

# California Weedmen Focus on Application at 15th Annual Conference in Santa Barbara

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A welcome note of practicality which weedmen can put to work in the field highlighted the 15th Annual California Weed Conference, Santa Barbara, Calif., Jan. 22-24.

Sponsored by the University of California, the State Department of Agriculture, and participating chemical manufacturers, the conference drew 455 registrants. Many of these, both in the audience and on the podium, were contract applicators.

This "down-to-earth" character was proclaimed by conference president Charles C. Siebe, who said in his keynote address that he hoped the annual assembly would prompt delegates to new accomplishments in applied weed control.

A formidable array of talks followed, including sessions on vacant lot weed control, choice of spray equipment, new methods in brush control, and a special seminar on "What's new in weed control chemicals."

## City Vacant Lot Program

Contract applicator Ron Burk, Chem-trol Company of Arlington, California, discussed the vacant lot program in his area.

One of the main problems, he said, is that city ordinances often prohibit the application of chemi-

cals or sprays in the city. Sprays have advantages over discing or burning because they eliminate dust and smoke.

Contract applicators must contact the lot owner directly to sell the chemical treatment. The city burns or discs the weeds when they feel they are a hazard, and adds the cost to the taxes on the lot.

Combinations of chemicals are usually used on the lots sprayed. Usually chemicals are applied as a yearly maintenance treatment. Two pounds of atrazine and two gallons of trichlorobenzoic acid per acre has given good control, Burk said. When weeds are present, 2 lbs. of Amitrole is added as a knockdown treatment.

If weeds are established, after the usual rainy season is over, sprays of 7 to 8 lbs. dalapon plus 1 qt. of 2,4-D per acre are used with good results. Weed oil, or Amitrole, is used where 2,4-D is not safe and where the oil stains are not objectional, the Californian elaborated.

On lots, industrial sites, or open areas where longer control is desired, Burk said he uses 4 to 5 lbs. of Simazine and 2 gallons of Fenac per acre.

There is no one-shot weedkiller for ornamentals to do all the jobs desired, John Smith, State Divi-

sion of Highways, Los Angeles, told the conference.

Procedures used today may be ineffective on the next time around and may need to be modified to maintain weed-free areas, Smith said. Often combinations have shown terrific results when applied at the correct time, but have been failures at other times.

Improper applications can result in destruction of desirable plant life, damage from erosion, and financial loss as well as loss of material, time, and man power. The continual use of one chemical often allows tolerant weeds to exist.

It is necessary to understand the basic idea of such plantings to consider weed control in ornamentals. Plants are in close proximity to shade the ground quickly, thereby reducing weed growth and moisture evaporation. Weed control problems predominate during the first few years of such plantings, hence the problem is primarily among young plants.

Spray shields are a must, but damage has resulted when some materials leach into the root zone of plants, or move on the surface in free water, causing concentration of the chemical in basins of new plants, resulting in damage to the plants.

Weed oil has been extensively used as a comparatively safe material, but young acacia plants and other related legumacea species have become chlorotic due to concentration of the oil in the basins. The discoloration of vegetation, painted surfaces, and fences has evoked complaints and criticism. The aromatics are a problem in heavily populated areas, Smith continued.

Dalapon applied to grasses, especially Bermuda and Johnsongrass, in the early growing season has shown less than 20% effective control, whereas when applied in late fall, prior to the first frosts, has been approximately 80% effective. Early applications are made to discourage growth of Bermuda and Johnsongrass without thought of eradication.

Amitrole has been used primarily as a knockdown in extremely wet areas and has been erratic in results, the highway official claimed.

Smith said the amine formulation of 2,4-D is the safest of the



Officers of the California Conference (left to right): Outgoing President Charles Siebe, State Department of Agriculture, with new officers Vice President Jim Dewlen, Amchem Products Co.; President William Hopkins, Best Fertilizer Co.; Secretary Norman Akesson, University of California, Engineer; Treasurer Cecil Pratt, State Department of Agriculture. The Robbins Memorial hoe passes as a trophy to each new President.

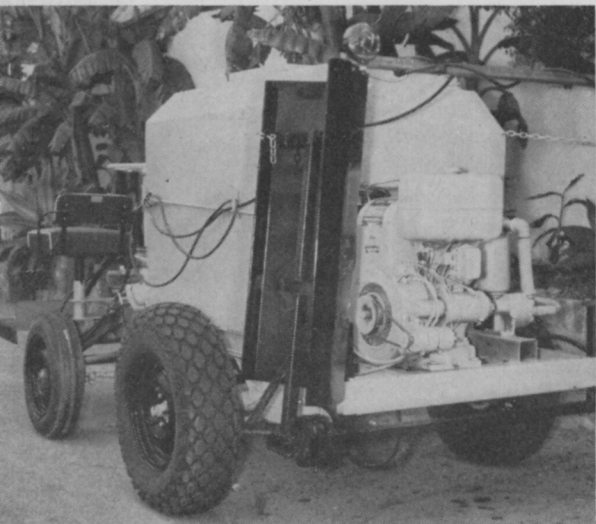
2,4-D family for control of stubborn broadleaved weeds. But in any case caution must be taken to keep the material off desirable vegetation, as damage can result from strong wind drift or breezes created by passing vehicles.

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.



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.

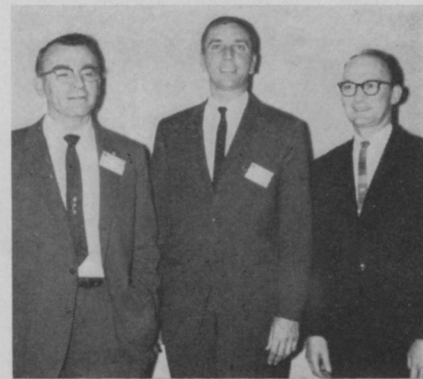
A quick cutoff valve is necessary if the equipment is to be efficiently used for controlling individual woody plants; such a cutoff valve will likely have to be installed. It is desirable to purchase a mist blower that has the rate of flow governed by the size of the orifice, which should be where the 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  $\frac{1}{2}$  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.