr. John H. Hart, plant pathologist.

To a tree, respiration, or breath-

ing, is just like temperature is to a human. If the rate of respiration goes up, something is wrong.

According to Hart, the fungus that causes Dutch elm disease gives off a toxic compound. When a tree is infected, its respiration rate goes way up before visible signs of wilting appear.

How much water the tree loses into the atmosphere is also a good scientific indicator of sickness, the plant doctor notes. "Elm trees begin to lose water very soon after the fungus invades them," says Hart.