



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.

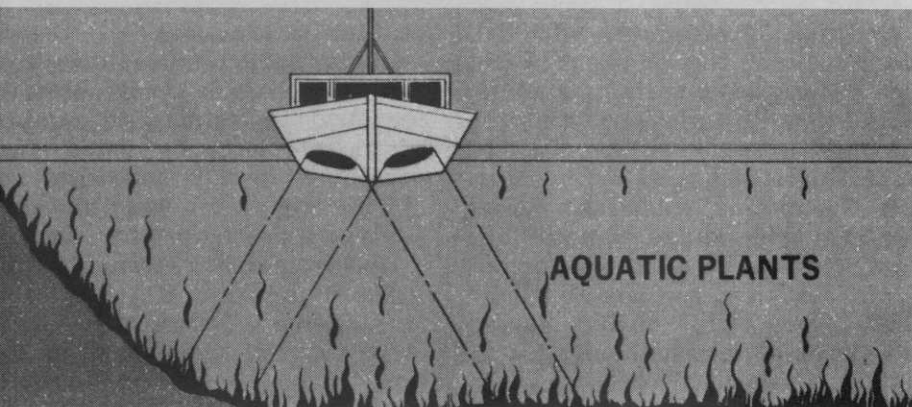
Project scientists believe the laser principle can be applied also to a variety of land weed control situations. They envision models that could be mounted on a boat, land vehicle, or carried by low-flying aircraft.

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.

FEED WITH NITROFORM®

organic nitrogen...

...which provides up to six times more plant food than activated sewage sludge; and provides up to ten times more than some organics. Available as 38-0-0 for direct application, and in formulations where it is at least 50% of the nitrogen source, Nitroform® nitrogen is long-lasting, nonburning, and nonleaching.

Used in soil mixes at the rate of 5 lbs. per cubic yard, Nitroform gives the steady nitrogen supply needed by the plant and by the mix ingredients. Nitroform is also a good source of nitrogen for field stock and for new plantings.

WEED WITH...

...**HERBAN**® pre-emergence herbicide and keep the soil free of competing weeds and grasses. Herban may be applied to nursery stock and landscaped areas any time of the year before weed seeds start to germinate. Two applications annually will keep out susceptible weeds; yet Herban does not carry over from year to year.

...**AZAK**® crabgrass herbicide and keep this pesty plant from snuffing out good turfgrass. Apply Azak to established turf before crabgrass seeds germinate for seasonal control.

For more information, write:



TURF &
HORTICULTURAL
PRODUCTS,
HERCULES
INCORPORATED,
WILMINGTON,
DELAWARE
19899.

STH70-3



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-

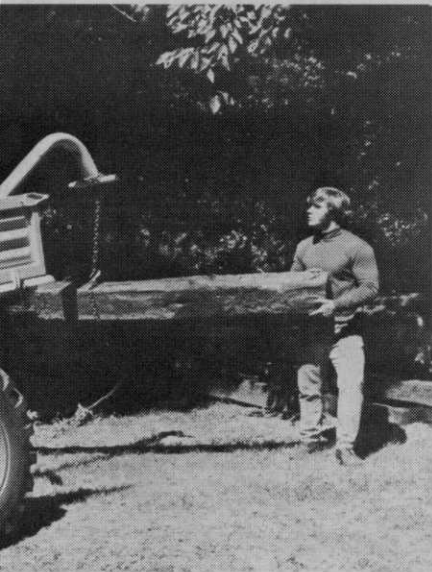
duty 406. The latter, with a wheel-base of 93.7 inches and an overall length of 161.4 inches, is slightly shorter than a Mercedes-Benz 280 SL sports car.

"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



FITCHBURG CHIPPERS

*Faster,
Smoother,
Quieter*



1270

- EXCLUSIVE SPRING-ACTIVATED FEED PLATE eliminates need for flywheel; assures faster, quieter operation. Automatically takes larger size wood without adjustment, extra power, or extra fuel.
- FOUR MODELS with wood capacity from 4½" to 7" dia.; a variety of power units.
- EMERGENCY SAFETY STOP SWITCHES at top and bottom of feed apron.
- PATENTED TWO-WAY DELIVERY CHUTE for side or front chip flow (optional).



Ask for a demonstration to see the BIG DIFFERENCE in brush chippers!

FITCHBURG CHIPPER

M-B COMPANY

Dept. WTT-11 • NEW HOLSTEIN, WIS. 53061

The Royal Line of
Governmental Equipment Since 1907



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.

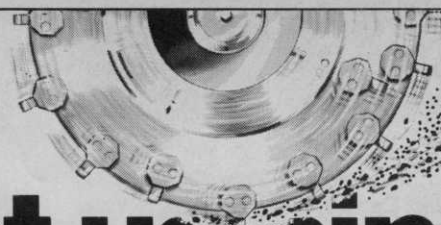
Last year, only 800 acres in Pennsylvania were defoliated. This year, according to Pennsylvania officials, 10,000 acres were defoliated in Monroe County alone. New Jersey defoliation acreage doubled this year.

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.

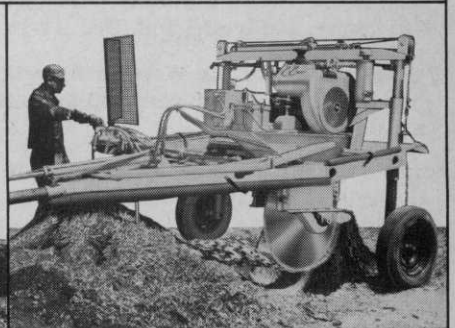
If the gypsy moth spreads throughout the eastern U.S. an estimated 112 million acres could be defoliated.



Let us sink our teeth into your stump problems.



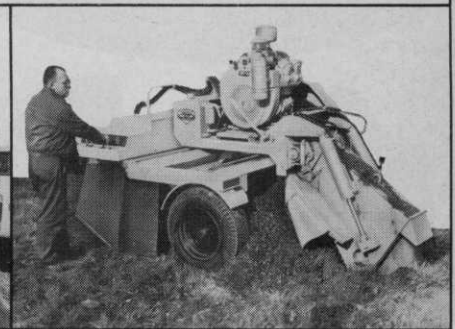
MODELS 6 AND 630 — Smallest of Vermeer's Stump Cutters. Designed for those hard-to-get-at places. Rips out stumps 6" deep. Choice of 18 or 30 hp.



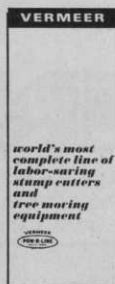
MODELS 10 AND 15 — High speed cutting wheel removes largest stump in minutes. Powered by 36 hp engine. Choice of models with 10" or 24" cutting depth.



MODEL 1560 — This one has 60 hp Wisconsin engine. More speed and more power for heavier work loads. Cuts 24" deep. Great for land clearing.



MODELS 2436 AND 2460 — Vermeer's new "reach-out" models cut wider, closer and faster. Low silhouette design. Cuts 24" deep, with 36 or 60 hp engine.



There's no faster, easier or cheaper way to get rid of ugly tree stumps . . . than with a Vermeer Stump Cutter. There's a model to fit your needs . . . to fit within your budget. Let us demonstrate. Write for free folder describing all stump cutter models.

VERMEER MANUFACTURING CO.
7211 W. Washington, Pella, Iowa 50219



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.

**THE ONE
FOR MANY JOBS...**



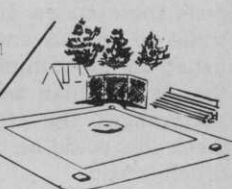
GOLF COURSE



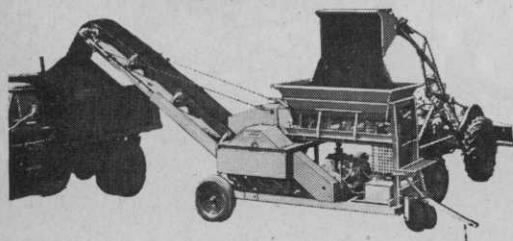
SEWAGE
SLUDGE



GREENHOUSE



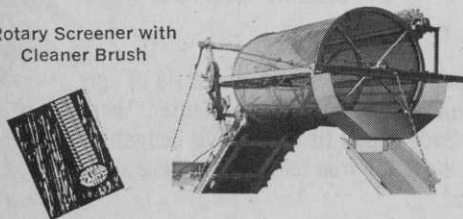
ATHLETIC FIELD



L-25, L-40, L-60

Lindig Earth Processing Equipment with capacities from 4 to over 200 cu. yds.

Rotary Screener with Cleaner Brush



Write for Lindig Catalog

One machine can shred and screen soil for your golf course. Turn sewage sludge cake into a useable fertilizer and soil conditioner. Prepare and maintain growth materials for your greenhouse, conservatory, or gardens. Help build and maintain safe recreation and athletic areas . . . with fields and tracks of shredded and screened materials.

One machine can help you with all these needs when it is a Lindig Shredder/Screenener. Exclusive Lindig hi-speed hammer-mill shredding delivers processed materials of unequalled quality at lowest cost. And only Lindig offers a Screenener Attachment that mounts *directly* onto the shredder. It's *one* full mobile unit, requiring no extra power unit or support frame for screening.



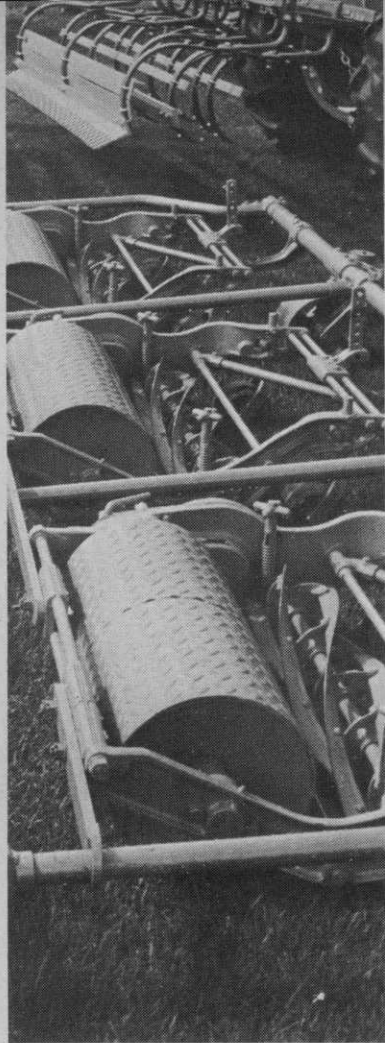
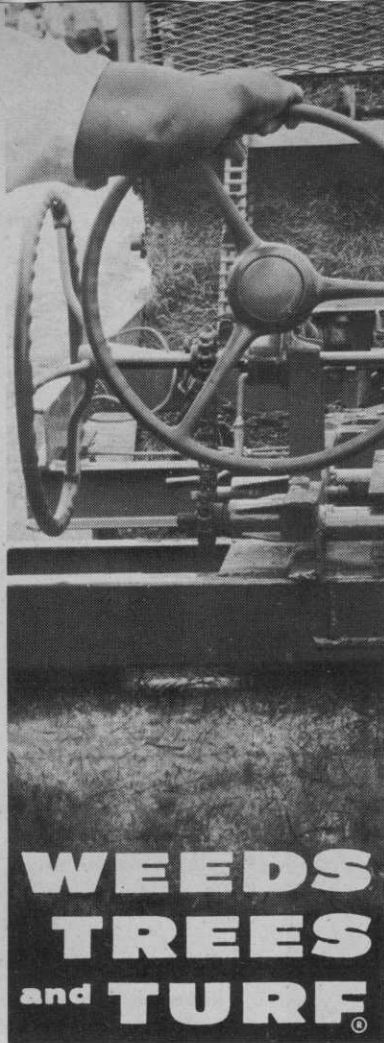
LINDIG

MANUFACTURING CORPORATION

1875 West County Road C • St. Paul, Minnesota 55113

(612) 633 3072, Cable: LINMANCO





WEEDS TREES and TURF[®]

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.

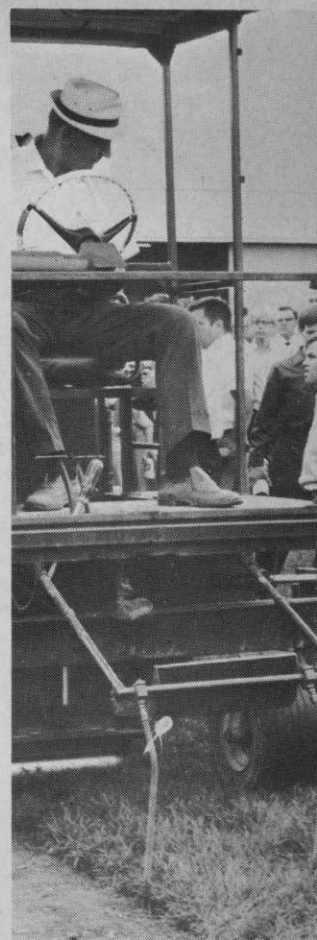


Table 12. Methods employed by growers to improve efficiency in handling and marketing sod.

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%

