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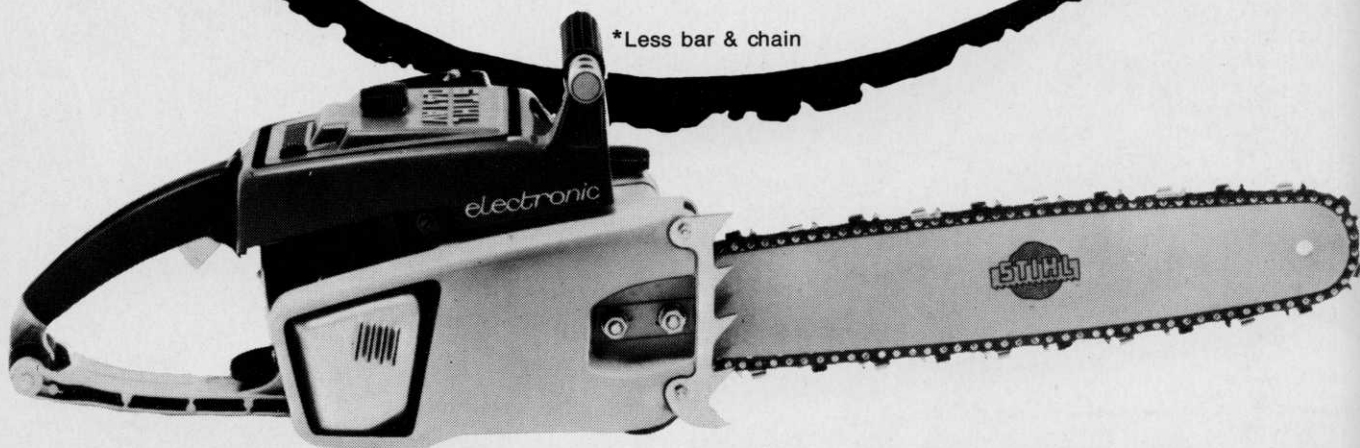


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WEEDS TREES and TURF®

Volume 9, No. 11 November, 1970

Special for This Issue

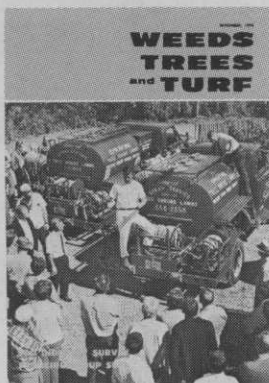
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The Cover

William Owen, president and owner of General Spray Service, operating in metropolitan Portland, Ore., describes his operation to touring members of the Pacific Northwest Pesticide Applicators Association. Owen is a charter member and past president. His grandfather, William, started the business in 1924 with a 50-gal barrel with hand pump mounted on a Model T Ford. While his grandfather handled the hose, his father, Kenneth C., operated the pump. More about his current operation appears with the meeting report beginning on page 8.



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Too Much Country Out of the People

WITH A KINDERGARTENER, a third-grader and a fifth-grader back in school, we can expect to re-arrange the potted houseplants most any day now to make room for a milk carton or three of bean plants.

The youngsters are fascinated by the phenomenon that occurs when they place what appears to be a dry "dead" seed in the ground, water it, then in a few days see a living plant spring forth. Teachers wisely use this kind of action-science instruction over and over.

Yet something is amiss; otherwise we would not have concern for the conditions of our environment. Either the lesson stops too soon or else the whole story about the importance of a living plant isn't being told.

The source of environmental pollution may stem in large measure from second rate emphasis of the living world in the urban classroom wedged into cites of steel, glass and concrete.

Pumpkin plants, six inches tall and starving, came to our house last spring. We continued the lesson by transplanting them in the garden. Our third-grader watched them grow all summer. This halloween, she had eight big pumpkins and the option of pie or jack-o-lanterns.

While most of the pupils didn't raise the pumpkin, the cucumber, the bean, the tomato, and so on to harvest, they most likely got the idea that some plants, and not supermarkets, produce our food. Our youngster got more of the story, but still not all of it.

The story that isn't getting told is that all plants make a contribution to human life more precious than that of species cultivated for food—namely, the utilization of carbon dioxide and the production of oxygen.

We cannot live without plants. Does not this fact warrant teaching plant science as fundamentally and as intensive as any subject in school?

Most urban youngsters grow up far from the realm of cultivating plants for food production. But shouldn't they be taught more appreciation for the plants they do come in contact with?

Why don't the youngsters ever bring home a

carton of grass? Or a tree seedling?

Environmental sermonizing has called attention to some fascinating stories that can be told about both.

"It is estimated that one average-size home lawn with healthy, vigorous turf can replenish the air with enough oxygen for eight persons," says turf specialist A. J. Powell from the University of Maryland.

Imagine the reaction of youngsters upon being told that some of the oxygen they breathe is being made right in their own front yard!

They all know by kindergarten that on a hot day the coolest place is in the shade of a big tree and that the sidewalk can give them a hotfoot while the grass is cool. But have they been told the whole story of why living plants can lower surface temperatures as much as 20 degrees?

As the youngsters progress through the grades, they could be told how trees and grass, in addition to producing oxygen, muffle noise, filter the air of dust, purify the air, even reduce the glare of direct and reflected light. And they could be told that plants, like humans, need good water and air to stay healthy.

Telling is not enough. The real learning is in caring for a living thing.

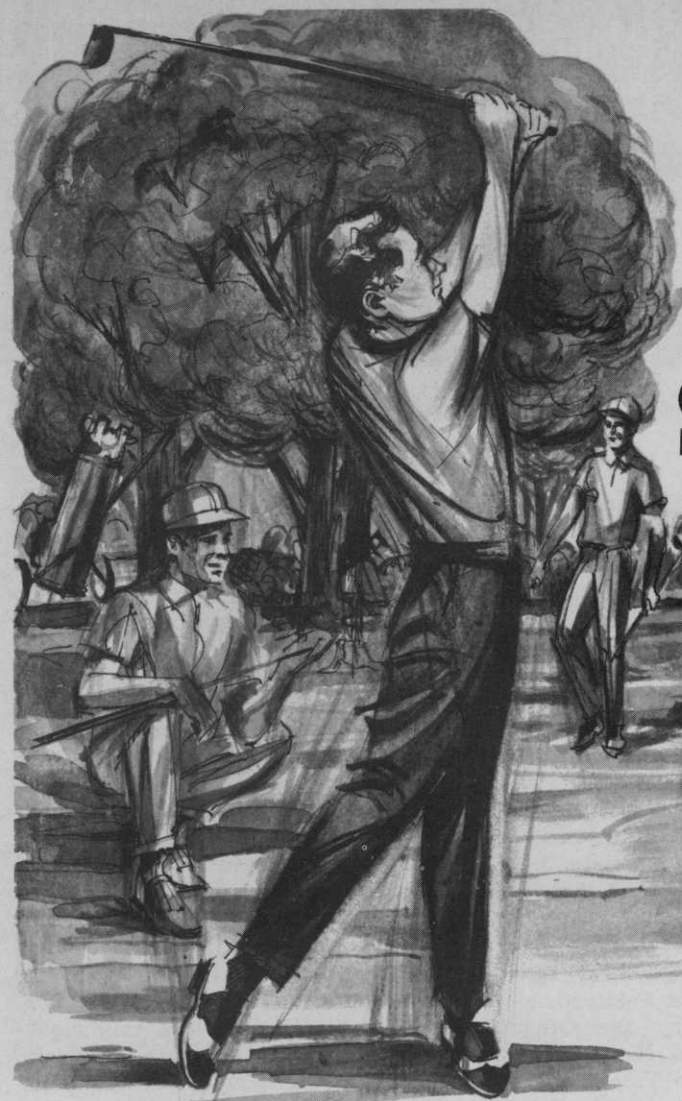
From the youngster who has planted grass and tree, cared for them, watched them grow, and heard the whole story . . . could we expect him to be as messy an environmental housekeeper as we are?

Putting more trees and grass in our parks, around our homes and businesses, along our highways, and in our downtown business sections is an encouraging trend. Perhaps the most critical need is to put more trees and grass into our classrooms.

It is becoming increasingly apparent that our industrialized, urbanized society has committed two grievous errors, summed up by paraphrasing a thought that deserves better company than the product it keeps:

We have taken too many people out of the country and too much country out of the people.

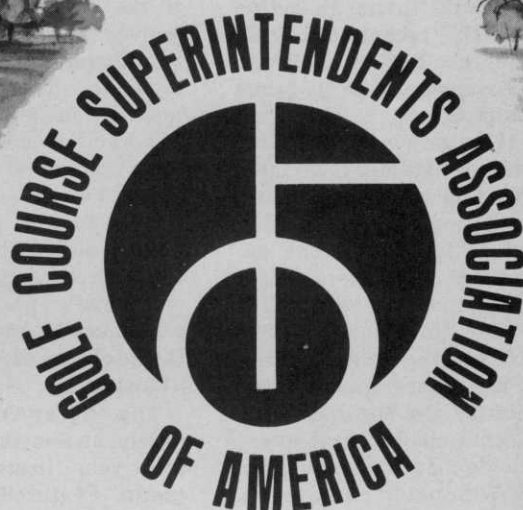
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Northwest Pesticide Group Testing Federal DDT Noose

SPRAYMEN SUE

MEMBERS OF THE Pacific Northwest Pesticide Applicators Association have made theirs an action group. At their recent Spray-O-Rama '70 they decided to challenge the federal government on its latest DDT-use restriction.

Formally the group is filing a petition for review through a label registrant (in this case, Crop King) which is a petition against deletion from federal registration. The action followed the new federal order deleting all ornamental uses of DDT and most other chlorinated hydrocarbons. In effect, the group is filing suit against the federal government.

Their action as a group has made this the personal challenge of every custom pesticide member business in the states of Washington and Oregon. As is true in every case where a petition for review is filed, each petition must be accompanied with \$2,500

earnest money to cover the hearing costs. (This money is retrievable only if the petition is granted). As the money is utilized by hearing expenditures, additional funds must be tendered. The approximately 100-member custom pesticide business in the Pacific northwest group agreed to pay \$25 each at this time and subsequent funds as needed. Each employee of the group is personally paying \$2.50. The individual feeling of the group appeared to be that the emotionally packed pesticide question must be resolved and that it is the problem of everyone within the industry.

The Spray-O-Rama, held alternately at Seattle and Portland, was this year hosted by the Oregon group. Featured was Keith Davey, president of Davey Tree Surgery, Ltd. San Francisco, Calif. Davey stressed the need for pesticide organ-



Charles Seibold, left, Major Spray Service, Portland, Association vice-president, talks with newly elected president George Harrison of Tacoma, Wash.

ization. He explained the interest of the International Shade Tree Conference of which he was formerly president, in getting the Pacific Northwest Pesticide Applicators Association as a member or separate division of the ISTC. Davey stated that the ISTC is worldwide in scope and has great potential for more organization in Europe. He pointed out that regional meetings in addition to the regular annual meeting are valuable to members. Davey said that many of the present P.N.P.A. members are already members of the shade tree group.

Davey further stated that a number of very viable organizations work within the ISTC. He named the public utilities and the municipal utilities groups, the latter of which is now in process of organization. Others named were the Consulting Arborists and the National Arborists.

General Spray Service operations today include tree pruning, fertilizing and all types of pesticide spraying. Most work is pesticide application, much of it for lawns and ornamentals. Trucks, either one-ton or 1½-ton, have 600-gal. tanks. Herbicides are in a separate trailer-mounted tank.

William Owen's wife, his brother-in-law and sister, Mr. and Mrs. O. M. Sams, and his mother, Mrs. Kenneth Owen, work with him. The company averages about eight employees year-around.





Sprayman Ben Holst, Salem, Ore., left, visits with Lew Sefton, center, outgoing president, and Keith Davey, president of Davey Tree Surgery, Ltd., San Francisco.

From the left, Lawrence Potter, McGrath Spray Service of Portland; Bob Skanes, Carothers Spray Service, Tacoma, Wash.; and Darrell L. Behounek, also of Carothers.

Davey believes that an alliance could strengthen both groups.

Arthur Edwards, editorial director of WEEDS TREES AND TURF magazine, discussed current pesticide restrictive legislation and the need for a national organization and/or effort. The P.N.P.A. members continue to express interest in expanding their group and in helping establish other state groups. A guest at the Spray-O-Rama '70 was Bob Huntwork, owner of J Spray Corporation of Orinda, Calif. He and Mrs. Huntwork attended both the first day tour and the following two days of the formal program. Huntwork hopes to get an organization established similar in nature to the northwest association. The P.N.P.A. board formally voted to extend whatever help is possible.

Frank B. Stewart, president of Miller Products at Portland and a member of the board of directors of the National Agricultural Chemicals Association, presented a formulator's view of today's pesticide picture.

Stewart said that "Despite the political and regulatory activity in

every state of the nation and by the federal government, I am optimistic for the future of pesticides in our country." He pointed out that unnecessary loss of registration and outright bans of certain materials makes research and development plus registration of new chemicals such a gamble and a burden in costs that it is forcing management of companies to withdraw from the field of chemical development.

He further said that we as formulators and applicators must not be guilty of half-truths to serve any selfish interests or to further our own positions or business activities. Chemical tools, Stewart said, must be saved for all segments of society. He called for true scientific research and reason so that research, development, and use programs may be properly continued, skillfully modified, and vigorously pursued.

Officers for the coming year are: George Harrison, president; Charles Seibold, vice-president; and Howard Lufkin, secretary-treasurer. Directors are John Behyt, Stan Raplee,

Don Mock, Steve Fisher, Jim Cole, and Ted Glass. Ken Thorpe, Don Rasmussen, Jack Daniels are alternates.

Registration at the '70 annual session was 143, a new record.

Committee appointments as a result of the first board meeting are: Annual Conference — John Behyt; Membership and Expansion — Bill Owen and Stan Raplee; Bylaws Review — Lew Sefton and Don Mock; Audit and Finance — Chuck Seibold, Jim Overton and Steve Fisher; Federal Suite — Lew Vaughn and Bud Johnson.

Don Rasmussen, president and owner of Rasmussen Spray Service, right, and Phil Jackson explain system that will fill a 200-gal. tank in 90 seconds. Four hoses, serviced by a city water system supplying 70 psi water pressure are mounted overhead. Rasmussen spray units are all self-contained and are lifted off pick-up trucks with overhead crane in the service building.



A retired fire truck was remodeled and converted for pesticide application by Lew Sefton. His operation was the final tour stop. Dinner was served in his new service building.





LASER ATTACK

On Aquatic Weeds

AN OPERATIONAL MODEL of a laser beam is being built by the U. S. Army Corps of Engineers to continue testing its effectiveness for controlling aquatic weeds.

"We hope to begin field testing about the first of March or April," said Dr. Edward O. Gangstadt, who's in charge of the Corps' aquatic plant control research activities.

After two years' laboratory experimentation, the successful application of the laser beam for weed control looks "quite feasible by our estimates," said Gangstadt. How much further the project goes will be determined by the field test results gained in fiscal year 1971, he added.

The laser beam application was conceived by Dr. Gangstadt's predecessor, Dr. Ralph A. Scott, Jr., now with the Department of Defense. The process has been disclosed to the U. S. Patent Office, and

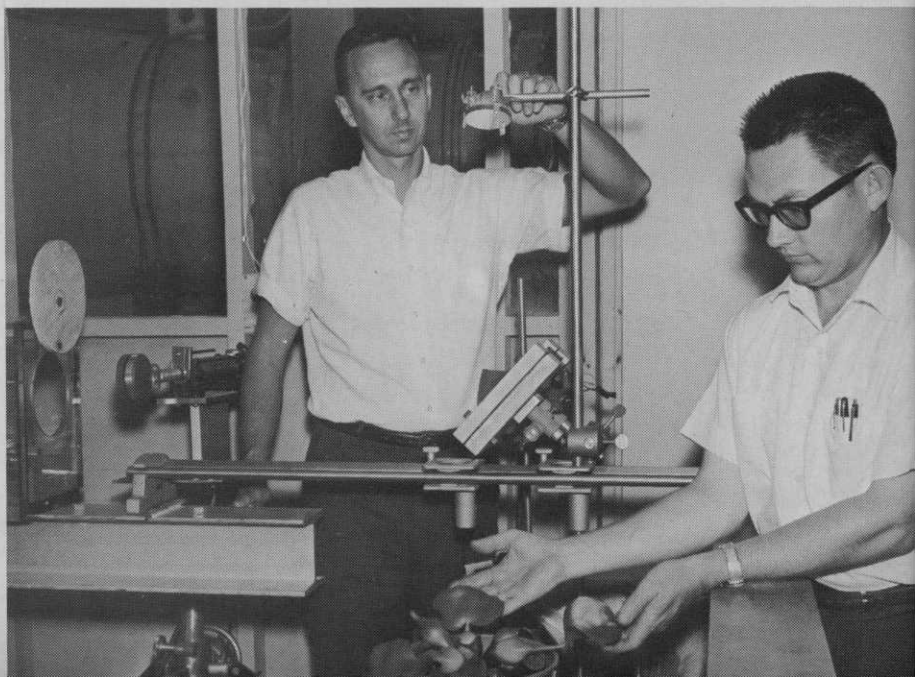
Dr. Scott has signed a license granting exclusive use to the government, on a royalty-free basis.

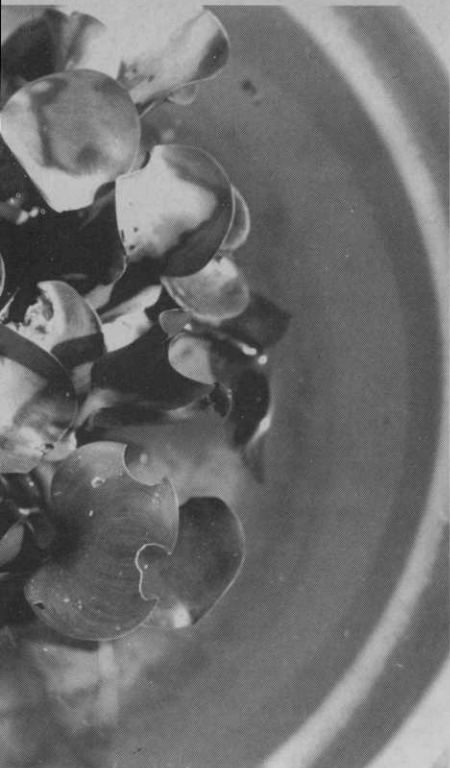
Two types of lasers are being studied. One would be used for surface plants and the other for submersed and bottom-rooted plants.

It is the surface-application laser that has reached the operational model stage.

A copper vapor laser for underwater applications still is in the laboratory stage of development but "looks rather promising," reported

Setting up an experiment to use the Army Missile Command's continuous wave carbon dioxide laser on a water hyacinth are physicist John Ehrlich, left, Physical Sciences Laboratory Research and Engineering Directorate, Army Missile Command, and Dr. Richard Couch, biologist from nearby Athens College, Athens, Ala. Lasers are being explored as a possible tool for exterminating aquatic weeds. The work at Redstone Arsenal is being performed for the Army Corps of Engineers.





Healthy water hyacinth at far left appears scorched after being exposed to laser beam. Photosynthesis is disrupted in some manner and the plant dies in 8 to 12 weeks.

develop 10 kilowatts of power. The laser itself will be from one to two meters in length, said Dr. Gangstadt, or "about the size of an office desk," added Dr. Couch.

Component parts of the laser will come from the Redstone Arsenal. The laser is being put together at the Waterways Experiment Station at Vicksburg, Miss. It is to be mounted on an 8x30-ft barge. The power supply is similar to that used for WWII searchlights.

Although plants exposed to the laser appear to be scorched as though a blow torch had been passed over them, the heat doesn't produce the lethal response. The eradication method, states the patent, is "based upon the induction of phytotoxic system responses in plants subjected to laser energy."

"It appears the laser severely disrupts carbon dioxide fixation," said Dr. Couch. "There is pigment destruction, plants turn yellow, and they just don't propagate."

Inactivation of the enzymes in the systemic process is what apparently causes the death of the plant in 8 to 12 weeks.

Diffraction of the laser beam to spread it out to a width of one foot for plant application was achieved by using gold colloidal mirrors.

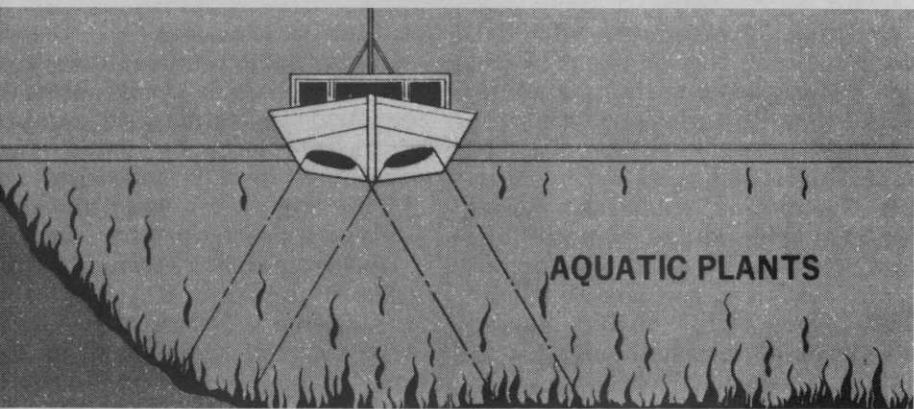
Project scientists believe the laser principle can be applied also to a variety of land weed control situations. They envision models that could be mounted on a boat, land vehicle, or carried by low-flying aircraft.

Dr. Richard Couch, Athens College, Athens, Ala.

Development of practical equipment for using the laser is being done through the Corps of Engineers in coordination with the Army Missile Command and under contract with Athens College and Auburn University.

Laboratory tests in May of 1968 achieved desired results on aquatic weeds with 1,350 watts at 1.9 seconds exposure. More recent tests have produced immediate visible damage with 650 watts of power and .025 seconds of exposure.

The operational model is described as a carbon dioxide laser that will



Work is being done in the laboratory on another type of laser for use against submerged aquatic weeds. An artist's concept of how a copper vapor laser might be employed is shown above. It conceivably could control submerged-suspended and bottom-rooted plants.

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Landscaper Joseph Zenovic, Jr., is using Mercedes-Benz Unimogs instead of tractor in the tri-country area he serves in northern New Jersey and New York. The diesel-powered, four-wheel-drive vehicle can be fitted to a variety of implements.

Landscaping with a **MERCEDES-BENZ**

IF THERE IS such a thing as a "Jet-Set" landscaper, Joseph Zenovic, Jr., would appear to qualify. Instead of using a tractor, he operates his landscaping tools with a Mercedes-Benz.

His reason is for work rather than for show; and the Mercedes-Benz he uses is a diesel-powered, four-wheel-drive vehicle called a Unimog.

Zenovic, a 27-year-old Montvale, N. J., businessman, believes the Unimog can outperform and outwork conventional two-wheel-drive tractors now being used for landscaping.

He purchased his first Unimog in 1969 to increase productivity for his fast-growing landscape business that now fans out over three counties in New Jersey and New York.

Zenovic, whose crews are doing residential jobs as large as six acres, says work output has been increased five fold with the help of the Unimog.

For example, he says that on one job it took a man and a conventional tractor 36 hours (three 12-hour shifts) to prepare a three-acre plot for seeding.

In a subsequent three-acre seeding job, it took one man and a Unimog only 10½ hours to complete the whole operation, which included grading, tilling and stone-picking.

"Here's a work vehicle," he says, "which can be fitted to any implement used with tractors — but

unlike conventional tractors transports itself plus crews and equipment from site to site."

The Unimog's features include all-wheel-drive to four equal size tires, differential locks on front and rear axles, coil springs and telescopic shock absorbers on both axles, driver's cab with folding or hard top, a three-way tipping platform, three power take-offs and hydraulic system with front and rear connections.

Three basic models sold in the U. S. are the 411, 421, and the heavy-

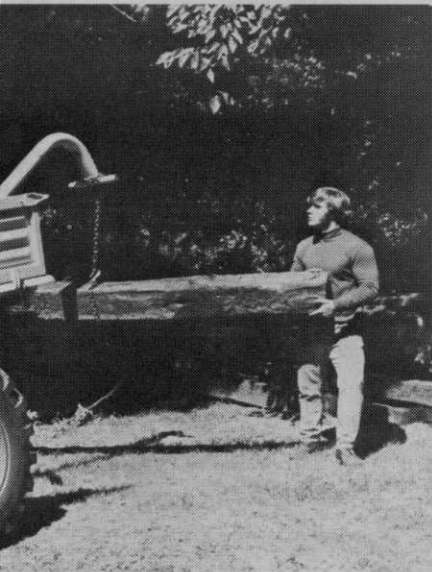
duty 406. The latter, with a wheel-base of 93.7 inches and an overall length of 161.4 inches, is slightly shorter than a Mercedes-Benz 280 SL sports car.

"With its good ground clearance (16.3 inches), large tires and ideal weight distribution the Unimog can go anywhere and do almost anything when fitted with the right implements," Zenovic says.

Zenovic, who also owns two Mercedes-Benz diesel cars, has a heavy-duty Unimog 406 model



The Unimog can be loaded with crews and equipment and, if necessary, can tow a trailer. Top speed is 47 miles per hour.



which are used for building up terraced sections.

"When my men had to carry these ties from place to place the progress was slow and tedious," he says.

Enumerating the possible uses and benefits of the Unimog and its various implements in landscaping work, Zenovic came up with this list:

Digs holes for trees, shrubs and posts. Digs trenches and excavates for fountains and ponds. Lifts and carries landscaping materials in front-end loader. Places railroad ties and decorative landscaping boulders with adaption of three-point hitch. Mows. Cultivates ground with rotavator. Chips limbs and branches with wood chipper. Grades and removes stones with stone rake and grading blade adapted to three-point hitch. Bulldozes. Scrapes. Sprays shrubs and trees with tank on back. Prunes trees with cherry picker mounted on rear deck. Levels ground with roller.

If the Unimog owner wanted to extend his activity into winter months, Zenovic says, "this can be accomplished by fitting the vehicle with a snow blower. There are sidelines such as plowing gardens with a bulldozer blade for residential home owners."

Zenovic concludes that the possible uses of the Unimog fitted with the various implements now used with tractors is almost unlimited, depending on the individual's needs and his ingenuity.

In Canada, Unimogs with implements similar to the ones being used by Zenovic are owned by Capital Landscaping of Ottawa and Four Seasons Landscaping, Toronto.

Suggested retail prices for the three basic Unimog models being sold in the U.S. and Canada range from \$5,236 for the 411 to \$10,500 for the 406. If you're interested in further information, circle (721) on the reader service card.

equipped with a 20-speed transmission. He can gear the Unimog down to 80 yards per hour if necessary. Top speed is 47 miles per hour.

Zenovic is thinking about purchasing several additional Unimogs, plus snow removal implements that will extend the money-making capabilities of his equipment into the winter months.

A business administration graduate of Ohio State University (1966), Zenovic has records to prove he is able to complete five-acre landscaping jobs in the time it took to do one acre before enlisting the aid of the Unimog.

"Working in confined areas, we can put in 10 times the number of plants, trees and shrubs because of the small turning circle (17.7 feet), power steering and excellent visibility of the Unimog," he says.

Zenovic says that in a recent job involving a long, steep grade on a one-half acre plot "the Unimog mounted the steep slopes with no difficulty and kept its footing without digging into the ground and damaging the grass."

The landscaper says the Unimog is superior to any two-wheel-drive tractor he has tried when it comes to working in the mud. "The tractor would get bogged down and have to be towed out, while the Unimog rolls right along," he explained. Zenovic fashioned a tong-like device and adapted it to the Unimog's three-point hitch for lifting and carrying 250-pound railroad ties



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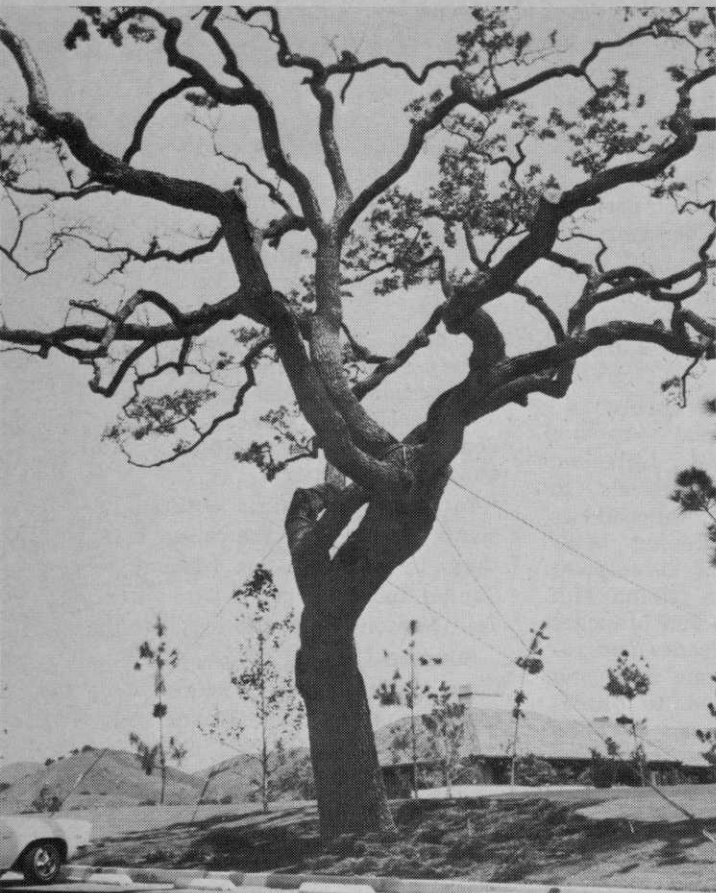
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A 400-year-old Valley Oak, transplanted in 1968 (left) was still living this summer (right) at its new location in Westlake Village, Calif.

IT'S STILL ALIVE!

By LOU SPEER

"It's amazing," says Bill Peterson, landscape architect, Westlake Village, Calif.

Peterson made headlines with his transplant of a 400-year-old, 60-ton Valley Oak in Westlake, March, 1968.

Planting of the 50-foot-tall tree, with no more than a 12-foot-diameter earth ball, also drew pessimistic predictions.

"If after the third year after transplanting you can run pictures of the tree showing foliage as good or better, then I believe you would be correct in terming it a successful transplant," challenged Lester Maxwell, president, Maxwell Tree Expert Co., Inc., Fort Wayne, Ind.

To meet Maxwell's challenge, I revisited Westlake July 1, 1970, and found the massive *Quercus Lobata* apparently doing fine.

"The tree has probably doubled the leaf area since transplant," says sandy-haired Peterson. "These are healthy, big leaves."

He and his staff have kept a close

watch on the tree since its transplanting. The main concern in the beginning was excessive water. With few leaves, the tree would not use all the water available to it they knew. A drain was installed to solve the water problem.

Various authorities were also consulted as to the best means of "bringing the tree along." Foliar feeding was the general advice here.

"But that was not what I wanted to do," says Peterson. "I wanted to prove a theory: That I could put a tree back into the same condition that it was by using what storage of food there was in the tree itself and the use of the feeder roots to sustain it without the babying that most tree men use."

He was taking a chance, he admits. He used regular fertilizing—"not a lot, just enough to nourish it."

He kept a close eye on the tree and watched its growth. "It has some growth," he says, "not a lot but some. But then it is an old tree and a lot is not expected."

He compares the tree to an older human being that has been injured. "It takes some time to heal after an injury."

Peterson's experimental philosophy, as evidenced in his handling of the giant oak, extends into the whole landscape program at Westlake. For one thing, no special back-fill material is used in the transplanting of their hundreds of trees there.

"If a tree is not going to grow in its native state," says Peterson, "you might as well put it in a pot, for the roots won't go out from the back-fill area where they are nourished, especially," he adds, "in the clay soil that we have here."

The massive transplant is still well guy-wired. Peterson expects to leave these wires in place at least another two years.

"At that time, we should be able to look at the top structure of the tree and the foilage," he says, "and know if it has enough root growth to anchor it firmly."

Gypsy Moth Defoliates 800,000 Acres in Northeast

An estimated 800,000 acres of Northeastern woodlands in eight states were defoliated by gypsy moths this year—more than triple last year's defoliated acreage—the U.S. Department of Agriculture reports.

Connecticut was the hardest hit with 369,000 acres defoliated, according to plant protection officials of USDA's Agricultural Research Service. Gypsy moths also defoliated about 240,000 acres in New York; 130,000 in New Jersey; 39,000 in New Hampshire; 11,000 in Pennsylvania; 7,000 in Massachusetts; 1,000 in Rhode Island; and 1,000 in Maine.

Last year gypsy moth defoliation totaled 260,000 acres in these eight States. During 1968 the total was 80,000 acres.

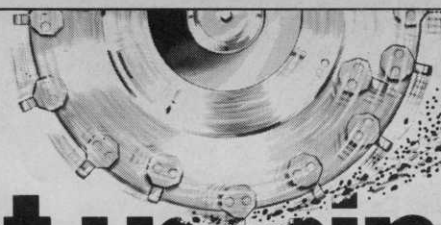
Last year, only 800 acres in Pennsylvania were defoliated. This year, according to Pennsylvania officials, 10,000 acres were defoliated in Monroe County alone. New Jersey defoliation acreage doubled this year.

Population buildups are responsible for rapid spread of the gypsy moth into previously uninfested counties, ARS officials say. The detection of numerous moths this year throughout Delaware and in six Maryland and three Virginia counties may indicate the pest now infests these states. If the moths continue to spread and become established in the commercial forests of the Appalachian and Ozark Mountain ranges, the economic and aesthetic loss could be tremendous, ARS officials said.

Despite biological control efforts with gypsy moth parasites, trials of the sterile-male technique, rigid federal-state quarantines, intensive ARS detection surveys, and cooperative chemical control efforts by ARS and the states involved, the gypsy moth has continued to spread and inflict substantial losses to Northeastern trees.

In their caterpillar form, gypsy moths strip the leaves from forest, shade, and fruit trees, as well as ornamental shrubs. By defoliating forests, they increase fire and erosion hazards, adversely affect stream flow, reduce land and recreational values, and destroy wildlife habitats. ARS plant protection officials point out that a single defoliation has been known to kill white pines, spruce, and hemlock. Two defoliations can kill some hardwoods.

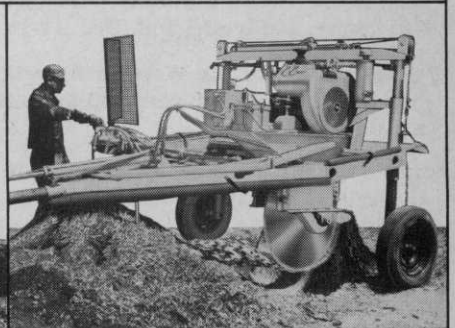
If the gypsy moth spreads throughout the eastern U.S. an estimated 112 million acres could be defoliated.



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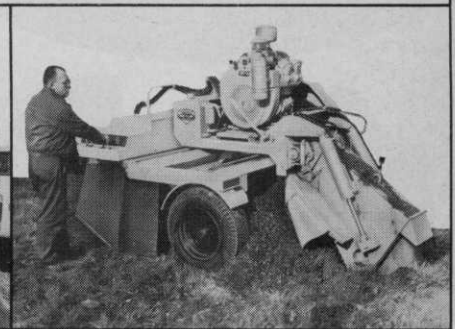
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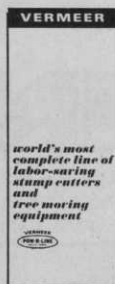
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meeting dates

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Metropolitan Washington, D.C., Shade Tree Conference, Lubber Run Recreation Center, 300 N. Park Drive, Arlington, Va. Nov. 19.

Ohio Turfgrass Conference and Show at the Cincinnati Convention Center. Dec. 7-9.

25th Texas Turfgrass Conference, campus of Texas A&M University, College Station. Dec. 7-9.

National Aerial Applicators Association fourth annual conference at the International Hotel, Las Vegas, Nev. Dec. 7-10.

North Central Weed Control Conference 25th meeting, Phoenix Hotel, Lexington, Ky. Dec. 8-10.

5th Wisconsin Golf Turf Symposium at the Pfister Hotel, Milwaukee, Wis. Dec. 9-10.

Indiana Plant Food and Agricultural Chemicals Conference in the South Ballroom, Memorial Union, Purdue University, Lafayette, Ind. Dec. 14-16.

81st Convention of the Western Association of Nurserymen at the Plaza Inn, 45th and Main Sts., Kansas City, Mo. Jan. 3-5.

Rutgers University, New Brunswick, N. J., second term of winter turf course. Jan. 5 to Mar. 12.

Illinois Fertilizer & Chemical Association convention and trade show at the Holiday Inn East, Springfield, Ill. Jan. 6-7.

25th Northeastern Weed Science Society at Hotel Commodore, 42nd Street at Park and Lexington Avenues, New York City. Jan. 6-8.

Georgia Golf Course Superintendents Association annual meeting at Callaway Gardens, Pine Mountain. Jan. 10-12.

Mid-Atlantic Association of Golf Course Superintendents turf conference at the Holiday Inn, Howard and Lombard Sts., Baltimore, Md. Jan. 11-12, 1971.

Tennessee Turfgrass Association annual conference, Sheraton Hotel, Nashville, Tenn. Jan. 11 and 12.

University of Nebraska annual turf conference, Lincoln. Jan. 13-15.

Rutgers University, New Brunswick, N. J. three-day lawn and utility turf course. Jan. 18-20.

Southern Weed Science Society 24th annual meeting at the Sheraton-Peabody Hotel, Memphis. Jan. 19-21.

Rutgers University, New Brunswick, N. J. three-day golf and fine turf course. Jan. 20-22.

Associated Landscape Contractors of America ninth annual meeting and trade exhibit at the Royal Orleans Hotel, New Orleans. Jan. 24-30.



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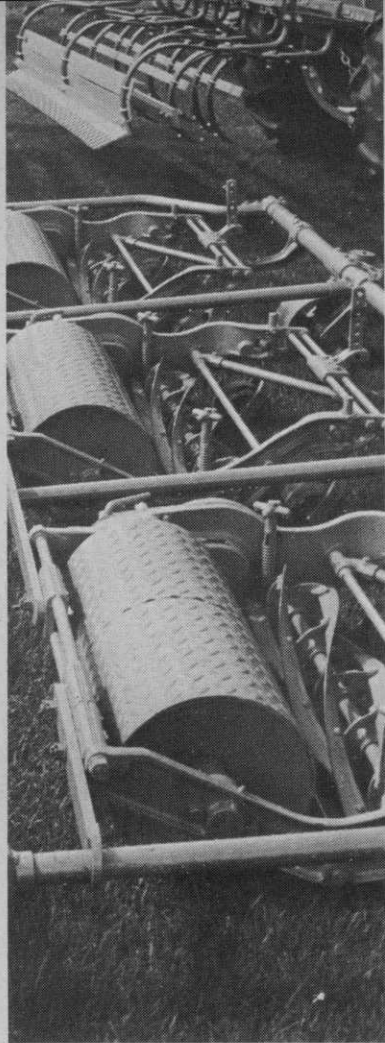
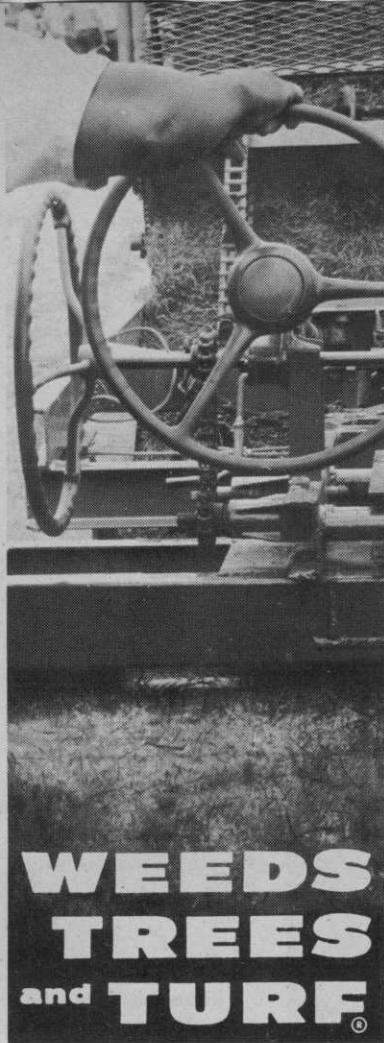
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SECOND NATIONAL SOD INDUSTRY SURVEY

CULTIVATED SOD continues to be a growing business. During the past two seasons the field or wholesale value of the crop has grown by an estimated \$25 million. Growers are increasing in number. At the same time there appears to be less pasture sod business. In fact, this latter phase of the "instant lawn" is seldom a factor in the industry.

These and other facts about the sod industry result from a comprehensive study of the industry by WEEDS TREES AND TURF magazine members. This study is the successor to a survey done two seasons earlier. This magazine study, as was true with the first one, has been made with the help of officials

of the American Sod Producers Association. It pinpoints the number of U.S. cultivated sod farms at about 938.

WTT's circulation list includes about 1,250 readers who categorize themselves as sod growers. These include a number of larger farms where foremen and partners also receive the magazine. By being closely associated with this industry and personally acquainted with many growers, the editors of WTT have been able to determine where most duplications lie, thus the ability to fairly accurately pinpoint the number of producers.

Table 1 shows the response to the study. Every third sod producer on the WTT circulation list was sent a questionnaire during May, 1970. Almost a quarter of the 414 recipients returned information. Results are based on 99 surveys returned during the first three weeks. Since the cut-off date some half dozen or more

Table 1. Results of survey among sod producers on WEEDS TREES AND TURF circulation lists.

Survey Questionnaires Mailed*	414
Questionnaires Returned	99
Returns	23.9%

* Only Owner-Operators Asked To Complete Survey Questions

Table 2. Report of growers on the number of acres of cultivated sod produced yearly in the United States.

Question: How many acres of sod do you have under cultivation?

Answers: 99

Total Acreage: 21,881

Average Acreage Per Farm: 221 acres

Projected (938 growers): 217,298 acres

Table 3. Report of growers on the number of acres of sod marketed yearly in the United States.

Question: How many acres of sod do you market each year?

Answers: 95

Total Acres Marketed: 10,360

Average Acreage Per Farm: 109 acres

Projected (938 growers): 102,242 acres

Table 4. Average number of years experience in growing among U.S. growers.

Question: How many years have you been growing sod?

Answers: 89

Average: 9.4 years per grower

Table 5. Size of sod farms as reported by U.S. growers.

Size of Operation	Number		Percent
	Reporting	Projected*	
Acreage			
500 or more	12	114	12.1
300-499	13	123	13.1
100-299	25	237	25.2
50-99	17	161	17.2
25-49	14	133	14.2
Less than 25	18	170	18.2
Totals	99	938	100.0%

* Based on 938 growers

Table 6. Varieties of cultivated sod now being grown in the U. S.

Question: What varieties of sod do you produce?

Variety	Answers	Acreage*	Percent of Crop
Merion	61	9,046	47.9
Common Ky.	30	3,303	17.5
Fylking	19	525	2.8
Bermuda Blends	11	425	2.5
Miscellaneous Blends	10	1,140	6.0
Park	10	750	3.9
Windsor	9	309	1.6
Emerald Zoysia	9	143	0.8
Newport	7	114	0.6
Tifton 328	5	54	0.3
Ky. Fescue	5	338	1.8
Bents	5	119	0.6
St. Augustine	5	436	2.3
Fescue	4	144	0.8
Prato	4	131	0.7
Tifton 419	4	15	0.1
Delta-Merion Mix	3	60	0.3
Warrens (A-34, 20, 10)	3	715	3.7
Tif-Dwarf	3	8	0.1
Centipede	3	171	0.9
Merion-Ky. Mix	3	372	1.9
Pennlawn-Merion Mix	2	55	0.3
Delta	2	27	0.1
Other**	18	484	2.5
Totals	235	18,884	100.0%

* Reported by Variety.

** Included one grower of each of the following: Chewing Fescue, Merion-Pennlawn-Delta, Tif-Green, Arboretum, Tifway, Windsor-Merion, Bitter Blue, Argentine Bahia, Merion-Fescue, Fylking-Fescue, FB 137, Dichondra, Pee Dee, Sun Turf, Tif-way Dwarf, Ky. Red Creeping Fescue, Field.

Table 7. Methods of handling sod as reported by growers.

Question: How do you handle sod?

	Number Reporting	Percent
Rolled and loaded by hand	44	44.4
Rolls on pallets	30	33.3
Folded on pallets	21	21.2
Rolled and loaded by elevator	14	14.1
*Other	6	6.6
Totals	115	119.6%

* slabbed on pallets; cut and hand load; uncut and contracted.

Table 8. Grower response as to where sod is delivered.

Question: Do you deliver to point of sale?
4 yes — 4.3% of growers

Do you sell for pick-up at field?
8 yes — 8.7% of growers

Both Practices — 80 yes — 87% of growers

Table 9. Report of growers on purchasers of cultivated sod in the U.S.

Question: Where do you market sod?

Answers: 95

	Answers	Percent of Crop Sold
Landscapers	81	47.2
Direct to		
Homeowners	78	23.7
Garden Centers	39	9.2
Industry	36	6.1
Golf Courses	78	3.5
Other Sod Growers		
For Resale	14	3.0
*Other	22	7.3
Totals	348	100.0%

* state and city governments; retail sod haulers and truckers; general contractors, builders and developers; cemeteries; schools; parks; utilities.

Table 10. Number of salesmen employed by sod producers in marketing their cultivated sod.

Question: Do you employ salesmen?

Answers: 16 yes 80 no

Percent using salesmen: 16.6%

Total Salesmen employed: 29

Projected (total salesmen, 938 growers): 281

Table 11. Types of advertising used by growers in developing a market for cultivated sod.

Question: Do you do any advertising besides personal contact?

Answers: 73 yes 24 no

Types of advertising	No. answers	Percent
Yellow Pages	57	58.7
Newspapers	46	47.4
Direct Mail	27	27.8
Magazines	11	11.3
Radio	8	8.3
Television	3	3.0
*Other	5	5.0
Totals	157	161.5%

have been returned. These latter returns are not included in the tabulation.

The sod business is increasing in two ways. Original growers are producing and selling more acres of sod. Secondly, new growers are entering the business. Sod farm acreage has grown to 221 acres, up from just under 180 acres two years earlier. Based on 938 growers, this means the nation is now producing a total of 217,298 acres. (Table 2).

Sod acreage sold for the "instant lawn" market is also on the increase. Growers report selling an average of 109 acres per farm, for a U.S. total of 102,242 acres. This is up from a per farm average of 95 acres two seasons earlier. Estimated total acreage sold in the earlier study was only about 75,000.

Other tables showed little real change in the sod industry. More larger farms are in evidence and growers are turning more and more to mechanical labor-saving equipment. They are using slightly more salesmen and doing more public relations and advertising. These latter steps are increasing far more slowly, however, than the acceptance of the "instant lawn" idea would seem to warrant. Biggest changes are found in the varieties, blends and general mixes being produced. Growing of blends has become almost universal with growers zeroing in on the likes and dislikes of consumers. More sod mixes are being used to better adapt the grass to the climatic area where it will be utilized.

Business outlook among growers is very optimistic. A whopping 42.6% said business was up the previous year and another 49.5% expect it to be even better the next season. The forecast among growers themselves indicates that a strong market will likely continue in the sod industry for the foreseeable future.

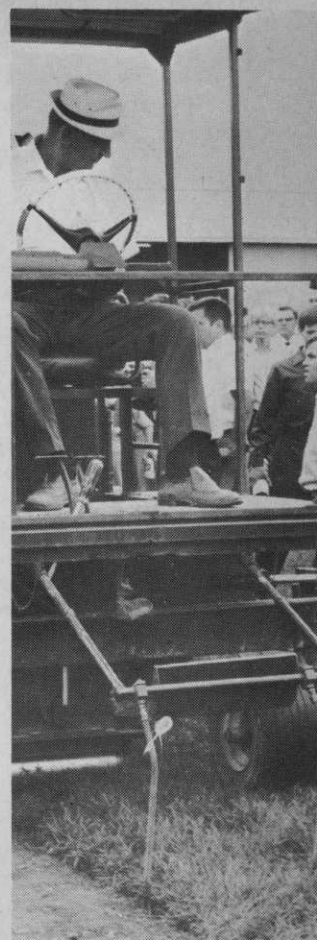


Table 12. Methods employed by growers to improve efficiency in handling and marketing sod.

Question: What steps have you taken to improve efficiency?

	Number Reporting	Percent
New Equipment	84	84.6
Irrigated	33	33.3
Changed Varieties	28	28.3
Advertised	24	24.2
*Other	3	3.3
Totals	168	173.7%

* added labor; bought acreage close to market; quit hiring migrants.

Table 13. Major problems of sod growers in producing and marketing cultivated sod.

Question: What do you consider the major obstacles for growers in sod production and marketing?

	Number Reporting	Percent
Labor (cost, shortage, turnover)	67	67.7
Price (low, high, pricecutting, greediness, control)	48	48.9
Consumer Education	29	29.3
Over production	13	13.1
Collecting	10	10.1
*Others	12	12.1
Totals	179	181.2%

* climate, competition, distance from market, distribution, drought, equipment, poor financial management, qualified personnel, quality control

Table 14. Report of growers on the 1969 sod production business.

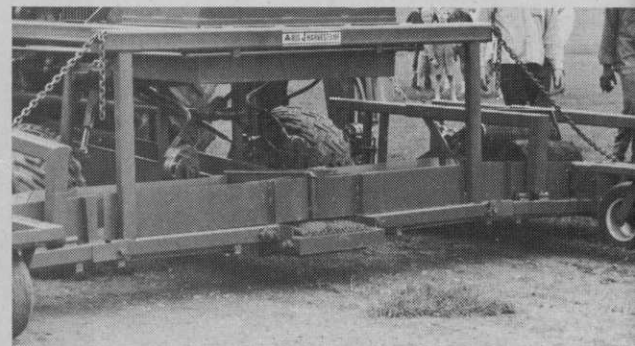
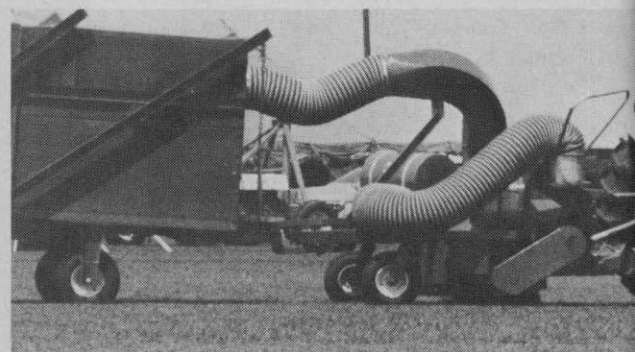
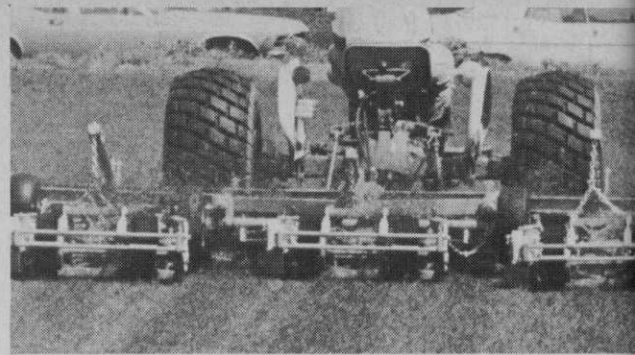
Question: How was your business in 1969?

	Number Reporting	Percent
Increased	40	42.6
Stayed about the same	33	35.1
Decreased	21	22.3
Totals	94	100.0%

Table 15. Business outlook of growers for 1970.

Question: What do you expect businesswise for 1970?

	Number Reporting	Percent
Better year	46	49.5
About the same	40	43.0
Worse than '69	7	7.5
Totals	93	100.0%



industry people on the move



PENNSYLVANIA TURFGRASS COUNCIL, INC., has elected this leadership for 1971: President—E. R. Steinger; first vice-president—A. W. Wilson; second vice-president—Martin Stolpe; treasurer—Howard J. Miller; executive director—Fred V. Grau; and directors—Frank I. Shuman, Robert L. Coyner, Tom Mascaro, Frank Sirianni, Ken Beachley and J. W. Holman.

Presidential plaques, the first given, went to Alan Mock, T. L. Gustin, Joe Gackenbach, John Tenos, Harry Wilcox, Tom Mascaro, and Don Krigger.

* * *

HENRY S. BUNTING has been named vice-president of Thompson-Hayward Chemical Company, Kansas City, Kan.

* * *

ROCKY MOUNTAIN SOD GROWERS ASSOCIATION has been formed and these officers elected: President—J. R. Wilkins, vice-president of Green Valley Turf, Littleton; vice-president—Vic Johns, president of Mesa Landscaping Co., Colorado Springs; and secretary-treasurer—Allen Freedberg of Scien-Turf-Ic at Henderson, Colo.

* * *

DR. JAMES G. HORSFALL, director of the Connecticut Agricultural Experiment Station, has received

France's highest agricultural award. He received the Order of Merit of Agriculture at the Seventh International Congress of Plant Protection, Sept. 25, in Paris.

* * *

GORDON CORPORATION of Kansas City, Kan., has appointed E. K. Spring as "Trimec" sales manager. The patented herbicide mixture contains various concentrations, according to intended use, of 2,4-D, MCPP and Dicamba.

* * *

DALE R. CHRISTIANSEN, director of recreation and parks for Berkeley, Calif., has become associate professor of park administration at California State Polytechnic College, Pomona.

* * *

THOMAS R. LOY is the new manager of market development for biological chemicals for Velsicol Chemical Corporation.

* * *

THE UNIVERSITY OF FLORIDA has selected Dr. Bryson L. James as professor and head of the Plantation Field Laboratory in Ft. Lauderdale. Dr. James, formerly assistant director of horticulture at Callaway Gardens, Pine Mountain, Ga., will coordinate research for nursery and ornamental plants and turf for residential developments, golf courses, and other recreational uses. He also will help supervise aquatic weed control and equine piroplasmosis research programs.

* * *

JAMES GARRISON is manager of applications engineering for the commercial marketing department at Textron's Bell Helicopter Company.

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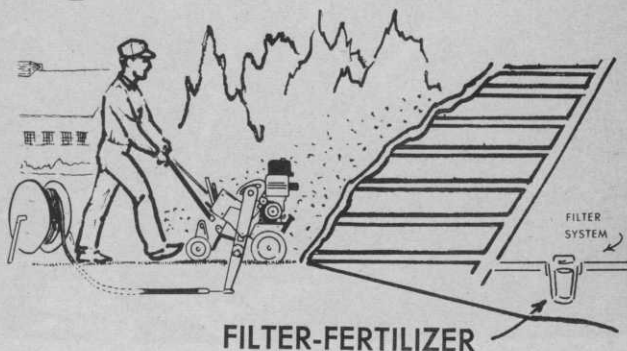
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MUNICIPAL ARBORISTS:

Street Lights a

BBETTER CARE for city trees can be expected, if for no other reason, from the fact that street lighting engineers and arborists have entered their fourth era of relationship: they're now cooperating with each other.

"Arborists are beginning to get a good understanding of the value of lighting; and lighting engineers are beginning to get a good understanding of the value of trees," Kirk M. Reid told the assembled Society of Municipal Arborists at its sixth annual meeting in October in Middleburg Heights, Ohio.

After progressing through the eras of shouting, grumbling, and learning, Reid said, "They've discovered their common goal is best serving the over-all public interest."

Reid, past president of the Illuminating Engineering Society and co-chairman of the Street Tree and Utility Conference, announced the selection of an SMA committee to work with lighting engineers to revise the manual for street lighting procedures and practices.

Committee members are Darrel Middlewood of Birmingham, Mich.; Joe Plante of Providence, R. I.;

Ralph Quinn, Jr., of Baltimore, Md., and Dick Boers of Toledo, Ohio.

Common problems have helped unite the groups, said Reid, naming three: vandalism, uncooperative property owners, and unsatisfactory employees. A discussion disclosed some others to work on.

"High intensity lights mounted six to eight feet above old ones have made additional trimming necessary," reported Joe Plante. "Guidelines on the reflecting quality of a tree are needed, and flush cuts should be made where possible."

Because new lighting can increase tree-trimming costs tremendously, Ralph Veverka, Cleveland city forester, felt that the question must be resolved on whether the responsibility and the cost should rest with the arborist or the utility.

"Blueprint placement" of utility poles without regard to trees that have been growing for years must end, added Joseph Krepop of Brooklyn, Ohio. Tom Tapp of Flint, Mich., cited an example—a light that ended up in the crown of a maple.

In Richmond, Va., the utility handles the trimming, said Jim Oates. Lamp size and location is deter-

mined by the municipality in Newark, N.J., added Robert Smith.

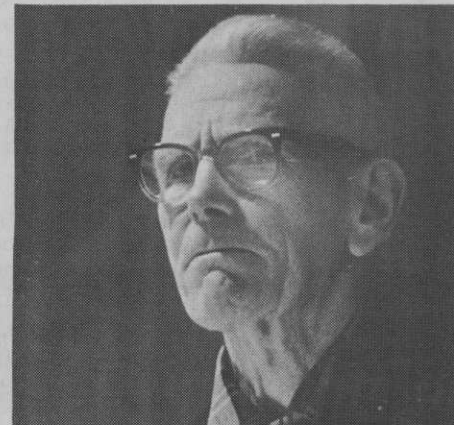
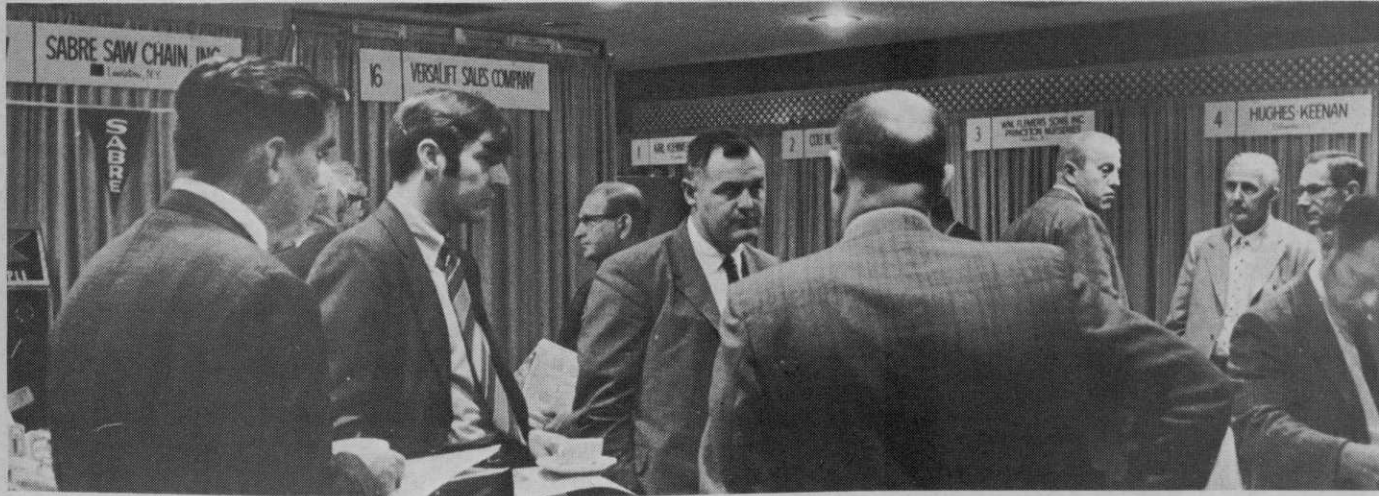
While there is a lot of talk about the value trees contribute to urban life, Dr. Ray Keen, horticulturist from Kansas State University, Manhattan, suggested that trees also could create slums.

Trees too big for the location and planted too close together have been known to make lawn-growing impossible and to cause constant paint-peeling on houses. People who care about the appearance of the place where they live then move out. The result, he said, is a steadily deteriorating neighborhood.

Reporting on the tree situation in Kansas, Keen said spraying had stopped completely in Manhattan. Topeka is spraying in parks only. Wichita is practicing intensive sanitation, taking advantage of the state law providing that if a private property owner won't take down a tree, the state will—and send him a bill.

"The big tragedy is in our smaller cities and towns," said Keen. "They don't have the trained specialists the big cities have."

The unique problem in the Heartlands—that once was prairie land,



ees Can Mix, After All

Keen said, is that 85% or more of the city trees are elms.

"Arbor Day years ago used to mean the youngsters trouped to the nearest stream and brought back either an elm or a cottonwood. We may thank our lucky stars for Dutch Elm Disease. It will give us a chance to do the job right.

"A lot better planting is needed. Arborists should be a part of overall city planning.

"What are you going to plant 20 years from now? Nurserymen should know your needs at least 10 years in advance."

Not enough study has been done to determine what effect trees have on climate and reduction of wind velocity, believes Keen. He added that the search must be hastened to find suitable trees now growing. "In some cases, we don't have time to breed."

Tree research for the artificial environment has been directed in the past largely toward selecting for shape, size, and color, said Dr. Charles L. Wilson, USDA researcher from the federal shade tree laboratory at Delaware, Ohio. Work is just beginning to select varieties with



Emilio L. Fontana, right, of Omaha, Neb., passed the presidential reins to Robert Miller, municipal arborist at Dayton, Ohio.

consideration, backed by research, given to salt tolerance; air, soil and water pollution; root system development in a variety of soil types and conditions; and pollution reduction capability.

We need to know more about container-grown trees, he continued, including which trees are best adapted, what kind of containers are best, and what soil types are best.

Tree breeding is highly important because it speeds evolution, he said, "but first we must sell the importance of urban trees before we can sell urban tree research."

An uppermost value of tree research, Dr. Wilson stated, is that "to elevate the profession of arboriculture, we must elevate the level of our knowledge."

Warren Edman, vice-president of roadway lighting for the Holophane Co., of New York City, demonstrated the advances in street lamps. He showed how light output had been increased many times and how new lamp globes had been developed to direct the light where it is best needed.

Light output has brought about greater spacing between poles. Globes have been developed to direct that light on a more horizontal plane. It means, he said, that more attention must be directed to objects, such as trees, that obstruct the light. Tree trimming is going to become more critical, he predicted.

Street lighting will continue to improve and the cost will become less than the cost of operating an automobile's headlights, he said.

"I am confident we will see the day," Edman said, "when we will approach many of our cities at night and read the sign: 'Welcome, please turn off your headlights'."

The arborists elected Robert Miller, municipal arborist of Dayton, Ohio, as president. Darrel Middlewood, superintendent of parks, Birmingham, Mich., was elected vice-president. Ed Scanlon, owner of Scanlon's Nursery, Olmsted Falls, Ohio, was re-elected to a three-year term as secretary-treasurer. Dick Boers, commissioner of forestry for Toledo, is the new member of the executive committee.



Coffee with commercial exhibitors provided a morning and afternoon break from adjacent educational sessions. Karl Kuemmerling & Co. brought its "traveling hardware store," left below. Richard Collins, sales representative, visits with Al DeShano, right, Condesco, Inc., Hamilton, Ohio, and Robert S. Miller of Dayton, Ohio. Near left is lead-off speaker Kirk M. Reid, past president of the Illuminating Engineering Society. Above, Frank Karpick gets the Sabre Saw Chain story from Ron Zinser, left, and F. D. Tubesing. (Ed. Note: Mr. Tubesing died unexpectedly Oct. 14 of a heart attack. He was 52.)

KEEP AMERICA BEAUTIFUL

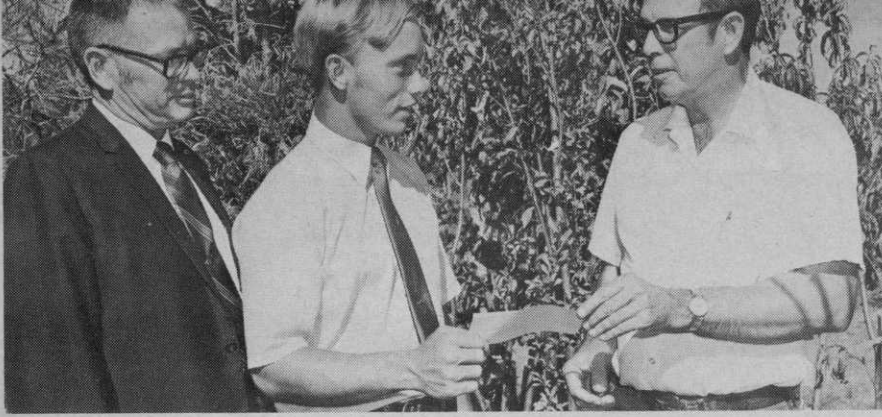


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RAPID-GRO

For More Details Circle (109) on Reply Card



John M. White, center, sophomore horticulture major at New Mexico State University, receives a tuition scholarship check from Horace Woodburn, right, Garden Center Nursery, Las Cruces. Woodburn presented the check as president of the New Mexico Nurserymen's Association, donor of the award, as Dr. Fred Widmoyer, head of the NMSU horticulture department, looks on.

AAN Publishes Nationwide Nursery Stock Locator Guide

A national source book of nursery stock, supplies and equipment has been published by the American Association of Nurserymen called the 1970 Stock and Supply Locator.

According to Robert F. Lederer, AAN executive vice-president,

"With more than 6,400 listings in 16 different categories of plant material and supplies, the Stock and Supply Locator is probably the most thorough reference guide existing for anyone who uses nursery stock. In addition, it is cross referenced for ease in locating nursery stock."

Copies are available from AAN, 835 Southern Building, Washington, D. C. 20005, for \$3.00 each.

Landscape Maintenance Group Formed in Minnesota

Minnesota Landscape Maintenance Association was formally organized Sept. 22. George Lilli of Lilli Landscape, St. Paul, is president.

The need for cooperation among landscape maintenance firms has been a matter obvious to most of us for many years, Lilli said. The new organization, he believes, can more readily solve the numerous mutual and individual problems of landscape maintenance men.

Officers elected with Lilli are: Vice-president — Andy Anderson, Green Thumb, Minneapolis; secretary — Dwayne Albrecht, Albrecht Landscape, Minneapolis; and treasurer — Ed Oswald, Paradise Landscape, South St. Paul.

Landscape maintenance men interested in joining the new association should contact George Lilli, 105 Dell Lane South, St. Paul, Minn. 55119. In Minneapolis, phone 881-5554; in St. Paul, 739-1201.

insect report



TURF INSECTS CHINCH BUGS (*Blissus* spp.)

WEST VIRGINIA: *B. leucopterus* (chinch bug) damage heavy to several lawns in Kanawha County; damage moderate to lawn in Harrison County previous week. PENNSYLVANIA: *B. hirtus* (hairy chinch bug) damaged many lawns in September. Statewide, but especially troublesome in eastern half of state.

A MARCH FLY (*Dilophus orbatus*)

CALIFORNIA: Larvae and adults heavy in lawns at Loomis, Placer County, and Sacramento, Sacramento County. Swarms annoying homeowners. Many complaints from residents with mixed dichondra and grass lawns.

WHITE GRUBS

UTAH: Damaged several Washington County lawns. OHIO: *Cyclocephala borealis* (northern masked chafer) grubs damaged lawns in Franklin, Licking, and Fairfield counties. Grubs about third instar. PENNSYLVANIA: *Cyclocephala* sp. averaged as many as 50 grubs per square foot, turf dead in Lawrence County.

TWO-LINED SPITTLEBUG (*Prosapia bicincta*)

ALABAMA: Adults and nymphs heavy on centipede grass lawns in Dallas County.

INSECTS OF ORNAMENTALS

AZALEA LACE BUG (*Stephanitis pyrioides*)

CONNECTICUT: Infestations on azaleas heaviest in years in Fairfield County.

MEALYBUGS

FLORIDA: *Rhizoecus* sp. eggs and nymphs moderate

on 65% of 1000 plants of Norfolk Island pine. (*Araucaria excelsa*) at Snead Island, Manatee County. CALIFORNIA: *Spilococcus implicatus* one per leaf on cypress trees in 0.5-acre planting at Aualala, Mendocino County. This is a new county record.

A PSYCHID MOTH (*Apterona crenulella*)

OREGON: Larval cases collected at Baker, Baker County. This is a new county record.

TREE INSECTS A CONIFER APHID (*Cinara palmerae*)

MARYLAND: Collected on blue spruce at College Park, Prince Georges County. This is a new state record.

A MEGALOPYGID MOTH (*Norape ovina*)

SOUTH CAROLINA: Larvae collected from redbud at York, York County. This is a new state record.

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*)

VIRGINIA: Damage currently at peak in Coastal Plain. Light, 20% infestation, in pine plantations in Richmond and Essex counties. Heavy in young Virginia pine throughout southwest counties; moderate in loblolly plantations in Frederick County.

NOTODONTID MOTHS

ARKANSAS: *Heptercampa manteo* (variable oak leaf caterpillar) heavy past few weeks in central and eastern areas. Trees nearly stripped of leaves, especially along Crowleys Ridge in eastern and northeastern areas. Heaviest infestations in 10 or more years. IOWA: *Dicentria lignicolor* defoliated linden, redbud, and maple trees at Leon, Decatur County, and fed on oak at Whitten, Hardin County. *Symmerista conicosta* and *Datana ministra* (yellow-necked caterpillar) currently defoliated 75-100 acres of timber in Lyon County; larvae 6-12 per leaf at one time.

GLOBE, ARIZ., 2,4,5-T CAPER

Much Ado About Nothing

Herbicides applied to control brush in the Tonto National Forest were not responsible for most of the injury to plants, any injury to animals, and may have been associated with one minor case of human illness reported in the nearby Globe, Ariz., area last year, a panel of scientists concluded in a U. S. Department of Agriculture study.

The report is the result of an on-site inspection last February by the panel and subsequent laboratory analyses of soil and animal tissue samples collected in the Globe area in addition to the herbicides used on the spray project. The investigation was undertaken in response to charges of damage from the spraying raised by citizens in the area after the herbicide silvex and some 2,4,5-T, together with small quantities of diluted 2,4-D and 2,4,5-T, were aerially applied by the Forest Service in June 1969 to control chaparral on 1,900 acres in the Kellner Canyon-Russell Gulch section of the Pinal Mountains.

The investigating panel consisted of scientists from the Departments of Agriculture, Interior, and Health, Education, and Welfare, and from the National Academy of Sciences, with observers from the Office of Science and Technology and the Arizona Extension Service.

The report stated that the deformity seen in the goat and duck examined in the Globe area were not the result of the chemicals used in the spraying project. The deformed goat, born about five years prior to the 1969 spraying, was caused by severe nutritional deficiency. The duck, hatched four miles away from the site of herbicide application, had a slipped tendon. This condition is not uncommon in fowl and it could not have been caused by the 1969 spray because hatching started before spray application.

"Human illnesses reported were those that occur commonly in a normal population," the panel said, pointing out that it had contacted nine of the 13 physicians serving the Globe area in the course of the investigation. The only case of human illness that

may be related to the spraying is eye irritation and skin rash in one individual who had steam-cleaned herbicide barrels for the Forest Service in previous years, it was indicated.

The report said that some herbicide damage to vegetation occurred on private property near the spray project either from direct overflight or from drift. However, insects, disease, woodpeckers or sapsuckers, low soil moisture, and air pollution from a nearby copper smelter were also said to be contributing factors to the plant damage observed in the Globe area.

Many of the original allegations of injury from the spraying were related to the possible presence of a contaminant, tetrachlorodibenzo-p-dioxin, in the chemicals used in the project. Analysis of the silvex used in the spraying, and some of the 2,4,5-T, showed that only very low amounts—less than 0.5 parts per million (ppm)—were present. The soil samples taken from spillage areas on the heliports contained silvex but no 2, 4,5-T, and less than 0.2 ppm of the dioxin. No silvex or 2,4,5-T residues were detected in liver and muscle tissues from an animal slaughtered shortly after the spraying.

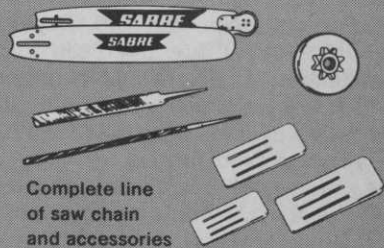
The chaparral control project in the Pinal Mountains of the Tonto National Forest was initiated in 1965 by the Forest Service with the approval of the Federal Committee on Pest Control. The objectives of the program were to manipulate dense brush cover so as to increase water yield and improve soil stability, improve wildlife habitat, increase livestock forage, reduce fire hazard, and provide better recreational opportunities for hikers, campers, and hunters.

After citizens protested, the chaparral project was suspended Oct. 16, 1969, pending a re-examination of all environmental aspects.

The investigating panel was headed by Dr. Fred H. Tschirley, Assistant Chief for Crops Protection Research, Agricultural Research Service, Beltsville, Md.



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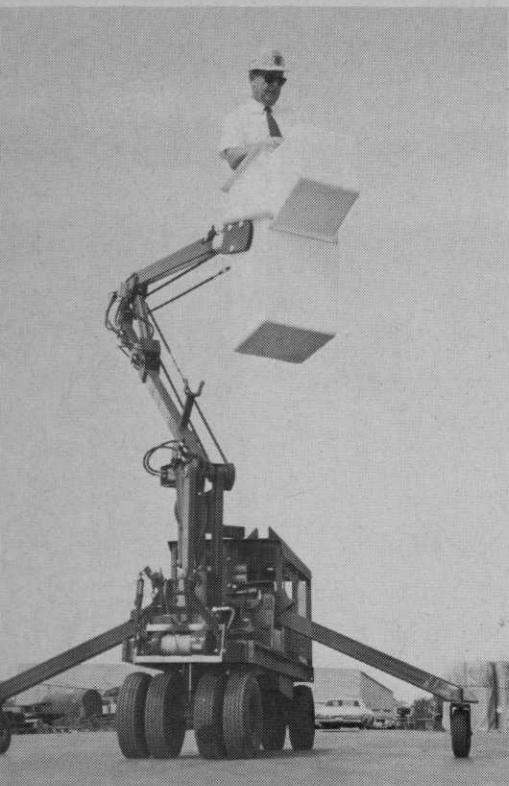
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The Davey Tree Mini-Lift Bucket can boost a 250-lb. load 23 feet into the air. In collapsed travel-lock, it can navigate through a 7'x30" doorway. For details, circle (722) on the reply card.

Davey Tree Buys Company; Enters Equipment Field

Alexander M. Smith, president of Davey Tree Expert Co., headquartered at Kent, Ohio, has announced the purchase of a Virginia nursery and an interest in a Colorado equipment company.

Ridgwell Nursery Company at Virginia Beach becomes a part of the nationwide Davey family. Former owner William D. Ridgwell becomes the Davey area tree care representative, responsible for tree-moving and landscaping.

Ridgwell also will operate a new Davey Tree Garden Center, offering a complete line of plant materials and gardening supplies at the nursery site at 469 S. Lynnhaven Rd. The garden center is scheduled to open in the spring.

Davey Tree now claims complete landscaping and yard-care services for the Norfolk-Williamsburg-Virginia Beach areas.

Davey's entry in the equipment field is through an interest in the Mini-Lift Company of Denver.

The company has initiated manufacture of a self-propelled lift basket that will safely lift a 250-lb.

load 23 ft. in the air, and yet pass through a 7x2½-ft. opening.

Operation of the Mini-Lift is accomplished by the man in the basket, or an operator on the ground. The unit is designed for tree trimming in confined areas on electric and telephone utility lines, or for use inside industrial buildings, or warehouse aisles. The Mini-Lift's eight balloon tires prevent damage even to wet lawns.

Smithco, Inc., Buys Thuron Line of Spray Equipment

Smithco, Inc., of Wayne, Pa., has purchased Thuron Sprayer Manufacturing Co. of Dallas, Tex. In announcing the acquisition, effective Sept. 22, President Ted Smith said the expansion was another step in the development of systems for efficient turf maintenance. Smithco is the developer of a line of small, mobile work carts for golf course and other turf maintenance personnel. Thuron makes a wide range of sprayers and spray equipment for golf courses, parks, state and agricultural use. All inquiries regarding Thuron sprayers should now be addressed to Smithco, Inc., Wayne, Pa.

Aldrin, Dieldrin Called Essential for Nurseries

Withdrawing aldrin and dieldrin from use could be disastrous for some nurserymen, the U.S. Department of Agriculture has been told.

American Association of Nurserymen has asked that registered use not be withdrawn because there are no adequate substitutes.

A survey of members indicated these materials are primarily used to meet federal and state quarantine requirements, AAN said, and that without these materials members believe nursery stock, especially balled and burlapped . . . could not meet federal and state quarantine requirements.

"If the quarantine requirements cannot be satisfactorily met, the only alternative is to cease producing nursery stock in the quarantine regulated areas. This would be disastrous for many nursery firms and would seriously reduce the supplies of nursery stock needed for environmental improvement plantings."

AAN also said that one possible alternative for aldrin and dieldrin—chlordane—can be used only when applied to the soil as a preplant treatment. "However, in the case of more mature nursery stock where tillage is neither practiced or ad-

visable, chlordane cannot be substituted. This means that in many situations there is no alternative."

AAN listed a number of reasons that registered use of the two pesticides for the control of quarantine insects and those insects for which there is no other known control should not be withdrawn. Among those reasons were:

1. The bulk of nursery use of these chemicals is for quarantine purposes applied under the careful supervision of state or federal inspectors.

2. Quarantines prevent the long-distance spread of imported and other hazardous soil-inhabiting insects thereby delaying or reducing pesticide needs.

3. The eradication of hazardous soil insects in the nursery, possible with dieldrin and aldrin application by experienced personnel, reduces the overall potential for environmental contamination over that which would occur if control is left to homeowners and others less well informed as to what pest is present, which pesticide to use and how to properly apply the pesticide.

4. Controlled use of the chemicals in the nursery effectively reduces

the general spread of these insects, thereby gaining more time for research to develop satisfactory alternate controls.

5. Alternatives to persistent pesticides as dieldrin and aldrin applied to the soil to control the insect in the larvae stage are pesticides to control the adult insect. These require very precisely timed, repeat foliar applications thereby reducing the potential for success. Unfortunately, many of these alternates have very low mammalian toxicity ratings thereby exposing man and any small animals present to the extreme hazard of sudden death.

6. Use of dieldrin and aldrin is needed to meet the phytosanitary requirements for nursery stock to be exported to certain foreign countries.

7. Scientific monitoring studies continue to indicate that pesticides, including the persistent pesticides dieldrin and aldrin, when applied according to USDA recommendations, do not create hazardous contamination or build-up. Reckless and improper use by careless or uninformed individuals continues to be a greater problem than that of the chemicals.

Double-Action Herbicide Getting USDA Evaluation

An experimental chemical with an unusual double action against both broadleaf and grassy plants is being evaluated by the U.S. Department of Agriculture.

A commercially-developed herbicide, known by the code number 6706, is closely related to the older compound, pyrazon. But unlike pyrazon which causes growth inhibition, desiccation, and death of green foliage, 6706's first symptom is the development of white foliage in plants. This closely resembles the action of other herbicides that prevent greening in plants.

Studies show that 6706 acts herbicidally like pyrazon by direct inhibition of a step in photosynthesis. Though pyrazon and 6706 are equally phytotoxic in this reaction, the experimental chemical has an additional herbicidal advantage. It remains phytotoxic in treated plants whereas pyrazon is rapidly inactivated in most plant species.

Time of treatment appears to govern which mechanism is principally involved. When 6706 is applied



New York State Highway Department has just purchased this group of 12 slope tractor-mowers from Slope Tractor, Inc., Harper, Kan. The tractor in the foreground is simulating mowing a slope of up to 30 degrees while operator and controls remain level.

preemergence, the plants come up—white or red depending on whether the plant can make red anthocyanin pigments—and grow as long as food reserves in the seeds hold out. Herbicidal action results from the lack of functional chloroplasts necessary to manufacture products of photosynthesis for continued growth.

In contrast, when 6706 is applied to established green plants, herbicidal

action and growth control result from the direct inhibition of photosynthesis in the preformed functional chloroplasts. And should new leaf tissue develop on the treated green plant, the direct inhibition action is supplemented by the failure of these new leaves to develop green tissue. Thus, photosynthesis is prevented by two different mechanisms in the foliage developed before and after treatment.

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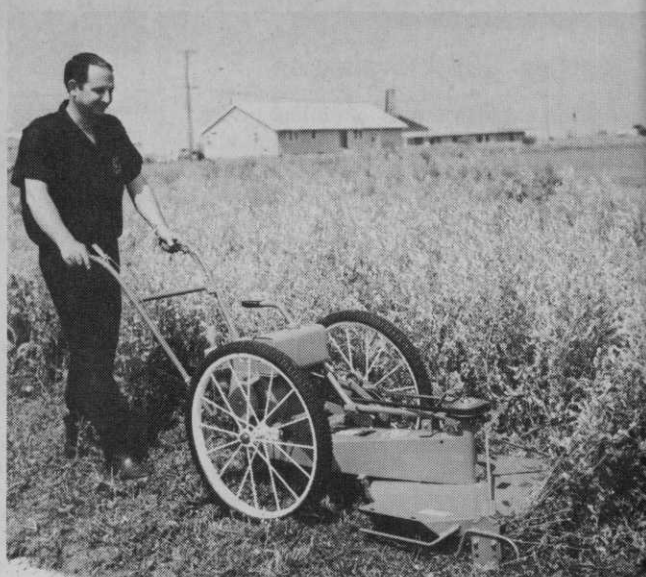
DECEMBER 2-3

Sheraton-Eastland Hotel, Portland, Maine



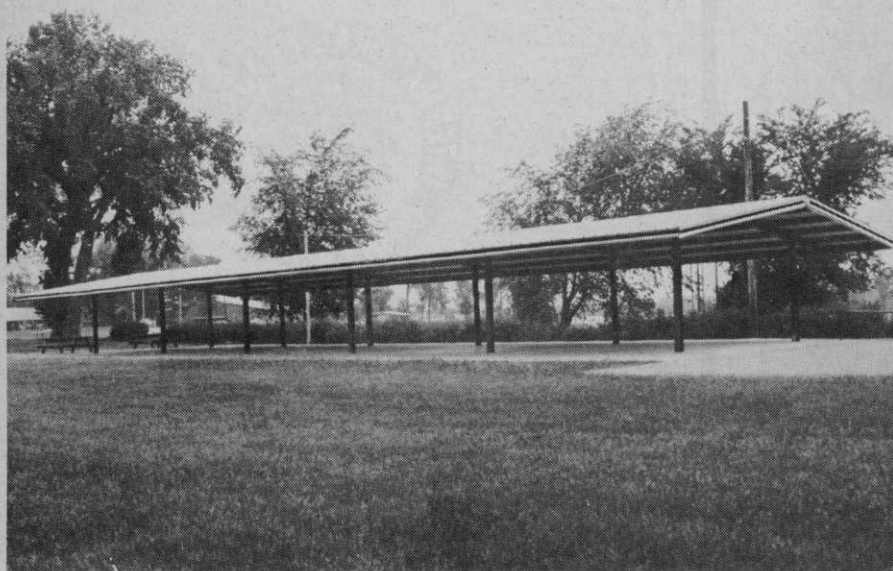
HEAVY BRUSH/GRASS TRACK-DRIVEN MOWER, Heath International, Inc., Richmond, Mich.

Heath's J-5-T is a combination of a J-5 track-driven vehicle made by Bombardier, Ltd., Valcourt, Quebec; newly designed universal three-point free floating hitch (patent pending); a hydraulically driven Bush-Hog mower, and a hydraulically actuated front piling blade that also serves as a counter weight for greater stability. Cutting speeds range from 1 to 12 mph (5-ft. path). Top speed is about 20 mph. Second operating configuration, the J-5-T Fire Fighter, utilizes the SIECO plow to establish 10-ft. fire lanes at speeds up to 15 mph. For more details, circle (701) on the reply card.



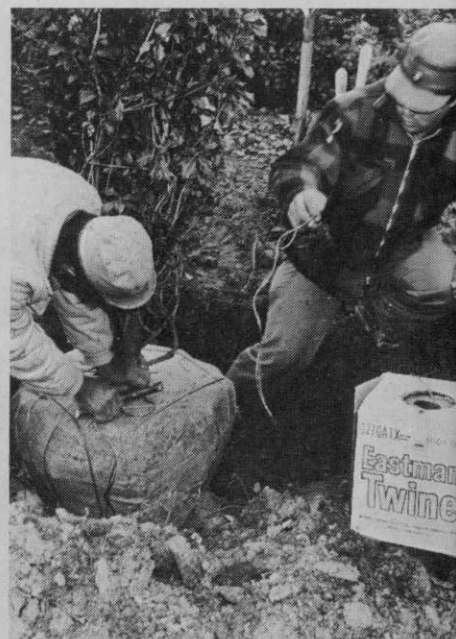
BRUSH TO LAWN MOWER, Roof Manufacturing Co., Pontiac,

Roof's VP-75 is called an extremely simple, tough, totally reliable single-belt machine with excellent cutting versatility. For clearing brush and timber, the unit can be equipped with a 20" blade; one man easily changing the blade with a wrench for fine lawn mowing, the same unit can be equipped with a lawn shield unit with runners, or the 30" lawn shield unit with swivel glide caster wheels. A 26" weed cutting kit is also available for use with the basic machine frame. Large, open mowing is made easier by equipping the VP-75 with an riding operator's cart. The machine is powered by a 7 hp engine. For more details, circle (702) on the reply card.



MODULAR PARK SHELTER, Cuckler Building Systems, Monticello, Ia.

A pre-engineered modular park shelter, this building can be erected by a local builder or supplied as a package for customer erection. Basic shelter, with three structural steel frames on 20' spacing, covers an area 52'x36'. The six-frame shelter illustrated has three additional 20' modules. Roof extends 8' beyond columns on sides and 6' at ends. Eave height is 8'. Twenty-six gauge roof panels with a 20-year color coating are attached to steel Z-purlins on 4' centers. Package includes frames and frame bracing, purlins, roof panels pre-cut full length, fascia, rake flashing with inset color stripe, boxed eave flashing, rubber ridge closure strip and steel ridge cap, and self-drilling fasteners for attaching roll panels to purlins. For more details, circle (705) on the reply card.



PLASTIC TWINE, Eastman Chemical Products, Kingsport, Tenn.

After three years use, Powers Taylor of Dale Nurseries, Hawthorne, N.Y., reports Polypropylene Tying Twin is superior to twine because of its inherent resistance to mildew and the damaging effects of weather. He says plastic twine is stronger and easier on the hands. For more details about Eastman Twine, circle (706) on the reply card.

ADVANCED PRODUCTS FOR ENVIRONMENTAL SANITATION

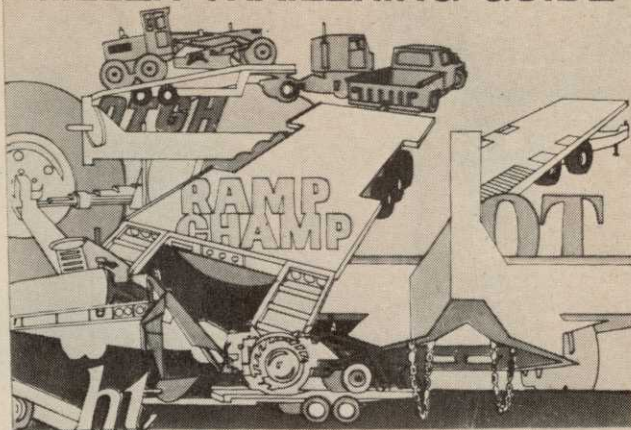


Cleaners and deodorizers Floor care Sanitizers Pesticides Herbicides

PRODUCT CATALOG, Hub States Corporation, Indianapolis, Ind.

This quick-reference catalog uses brightly colored symbols and page indexes, clearly dividing the company's environmental sanitation products into five easy-to-find sections. The products are: Cleaners and deodorizers; floor care products; sanitizers; pesticides; and herbicides. The catalog is free. For more details, circle (703) on the reply card.

MILLER TRAILERING GUIDE



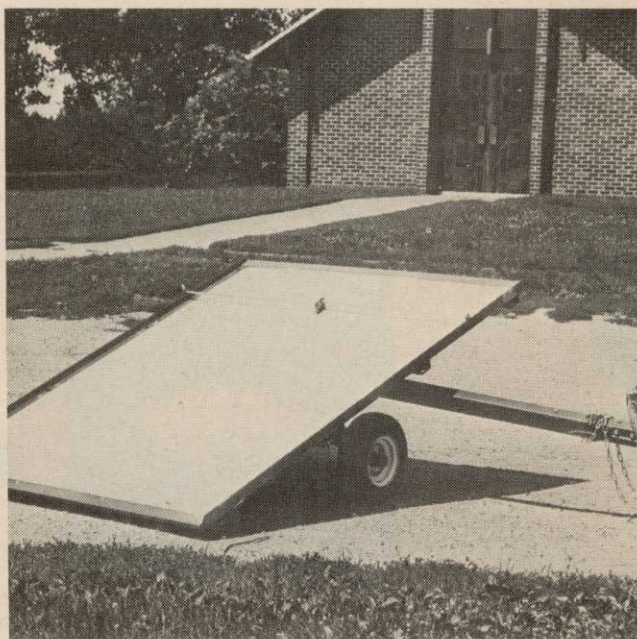
TRAILERING GUIDE, Miller Tilt-Top Trailer, Inc., Milwaukee, Wis.

Miller's 24-page booklet is a combination catalog and manual on trailering safety. The safety aspects are covered in detail, containing suggestions useful to the novice and the professional. The catalog section features include a list of construction equipment, by model and manufacturer, and a matchup guide indicating the Miller trailer specifically designed to handle the piece of equipment. The company claims the quick-loading and unloading features of its trailers permit the user to cut unprofitable idle time of working machinery by moving it from job to job efficiently. For a free copy of the catalog, circle (704) on the reply card.



ANALYSIS OUTFIT, LaMotte Chemical Products Co., Chestertown, Md.

The AM-31 provides chemicals for making 250 tests and includes 50 resealable soil sample bags. Individual models of chemical test equipment for making soil pH tests for determining levels of nitrogen, phosphorus and potassium are furnished in polypropylene cases. The pH tests are made by means of a unique comparator that provides permanent color standards for the following values: 4.0, 5.0, 6.0, 6.5, 7.0, 7.5, 8.0 and 9.0. Kit also contains complete instructions and soil analysis report forms. For more details, circle (707) on the reply card.



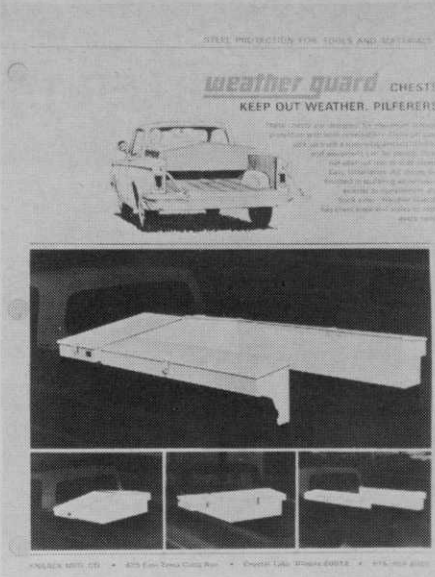
EQUIPMENT TRAILER, Clark Manufacturing Co., Atherton, Mo.

Load capacity is 1,000 lbs. Deck is 6'x8' replaceable pentatreated, exterior grade plywood. Remove one pin and the deck will swivel and tilt forward or backward for easy loading and unloading. Trailer has all-steel frame, automotive type springs and demountable wheels equipped with tapered roller bearings. Standard equipment includes combination stop, tail and directional lights, reflectors and safety chains. Sideboards are optional. For more details, circle (708) on the reply card.



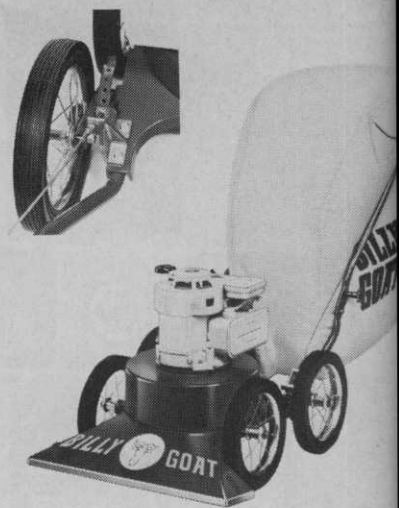
EQUIPMENT SERVICE LIFT,
G & H Products, Inc., St. Paris, Ohio

The new G & H Uni-Lift safely lifts 1,000 lb. loads to any working height up to 80" in less than 30 seconds. Rugged steel construction. Motor has automatic overload protection and a safety chain that locks into the bed when it is at working height. Heavy steel runways are 72" long and adjustable in width from 17" to 46". The Uni-Lift can be moved from spot to spot, if required. For more details, circle (709) on the reply card.



WEATHER GUARD CATALOG,
Knaack Mfg. Co., Crystal Lake, Ill.

A newly revised edition of the Weather Guard catalog has been announced. The catalog illustrates several improvements to the line of truck chests and accessories. It also publishes changes to ordering procedures made necessary as the result of the recent purchase of Weather Guard by Knaack Mfg. Co. Copies are available free by circling (710) on the reply card.



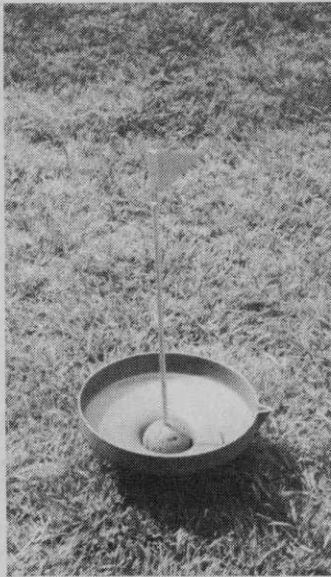
VACUUM IMPROVEMENTS, Billy Goat Industries, Grandview, Mo.

Cast aluminum snout on the KD40 five height settings, from 3/8" up to 80". Operator changes height by releasing remote lever while pushing down on the handle. Steel impeller pulverizes leaves, twigs, thatch, clippings, and other litter to one-tenth original size. Bag is mildew-resistant. Optional 1/2 inch diameter flexible hose can be used to clean shrubbery. For more details, circle (711) on the reply card.



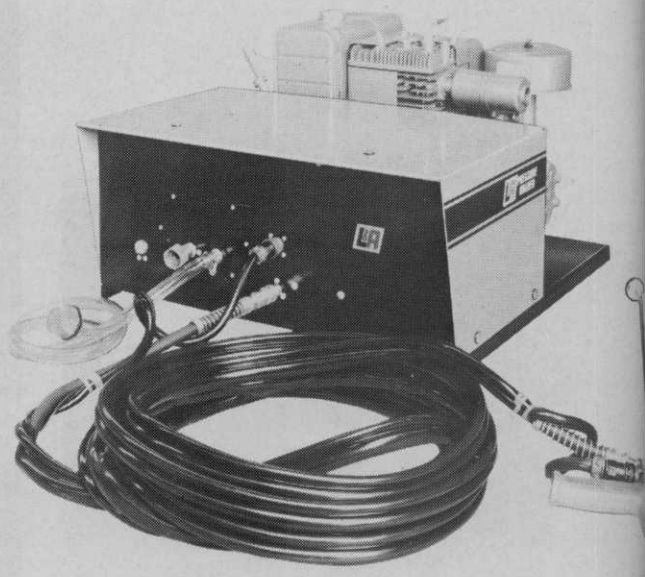
PRUNING SAW, Village Blacksmith, Watertown, Wis.

Electric tree surgeon pruning saw reaches 15 ft. into tree. Called the first adjustable electric "vertical action" remote control reciprocating pruning saw with a 15 ft. aluminum pole and drive shaft power head that removes branches 3 to 4 inches in diameter plus trash and twig growth without injuring tree. For more details, circle (715) on the reply card.



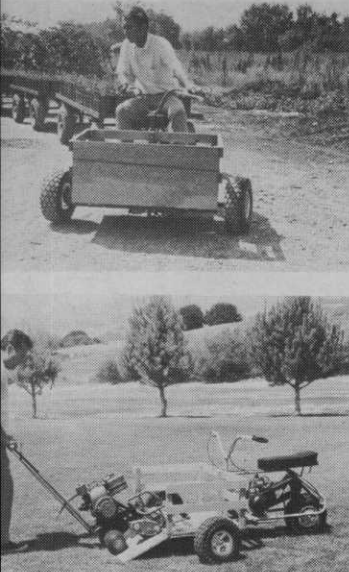
SPRINKLER PATTERN SPRAY GAUGE, Larson Co., Santa Barbara, Calif.

Fast and accurate, this gadget for checking precipitation rate also indicates distribution efficiency of sprinkler irrigation system. Using a set of 10, a grounds superintendent can measure irrigation in about 5 minutes. When just 0.05 inches of water is collected in the cup, the signal flag floats free and drops by gravity. For details, circle (716) on the reply card.



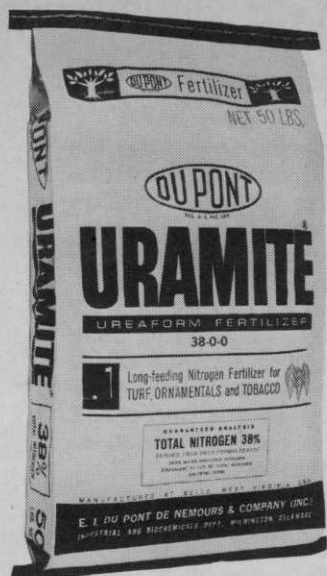
GASOLINE-POWERED PRESSURE WASHER/SPRAYER, L&A Products, Inc., St. Paul, Minn.

L&A Model 6030 brings power cleaning to remote job sites where running water and electricity aren't readily available. Water supply may be from a storage tank or garden hose. Powered by a 4-cycle, 7 hp engine. Applies solutions at 3.2 gpm at 500 psi pressure. Unit features complete remote control starter and a remote control on the gun. Three spray patterns — 0 degrees, 15 degrees, and 45 degrees. Fourth position provides low volume at 100 psi pressure. For more details, circle (717) on the reply card.



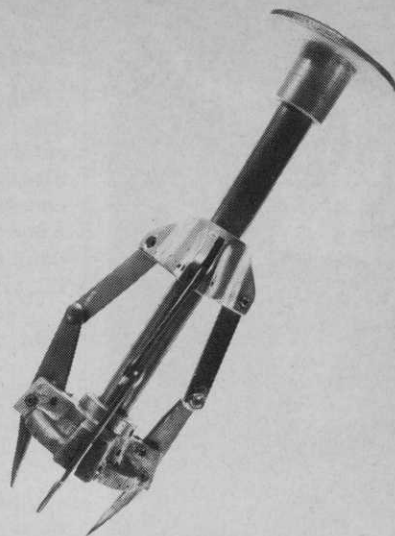
UTILITY TRUCK, Larkin Aircraft Co.,
San Dimas, Calif.

The utility truck is a rugged miniature, four-wheeled truck that can carry an operator and 250 pounds up a 15-degree incline. It weighs 135 lbs. and costs less than \$350. Bed area, 10' x 31" x 35" x 15" and is 9" from the ground; folding ramp; turning radius, 18"; speeds to 25 mph; wheelbase, 53"; length, 68". For more details, circle (712) on the reply card.



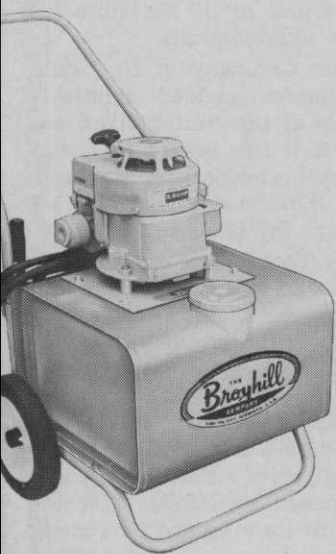
UREAFORM FERTILIZER, Du Pont Co.,
Wilmington, Del.

Uramite is a ureaform fertilizer with a high content of long-lasting, gradual release nitrogen. Labor-saving — one application lasts 6 to 8 months. Non-leaching, free-flowing, non-burning, clean, odorless and non-corrosive. Uramite is ideal for golf courses, parks, lawns, highway roadside turf, ornamentals, potted plants and nursery stock. Formulations come in both granular and sprayable. For more details, circle (713) on the reply card.



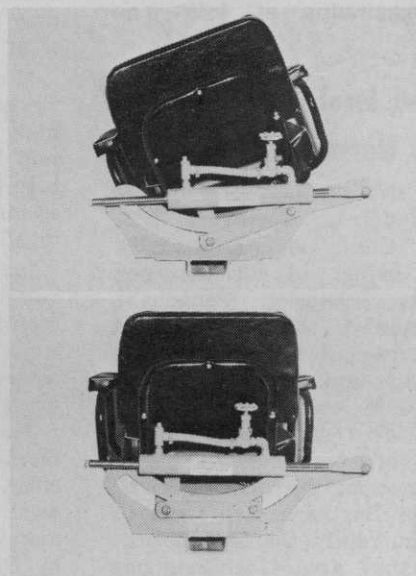
DIVOT-REPLACER, American Mfg. Co.,
Des Moines, Ia.

New — just in time for Christmas — a hand-size professional greenskeeper quality divot-replacer. Lightweight (15 oz.) and easy to carry (10 inches long, 3½ inches in diameter). Sturdy aluminum construction. For more details, circle (714) on the reply card.



POWER SPRAYER, The Broyhill Co.,
Cincinnati, Ohio.

The Broyhill Co. announces the availability of the most complete line of power sprayers in the industry. Different models include backpack, cart-mounted (push and pull) and platform mounted. Sizes range from 1 to 12½-gal. capacity; maximum operating pressures to 1,000 psi. Dealer inquiries invited. For more details, circle (718) on the reply card.



HYDRAJUST TRACTOR SEAT,
Rotary Power, Inc., Houston, Tex.

Safety and efficiency are the features. Seat fits most makes and models of tractors, allowing operator to remain level while the tractor is on a slope up to 33 degrees. Seat is adjustable forward and back to provide optimum degree of comfort and safety. Driver's weight, by means of a hydraulic cylinder, automatically adjusts seat to level position, thus eliminating traditional back problems, and insuring better operator control. For more details, circle (719) on the reply card.



HAND CLEANER, Goodrich Products,
Houston, Tex.

Goodrich 745 Hand Cleaner is a waterless-type cosmetic-base cleaner that contains no harsh abrasives, ammonia or kerosene. It contains a bacteriostat to reduce the possibility of bacterial skin infection and the incidence of industrial dermatitis. Package quantities are 16 and 32 ounce in new heavy-duty polyethylene cans; 80 and 90 ounce in plug bottom cans; five-gal. in reusable plastic bucket; 55-gal. in open top drum. For more details, circle (720) on the reply card.



0217®

RAH! RAH! RAH!

Cheers can be heard all over the north temperate zones of the world for this giant among lawn seeds. Outstanding on all counts, Fylking Kentucky bluegrass is resistant to a wide range of diseases, including leafspot and stripe smut. Drought and winter tough, fine leaves of deepest emerald green grow in unusual density due to abundant sideshoots. Fylking produces no ugly seed-heads, can be cut low as 1/2 inch for home putting greens, 3/4 inch for velvety carpet-like lawn. All facts proven in 12 years of international testing by noted authorities. Next lawn, seed or sod with 0217® Fylking Kentucky bluegrass (U.S. Plant Patent 2887). At your seed distributor. Write Jacklin Seed Co., Dishman, WA 99213 for information.



**FYLKING
KENTUCKY
BLUEGRASS**

For More Details Circle (104) on Reply Card

New England ISTC Lists December Conference Topics

What's your tree problem?

If it is: pesticide substitutes for chlorinated hydrocarbons, Dutch elm disease, the role of shade trees in conservation, roadside salt, waste wood disposal, labor, air pollution damage, downtown street tree planting or botany in the grocery store . . .

You will hear discussion of these subjects at the New England Chapter of the International Shade Tree Conference. The date is Dec. 2 and 3. The place is the Sheraton-Eastland Hotel in Portland, Me.

The conference agenda includes equipment exhibits and demonstrations and a women's program, reports President George W. Goodall.

Speakers include Richard A. Howard, director of Arnold Arboretum at Harvard University; John R. Hansel, executive director of the Elm Research Institute, John J. O'Riely, commissioner of the Federal Mediation and Conciliation Service, Dr. Richard J. Campana of the University of Maine; and J. A. Kimmel, director of parks for Toronto and president of the International Shade Tree Conference.

The conference opens at 9 a.m. Dec. 2 and ends with the business meeting beginning at 1:30 p.m. Dec. 3.

Nunes and Jacobsen Merge Turfgrass Nurseries

John F. Nunes, Jr., president of Nunes Turfgrass Nurseries, Inc., Patterson, Calif., and Edward R. Jacobsen, owner of Ed Jacobsen Turfgrass Nurseries, Tehachapi, Calif., announce the formation of Nunes-Jacobsen Sod, Inc., with offices at Tehachapi.

Both Nunes and Jacobsen have been associated with the turfgrass industry for many years, with Nunes pioneering the "instant lawn" industry in Northern California in 1962 and currently the largest producer in that area. Jacobsen has been associated with Jacobsen Brothers Turf Nursery for many years and has recently started his own turfgrass growing operation in Southern California.

Both Nunes and Jacobsen said the formation of Nunes-Jacobsen Sod, Inc., has been developing for the past two years and that an additional source of quality turfgrasses in Southern California is needed to satisfy the demands of this rapidly growing industry.

Edward R. Jacobsen, has been



"If I don't sell a job soon, I'm fired!"

named president, John F. Nunes, Jr., vice-president-treasurer and Edward S. Mutoza, secretary.

Some 2,4,5-T Contaminated, Most Test Okay, Says USDA

Sample lots of 2,4,5-T have been found to be contaminated with excessive amounts of the dioxin TCDD, reports the U.S. Department of Agriculture.

Manufacturers and formulators have been warned that regulatory action will be taken if their products are found to be contaminated with toxic chlorodioxins.

Monsanto Company of St. Louis, whose samples yielded relatively high levels of the contaminant, has told USDA it has ceased manufacture of the herbicide and is reprocessing all remaining stock of 2,4,5-T to eliminate the problem.

Industry spokesmen, said USDA, have indicated the remaining manufacturers of the chemical are taking steps to avoid the problem, which is associated with the manufacturing process.

Tests for the presence of the dioxin in 2,4,5-T and 16 other herbicides, fungicides, and insecticides were launched by USDA after the discovery of its presence in a study by Bionetics Research Laboratories. A high level of the contaminant is suspected of causing birth deformities in laboratory animals.

"The majority of the samples tested," reported USDA, "have shown the contaminant to be generally present in 2,4,5-T only at very low levels, which constitutes no known hazard to human health."

The present department action is based on the first report of its scientists studying dioxins. The investigation is continuing on the other polychlorophenolic pesticides.

WEEDS TREES and TURF

classifieds



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

Rates: "Position Wanted" 10¢ per word, minimum \$3.00. All other classifications 20¢ per word, minimum \$4.00. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment. Bold-face rule box: \$25.00 per column inch.

USED EQUIPMENT

ROSEMAN 7-gang mowers, \$900 to \$1,200.00. 13-gang Roseman, \$2,000.00. Ryan 18" sod cutter with Roll Ryder attachment, \$895.00. Ryan 18" cutter, \$200.00. 17½ acres sod, \$5,000. Foulkes Sod, Fall River, Wisconsin 53932. Phone: 414 484-3941.

FOR SALE — Model 2460 Vermeer stump grinder. Very little time, excellent condition or will trade plus cash on a 45-52 ft. aerial bucket. Custom Tree Surgery Company, 3714 Waupun Road, Oshkosh, Wis. 54901.

SPRAYERS, chippers, log splitters and other equipment at large savings. Let us know your needs. Equipment Sales Company, 4744 Sunrise Highway, Massapequa Park, N. Y. 11762.

SALESMEN WANTED

EXPANDING Tree Service Company in Northeast—looking for aggressive and experienced salesmen to develop new territories and build up existing ones. Starting pay of \$10-15,000 commensurate with education, experience, and ability. Commission also paid on profits earned. Company car furnished; pension plan; paid hospitalization; excellent future. Send resume (with current annual sales and earnings) to: (Box 60, Weeds, Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

FOR SALE

AUSTRALIAN BUSINESS — Agricultural Chemicals — Custom Applicators. This firm specializes in Agricultural and Industrial Weed Control. It is firmly established in three eastern States and there is potential for expansion to the remaining States and New Zealand. Opportunities in allied fields are excellent. An ideal proposition for a chemical or pest control company seeking a comprehensive introduction to the Australian Market. Any reasonable proposition will be confidentially considered by the Founder-Manager who is anxious to ensure the future of this unique organization before retiring. Address all inquiries to: "Chemicals," P.O. Box 767 G, G.P.O. Melbourne, 3001, Vic., Australia.

Toro Enters Hydro-Mulching; Posts 6th Straight Top Year

Toro Manufacturing Corporation, Minneapolis, producer of powered turf-care equipment, has purchased Tex-Way Industries, Inc., Fort Worth, Tex., developers of specialized environment control equipment.

The acquisition, for an undisclosed price, gives Toro a series of hydro-mulching machines, said Toro president David T. McLaughlin. The hydro-mulchers are used to establish vegetation on various types of terrain by spraying mixtures of water, seed, fibrous mulch and fertilizer.

Tex-Way, less than a year old, was headed by Ralph E. Martin, who becomes a Toro consultant. Tex-Way's general manager, Ralph W.

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Gebhardt, has been named sales manager for this new Toro venture, the first in a new Toro profit center named Eco/systems.

McLaughlin said development and marketing of the hydro-mulching machines will be directed by Edward A. Hunnicutt, manager of special projects in the division of corporate development.

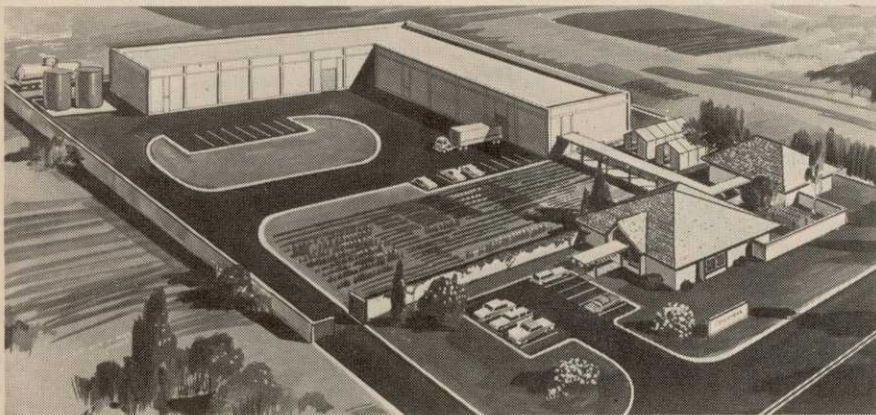
The hydro-mulching method of establishing turf has been adopted for major construction programs, particularly federal interstate highway systems. Other applications include parks, athletic fields, playgrounds, golf courses, housing developments, and land reclamation work, such as strip mine areas and other terrain where growth establishment is difficult.

McLaughlin said that one hydro-mulching machine can cover up to five acres in 15 minutes in a one-step operation that eliminates the immediate follow-up maintenance that seeding normally requires.

Toro's new hydro-mulching machines, which range in capacity from 500 to 3,000 gallons and are priced from \$5,000 to \$8,000, are designed to handle all the spraying chores landscape contractors may encounter, including chemical spraying, liming, firefighting and watering, as well as hydraulic seeding, mulching, and fertilizing.

The purchase announcement was coupled with one reporting that Toro had increased sales and earnings for the sixth consecutive year.

McLaughlin said sales for fiscal 1970 were \$57,757,000, an 11% gain. Net earnings advanced 7% to \$2,918,000 and \$2.88 per share.



Colloidal Products Corporation, claiming to be the only company in the world specializing entirely in adjuvants for agricultural chemicals, celebrated its 50th anniversary this year by building a new home near Petaluma, Calif. The move to the plant-research-office complex was completed Sept. 1. It is situated on about four acres 35 miles north of San Francisco, where Colloidal was founded in 1920, and 30 miles from Sausalito, where it has been located for the past 13 years. In explaining the relocation, President Ed Littooy, who has been with the firm 45 years, noted that "we've had four locations since we started, and each time we've grown right out of the place." Colloidal's new address is P.O. Box 621, or 1300 North McDowell Blvd., Petaluma, Calif. 94952, telephone (707) 763-2675.



AN ELM TREE, developed over the past 13 years by the Canadian government, is said to be resistant to Dutch elm disease. Although the tree grows only half as fast as the American elm, Canadians believe newer generations can be made to grow faster. Known as the Quebec elm from its origins at l'Assomption, the new strain is expected to be on the commercial market within a year.

* * *

U.S. FOREST SERVICE has announced a breakthrough on Dutch elm disease research. Scientists at the Syracuse University and the Forest Service's Delaware, Ohio, laboratory reveal that virgin female beetles produce a chemical scent highly attractive to flying male and female elm bark beetles. Chief Edward P. Cliff says the scientists are now working to isolate, identify, and artificially produce the attractant. They think a man-made substitute can be used to regulate populations of the destructive beetles.

* * *

HELICOPTERS have been used to seed the fairways of a golf course under construction at Country Club Village near Uniontown, Ohio. Lewis Busler, president of Iberia Earth Movers, said the helicopter can do as much in two minutes as his normal crew could do in two days. Water was mixed with the seed to get the proper pattern. Wind currents from the helicopter blades force the seed into the ground, Busler added.

* * *

THE DENVER POST and Western Federal Savings co-sponsor a Lawn-of-the-Month contest. The competition, says The Post, is to foster greater pride in homes and to keep Denver one of the most beautiful residential cities in the nation.

* * *

CERTAIN SPECIES OF FISH are collaborating with scientists in the battle against water pollution. The fish, placed in tanks in a stretch of the Vistula, Poland's longest river, give warning when there is a sudden deterioration in natural conditions. But soon the fish may be unemployed. Their work is being taken over by a computer-based monitoring system, which also will issue instructions to correct the situation. The project, known as POL-5, is being carried out by the World Health Organization.

VPI Research Center Serves \$100 Million Turf Industry

"Research involving turfgrass assumes greater importance as our society becomes more urban," said P. H. Massey Jr., at the recent dedication ceremonies of Virginia Tech's new Turfgrass Research Center.

Massey, associate dean and director of the agronomic and plant sciences division of the College of Agriculture, Virginia Tech, told some 400 persons attending the Virginia Tech Turfgrass Field Days, that 225,000 Virginia acres are in fine turfgrasses.

It is estimated 135,000 acres are growing grass around individual homes. Industry uses about 25,000 acres for its lawns. Schools and colleges can count another 12,000 acres in grass. Golf courses, cemeteries, roadsides, parks, athletic fields and other turfed areas all help to make turf production big business in Virginia.

It is about \$100 million of Virginia's annual economy.

"That, together with the grass-growing problems presented by Virginia's location in the transitional area of cool and warm season turfgrasses, makes a strong research program necessary," Massey remarked.

The Virginia Tech Turfgrass Research Center is on 25 acres with a suitable laboratory building devoted to literally hundreds of tests. On one area, 40 different strains of bluegrass are under test one against another. Large tracts are planted to bentgrasses with various fertilizer applications to permit researchers to study the plants' reaction. There are searches for new varieties and most effective grass seed mixtures. Me-



chanical equipment is studied for its value on lawns and turfed areas.

C. T. Wilson, associate dean and director of agriculture and life sciences in the Virginia Tech Research Division, spoke of the facility as part of the agronomy department. "It provides a facility where agronomists, horticulturists, plant pathologists and physiologists, agricultural engineers and other scientists can work together."

Of the total cost of establishing the turfgrass research center, about 70% came from outside sources. Tollie H. Quinn, Richmond equipment dealer, served as chairman of a special committee to obtain funds for the center.

Lee C. Dieter, president of the Virginia Turfgrass Council, presented a check to furnish equipment for the new building. It represented contributions from the lawn equipment industry in Virginia.

EI Announces Purchase Of Green Valley Landscaping

Environmental Industries, Inc., Encino, Calif. has acquired Green Valley Landscaping, Inc. and Green Valley Weed and Pest Control of San Jose, Calif., for an undisclosed amount of cash, note and stock.

Green Valley Landscaping is believed to be the largest independent company in industrial and commercial landscape maintenance in the United States. Green Valley performs industrial garden maintenance in Northern and Central California and will enlarge the scope of the company's Environmental Care. The firm has many long term maintenance agreements with various local, city, county, and other governmental agencies, as well as major California industrial facilities. J. M. "Joe" Marsh, President, will remain in charge of operations.

EII is primarily involved in landscape construction. This acquisition will provide services for permanently maintaining many of the projects presently being installed.

Valley Crest Tree Company, division of Environmental Industries, Inc., Encino, Calif., recently transplanted one of the largest known Ficus Microphylla specimen trees at the South Bay Club Anaheim project. The tree stood 50 feet high and had a 40-ft. spread. An 8-ft. box was built around the root system for moving. Landscape architect was Carter & Clarke. Valley Crest, with offices in Los Angeles, Santa Ana, San Diego, and Los Altos, is one of the largest specimen tree movers and growers in the state.

Princep gets the weeds. And that's all.

Apply our Princep® brand of simazine herbicide before weeds emerge. You'll get the weeds. And that's all.

In fact, one application controls most annual and many perennial broadleaf weeds and grasses for a full season.

That's how effective it is.

But the amazing thing is how safe Princep is.

First of all, there's no leaching with Princep, so nearby ornamentals and plantings aren't damaged.

There's little danger from spray drift, because Princep has no foliar action.

And Princep is not volatile. So you don't have to worry about damage from vaporization.

On top of all this, Princep saves you money over mechanical methods. Use it once and that's it. You'll save on the amount of labor needed without giving up any control.

For further information about Princep and our other herbicides, AAtrex®, Pramitol® and Atratol®, write to us.

Geigy Agricultural Chemicals,
Division of Geigy Chemical Corporation,
Ardsley, New York 10502.

Princep by Geigy

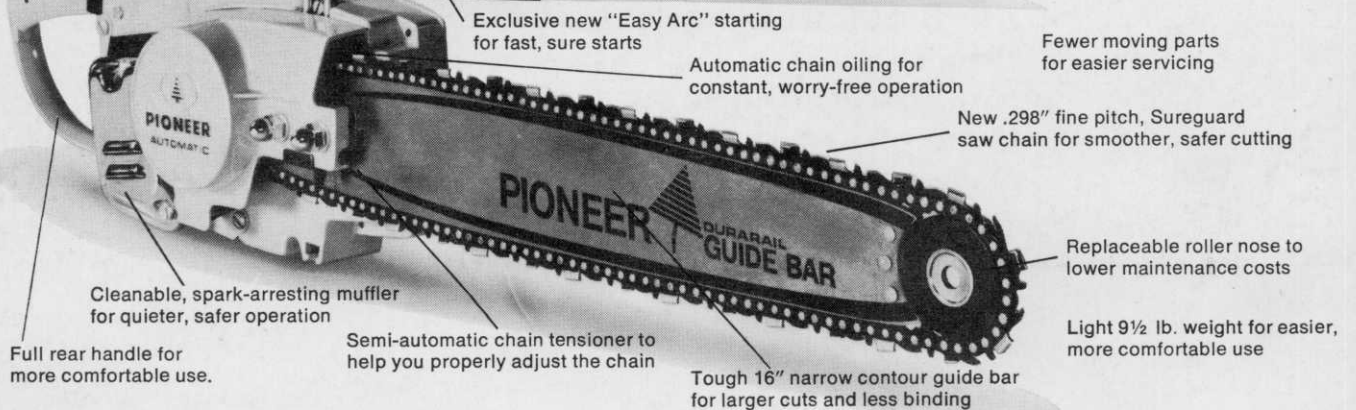
No matter how you slice it!
**The new Pioneer 2071
 gives you more features
 than any other lightweight
 chain saw ever built.**

Yet it's only **\$174.95***

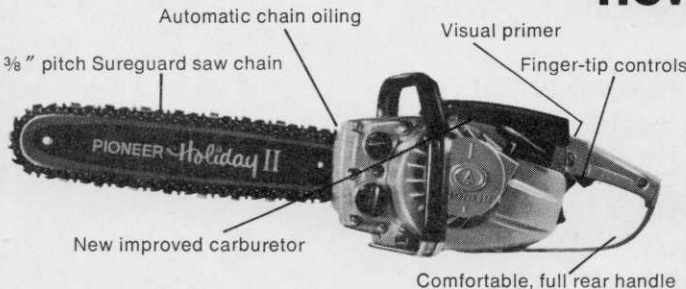
Never before has a lightweight chain saw ever had as many great features as this 2071. Never. If you're a nurseryman, a fruitgrower – if you have anything to do with trees at all – this great new Pioneer 2071 is the ideal saw for you! It has all the convenient features you need when the job calls for working in close. And it gives you all the speed and dependability you need when saving time and money are important.

The 2071 is easy to work with in awkward places. It's quiet, comfortable and very lightweight. It tips the scales at a mere 9½ lbs., but it tackles a tree with ease.

The Pioneer 2071 *laughs* at what used to be work. Get one working for you and you'll be laughing too. Try it at your Pioneer dealer's!



**The Pioneer Holiday II has some great,
 new features going for it too!**



The 9 lb. Pioneer Holiday II is still the ultimate word in low cost lightweight saws.

It has a visual primer and automatic chain oiling. And some great *new* features, too. It has a new, more comfortable, full rear handle; and improved carburetion. Check out the all new Holiday II. At your Pioneer dealer's right now!

*Suggested list price/ May be slightly higher in Canada

Still only \$149.95*



BY THE MANUFACTURERS OF EVINRUDE AND JOHNSON OUTBOARD MOTORS AND LAWN-BOY POWER MOWERS, GALESBURG, ILLINOIS, USA/ALSO AVAILABLE IN CANADA.

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