

of Herbicide Story



Above and below, a few of the more than 600 persons attending the Northeastern Weed Science Society meeting.

cause cancer, genetic or other effects, when injected at very high rates in completely artificial conditions of exposure."

Herbicide 'Breakthrough'

Among the 90 research papers delivered before the conference, one from Cornell University is especially timely in the wake of the emotional attachment of pesticides to pollution.

Findings of researchers Robert D. Sweet and Mark R. Lynch are hailed as a breakthrough in harnessing what scientists call "synergistic response" from chemical combinations.

Sweet and Lynch have found that the effect of certain combinations of weed killers becomes 10 to 20 times greater than when such chemicals are applied individually, yet the required dosage in the mixture is many times smaller.

Sweet's formula consists of four ounces of atrazine and one or two ounces of another chemical in a gallon of fruit spray oil. The combination worked on a wide range of weed pests in corn.

Chemicals successfully tested in such combinations included Lasso, diphenamid, nitratin, 2,4-D, trifluralin and some new herbicides yet to be approved for commercial use.

"Results are almost unbelievably good," Sweet said. "What's really sensational is that these combinations greatly reduce the amount of chemicals required and yet they

wield far greater weed-killing power.

"The finding is a nice answer to the danger of soil pollution and chemical residues resulting from heavy uses of herbicides."

Sweet and Lynch are credited as the first researchers to succeed in triggering "synergistic response."

Name Changed

Conference delegates approved a name change for their organization. It's now called the Northeastern Weed Science Society.

Outgoing president LeBaron said the board felt the new name was in keeping with objectives but was more appropriate in signifying what the organization does.

Charles W. Middleton of Asplundh Tree Expert Company, membership chairman, reported that fees had exceeded the \$3,000-mark for the first time.

New Officers

Delegates elected Dr. John F. Ahrens of the Connecticut Agricultural Experiment Station, Windsor, as president. Dr. George Bayer of Agway, Inc., Syracuse, N. Y., was elected vice-president; Dr. Arthur Bing, Cornell Ornamentals Research Laboratory, Farmingdale, N. Y., secretary-treasurer; and Dr. H. P. Wilson, Virginia Truck Experiment State, Painter, as secretary-treasurer-elect.

Dr. Ahrens pledged continued em-

phasis on publication of weed science information, and renewed emphasis on public relations. He called for a "pulling together" of all weed scientists to present a unified approach to deal with the pesticide controversy." He urged membership in the Weed Science Society of America.

Dr. Ahrens announced these committee chairmen for the coming year:



Dr. T. R. Flanagan, University of Vermont; Research Coordinating, Dr. Joseph Cialone, Rutgers University; Sustaining Membership, Dr. R. Hansen, Hercules, Inc., Wilmington, Del. Public Relations, Dr. R. W. Feeny, American Cyanamid Co., Princeton, N. J.; Awards, Dr. Homer LeBaron, Geigy Agricultural Chemicals Corporation, Ardsley, N. Y.; Education, Dr. W. A. Genter, Agricultural Research Service, USDA, Beltsville, Md.; Weed Science Society of America representative, Dr. C. T. Dickerson, Jr., Monsanto, Allentown, Pa.

Dr. William B. Duke of Cornell University received the award for the outstanding paper of the conference. It covered his research on the control of quackgrass in established alfalfa.

Capsule Conclusions

A heavy portion of the papers presented were directed toward the agricultural field, but about two dozen were related to the non-crop vegetation industry.

Following are some capsule conclusions:

—Under mulch, dichlobenil at 2 lbs./acre showed the most promise for perennial weed control in highway plantings of trees and shrubs. Dr. Arthur Bing, Cornell University.

—A three-year study showed that total vegetation control results for one season were good to excellent with these combinations: atrazine-amitrole-fenac; bromacil-amitrole-fenac; borate-chlorate. Single herbicide treatments giving good kill included Nia 11092, bromacil and AP

920. Rate was critical in determining the degree of control, specie selectivity and percent bare ground. Doubling the base rate greatly increased control during the first season, but affected residual control to a far lesser extent. Dr. George Bayer, Agway, Inc., Syracuse, N. Y.

Utility Rights-of-Way

—Use of picloram plus 2,4,5-T applied as a basal or dormant stem spray offers a method of adequately controlling most brush species found on utility rights-of-way. Particularly noteworthy is the virtually complete control obtained with 1 lb. picloram plus 4 lbs. of 2,4,5-T aehg on the principal species which tend to resprout after treatment (aspen, locust, maple, oak, sassafras, sumac). C. S. Williams, B. C. Byrd, W. G. Wright, Dow Chemical Company, Midland, Mich.

—Five years of field data indicate the new herbicidal compound, m-(3,3-dimethylureido) phenyl *tert*-butylcarbamate (NIA 11092, is (1) herbicidally active; (2) non-selective in crops and (3) persistent in its control. NIA is worthy of development and use as a soil sterilant. Edward E. Hagood, Niagara Chemical Division, FMC Corporation, Middletown, N. Y.

—Paraquat was found to be most successful in controlling early weed competition to establishing crown vetch, while damaging crown vetch the least of chemicals tested. D. L. Linscott, Cornell University.

—Use of aerial photography with black and white and color infrared



Further individual discussion of papers presented was frequent. John Reingold, left, listens to additional comments from Mike Watson of Potomac Edison Company concerning the use of a knapsack mistblower for chemical brush control along utility rights-of-way.

film is valuable in taking the guesswork out of evaluating the effectiveness of chemical spraying along utility rights-of-way. J. Baribeau and J. Rivest, Hydro-Quebec, Montreal, Canada.

—Bromacil, NIA 11092, atrazine, prometon and Geigy 14254 were found to be more effective on heavier soil whereas diuron and Daxtron were more effective on a lighter soil. On a medium loam soil, mixtures of herbicides generally had control ratings between the ratings of the two component herbicides used singly. Exceptions were mixtures containing picloram which tended to have lower control ratings than either of the two components. The value of some mixtures of herbicides may be their effectiveness in the control of a broader spectrum of weeds and grasses over a wider range of soil types and growing conditions. W. R. Effer, Ontario Hydro Research Division, Toronto, Canada.

Aquatic Weed Control

—Submersed application of diquat dibromide at 4 lbs. cation per acre was found to be effective in controlling *Potamogeton robbinsii* in Greenwood Lake in New Jersey. The submersed application technique appeared useful in applying liquid herbicides in deep water. The lake depth was a maximum of 35 feet and averaged 7 feet. Submersed nozzles released the treatment at an average of 18 to 24 inches from the lake bottom. C. E. Gilbert and J. M. Cortell, Allied Biological Control Corp., Chester, N. J.

—Safe and successful algae control and maintenance program involves a total approach, considering these factors: Water temperature and lake depths; amounts of dissolved oxygen; nutrient levels; light penetration, true and apparent color;



Leadership for the coming year includes, from the left: Dr. Homer LeBaron of Geigy Agricultural Chemicals Corp., past president and chairman of the awards committee; Dr. C. T. Dickerson, Jr., of Monsanto Co., representative to the Weed Science Society of America; Dr. George H. Bayer of Agway, Inc., vice-president; Dr. John F. Ahrens of Connecticut Agricultural Experiment Station, president; Dr. R. Hansen of Hercules, Inc., chairman of the sustaining membership committee; Dr. R. W. Feeny of American Cyanamid Co., chairman of public relations; Dr. Joseph Cialone of Rutgers University, chairman of the research coordinating committee; and Dr. Arthur Bing of Cornell Ornamentals Research Laboratory, secretary-treasurer. Not present for the picture were Dr. H. P. Wilson of Virginia Truck Experiment Station, secretary-treasurer elect; Dr. T. R. Flanagan of the University of Vermont, program chairman; and Dr. W. A. Genter of USDA's Agricultural Research Service, education chairman.

algae to be controlled and the possibility of endotoxins. C. L. Noyes and J. M. Cortell, Allied Biological Control Corp.

Weeds in Turf

—The experimental herbicide RP 17623 (2-tert. butyl-4-(2, 4-cichloro-5-isopropoxyloxyopenyl)-5-oxo-1,3,4-oxadiazoline) has inherent ability to give major reductions in crabgrass and knotweed from tests in Merion Kentucky bluegrass turf. R. E. Engel and R. D. Ilnicki, Rutgers University.

—Effective crabgrass control with only slight turfgrass injury was obtained from standard materials, such as bandane, benefin, bensulide, DCPA, nitralin, siduron and terbutol. Some thinning of fescue was noted from DCPA. New materials that appear promising and/or deserve further study are CP-53619, D-292, NC-5651, M-3251 and RP-17623. Half rates of bandane, bensulide, DCPA, nitralin and siduron in the second year after previous spring treatment produced good to excellent crabgrass control. Siduron alone or combinations of DSMA with either bensulide, DCPA or siduron produced good to excellent control of crabgrass when treated in the 1-2 leaf stage. When plants were in the 4-5 leaf stage, siduron produced good control and the combination of DSMA plus siduron produced excellent control. John A. Jagschitz, Ag Experiment Station, Kingston, R. I.

—Bensulide, lead arsenate and tri-calcium arsenate treatments for several years in putting-green turf resulted in good control of annual bluegrass (*Poa annua*). Use of ethrel, MH or MF-415 and 416 appeared promising for preventing seed production of *Poa annua*. John A. Jagschitz.



"Dingwall, there, likes everyone to know he caught a sawfish when he went deep-sea fishing."

WEED CONTROL RESEARCH

A Siberian Fish . . .

A fish from the icy waters of the Amur River in Siberia may provide a partial solution to Florida's problems with water hyacinths and other waterweeds.

The white amur feeds entirely on aquatic vegetation, and scientists at the Plantation Field Laboratory in Fort Lauderdale (an agricultural experiment station of the University of Florida) are hoping this fish will prove practical as a biological control of Florida's waterweeds.

"Of all the biological control agents we have considered," said Robert D. Blackburn, U. S. Department of Agriculture botanist directing the aquatic weed research, "the white amur is the most promising."

The white amur can tolerate an extremely wide range of climatic conditions. It has been used to control aquatic plants in Russia, Czechoslovakia, Poland and India.

"Research seems to indicate the white amur will not spawn in our waters unless artificially injected

with hormones," Blackburn said. This would be an advantage for keeping the white amur in check, since the fish grows from 3½ to 5 pounds a year and can reach weights from 50 to 60 pounds.

The Plantation Field Laboratory has acquired 300 white amurs for testing. "We will try them on different plants," Blackburn said, "and stock other fishes with them. We have to be cautious that there's no adverse effect on sport fishing or on the overall aquatic environment from the white amur."

Blackburn pointed out that the white amur is a welcome source of food in some parts of the world. "It tastes a lot like catfish," he said. The white amur will strike artificial lures, so it is a possibility for sport fishing.

Besides the white amur, other possible biological controls are being evaluated at the Plantation Field Lab. Among them are two types of South American snail, the alligatorwood flea beetle.

A Latin Beetle . . .

Weed-eating insects that do not attack useful plants have considerably greater potential for use in biological control programs than has been generally recognized, a U. S. Department of Agriculture scientist says.

Dr. Lloyd A. Andres, an entomologist of USDA's Agricultural Research Service, spoke on the use of weed-eating insects at the annual meeting of the American Association for the Advancement of Science, Boston.

"If one considers that almost half of the 540 major weed species in the United States are introduced plants, and that 13 out of the 15 top weed species originated in other countries, the use of their natural insect enemies—obtained from abroad—will continue to offer a fertile approach to biological weed control," Dr. Andres said. "In the United States, the losses caused by alien and native weeds are believed to equal the combined losses from insects and diseases."

Dr. Andres cited examples of successful results with about a dozen species of weed-eating insects that were brought to the United States for release after scientists had determined that the insects would not harm crops or ornamental plantings. The most spectacular success achieved to date was control of the Klamath weed in California. More recently, highly promising results have been achieved in weed-choked Florida waterways by Dr. Andres' associates who, in 1964, released 250 *Agasicles* beetles that they found in South America.

"Within a year, hundreds of thousands of the beetles developed, and the release site became essentially free of alligatorwood."

The rapid buildup of the beetles permitted collection and distribution of the insects for subsequent release in eight other states. Insects that eat weeds infesting dry rangelands also have been released in western states, Dr. Andres said.

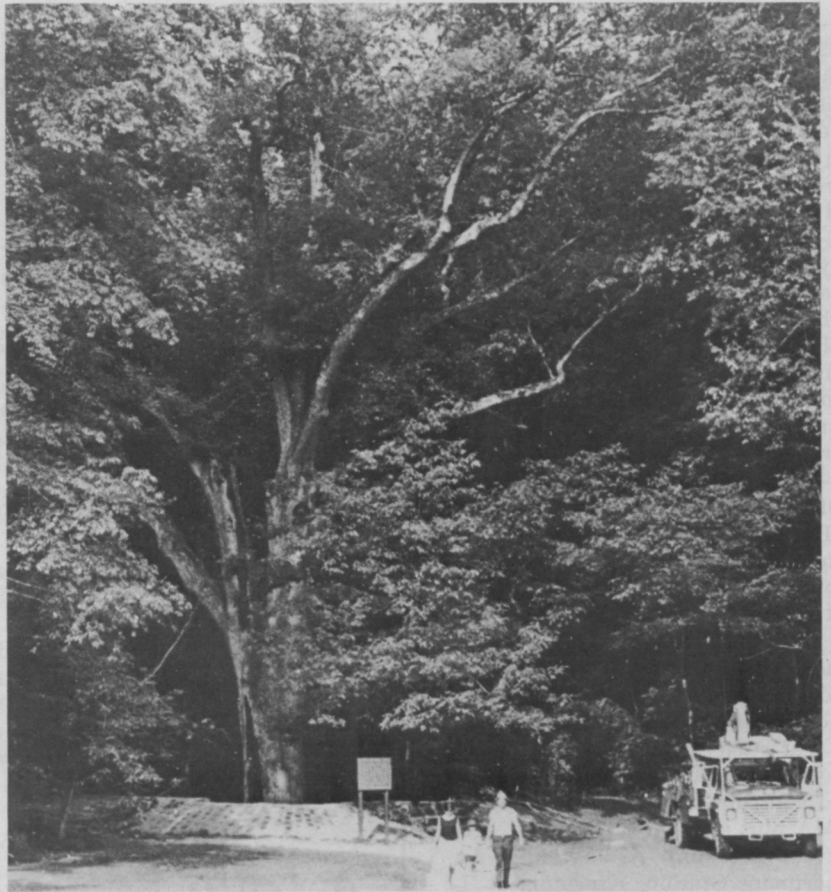
The 300-year-old white oak tree that witnessed the birth of Abraham Lincoln is alive and well.

Well enough, in fact, to receive more than 400,000 visitors a year from all over the world. Last summer arborists of The Davey Tree Expert Company did tree surgery on this sole survivor of all that was alive on Thomas Lincoln's Sinking Spring Farm on Feb. 12, 1809, the day Abe Lincoln was born.

R. W. Niedert, Jr., Davey representative, explained that the tree was pruned and fed several hundred pounds of high-nitrogen fertilizer to maintain the vigor. The Boundary Oak is 90 feet high, has a trunk diameter of six feet, and a branch spread of 115 feet.

The giant white oak served as a boundary marker for the first survey of this land in Kentucky made in 1805. As many as 6,000 visitors a day come to the Abraham Lincoln Birthplace National Historic Site on U. S. Route 31-E, a few miles south of Hodgenville, Ky., to see the memorial which houses the birthplace cabin, the sinking spring, audio-visual programs at the visitors' center, and the famous tree. The birthplace site is administered by the National Park Service, U. S. Department of the Interior.

Davey Tree Cares for Lincoln Oak



Accelerated Research Asked To Control Gypsy Moth

The National Gypsy Moth Advisory Council, meeting with the U. S. Department of Agriculture, has recommended research to provide a more reliable and sound method of gypsy moth control—the insect some members term the Number 1 hardwood pest in the United States.

Action is urgently needed because

DDT and other persistent pesticides, though effective, can no longer be legally used, says Ray Brush, secretary of the American Association of Nurserymen and Council member.

The gypsy moth is a defoliator of hardwood and softwood forests and is capable of killing hardwood trees in two to three defoliations, and softwoods in a single defoliation.

Council members noted the growing difficulty of preventing the spread of the gypsy moth because

of the mobility of Americans. The egg masses are found attached to the underparts of camper trailers, and mobile homes. Boxes, crates, forest products, and equipment left in the woods for some time frequently harbor these egg masses and are transported to other areas.

U. S. Senator Richard S. Schweiker of Pennsylvania has noted that 10 of 15 million acres of forest land in his state are already susceptible to attack by gypsy moths. He warned, "As the gypsy moth moves southward and westward from Pennsylvania, it eventually will eat its way through the hardwood forests of the Appalachians and into the Ozarks, an area encompassing more than 100 million acres of timberland."

Currently, the gypsy moth inhabits most of New England, Eastern New York, New Jersey, Eastern Pennsylvania, and parts of southeast Canada. It is spreading into Delaware, Maryland, and is threatening other southern and midwestern states.

BARTLETT TREE EXPERTS OFFER EXCEPTIONAL OPPORTUNITY



This nationally known tree service company, which operates from Maine to Florida, offers outstanding career opportunities in sales and management for men experienced in the tree field or college graduates in forestry, horticulture or agriculture. Ability to work with public and personnel is important. Attractive salary plus commission; protected territory; growth potential excellent. Intensive training course and benefits. Send resume of education or experience to William Eckhardt, Bartlett Tree Experts, 2770 Summer Street, Stamford, Conn. 06905

For More Details Circle (108) on Reply Card

NASA Plans High Recon Of Minnesota Forests

A high-flying reconnaissance airplane of the National Aeronautics and Space Agency (NASA) Earth Resources Division will be used next summer to study tree diseases in northeastern Minnesota in a project with the University of Minnesota's School of Forestry.

University forestry researchers are no strangers to the NASA aircraft. Professors Arnett C. Mace, Jr., and Merle P. Meyer utilized the camera- and instrument-laden NASA aircraft late last August to gather information on a forest watershed study area in Itasca County.

Last summer's work was part of the world-wide preparation for the launching of the Earth Resource Technology Satellite (ERTS) in 1972. Meyer said the satellite would provide information on broad forest, cropland and rangeland conditions and changes.

Mace and Meyer were expecting to go to the NASA Manned Space Center in Houston to review the aerial photographs and other data produced by last summer's flight.

Meanwhile, Meyer and Professor David W. French of the University Department of Plant Pathology are making plans for flights this coming summer. Meyer and French said the aerial detection studies of the "dwarf mistletoe" disease in black spruce will be done in northeastern Minnesota. A grant from NASA will help finance the project.

The University researchers will be using panchromatic, color and infrared films and thermal heat sensors in the aerial surveys to detect the disease and study its characteristics. Information from the flights will be used to design detection and control programs both in Minnesota and in other parts of the United States and the world.

Tree Damage Increasing From Salt Use on Highways

Premature defoliation and dying of roadside trees has been occurring over widespread areas of the U.S. and Canada, reports John M. Skelly, plant pathologist at Virginia Tech.

Roadside maples have been declining at a rapid rate in recent years as have white pines, hemlocks and other coniferous species, he said.

Use of salt on the highway is causing the damage, Skelly explained. Relief from this type of damage—if salt use is to be con-

tinued—involves preplanning highway construction, through the use of drainage ditches and/or placement of trees to be planted, Skelly said. Under forested conditions, no feasible control has been developed except through road planning, he added, but roadside trees may be helped through heavy watering and fertilization practices.

Salt damage symptoms are seen on the leaves during the following season and usually involve a marginal scorch, premature leaf coloration and dying branches accompa-

nied by a gradual decline in vigor, he said. If severe decline develops death will follow, he added.

Symptoms on hemlocks, white pines or other conifers involve brown needles, stunted growth, sparse foliage, lack of vigor, and again death.

Occurrence of salt damage depends upon the location of the trees with respect to the slope of the road. Obviously, trees located below the road or on drainage areas will receive the greatest amounts of salt in the melted snow runoff.

Mitts & Merrill Brush Chippers For...

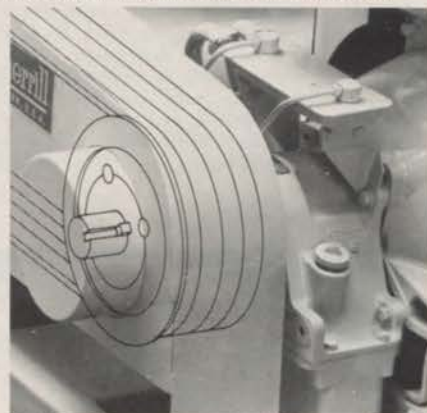


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For more than 115 years Mitts & Merrill has been making specialized machinery for industry. A major part of our business is equipment to reduce scrap and waste. This experience is incorporated into design features on our brush chippers that result in higher efficiency and longer, trouble-free service for you. Only Mitts & Merrill brush chippers offer features like these:



Staggered knife pattern for smoother cutting action. Mounted on an all-steel cylinder that, even without an external flywheel, is heaviest in the industry. Each cylinder revolution gives more cuts, produces smaller chips of uniform size. Self-adjusting knives are reversible; give twice the service between sharpening.



Optional torque converter isolates engine and transmission from cutting shock to minimize maintenance. Makes operation virtually fully automatic; increases operator productive time. Available on all models.

Plus...

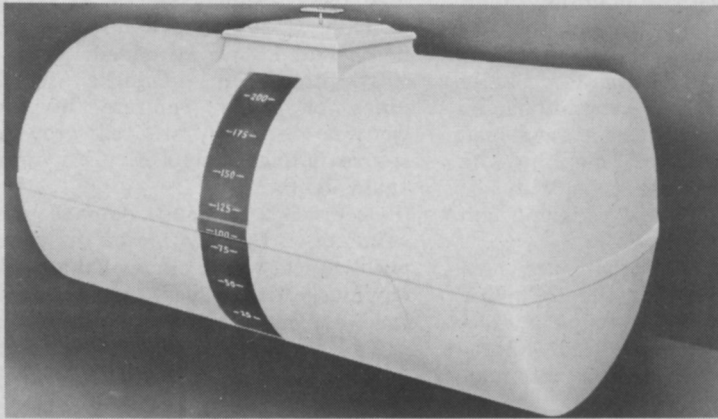
• **Positive safety-lock pin** for greater operator safety • **Swing-away, folding feed chute** protects cutting chamber; allows instant access and increases maneuverability • **Heavy duty construction** includes coil spring, torsion-type suspension, and box tubular steel frame.

For complete information, specifications and name of dealer nearest you, contact Mitts & Merrill, Inc., Dept. WTT-27, 109 McCoskry St., Saginaw, Michigan 48601.

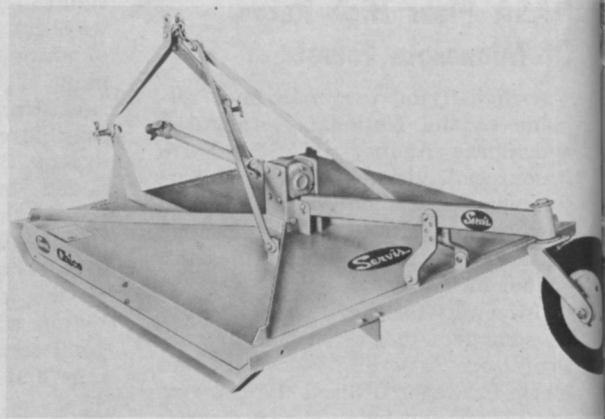
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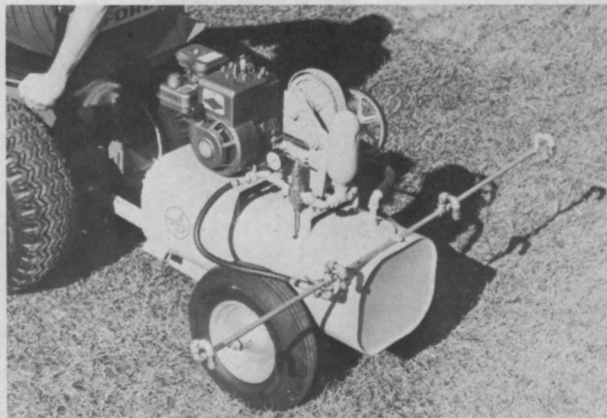
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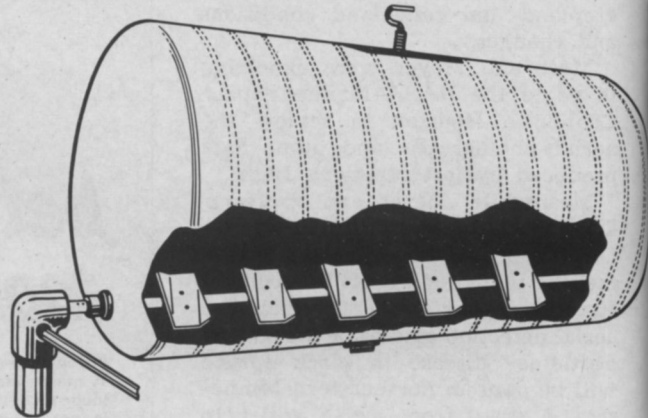
Hemco Corporation, Independence, Mo., announces a new "Supreme" line of fiberglass tanks, from 60- to 500-gallon capacity. The tanks are constructed of fiberglass woven roving to offer maximum structural and impact strength. They feature the new armor-coated interior of isophthalic resin applied to eliminate glass fraying and possible chemical attack to the interior. Accessories available include manholes, P.V.C. coated glassed-in cast iron fittings, baffles, sumps, flat areas and saddles. For more details, circle (701) on reply card.



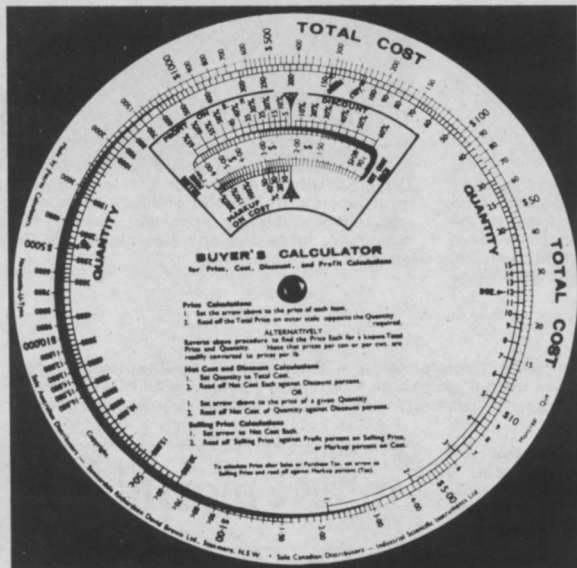
Servis Equipment Company, Dallas, has introduced a light rotary cutter called the "Chico." The five-foot-wide unit is designed for grass mowing for small acreages and around buildings. Features include all-welded unitized construction, precision-engineered gear box, dishpan-type blades, smooth undercarriage, and full-length skid shoes. Chico weighs about 600 pounds and is for wheel-type tractors with a point hitch and drawbar rating between 20 hp and 30 hp. For more details, circle (702) on reply card.



American Pulley Company, Philadelphia, offers a compact sprayer with tractor hitch and is equipped with a four-nozzle boom to distribute spray over a five-foot swath. Spraying time is reduced up to 80% compared with models that must be hand drawn, the company says. Delivers three gallons of spray per minute, has 15- and 30-gallon tank sizes, offers adjustable pressure from 20 to 300 psi. For more details, circle (705) on reply card.



Century Engineering Corporation, Cedar Rapids, Ia., introduces an optional full-length mechanical agitator for chemical spray tanks. This agitator can be added at any time to 125- to 400-gallon tanks which have horizontal end surfaces for sealing. No pump capacity is required for mechanical agitation, so smaller, lower-priced pumps, hoses and fittings can be used. Fully-enclosed electric motor can be front, side or rear mounted. Five double paddles turn at less than 200 rpm. For more details, circle (706) on reply card.



Industrial Scientific Instruments, Ltd., Montreal, Quebec, and Rouses Point, N.Y., has developed a buyer's calculator. The pocket-size device calculates: Total cost for any given quantity and cost each, or alternatively cost each for any given quantity and total price with or without discounts; selling price, to give any required percent markup on cost, or to give any required percent profit on selling price; percentage profit on cost or on selling price. It's easy to use, even by persons unaccustomed to a slide rule. The Calculator is 4½" in diameter and is made from high grade opal white acrylic material with fully engraved scales. The \$7.95 unit is supplied with a plastic case. For more details, circle (709) on reply card.



Davies Can Company, Cleveland, Ohio, offers this new five-gallon polyethylene pail suitable for corrosive materials. Ideal for agricultural chemicals and acids. Durable, resistant, one-piece construction. For more details, circle (710) on reply card.



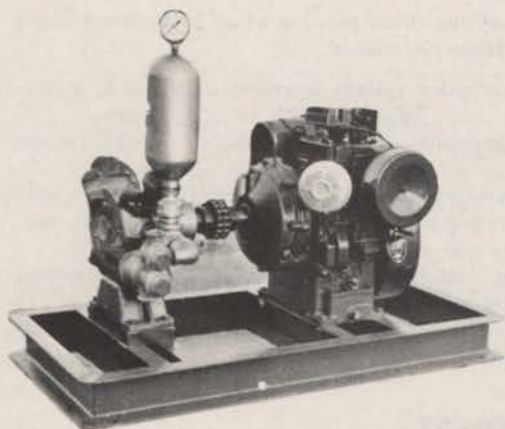
Engineering Development Corporation, San Angelo, Tex., has introduced an entirely new concept in applying pesticides and herbicides. The foam spraying method, which allows spray chemicals to be placed where needed without drift. Foamicide Spray is credited with reducing the amount of chemical needed by eliminating costly waste and increasing absorption. Foamicide can be applied using anything from a handgun to a helicopter. For details, circle (703) on reply card.



Tryco Manufacturing Company, Inc., Decatur, Ill., has introduced a new line of pressurized double-seal suspension and mixed-liquids pumps. In the Sealsaver line, a liquid under pressure in the seal chamber lubricates the seals and the liquid pressure inside the chamber is always higher than pressure of liquid being pumped, so no abrasive can reach the seal face to wear it down. For more details, circle (704) on reply card.

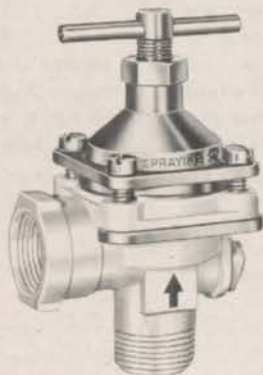


Fumigants, Hazelwood, Mo., announces a new throw-away container for its gelled methyl soil fumigant formulations. The "PresTaner" is designed to be the first non-returnable container to receive U. S. Transportation Department approval for this product. A special "Eagle Claw" can puncturing permits the forcing of air or nitrogen pressure in to force the gelled fumigant out the bottom. For details, circle (707) on reply card.



Practical Products Corporation, Tulsa, Okla., has added to its pump line Model K301-5420. It's a 20 gpm @ 600 psi, 4-cylinder, H.D. pump, ball-bearing, nickel resist cylinders, stainless steel valves. Kohler 4 hp engine with 6-1 reduction and electric starter and generator. Weight—350 lbs., Length—43", Width—20", Height—25". Ideal for big-tree spraying and wide-area weed and brush control. For more details, circle (708) on reply card.

Systems, Bell, Ill., has a new throttling valve for adjusting the flow rate to booms and to solution agitators. The valve can be set at any position from open to complete shut. It's built for pressures up to 125 psi. Construction materials include aluminum, stainless steel and steel. The valve and seat are made of stainless steel to provide long life on rough surfaces and positive shut-off. Long, tapered surfaces assure accurate flow rate control at all pressure adjustments. Adjustable handle designed with a spring to hold position of valve. For more details, circle (711) on reply card.



Orline Products, Los Angeles, Calif., has introduced the Orline Yard-Arm power tool that prunes small tree limbs, edges walks and flower beds, shapes unruly bushes, cuts tall weeds, clears brush, and performs a variety of other chores. The Orline Yard-Arm is a six-foot power pole with engine at one end and several attachments at the other. Weighs 11 lbs. and is powered by 1 h.p. O&R industrial engine. It comes with an 8-inch circular saw and an 8-inch edging blade. For details, circle (712) on the reply card.



New Products for the Weed Control Industry

A Suggested Landscape Maintenance Contract

The following proposal, when signed by both parties, constitutes a contract for landscape maintenance to be performed at

(Business name and address)

by

(Name of maintenance firm)

This maintenance contract covers the period (season) from to

(Date)

(Date)

GENERAL MAINTENANCE

- general inspections per year or season.
(Number)
- Complete policing (litter pick-up) of all landscaped areas times per month.
(Number)
- Complete sprinkler system servicing as needed, including (1) labor and (2) parts.
- Complete landscape lighting servicing as needed, including (1) labor and (2) parts.
- Annual refurbishing (repair, clean, paint or varnish, etc.) of all decorative plant containers (pots, flowerboxes, etc.)
- Protective winter storage of all container plants.
- Repair and replenish all decorative stone or gravel areas, including plastic and edging.
- Snow removal of defined areas (sidewalks, drives, parking lots, etc.) Specify

LAWN MAINTENANCE

- Mowing, trimming and edging all lawn areas times per month from to
(Number) (Date) (Date)
or as needed.
- Fertilize all lawn areas times per year.
(Number)
- Type Rate
- Complete chemical weed control. Including materials.
- Complete chemical insect control. Including materials.
- Complete chemical fungus control. Including materials.
- Watering of all lawn areas times per month
(Number)
unless unnecessary due to adequate rainfall.
- Reseed and/or re-sod bare or weak lawn areas.
- Annual de-thatching of all lawn areas.
- Annual sowing of Rye grass for winter color on all lawn areas (Southern U.S. only).

TREE, SHRUB, & SHRUB-BED MAINTENANCE

- Complete trimming, edging, weeding of all shrubs and shrub-beds times per month.
(Number)
- Fertilize and mulch shrubs and shrub-beds times per year. Type
(Number)
- Spike and fertilize all trees times per year.
(Number)
- Type
- Annual tree pruning and/or shaping.
- Complete insect and disease control of all trees and shrubs including (1) labor and (2) materials.

- Tree surgery as needed.
- Watering of all trees, shrubs and shrub-beds times per month unless unnecessary due to adequate rainfall.
(Number)

FLOWER BED AND/OR HERBACEOUS GROWDCOVERS

- Complete weeding, trimming, edging of all flowerbeds and groundcovers times per month.
(Number)
- seasonal plant changes in flower beds for color. Specify:
- Fertilize and/or mulch all flower beds and groundcovers times per year.
(Number)
- Replant or "re-stick" all damaged or thin areas in ground cover beds.
- Complete insect and disease control on all flower and groundcover beds including (1) labor and (2) materials.
- Watering of all bed areas times per week unless unnecessary due to adequate rainfall.

OTHER SERVICES

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.....
.....

All items not checked on this contract will be considered "extras" and will be charged for under separate purchase order according to the nature of the item.

Guarantee and/or replacement policy:

(Written by individual company)

except due to "Acts of God." Acts of God are defined as damage or death of plant material due to wind, storm, hail, fire, flood, freezing, vandalism, theft or other willful acts over which the maintenance company has no control.

Based on a 12-month contract, the total cost of the above checked service item is \$....., payable in monthly installments of \$....., due on the of each month. A% service charge per month will be levied on all overdue accounts. This contract may be canceled by either party on 60 days' written notice, provided the account is paid in full up to date of cancellation.

Owner

Title

Company

Date

Maint. Firm

Title

Company

Date

LANDSCAPE nurserymen are experiencing an increasing demand for landscape maintenance.

As more industrial firms and institutions have become aware of the need to protect their plantings with proper maintenance, many have sought professional maintenance service, rather than establishing their own grounds maintenance departments.

Some firms in metropolitan centers now specialize in maintenance work; and in other areas, landscape nursery firms have established landscape maintenance departments.

To assist its members interested in landscape maintenance contracts, the National Landscape Nurserymen's Association in cooperation with the American Association of Nurserymen has asked firms known to be active in maintenance work to suggest items which might be covered in a maintenance contract.

The following list of items are offered to you in a format which will be helpful to you and your attorney in preparing for your own firm's contract.

Not all items are practical in every region of the country. Being a specialist, you know the horticultural practices which do apply in your business area.

Be alert for changes; periodically review your contract and the rates you charge.

Six DDT Manufacturers Contest USDA's Ban

Six pesticide manufacturers have challenged USDA's cancellation of the federal registration of certain uses of DDT.

The six companies contesting the action are Allied Chemical, Black Leaf Products Co., Carolina Chemicals, Inc., Diamond Shamrock Corp., Lebanon Chemical Corp., and Stauffer Chemical. They have requested a public hearing or the appointment of an advisory committee to review the cancellation action taken in November, 1969, by USDA's Agricultural Research Service. The companies have the right to the two methods of review under authority of the Federal Insecticide, Fungicide, and Rodenticide Act.

ARS is in the process of requesting the National Academy of Sciences to appoint a committee to review the ruling.

On Nov. 20, 1969, ARS canceled the federal registration of DDT for use against shade trees pests; tobacco pests; house and garden pests; and pests in aquatic sites such as marshes, wetlands, and swamps. About 35% of the total amount of

DDT used annually in the U. S. is marketed for these purposes.

The six companies are entitled to continue to produce and sell their DDT products in interstate commerce pending the outcome of the statutory proceedings. About 1,300 products marketed by about 400 manufacturers were affected by the cancellation order.

Landscape Council Folds

For lack of interest, the Landscape Council has been cancelled. That's the report from William Flemer III, president of the American Association of Nurserymen.

The plan was to get a national sales development program under way to promote the nursery business. Financing was to come through membership dues.

A spring program had been planned and the time had arrived to make firm commitments for advertising space and radio time. With only 400-plus members signed up and 15% of the necessary funds pledged, Flemer said, it was obvious that our membership was not quite ready for a national promotion and advertising program.

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For More Details Circle (102) on Reply Card



A check for \$2,000 is exchanging hands. Robert L. Adler, left, newly elected president of the Missouri Valley Turfgrass Association, is giving it to Elmer R. Kiehl, dean of the College of Agriculture at the University of Missouri-Columbia. Looking on is John H. Dunn, UMC assistant professor of horticulture. The turfgrass association, which met recently in conjunction with the Missouri Lawn & Turf Conference in Columbia, has periodically provided money to support turfgrass research. MVTA was organized in 1965 for the specific purpose of cooperating with the University of Missouri and other agencies interested in developing better turf.

Texans Hear Principles Of Labor Management

You hear it everywhere. Labor is the problem.

It has to be the toughest management puzzle for turf businesses, suggested Ken Wolf, economist at Texas A & M. About 60% of total costs of establishing and maintaining a turfed area are wrapped up in getting and keeping good labor, he said.

Wolf expressed his principles of labor management to some 250 persons attending the December 24th annual Texas Turfgrass Conference. Those attending the three-day session included persons who manage golf courses, parks, landscaped industrial sites, cemeteries and other turfed areas.

First, do a good hiring job, Wolf advised. This includes selection of the employee on the basis of attitude and skills, and then making sure he knows what the job is all about.

One of the best applicant sources comes through recommendations from current employees, he said.

In breaking in a new worker, the economist suggested a re-interview as the first step. Cite the company rules to him, company benefits, and then have his immediate supervisor introduce him to fellow employees.

Show the new worker how to do a certain job, let him do it, and then explain why the task is done that way.

Wolf emphasized that an employee should have only one boss. Other-

wise, there will be confusion and resentment.

He said one of the big secrets of employee contentment is incentive payment and various profit-sharing plans in which the workers are rewarded for extra production and jobs well done.

Another speaker cautioned that planting a tree in a turfed area should be anything but a haphazard operation.

Among factors to be considered, said floriculturist A. F. DeWerth, are tree size, overall form, rate of growth, and whether the tree is deciduous or evergreen.

A tree with erect growth traits is preferred over a spreading variety



"Am I glad to see you!"