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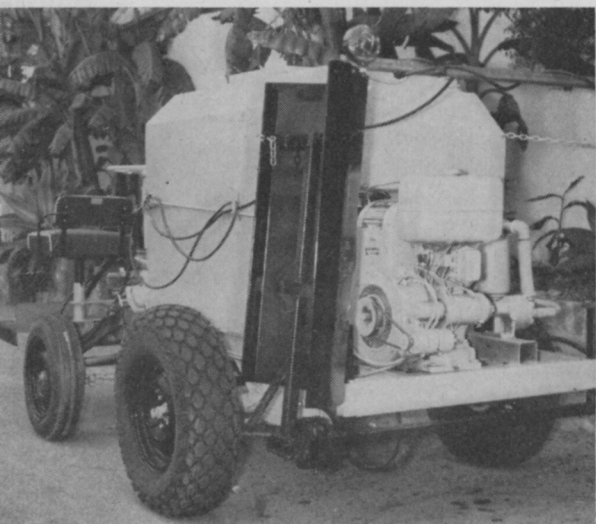
2,4-D family for control of stubborn broadleaved weeds. But in any case caution must be taken to keep the material off desirable vegetation, as damage can result from strong wind drift or breezes created by passing vehicles.

Simazine at 2 to 5 lbs. of active material per acre has proven effective as a pre-emergence control, Smith went on. Damage resulted to only a few delicate perennials such as *Xylosma* and *Abelia*. *Fuchsia* and roses are sometimes damaged at this rate. When kept outside basins, relatively little of the material remains long enough to injure the growing plant.

In attempting to allay complaints from the use of weed oil, a combination of 1 lb. simazine and 1 lb. Amitrole per acre, applied in 100 gallons of water to which 1 pint of X-77, a spreader activator for spraying, had been added, proved very effective when sprayed on weeds of all types not over 12 inches high. The cost of the combination is less than oil sprays. A touchup application is necessary to complete the job because of sporadic application. While only the very tender plants show any symptoms, basins around the plants must be avoided with the treatment.

A relatively new chemical, Diquat, used at a 1 qt. per 100 gallons of water with 8 oz. of X-77, has looked extremely interesting. The weeds must be wet with the spray to obtain good results. A full-cone nozzle with 60 lbs. pressure gave excellent results when complete coverage was obtained.

A self-propelled sprayer was exhibited at the California Weed Conference. Note the raised, hooded boom for treating under the skirts of tree crops to prevent spray drift. The rear-mounted motor propels the sprayer, drives the pump, and agitates the 400-gallon tank.



W-22

Smith is still looking for one material that will do all things he wants done in one application.

Discuss New Application Techniques in Brush Control

New methods and techniques for controlling brush are constantly being tried; however, in spite of this, the main chemicals used for brush control today are the same as those being used ten years ago — 2,4-D and 2,4,5-T. O. A. Leonard, University of California, Davis, discussed new methods of applying these chemicals.

Mist blowers of one type or another have been used for a number of years; however, perfection of the backpack mist blowers has made the widescale use of this type of application possible, Leonard maintained.

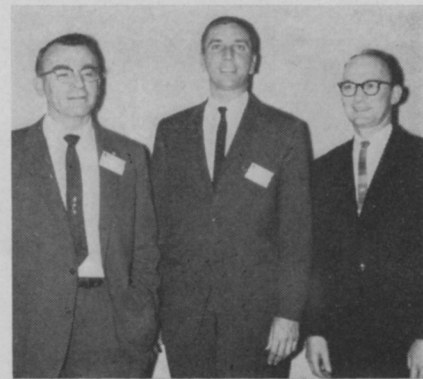
A quick cutoff valve is necessary if the equipment is to be efficiently used for controlling individual woody plants; such a cutoff valve will likely have to be installed. It is desirable to purchase a mist blower that has the rate of flow governed by the size of the orifice, which should be where the spray material is released into the airstream. A large orifice at this point results in drainage of the line and a waste of spray material after the cutoff valve has been closed. The mist blower should be easily carried and should be as light as possible to reduce fatigue.

Backpack mist blowers can be used to control woody plants by individual plant treatment. This type of treatment is necessary in order to control hard-to-kill species such as live oak. The sprays should be quickly applied, but a serious attempt should be made to get some spray on all parts of the plant, including the parts closest to the ground.

It is generally necessary to walk around each clump of sprouts in order to make the best application.

A spray mixture advocated is one in which a very minimum of diluent is used, since this represents weight which must be carried around. One such mixture used by Leonard consists of 1 part commercial brush killer to 3 parts diluent. The diluent consisted of equal parts of water and diesel fuel. Whether this is the best mixture remains to be seen, but it has been satisfactory for some purposes.

Backpack mist blowers can be used for broadcast spraying of brush-covered areas. Best results can be obtained following a fire



Suppliers who told of new products in the session, "What's new in Weed Control," included (left to right): Jim Wilkerson of U.S. Rubber, Naugatuck Chemical Division; Robert Orlik, Jr., Diamond Alkali Company; Joe Antognini, Stauffer Chemical Company.

because the main obstructions in the way of securing good broadcast spray coverage have been removed by the fire. The small brush sprouts and seedlings can be easily sprayed by directing the spray blast slightly above them. It is possible to cover a swath width of 20 feet, walking at a convenient speed of about 2 miles per hour.

Continuous application is not possible, but an appreciable area can be treated in a day on accessible terrain. It is best to make the applications with the wind as much as possible. In the process of broadcast spraying, one can pause briefly to give a more thorough coverage to isolated difficult species such as live or black oak. This type of treatment has given excellent control of regrowth chamise and regrowth bear mat, applied the first year following a fire.

Live oak sprouts can be controlled with 25% Fenuron pellets, Leonard continued. At present it seems that two or three ounces of pellets must be applied at the very base of each group of stems. A large live oak clump might have several such stem units, requiring a total of perhaps a pound. On areas where live oak is scattered but a problem, Fenuron might be the most feasible method of control. The treatment is most effective on sandy soils. The pellets should be applied in December under California conditions. It may take two or more years for the live oak to die, the scientist warned.

Cut-surface application of chemicals for controlling trees is not new, but there have been some new devices produced for making the applications. The older method consisted of making the cut with a heavy hatchet and then applying the chemical to the cut using

a pump-type oil can. There is nothing wrong with this method and there is much that can be said in its favor, although the newer application devices have points in their favor too, Leonard predicted.

One device has been to modify the blade of the hatchet or ax so that a better cup is made for holding the chemical.

The more popular devices for applying chemical to cuts in trees are injection tools. One of the more popular of these is the Reuel Little Tree Injector. Fluid is injected following the production of a cut by impact of the bit against the tree. The injection of the fluid is manually controlled so that quantity applied can be varied according to the requirements and the desire of the operator. Other types of tools are available that automatically inject the fluid into the cuts following impact of the injector against the tree. Results with this type of injector have been more erratic, especially in stands of mixed species of trees.

Substituted Urea Surfactant

For almost a decade now the class of compounds known as the substituted urea herbicides has been widely accepted and used as

soil treatments for controlling weeds through root absorption. To introduce a chemical herbicide into the plant through the soil and roots is a very complex procedure, which often requires a much heavier rate of application than would seem to be necessary if one could inject the chemical directly in the plant, M. C. Swingle, E. I. duPont de Nemours and Company, told the California weedmen.

One of the more interesting developments to come into the weed control picture in the past few years is the discovery that a surfactant, or wetting agent, can greatly accelerate the absorption of a soil sterilant type herbicide such as Karmex diuron weedkiller by the foliage of a plant.

The key apparently is the nature of the surfactant and the quantity used. Such a spray not only lays down a residue on the soil to control seedling annual weeds, but also kills emerged weeds by contact during application.

Initial work on both annual and perennial weeds demonstrated that the foliage of almost any species could be severely burned or killed by suitable dilutions of

Karmex and surfactant, according to Swingle. Species known to be extremely resistant to Karmex by soil applications were readily injured by diuron-surfactant spray.

Most of the work on the West Coast using Karmex plus surfactant has been initiated only this past summer, the duPont spokesman continued. Sufficient time has not elapsed to fully evaluate the degree of suppression or kill of many perennial weeds.

Herb Chandler, Deputy Agricultural Commissioner from Yolo County, described some of the results he has had using Karmex and X-77. Karmex plus X-77 gave excellent control of such weeds as Bermudagrass, puncture vine, dock, watergrass, and Johnsongrass in trials conducted in 1961. Since Johnsongrass is a serious pest, it was interesting to note the results of the trial. The Johnsongrass was growing on top of an irrigation levee approximately 20 ft. from the water's edge. The four-in-one combination, 4 lbs. of Karmex plus 1 gallon of X-77 in 100 gallons of water, was applied on May 1 to the Johnsongrass. The plants were wet to runoff.

Three months later only a few

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clumps of Johnsongrass were visible. After the application, very little action was visible for the first seven days. Then a slow and gradual dying of the foliage was noticed. This dying continued from five to seven weeks after the spray treatment. A second treatment at the end of this period gave the outstanding results at three months, Chandler claims.

A trial in 1962 has confirmed some of the results. An irrigation ditch was selected that had one bank next to an alfalfa field where the grower cut the weeds on this bank regularly; the opposite bank was next to a fence so that the Johnsongrass had not been disturbed and was about 6 ft. tall in full seed head. The bank that had been cut was 12 to 18 inches tall at the time of treatment. This afforded two stages of Johnsongrass growth. The ditch banks were sprayed on August 15.

In evaluating the results of the spray, it was agreed that the tall grass had suffered 60 to 75% mortality from the first spraying. Seven weeks later the bank that had the tall growth was spot-treated for regrowth and the other bank was sprayed solid. Ten days after the second application and until December 9th, the day of the first frost, no regrowth was visible and most of the rhizomes were in stages of complete collapse or in severe distress. The young, vigorous-growing Johnsongrass was not as susceptible to treatment as those plants that were full grown and in seed stage. The same result was not obtained on dry-land areas as was achieved where ground moisture was present.

What's New in Weed Control

One of the most interesting sessions was the evening session on "What's New in Weed Control." A panel was formed by having a chemical company's representative discuss the new chemicals from his firm. Some reported on coded chemicals that are about to be released, while others discussed new uses of older chemicals. Fifteen companies were represented on the panel.

California Chemical Company, Ortho Division, was represented by H. C. Fisher, Whittier, California. Their new products are Diquat and Paraquat. Diquat is available now. Paraquat will be available soon. Both give rapid knockdown of weed growth, Fisher said, and both are odorless and nonflammable and leave no soil

residue. Diquat can also be used as an aquatic weed treatment and as an additive for a knockdown treatment with sterilants.

Lyall F. Taylor of E. I. duPont de Nemours of Palo Alto, California, reported Hyvar isocil was available now and Hyvar bromosil will be soon. Both are sterilants for use on industrial and noncrop land. Hyvar isocil has a wider range of weed control at about one-third the rate of Karmex, Taylor said, and is less selective and less sensitive to breakdown from sunlight than Karmex. Suggested rates for the control of annual weeds is up to 4 lbs. per acre.

"Cull" was introduced by Richard Fosse, Amchem Products, Inc., of Niles, California. Cull is a tree-killing chemical in a pressurized can for use in the cut-surface method. With the press of a button, the can releases a measured amount of chemical for each ax cut. One can should treat about 60 trees of six-inch diameter.

Pennsalt Chemicals, represented by Edward J. Bowles of Fresno, Calif., discussed TD-307, a contact herbicide with very short residue. It is intended for use in fallowing programs, along roadsides including landscape plantings. Possible selectivity in crops will be investigated in 1963.

Betasan was discussed by Joe Antognini of Stauffer Chemical Company of Mountain View, California. Betasan is a weed control chemical for turf. It will control crabgrass, annual grasses, and some broadleaved plants. It is of special importance in California for weed control in dichondra and can be used pre-plant, pre-emergence and post-emergence to the dichondra, Antognini said. It also is effective in established grass turfs.

Diamond Alkali Company's new product is Dacthal, reported by Robert Orlik, Jr. of Fresno, Calif. Dacthal is being used in turf grasses as a pre-emergence treatment for crabgrass control.

Banvel D, a product of Velsicol Chemical Corporation, was introduced by the company's Joe O'Brien of Fresno, Calif. It is a 4-pound-per-gallon formulation, and is being used in trials for perennial broadleaved weeds of morning glory, Russian knapweed, and in noncrop land areas and on roadsides.

Diphenamid and trifluralin were introduced by Robert Ascherman of Eli Lilly and Company of Greenfield, Indiana, as their new

chemicals. Trifluralin is registered as Treflan for selective pre-emergence weed control in turf and ornamentals. Treflan, Ascherman said, is produced as a 4-pound-per-gallon emulsifiable concentrate and a 2 and 5% granular.

U.S. Borax's V.W. Woestemeyer of Anaheim, Calif., discussed Monobor-Chlorate as a soil sterilant for noncrop land, with emphasis for use under asphalt and for perennial weed control. Annual weeds require 1/2 lb./100 sq. ft. and perennial weeds up to 4 lbs./100 sq. ft. Tritac, a second chemical, is a soil sterilant for use in noncrop land for perennial broadleaved weeds. Tritac leaves a long soil residue, Woestemeyer concluded.

Thompson-Hayward Chemical Company, through their representative James H. Hughes of Fresno, Calif., reported on Casoron. Applied pre-emergence to the weeds, Casoron has shown activity against a broad spectrum of annual and perennial pest plants. Special uses would include control of nutgrass, dodder, bracken fern, and quackgrass. Casoron, which is selective in ornamentals, is formulated as a 50% wettable powder and a 4% granule, Hughes concluded.

Next year the California Weed Conference will be held in Sacramento, Jan. 21-23, *Weeds and Turf* was told.

UK Herbicide Firm Acquires Control of Doggett-Pfeil Co.

Fisons Horticulture Ltd., leading United Kingdom herbicide manufacturer, has purchased a majority interest in the Doggett-Pfeil Co., American producer of soluble and liquid fertilizers, selective weedkillers, turf fungicides, and grass colorants.

"This acquisition provides a base for the establishment of Fisons products in the U.S. horticultural market, and also enables an extension of Doggett-Pfeil's present activities," G. V. K. Burton, chairman of Fisons Horticultural Ltd., announced after the purchase.

Fisons is already well established in Canada, where it is a major distributor of simazine, atrazine, and other herbicides, Burton mentioned.

Firm will be renamed the "Doggett Fison Co.," with S. H. Doggett continuing as president.

Hooker Has Liquid Herbicide

Tritac, a new liquid herbicide that kills deep-rooted perennial weeds, will be marketed jointly by Hooker Chemical Corp. and U.S. Borax & Chemical Corp., the two companies announced recently.

New chemical was initially synthesized in Hooker Laboratories, and is designed for water-spray application in the control of such deep-rooted weeds as field bindweed, Canada thistle, Russian knapweed, leafy spurge, bur ragweed, and toad flax. Formulation is 2 lbs. per gallon emulsifiable concentrate.

Joint marketing arrangement will provide maximum market penetration for the new herbicide, by taking advantage of the existing national sales coverage and distribution outlets of the two firms, Dr. L. M. Stahler, Director of Agricultural Chemical Sales for U.S. Borax, and Mr. C. E. Gochenour, Manager of Agricultural Chemical Sales for Hooker Chemical, believe.

Tritac will also broaden the line of herbicides supplied by the two companies. Prior to the develop-

ment of Tritac, U.S. Borax and Hooker marketed only granulated weedkillers for dry application.

For more information on Tritac, write to either U.S. Borax & Chemical Corp., Box 75218, Sanford Station, Los Angeles 5, Calif., or Hooker Chemical Corp., 603 Buffalo Ave., Niagara Falls, N.Y.

Recommend Silvex & Mecoprop To Control Chickweed in Lawns

Silvex and Mecoprop are effective chickweed controls, a report from the Field Crops Branch of the Ontario (Canada) Department of Agriculture notes.

Neither mowing or weeding will stop this common lawn blight. But the department reports that both sprays have been demonstrated effective in controlling common and mouse-eared varieties of chickweed.

Mouse-eared chickweed is readily identified by the fine, fuzzy hairs that cover the stems and leaves; the common variety has only a strip of hairs along one side of the stem.

Since chemicals may affect grass

Meeting Dates



Western Weed Control Conference, Sheraton Hotel, Portland, Ore., March 20-22.

2nd Annual Florida Turfgrass Association Trade Show, Hotel Seville, Miami Beach, Fla., May 2-4.

Chemical Specialties Manufacturers Assn. Mid-Year Meeting, Drake Hotel, Chicago, Ill., May 20-22.

National Plant Food Institute Annual Conference, Greenbrier Hotel, White Sulphur Springs, W. Va., June 9-12.

11th Annual Florida Turfgrass Management Conference, Gainesville, August 27-29.

16th Annual California Weed Conference, Sacramento, Jan. 21-23, 1964.

Weed Society of America Meeting, Pick-Congress Hotel, Chicago, Ill., Feb. 10-13.

seedlings, the Field Crops Branch cautions CAs against spraying new lawns. Nor should lawns be treated during hot weeks, since treated lawns need a good deal of water for the sprays to be effective.



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Lawn Insects

(from page W-15)

grass is touching) of a home will bring some protection. Prevention of mite entry is doubled if malathion or lindane is applied to this cleared strip. Actual control in the lawn is very difficult.

Another mite was reported by Professor Deal of California who quoted reports of Dr. R. N. Jefferson, also of Riverside. "The Bermudagrass mite (Eriophyidae) lives in the terminal leaf sheaths and its feeding causes stunting, a witches-broom effect, general decline, and eventual death of the stolon." This pest was first observed in Arizona by the California workers in 1959. Since then it has become a pest in southern California. It also causes damage in Nevada, Texas, and Florida. Control it with Trithion or Ethion at chinch bug dosages.

Dr. Jefferson has also reported on the frit fly (*Oscinella frit*), "a new pest in the sense that damage to turf has occurred in California since 1959. The tiny maggots, or larvae, tunnel in the stems near

the surface of the soil causing the upper portions of the plant to turn brown and die." Adults can be detected by placing a white object in a suspect area; small flies $\frac{1}{16}$ inch long, will be attracted to the object readily. Insecticides effective for chinch bugs and sod webworms will control the frit fly, which ranges into the northeastern quarter of the United States also.

Cicada Killer

A pest in Indiana and elsewhere in central and northeastern United States is a species of digger wasp called the "cicada killer." Professor Dave Matthew of Purdue told *Weeds and Turf* that these "annually cause great concern to many homeowners because of the mounds of soil they pile up on lawns when digging burrows in which they place paralyzed cicadas on which their young feed." These wasps, about $1\frac{1}{2}$ inches long and typically marked with yellow and black, can sometimes be seen hovering over or near their burrows regularly each day during mid-summer. They will not bother humans unless molested.

In one sense, the cicada killer

is beneficial because it is a natural control of cicadas. If turf damage by wasps is extensive, control of these "middle-of-the-roaders" is recommended. Chlordane 10% dust, applied locally (spot treatment) to burrows where returning wasps will walk over it, will give control.

Mole crickets burrow through soil with their enlarged spade-like front legs. They eat roots and uproot seedling and some established grasses. These oddities are about $1\frac{1}{2}$ inches long, brown, and covered with velvety hairs. Mole cricket control is the same as mentioned for other soil-dwelling insects such as white grub and sod webworm. If chlordane is used, the applicator should remember that it is also a weedkiller and should not be used on new lawns. Give seedlings a 5-week head start.

In all cases study and understand the package label. Regardless of the chemical used, follow directions and precautions for safe handling. Have the safety of consumer, children, pets, and wildlife that may come in contact with a treated area firmly in mind.

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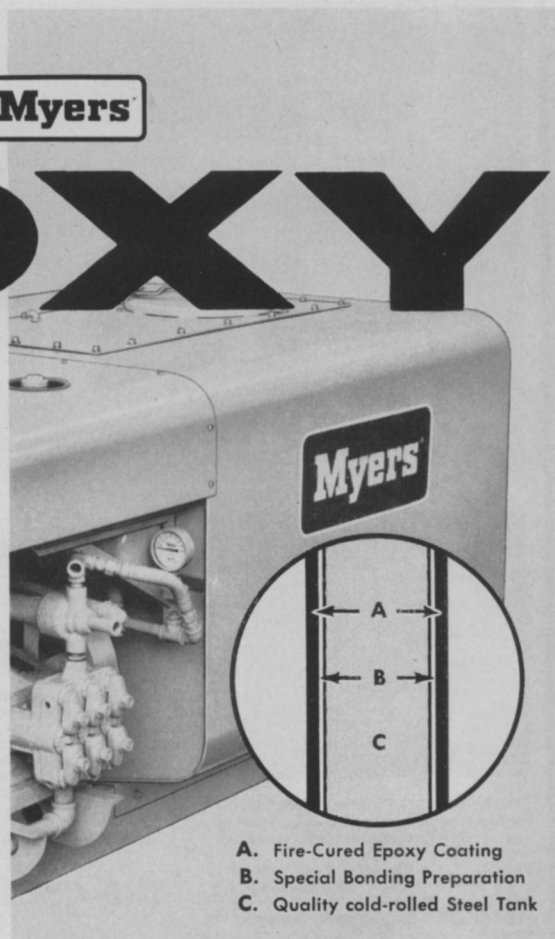
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Weed Control

by Alden S. Crafts and Wilfred W. Robbins, McGraw-Hill Book Company, New York, N.Y., 1962, 660 pp., \$14.75.

History of plants, evolution of weeds, principles and economics of plant control, recent advances in herbicide research, and new equipment for application, are all welded together in the third edition of *Weed Control*. Written by Dr. Alden S. Crafts and the late Dr. Wilfred W. Robbins, both of the University of California and California Experiment Station, this book should not go unused by contract applicators.

Five of the 24 chapters introduce readers to weeds as plants and give ideas of the history of this formidable adversary. Weeds were "created" by man's desire to be rid of them. Many plants regarded as weeds today were once used as food. Seeds of plants which we now consider weeds were found in the stomach of a preserved Iron Age man, for example.

Special features which the authors point out, such as rates of reproduction, method of seed

dispersal, and general hardiness, may produce a rebel from domestication such as Johnsongrass, which has caused more trouble than its original intent was worth.

After laying groundwork of control and chemical principles, the authors proceed to detail herbicides used in the battle against weed pests. Taken from a standpoint of action of herbicides rather than uses in specific crops, 11 chapters on selective and non-selective herbicides help readers better understand related compounds and methods by which they kill weeds. Each compound is treated historically from its discovery through recent research.

Relevant principles of general chemistry are fitted into the text and clearly explained so that chemical novices, too, can understand and learn. Free use is made of comparative and before-after photographs showing successes in weed control research and practice. Not a regional textbook, *Weed Control* draws information from all over the world, which gives readers a broader view of this expanding field and makes

for interesting and sometimes exotic reading.

Chapters on herbicide combinations, equipment old and new, and application techniques will no doubt give some readers fresh ideas with which they can run a weed control business more successfully.

Turfgrasses are included as crops in a 49-page chart of selective control chemicals, rates, application times, and volumes per area of spray. Likewise, charts of nonselective or soil sterilant application rates are valuable to those in industrial weed control.

Those in forest, ditchbank, railroad, or aquatic weed areas will appreciate the inclusion of remarks about these developing fields. Consideration is given whether applications are made by knapsack or airplane; the authors hope to reach a wide audience.

Appendices, complete with conversion tables, measures, weight and cost formulas, along with the recommended rate charts, make this text a valuable reference manual which a progressive weed controller should not be without.

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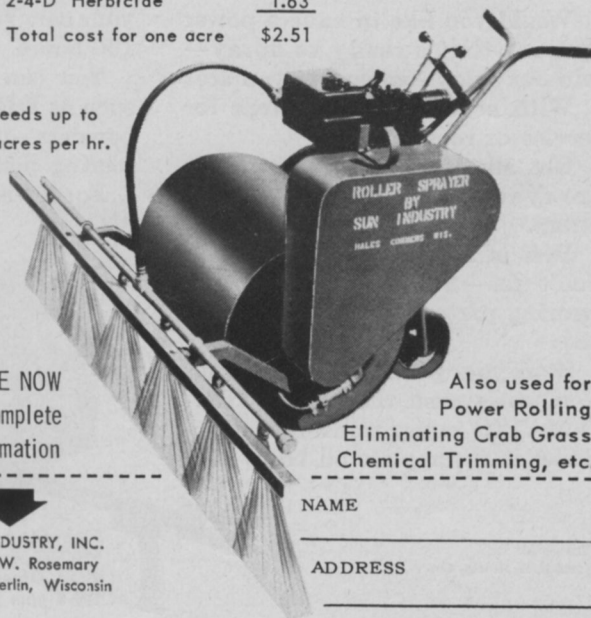
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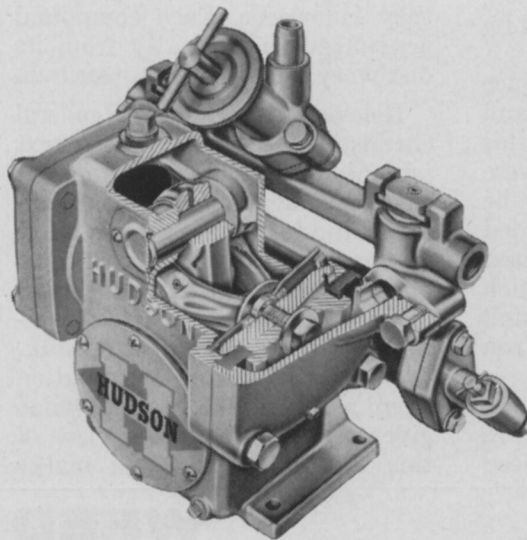
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So. Weed Conference Report

(from page W-18)

and specifications of the machine handle the drift hazard, he added.

"Application represented at least a 20% reduction in the amount of concentrate needed, with evidence of equal or greater top and root kill, compared with the conventional hydraulic system," Yazell concluded.

Aquatic Weed Control Covered

Of the numerous chemicals evaluated for aquatic weed control, xylol-type aromatic solvent, one of the first recommended, continues to be widely used, Dr. F. L. Timmons, of the Crops Research Div., USDA, Laramie, Wyoming, reveals. "More than 500,000 gallons of xylol-type aromatic solvents are now used annually," Timmons notes.

Two of the most promising weed control chemicals yet are Diquat and Paraquat, A. C. White, Field Technical Specialist from Ortho Div., California Chemical Co., Orlando, Fla., told CAs interested in aquatic weed problems.

"Fast absorption into the plant, systemic movement within the plant, and necessity of sunlight to exhibit killing action are all characteristics of the two solutions," White claims.

"If applied just before dark, allowing the chemical to circulate throughout the plant before the sun brings out full killing power, $\frac{1}{3}$ less solution is needed," White affirmed. In daylight, the kill is so rapid that this movement is short-circuited by the rapid death of the tissue, he purported.

"Diquat and Paraquat, in addition to promising control of 22 different kinds of aquatic pest plants, have shown no kill of fish and no adverse effect on fish food production in treated ponds," White concluded. "These results forecast a useful future for these herbicides."

First Scholarships Awarded

College seniors from North Carolina, Virginia, and Tennessee, and a recent graduate now working at weed control in Texas, were awarded the first Southern Weed Conference scholarship awards for graduate study. Winners also received a free trip to the meeting,

Know Your Species

GROUND IVY

(*Glechoma hederaced*)



Ground ivy is a perennial, reproducing both by seed and rooting at the joints of creeping stems. It is common in shaded areas near buildings, under trees or shrubbery throughout Northern United States and Southern Canada. Ground ivy especially favors rich damp soil of lawns, gardens, and orchards, although it is generally found elsewhere. Native of Eurasia, this creeping weed flowers from April to June.

Stems are characteristically 4-sided, creeping or trailing; flowers are borne in the axils of leaves on the stems which stand erect. Leaves are bright green, opposite one another on the stem, and palmately veined (like the fingers of one's hand). Edges of the circular leaves, $\frac{1}{2}$ to $1\frac{1}{2}$ inches in diameter, are scalloped or round-toothed.

Flowers are tubular with a lip, and bluish purple. The seeds are classified as nutlets which are ovoid, granular and brown.

Ground ivy is particularly difficult to control by mechanical means because of its extensive system of stolons or creeping stems. Pulling up the visible portion of the plant by no means destroys it, but leaves many small pieces of root which persistently resprout to cause another infestation.

Ground ivy is well controlled by spraying with silvex. Sprays of 2,4-D and 2,4,5-T are less effective but repeated sprays should wipe out ground ivy.

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

DRAWING BY REGINA HUGHES, USDA, BELTSVILLE

and are honorary members for 1963.

R. D. Camper, N.C. State University, received the \$500 first-prize award. Second prize of \$200 went to A. B. Rogerson, VPI in Blacksburg, Va. Other winners in the contest were H. R. Bayless, University of Tennessee, Knoxville, who received the \$50 third prize, and Randall Jones, supervisor of a weed control region in Tullia, Texas, who was awarded the \$25 fourth prize.

Elections held during the conference made R. F. Richards, Geigy Chemical Co., Orlando, Fla., president for 1963; R. E. Frans, University of Arkansas agronomy researcher in Fayetteville, was elected vice president; and the secretary-treasurer is Henry Andrews, University of Tennessee.

At the conclusion of the conference, it was announced that the 1964 meeting will be held in Jackson, Miss., with the dates and location to be named later.

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Soil Sterilization

(from page W-12)

30 pounds per acre. It will be available as an emulsifiable concentrate.

Organic: Symmetrical Triazines

Simazine, 2-chloro-4,6-bis(ethylamino)-s-triazine, applied at high rates, is an effective soil sterilant. Proven as a chemical cultivator, simazine at 10 to 40 pounds active per acre will sterilize soil where there is no problem of deep-rooted perennials. Simazine tends, because of its lack of solubility, to remain near the surface, killing annual weeds as they germinate. When weedkilling oils are added to simazine or atrazine, only 5 to 15 pounds of active ingredient need be applied for control. Generally two treatments, one month apart in early summer, will suffice.

Atrazine, 2-chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine, bears the same relationship to simazine as monuron does to diuron. Atrazine is more soluble than simazine, but both are applied at the same rates for soil sterilization.

Time to Apply

Generally, a good time to apply soil sterilants is before the weeds mature. The spring and fall are both good times to prevent weed growth. Application and complete soil coverage are easier without interference of full-grown weeds. Cooler temperatures are less conducive to bacterial action in the soil and therefore enhance the residual of an herbicide. But heavy snow and rain may leach the chemical away, so winter precipitation must be considered when choosing an overwinter herbicide.

Since soil sterilants are usually applied to relatively large areas, power equipment is considered the most economical. Either manually directed hoses or fixed booms would be satisfactory as long as even distribution is obtained. Broadcasting equipment such as Cyclone seeders and air guns are the most efficient for applying pelletized herbicides.

Nature of the chemical, time of year, soil type, temperature, the kind of weeds, and the size of the job will all help determine whether spray or dry preparations should be used.

Trimmings

Airing opinions. Two old pros at the Aquatic Weed Control Society meeting last month were applicators Henry Carsner and E. V. Scholl, who gave delegates some good pointers on equipment for waterweed jobs. Hank's specialty is development of air boats, which he works on at his Northwest Weed Control Company in Tacoma, Wash. Vic Scholl, a familiar person at meetings of aquatic applicators, runs Modern Weed Control in Grand Rapids, Mich. Both experts, while from widely separated parts of the country, have sound know-how in common, and the conference was enriched by their comments. Our reporter was on hand at the Chicago meeting, but because of an early presstime, we've saved our detailed report of what transpired there for next month.

* * *

Pacesetting PCOs. We've been talking about PCOs who've branched into weed or turf and ornamental work quite a lot recently, and at the Purdue PCO Conference in January we ran into another versatile pest controller, Charles Warfield of Home Exterminating in Salisbury, Md. Chuck says one of his specialties is spraying golf course ornamentals for control of scales and other pests, and we wonder how many operators are looking into this new line. After all, it's a field which is coming rapidly into the fore. And what better way to spend an afternoon on the course than this, armed with spray gun, golf shoes, and a set of clubs!

* * *

No sitting duck. William H. Drake, an entomologist who runs Drake Chemical Company in Perrysburg, Ohio, is another example of the versatility of spraymen today. Bill, who's a graduate entomologist, is nevertheless active in the weed control business on a custom basis. And if this isn't enough to keep him busy, he also manufactures and distributes chemicals and equipment for operators in the Great Lakes area. Obviously Bill's not a man to duck out of a time-consuming job!

* * *

Take it for granted. Each year the North Central Weed Control Conference presents an award for the outstanding job done in weed control for the current year. Canadian Douglas H. Grant, agricultural representative for Swift in Saskatchewan, was the lucky winner for 1962, a Canadian correspondent just wrote us. Doug earned the honor through his efforts in which he (1) promoted a Canadian Weed Control Week, (2) helped organize 12 weed sprayer field days, and (3) sparked an essay contest on weed work among no less than 20 4-H clubs in the province to our north. Doug told about his "weed control week" at the conference last December, and we join other delegates in congratulating this hard-working benefactor of our industry.

* * *

Raise a Furrer? Applicators in Jefferson County, New York, have lost a good right arm in former associate county agent Armin Furrer. We just learned that Armin recently accepted a position on the Agronomy Department staff at Cornell, where he'll work primarily with life history studies of perennial weeds. No doubt CAs who called on Mr. Furrer for help will miss his efforts, but it's good to know the big weed projects at Cornell will benefit from the former county agent's experience in the field.