
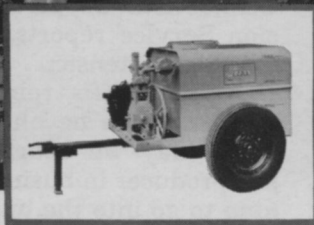
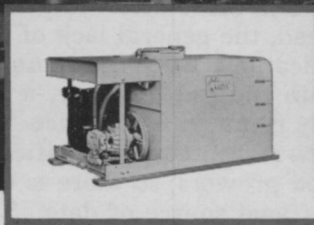


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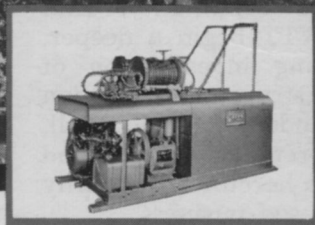
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WTT Survey Shows Sod Industry Headed for Vast Expansion, Increased Sales

America's sod growing industry stands at the foot of a giant ladder which leads to new levels of expansion. This is the consensus of state agriculture departments, sod growers' associations, and many individuals engaged in the burgeoning professional turf business.

Prior to the introduction of the monthly Sod Industry Section in July, *Weeds Trees and Turf* instituted an extensive preliminary survey of sod growers to determine the extent of their operations, as well as their needs and plans. Research into all 50 states turned up a vast spectrum of information—much of it diverse and even contradictory. But the survey did point out some definite trends in the sod growers' community. And it helped WTT begin a deeper, more probing investigation of the sod industry, an investigation currently underway which will, eventually, report the details and scope of the heretofore virtually unexplored sod business.

If nothing else, the initial sur-

vey proved that many industry members really know little of the extent of American sod production. Many state agencies tend to underestimate their own state's sod production, claiming that much of the sod used in that state originates elsewhere. For example, one Wyoming extension agent claims that "There has been an increase in the past three years of sod shipped in from Colorado, Nebraska, and South Dakota." Yet an official of the South Dakota Department of Agriculture reports, "There are no commercial sod producers in the state."

Communications Lacking

This seeming contradiction does not really imply controversy between the states. It reflects, instead, the general lack of communications and information within the sod industry, a relatively common occurrence.

Few states require certification of sod growers, so there is often no official source of data. Since today there are only a limited

number of large sod producing companies in any one state, there are few state sod growers' associations. Even state or regional turf associations do not have complete information about sod growers among their membership.

Does all this mean, then, that America's sod industry is in a disorganized and rudimentary shambles? Not at all. It merely shows that sod production in the U.S. is in a germinative stage of development. As a small Ohio grower put it, "New companies are springing up all over."

"New" is one of the most common words in the sod industry's vocabulary. "We are so new that it is difficult to determine dollar value (in the industry)," the Connecticut Cooperative Extension Service reports.

Ohio Extension Agronomist Don W. Griffis reinforces this opinion when he bluntly states, "Each day we hear of another sod producer in business or planning to go into the business . . . Without a knowledge of the

New Bentgrass Assn. "Off n' Running" in Oregon



Conferring officers for new Exeter Bentgrass Assn. in Albany, Ore., are, from left: Fenn Emerson, secretary-treasurer, Albany; Bill Rose, president, Woodburn; and Loren Hoven, vice-president, from Jefferson.

Bill Rose of Woodburn, Ore., has hoisted the flag to announce operations are now underway for the recently formed Exeter Bentgrass Assn. in Albany, Ore.

Rose was recently named president of this organization, which plans to promote better understanding of Exeter bentgrass, to maintain genetic purity of grass, and to assist in dissemination of information about the value and use of this new seed.

Exeter, developed and tested in Rhode Island, has proved to be an outstanding turfgrass, Rose says. A limited supply of seed will be available for consumer use this season.

Further information is available by writing to Exeter Bentgrass Assn., P. O. Box 356, Albany, Ore.

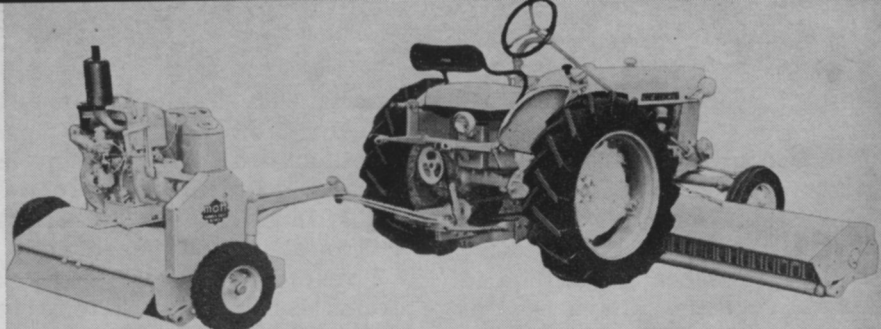
number of sod producers or the volume of business of these, I could not estimate with any accuracy the economic size of the sod industry. I am sure it is a sizeable industry, perhaps an unrecognized industry."

This picture, nebulous as it is, mirrors tabulated knowledge on the sod industry; known facts are virtually nonexistent. "Information on the sod industry is lacking not only for the country as a whole but within the states themselves," Henry W. Indyk, N.J. Extension Officer capsulized. "At present, this is a rapidly growing industry and any statistics compiled would become outdated rather quickly."

1,000 Sod Farms

Preliminary returns from early studies led WTT's research staff to project that about 105,000 acres are planted to sod on about 1,000 farms across the nation. (WTT estimates the average farm has 84 acres and each state has slightly more than 20 farms.)

Reports indicate, though, that there is no such thing as the



Light- and medium-duty mowing is accomplished quickly when 5-ft. LBS-5 is teamed up with 4-ft. HS model of Mott hammer-knife mowers. This arrangement gives the operator a cutting swath of 8½ feet employing smaller, lower-powered tractor for greater operational economy. Free-swinging flails have patented, self-cleaning cutting angle which also fold back when meeting with an obstruction and lessens tendency to throw stones or other objects that may be hidden on ground. Renovating and leaf mulching attachments are available as optional equipment. Complete information on this equipment may be obtained from Mott Corp., 500 Shawmut Ave., La Grange, Ill.

"average sod farm." Producers include nurseries which plant small plots to sod, farmers who cut up pasturelands and sell the turf, and large professional sod growers who conduct research and develop species. The table below, of sample figures from representative states, emphasizes the variations. The representative data below show the reported minimum number of farms in each state and the minimum total acreage.*

State	Farms	Acreage
Arizona	5	75
Arkansas	10	100
Florida	46	12,000
Georgia	33	300
Illinois	50	5,588
Maryland	250	7,000
Michigan	100	15,000
New York	20	3,410
Pennsylvania	10	1,000

*Based on estimates from officials in various states.

Conservative estimates put the sod industry's income at \$100 million annually. But reports from individual states hint that

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this guess may be exceedingly low.

James B. Beard, assistant professor of crop science at Michigan State University, believes that Michigan's sod industry alone approaches \$50 million in annual revenue. Elwyn Deal of the Maryland Extension Service estimates that state's annual dollar volume in sod to be about \$2 million. Florida claims to have an \$11 million capital investment in the sod industry. Massachusetts typifies states with little or no sod production where sales of sod shipped in from other areas still reaches several hundred thousand dollars.

Regional Prices Vary

If the variations in aggregate figures seem wide, the differences in sod prices are even more extreme. An Ohio sod grower

reports that Merion bluegrass sells for from 65c to \$1.00 per sq. yd. and the price is rising as demand goes up and supplies fall. He adds that bentgrass markets for about \$1.85 per sq. yd.

These prices for northern strains contrast significantly with the prices of southern grasses as reported in a 1963 Florida study. St. augustinegrass then cost less than 25c per sq. yd., bermudagrass was 38c per sq. yd., and zoysiagrass sold for 67c per sq. yd. In all regions the primary market for sod includes landscape contractors and homeowners as well as golf courses and some industrial accounts.

With this wide fluctuation in size, volume, and prices, the reasons for the lack of mutual understanding become clearer. Some states (Florida and Wisconsin, for example) exempt sod

from the definition of nursery stock. An Iowa horticulturist notes that in his state there is more acreage sold from pasture grown sod than from nursery grown sod. Reports from the Pacific Northwest indicate that sod production is relatively small because climate conditions usually favor good growth from seed-planted lawns.

These varied reports again affirm the substantial lack of communication within the industry. And this Sod Industry Section seeks to fill the void in what is obviously a growing field.

Vast Potential Market

Sod uses are many. WTT's introductory survey uncovered sod producers who sell to golf courses, parks, highway departments, and other industrial/municipal/institutional markets. One New Hampshire grower provides the sod used at Boston's Fenway Park stadium. Even in the Northwest where seed-planted lawns flourish, Norman Goetze of the Oregon State University extension service speculates a "real potential for the sod industry because of the difficulty in maintaining (turf) on heavy wear areas such as golf course tees and football fields."

The future is bright for the multimillion dollar sod industry in America. The comment of a New England agronomist wraps up feeling across the nation. "Frankly," he confided, "there is a market for more sod growers in this area if someone is interested in growing grass sod under good conditions."

And that is the purpose of this new Sod Industry Section: to help both present and potential sod growers develop their businesses. Future editions will include studies of preferred grass species, seeding and fertility rates, weed control practices, and market development tips. There will also be "portraits" of leading sod producers.

Sod growers have asked WTT about turf equipment, seed mixtures for specific areas, trade associations, and business practices. Coming issues will answer these and other questions important to the sod grower. As



This Cyclone Model 99 is a new pull-type broadcast spreader/seedler designed to spread fertilizer, seed, and other materials without stripes and double overlaps. Cyclone makes a manual model also.

Cyclone Spreader/Seeder Out

A new Model 99 pull-type broadcast spreader/seedler designed to give the same spreading results as older Cyclone Model B is now being marketed by The Cyclone Seeder Co.

Hopper capacity is 100 pounds of average material; it is constructed of galvanized steel and finished in baked enamel. Spreading mechanism consisting of feed guides, rotary agitator, and control cable is made of stainless steel.

Designed for spreading fertilizer, seed, granular herbicides,

granular insecticides, ice melters, soil conditioners, etc., Model 99 can achieve a spread width up to 10 feet, depending on the material being dispensed.

Another spreader, Model 100, is a new push-type spreader/seedler and is equipped with wheelbarrow-type handles for manual operation. It has the same features as the pull-type. Spreading mechanisms of both machines are ground driven.

Applicators interested in obtaining more information on these products can write to the company at Urbana, Indiana.

results of the current WTT production and sod industry surveys are compiled, a more distinct image of the American sod business will emerge. WTT stands ready to record the action as the expanding industry begins to climb its giant ladder into turf significance. Comments from readers will be most welcome.

Dutch Elm Disease Spreading Westward, Pathologist Warns

Dutch elm disease, which has caused widespread havoc in the Midwest, is steadily inching farther west, according to a recent warning by Dr. L. E. Dickins, extension plant pathologist at Colorado State University, Fort Collins.

The dreaded malady already has spread into most eastern Kansas counties, and a number of cases are reported for the first time in eastern Nebraska counties, the doctor points out.

Although this westward movement may take some time, "we cannot overemphasize the potential hazard to our elms," Dr. Dickins cautions.

There are no known cures for the menace, the pathologist explained, but a number of preventive measures are known:

- (1) Control native and European elm bark beetles which carry the fungus;
- (2) assure tree's health by proper pruning, fertilization, and watering;
- (3) clean up old elm wood piles, and strip bark from logs and stumps to prevent bark beetle buildup;
- (4)

burn all dead elm trees; and (5) use mixed plantings with resistant tree species to reduce disease hazards.

A symptom of Dutch elm disease is wilting or flagging of one or more branches high in a tree's crown. Sapwood of wilted branches becomes brown-streaked, and leaves will probably fall prematurely.

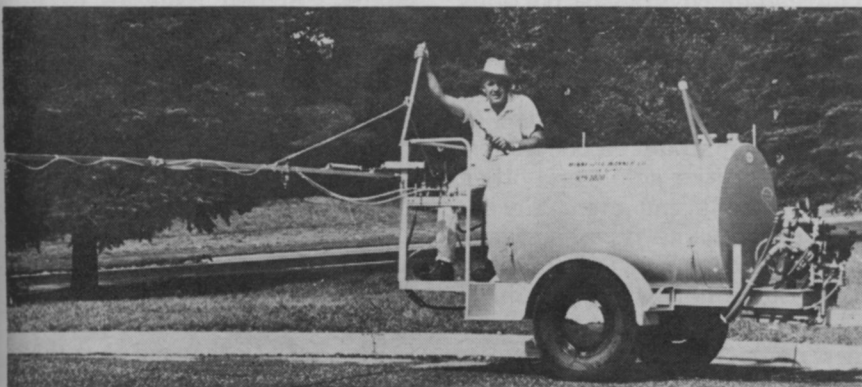
Dickins says these symptoms are not always reliable, therefore suspected infestations should be confirmed by laboratory analysis. He asks that all such specimens in Colorado be mailed to him at the Fort Collins campus. Select wilted, but still living branches, 1/2 in. or more in diameter, and wrap them in foil before mailing.

GSCAA Moves Offices to Ill.

Headquarters of the Golf Course Superintendents Association of America were moved to Des Plaines in suburban Chicago, Ill., on July 1. The old offices at Jacksonville Beach, Fla., closed.

L. R. (Bob) Shields Jr., president of GCSAA, announced that the new address is 3158 Des Plaines Ave., Des Plaines, Ill. 60018. The new telephone number is (312) 824-6147.

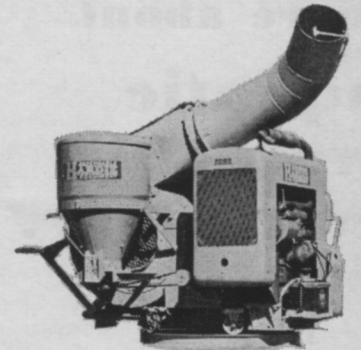
"We are moving our base of operations to Des Plaines to a more geographically central location to provide better and faster service to our members," Shields told WTT.



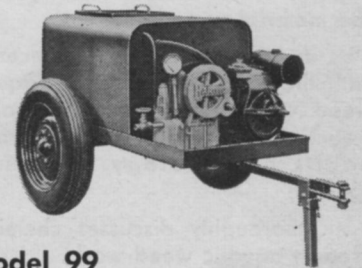
A new ground sprayer for applying invert emulsions has been developed by the Minnesota Wanner Co., Minneapolis. Exact proportions of water and brush killer are mixed in a small chamber in spray gun under pressure, producing a very viscous white mixture which is also very adhesive. This process develops such desirable results as controlled droplet size and heavy viscosity that does not lend itself to drift in form of fog or mist; it cannot be washed off by rain. Its white color makes it easy to observe while application is in process according to company. Complete information is obtainable from Kent Wanner, Minnesota Wanner Co., 5145 Eden Ave., Minneapolis.

HARDIE

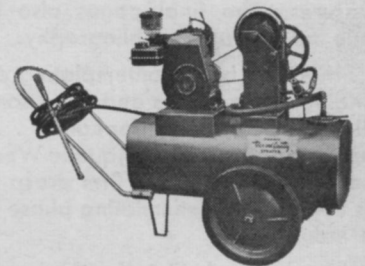
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**Aquatic Weed Control Gains World-Wide
 Perspective At 5th Hyacinth Control
 Society June Meet in Palm Beach**

"Aquatic weed control is a colossal world-wide problem," Dr. E. C. S. Little, A.R.C. Weed Research Organization, Oxford, England, told 70 experts (representing 7 states and 2 foreign countries) at the fifth annual Hyacinth Control Society meet at the Seabreeze Holiday Inn, in Palm Beach, June 28 to 30, 1965.

Dr. Little described the plight of the Egyptians, who are trying to restrict the range of waterhyacinth, a beautifully-flowered, but prolific, floating weed, to waters above the Khartoum Dam on the Nile River. They spend almost \$1.5 million each year. "But the waterhyacinths are getting past the dam into the lower valley," he said.

Political upheavals can disrupt the methodical control of pest weeds, Dr. Little pointed out. When Belgium managed the Congo, the government spent about \$4 million to control waterhyacinth. "Since Congolese independence and the turmoil which followed, all the money and effort has been wasted, because the weeds have grown back as bad as they ever were," the British weed expert said.

Continuing his round-the-world tour of weed problems, Dr. Little explained that *Salvinia auriculata* covers vast portions of Lake Kariba in Southern Rhodesia, and other water bodies. This weed serves as a resting place for cercariae life stages of certain trematode blood flukes, which parasitize snails and other animals, including man. Cercariae are the same type of organism which causes swimmer's itch (shistosome dermatitis), though the swimmer's itch organism does not penetrate and develop further within humans as some other species of blood flukes can and do. When cercariae escape the confines of infected snails, the cercariae attach to floating *Salvinia auriculata*. Anyone touching these plants risks having the parasites penetrate his skin. Penetration and development of these cercariae within

humans causes the disease bilharzia, for which there is no known cure. It usually leads to death. Bilharzia afflicts many people in Asia, Africa, and South America, though the weeds may not be associated with it.

A Hyacinth Habit Change?

Experts in the United States are concerned because waterhyacinths have been observed, on the one hand, tolerating water of increasing saltiness, and on the other, tolerating colder water. Waterhyacinth is a fresh water weed. But William Wunderlich, chief of the Aquatic Growth Section of the Army Corps of Engineers, New Orleans District, noted that today waterhyacinths are found in water much saltier than they could tolerate a few decades ago. Now rafts of waterhyacinths which float into the Gulf of Mexico stay alive much longer.

"Thirty years ago," Wunderlich also disclosed, "waterhyacinths were found only as far north as Baton Rouge, Louisiana (the plant is originally South American). But, today, we find them as far north as Arkansas."

Biological control of aquatic weeds is being investigated in countries other than the United States. British fisheries expert, W. H. L. Allsopp, who promoted the use of manatees, or sea cows, to control aquatic weeds in British Guiana, pointed out that manatees are slow to reproduce, but live long, up to 150 years.

Manatees are large, up to 1½ tons, mammals which have adapted to water. They have been captured at lengths up to 19 feet.

The Society learned that three manatees placed in display pools in Georgetown, British Guiana, between 1879 and 1890 are still alive. From 1890 to 1921, the manatees bore offspring to make the total five. By 1941, two were born, and by 1965 three more were added (one of the total has died, making a total of nine).

Weed controllers in British

Guiana originally captured 79 of the docile, herbivorous, aquatic mammals, and put them into canals in 1962 to eat weeds. Most have escaped since, because barriers in the canals were not maintained. British Guiana, too, gained independence, and the new government failed to follow through.

Allsopp, who is employed by the Food and Agriculture Organization of the United Nations, cannot continue manatee research because no funds are forthcoming. However, he firmly believes that these beasts can be effective biological controls against aquatic weeds.

Dr. Peter Sguros, Florida Atlantic University, Boca Raton, is presently studying manatees over a three-year period, under a project sponsored by the Flood Control District. He hopes to determine their utility as biological controls. Five manatees were captured and introduced into canals near Fort Lauderdale in May of 1964. He reports that they have chewed their way through half-mile long sections of infested canals every two months. They eat all the weeds, even to the roots, Dr. Sguros reported.

"Shifty" Weeds Stymie Experts

Five years ago, experts hoped that weed problems could be tackled and solved in a short time. But time and the plants have proved otherwise. Experts hadn't counted on the phenomenon now called ecological shift (See WTT, March 1964, pg. 16).

"First we developed a spray to kill southern naiad, then elodea moved in (shifted) and took over," reports Robert Blackburn, of the U. S. Department of Agriculture laboratory, Fort Lauderdale. "We became so interested in controls that we overlooked these ecological shifts. I don't know why they occur," Blackburn confessed.

With each success, new problems are created; relatively speaking, experts know less today than they did five years ago.

The need for a no-drift spray gun prompted the Army Corps of Engineers in the New Orleans District to develop an instant on-

off trigger. William Wunderlich is the chief of the weed control section.

Old guns, Wunderlich explained, produce a fine mist when first triggered. They do not spray a coarse stream until the gun barrel is twisted. Fine spray droplets may drift on air currents and contaminate nearby crops or other desirable plants.

The new gun, which Wunderlich says costs only \$30.00 to assemble, produces a coarse stream when first turned on. It gives precise on-off control for operators.

No date was given for the next meeting. Future plans of the Hyacinth Control Society will be announced in *Weeds Trees and Turf*, the newly-elected president, Zeb Grant, director of operation and maintenance, Florida Flood Control District, reported.

Vermeer Builds Tree Mover

A completely automatic tree moving machine that digs, balls, transports, sets, and plants large trees has been introduced by the Vermeer Mfg. Co., Pella, Iowa.

The new Vermeer TM-700 Tree Mover makes it possible for nurserymen, landscape contractors, tree firms and general contractors to dig, move, and plant a large 7" or 8" diameter tree in very short time with no hand

John Bean Offers Catalogs

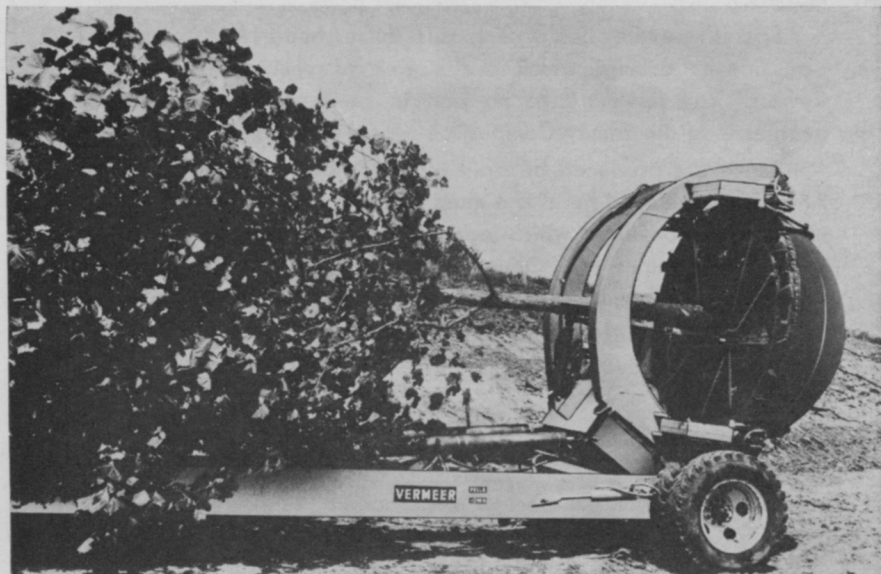
Free catalogs of John Bean power sprayers are now available from John Bean Division, FMC Corp., 1305 South Cedar St., Box 9490, Lansing, Mich. 48909. The new catalogs picture and report the complete line of John Bean sprayer models, attachments, and accessories.

labor, the company says.

The machine is a tree transporter equipped with two hydraulically operated "cutting cups" that dig the tree ball surrounding the tree in minutes. The machine then hydraulically lifts the tree and its ball out of the hole and lays it forward on the carrying trailer for transport. At the planting site, the tree is lifted upright and set into the receiving hole. The entire operation is controlled with a series of hydraulic levers.

According to Vermeer, this machine is highly suited to volume tree moving operations. The tree mover digs out the tree, and sets it into the balling stand with wrapping material in place, ready to receive the ball. Trees can then be lifted onto flatbed trucks for delivery to new planting area.

For additional information, literature, and demonstration, interested readers may write to Carl Boat, Sales Manager, Vermeer Mfg. Co., Pella, Iowa.



New on the market is this fully automatic tree moving machine which is equipped with huge cups that cut their way into the soil around and under the tree. The machine lifts the tree out and transports it to a new location where it sets tree into hole. Machine's "bite" is 7' in diameter, 40" deep.

Spanish Needles

(*Bidens bipinnata*)



Spanish needles is an annual which reproduces by seeds (1). This weed is found in open woods, waste places, in gardens, fence rows, and grain stubble fields. It is a very troublesome weed in the South.

There are several other species of the genus *Bidens* which may be confusing. They are all generally known as stick-tights, beggar ticks, bur-marigolds, etc., because the matured seed heads and seeds will stick to fur or clothing. *B. bipinnata* has deeply lobed bi-pinnate leaves. Many other species have simple, deeply lobed leaves. For reference other species are: *B. frondosa*, beggar-ticks; *B. cernus*, stick-tights; *B. polylepis*, beggar-ticks; *B. vulgata*, tall beggar-ticks; *B. connata*; and *B. comosa*.

Stems (2) of Spanish needles are erect and smooth. The plant branches in upper portions. Stems are a rather drab green.

Leaves have petioles that are borne opposite on the stem. Bipinnate leaves have leaflets which are also deeply lobed. An example of a singly pinnate leaf is black locust with its many oval leaflets.

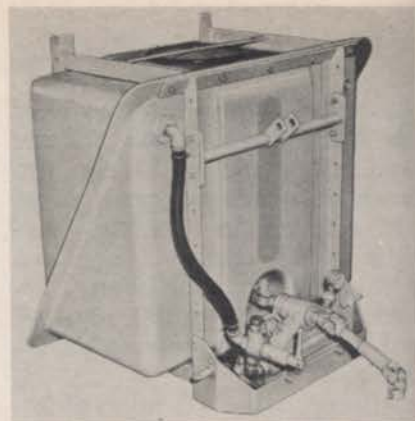
Spanish needles has a composite flower head (3) of many tiny disc flowers around which are a row of yellow petal-like ray flowers. Ray flowers take no part in seed production. Spanish needles is in the family Compositae along with daisies and asters.

Seeds are produced beneath the disc flowers after pollination. At maturity the seed head is a mass of sharp, pointed spines, ready to attach to anything which passes by. Each 1/2 inch long seed has 3-4 stiff spines (4). Other species of *Bidens* may have 2 to 4 spines on each seed.

Spanish needles is susceptible to 2,4-D, 2,4,5-T and silvex as well as nonselective herbicides more likely to be used where this weed is found.

Prepared in cooperation with Crops Research Division, Agricultural Research Service, United States Department of Agriculture, Beltsville, Maryland.

(DRAWING FROM NORTH CENTRAL REGIONAL PUBLICATION NO. 36, USDA EXTENSION SERVICE)



PTO's 100-gal. tank is made from GlasStran, a new F. E. Myers development. Three pump sizes are available for the new PTO unit.

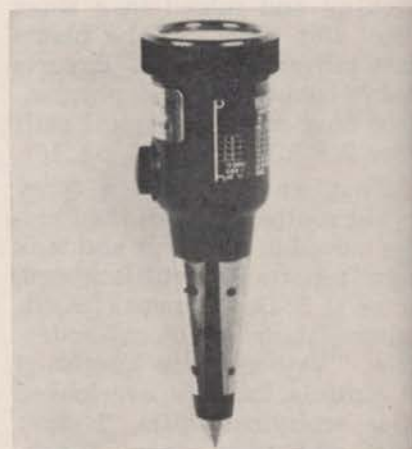
Myers Has New 'PTO' Sprayer: 100-Gal. Tank

A new tractor-mounted, three-point hitch, "PTO" sprayer with a 100-gal. corrosion-proof spray tank has been developed by The F. E. Myers and Bro. Co.

Available with choices of 12, 6, or 3 gpm "Du-All" spray pumps, it is designed for a variety of vegetation maintenance applications.

According to company spokesmen, GlasStran won't rust or corrode, and is not affected by weather or modern spray chemicals. It weighs less than steel, thus there is less ground compaction and lower tractor fuel consumption.

For more information write The F. E. Myers & Bro. Co., 400 Orange St., Ashland, Ohio 44805.



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ISTC Western Meeting Emphasizes Public Concern for Natural Beauty

Everyone involved in tree preservation will benefit from stronger educational, financial, and appreciative support of trees, Dr. Katherine K. Muller told delegates at the Western Chapter meeting of the International Shade Tree Conference. Dr. Muller, who is director of the Santa Barbara Botanic Garden, emphasized the importance of the preservation and encouragement of natural beauty and the need for improvement of cities. She cited the recent abundance of White House statements as evidence of the national concern for trees.

Dr. Muller's address, keynote of the June 20-23 convention in Santa Barbara, Calif., concluded with one crucial question. "Why," she asked, "isn't the concept of trees as a community asset so generally accepted that it does not need the constant attention given it by the ISTC?"

Although the four-day conference did not try to arrive at a solution to this question, many of the subsequent programs dealt with this and related problems. For example, Leslie S. Mayne, graduate forester of Burlingame, Calif., presented a paper on "Education and a Licensing Law" in which he rhetorically asked, "Who should be educated?" He answered, "We

should attempt to educate both the tree owner and companies doing tree work. Tree owners should know that there are high and low standards; they should know that we have knowledge and judgment for sale. Therefore, they should not expect free advice and they should know that there can be no comparative bidding on tree care projects without precise specifications."

Mayne added that charging for advice and judgments rendered is the crux of educating tree owners. Customers' attitudes

WTT thanks Walter J. Barrows, past president of the Western Chapter, who submitted the information on which this report is based.

change when they realize they are paying for advice. Tree owners not only pay considerably more attention to the advice, but also have more respect for the tree serviceman. Furthermore, owners will gradually understand that there is a great span in standards of tree care knowledge among those who profess to be tree experts. Mayne believes that this understanding will make tree owners more discriminating and also establish



Walter J. Barrows, past president of the Western Chapter, greets ISTC Executive Director Dr. L. C. Chadwick (right) at Santa Barbara Convention.

higher standards for tree experts. Licensing is one way to achieve these higher standards, but Mayne's conclusion emphasized that it will take diligent work to enact a licensing law for California arborists.

Computerized Planning

Data processing for the identification of plants dominated the dinner meeting of the Commercial Arborists section of the conference. Landscape architect Mike Pahos introduced George Oki of Oki Nursery, Sacramento, who described how data processing can be implemented in a shade tree master plan and operating program.

Thirteen former chief executives of the Western Chapter gathered for the Past Presidents' Breakfast which opened the Tuesday, June 22, activities. Later, Keith L. Davey, president of Davey Tree Surgery Co., San Francisco, and Ed C. Shearer, vice president of Farrens Tree Surgeons, Inc., Jacksonville, Fla., addressed the educational session. Delegates also spent Tuesday on visits to "Lotus Land," horticultural gardens, MacKenzie Park, and Dos Pueblos Ranch.

Wednesday, the final day of the conference, was packed with events which again emphasized the scope and importance of the arborist's work. The educational session spotlighted new developments in chemicals for street and ornamental tree maintenance and commanded enthusiastic audience response. Afterwards, Dr. L. C. Chadwick, executive director of the ISTC and director of horticulture, Ohio State Uni-



A gathering of gavel holders as newest and oldest Western Chapter presidents swap stories. Orval C. Bond (left) headed Chapter in 1964, Maunsell Van Rensselaer in 1963, George K. Freeman in 1937, and Ralph D. Cornell in 1935 and 1936. Nine other former chief executives attended the meeting.