

Optimistic Weed Society Sets New Goals, Reflects On Accomplishments at Biennial Meeting in Chicago

A fast-moving and fast-growing Weed Society of America which desires, in this era of scientific revolution, to move ahead even faster, met for its fifth biennial meeting, Feb. 10-13, at the Pick-Congress Hotel, Chicago, Ill.

Seven hundred delegates representing education, research, government, industry, and several foreign scientific agencies gathered to review important research developments of the past two years and to plan for an even more fruitful future.

A baker's dozen of "needs for the advancement of weed science," as this discipline will henceforth be called, was enumerated by Dr. Warren C. Shaw in his Presidential Address at the opening general session. Dr. Shaw is a plant physiologist at the Beltsville, Md., research station for the U. S. Department of Agriculture Crops Research Division. He is Leader for the Weed Investigations phase of crop protection.

"There is a critical need for a better understanding of the ecology, phenology, and botanical aspects of weeds," Dr. Shaw began. "There's a lack of basic knowledge regarding weed seed germination process."

"We need to know more about the chemicals (inhibitors, stimulants, growth-promoting and toxic substances) produced by seeds and roots of plants. There is a gap in our understanding of the herbicidal penetration, absorption, translocation, and movement factors which influence chemical efficiency," he continued.

"We need information on the interacting influences of herbicidal mixtures and combination treatments," he went on. Other areas which are becoming increasingly appreciated, Dr. Shaw pointed out, are in the chemistry of surface active agents (surfactants) in formulations, understanding of herbicidal action mechanisms, and investigation into fate of herbicides in soil and water.

Researchers must continue to consider, according to the WSA President, the interrelationships of effects on plants of treatments

with herbicides in combination with insecticides, fungicides and other pesticides.

Secretary Freeman Gets Ovation

Special honor for WSA was the presence of U. S. Department of Agriculture Secretary, Orville L. Freeman, who, after a standing ovation, addressed the group on "Science and Education: A New Awareness." Secretary Freeman's talk centered on the administrator's viewpoint of promising new developments from USDA and some comment on the recent uproar in Senate chambers of the Ribicoff Committee caused by the controversial book, *Silent Spring*.

"Pesticides are a springboard to abundance, but as chemicals designed to remove insects and weeds from our environment, they are always a potential danger," the Secretary stated. "Public discussion has sharpened our awareness of two problems: residues and lingering effect, and the possible misuse at time of application. One can use them properly with confidence." This the secretary described as the



International flavor was added by the presence of Dr. Wybo vanderZweep (above right), a Dutch weed researcher who compared notes with USDA's Peter Frank (above left). Industry and research met as Diamond Alkali's J. W. Daniel (below left) talked turf with Iowa turfgrass specialist Dr. Eliot C. Roberts.



basic finding of the Senate Ribicoff Committee.

The position of the USDA has shifted in the past two years, Secretary Freeman observed, now emphasizing nonchemical control methods of harmful organisms. "Where problems must be met, and cannot be met by means other than chemical control, we will find the safest possible techniques for using a pesticide."

As a followup on biological control of weeds with such notable examples as the Klamath beetle on Klamath weed (St. Johnswort), the Cabinet member announced, "a few weeks ago the Department said that a flea beetle which survives only on alligatorweed has passed tests conducted in South America and will be introduced into the Southeast where this weed chokes miles of waterways."

Second honored guest on the program was Dr. Wybo vanderZweep from the Institute of Biological and Chemical Research on Field and Forage Crops, Wageningen, The Netherlands, who discussed some recent advances in European weed control.

Dr. vanderZweep revealed the organization of the European Weed Research Council (EWRC), which is a body of researchers from 21 countries come together to correlate research efforts in their respective countries. "In Europe," the Dutch researcher revealed, "there is a lack of personnel to do research which hampers us, in addition to the language barrier between countries."

European research already has significant accomplishments for which credit is due. Among chemicals which have originated in European laboratories are the dipyrityls, Diquat and paraquat, the triazine compounds, and recently dichlobenil.

Chemist Explains Surfactants

"Surfactants are minor additives to herbicide formulations which can play a major role in toxicant emulsification, wetting, penetration, and in response of plants to treatment," R. W. Behrens, Atlas Chemical Industries,

Wilmington, Del., asserted in his opening remarks on this new phase of herbicidal chemistry.

"Basically a surfactant, which is a shortened form of "surface active agent," denotes 1 molecule with 2 characteristics: one which is attracted to water and the other which is attracted to oils," Behrens explained. Use of surfactants creates an interface between oil and water molecules in an emulsion which keeps emulsions stable longer and increases the activity of the herbicide on the sprayed surface.

With use of properly prepared surfactants, Behrens indicated, herbicide rates can be lowered because there is a much more intimate relationship between herbicide and carrier and surface.

Problems yet to be resolved in the widespread use of effective surfactants are the residues produced and the "biodegradability" (how these chemicals will respond when placed in soils and water supplies).

Due to the broad scope of the WSA program in both agricultural and nonagricultural endeavors, *Weeds & Turf* reporters sifted those developments from the program which should be of most interest to readers.

Tordon, New Brush Killer

Many new chemicals were talked about and researched this year at the WSA meet. Among those was Dow Chemical's Tordon (4-amino-3,5,6-trichloropicolinic acid), a new brush killer. Technical representative Robert Warden described Tordon at a session devoted to discussion of new herbicides from industry.

"Tordon is a growth-regulator herbicide which shows promise for control of woody plants both as a foliage application and as a cut-surface application such as injection and frill treatments. It is also effective against persistent perennial species such as leafy spurge, Russian knapweed, field bindweed and Canada thistle," Warden claimed. It is presently being formulated experimentally as a granular material, a mixture with 2,4-D, and a liquid potassium salt. It is being released to qualified experimenter-applicators for testing purposes.

New Hyvar Bromacil Bows

L. A. Conn of DuPont introduced Hyvar X-WS bromacil



Surfactant expert R. W. Behrens (left) of Atlas Chemical Industries was one of several popular speakers who paused to chat with the new president of the Weed Society of America, Dr. G. F. Warren of Purdue University.

industrial weed killer, a water-soluble postemergent herbicide which does not need additional agitation after initial mixing. Conn said that this herbicide will be available for use by April 1. It has recently received federal registration. DuPont researcher, Linton Cowart, reported that 4 pounds per acre on railroad ballast gives comparable control to sodium chlorate. Ten pounds per acre gave two years of excellent control on railroad ballast.

Another new nonselective weed and brush killer from General Chemical Division of Allied Chem. Corp. is GC-7887. Technically known as hexafluoroacetone trihydrate, this product is intended for use for postemergent control of annuals and perennials and can also be used on certain woody species, according to Roger L. Pierpont, company representative.

Turf Weeds Spotlighted

O. M. Scott & Sons researcher, John A. Long of Marysville, Ohio, presented results with test using dicamba (Banvel D) in turf plots. "Dicamba has given excellent control of red sorrel and white clover at 2.6 lbs. per acre. When used at a 4-lb.-per-acre rate, a wait of only 14 days is necessary before reseeding," Long revealed.

Dicamba can be applied to new stands of bluegrass and Chewings fescue after these plants reach the 4 to 5 leaf stage with no damage. "When used at the 2-lb. rate, workers should avoid application about root zones of ornamentals since these may be damaged," Long cautioned.

"Dicamba can be used at a 1/2-

lb.-per-acre rate on bentgrass to remove white clover, which the dimethylamine salt of 2,4-D will not do, and only a slight temporary discoloration occurs," S. W. Bingham, Virginia Polytechnic Institute, Blacksburg, reported in a second paper which emphasized the usefulness of dicamba.

"Winter weeds, both annual and perennial, can be controlled with paraquat while southern turf is dormant," Carl O. Hanson, California Chemical Co., Ocoee, Fla., said as he presented correlated results of university researchers using paraquat this past year. Although paraquat will kill actively growing turf, it can be used with safety to remove unwanted winter weeds which occur in the dormant grasses. "One pound per acre applied in the spring has provided best control with no damage to centipede grass or Tifgreen Bermuda," Hanson related. He cautioned against use of paraquat on St. Augustinegrass because it has exposed aboveground stolons which may be affected even when dormant. When this technique of winter lawn renovation is used, the applicator should spray to wet the undesired foliage and not to drench the whole lawn. Ortho Division of California Chemical expects an early registration of paraquat for this use.

New Herbicide Concept Brewing

A new look at herbicide use through stunting of plants with a compound produced by biological organisms, such as *Penicillium* molds, was presented by the discoverer, Dr. Reed A. Gray, formerly with Merck Sharp & Dohme and now working with Stauffer Chemical Co., Mountain View, Calif. A compound called hadacidin is the active ingredient in a broth extracted from cultures of fermenting molds made of *Penicillium* spp.

When this broth is sprayed onto plants, it stunts their growth and with sufficient concentration will kill plants. The compound, however, does not have a desired selectivity, but the principle of control emerging from this new possible control compound excited many of the research delegates.

Machines De-Weed, Renovate

"Machinery can help renovate

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established turf by removing much of the weedy plants which produce a running type of growth, and machines can aid also when one wants to completely kill all grass and start over," Dr. William H. Daniel, Purdue University agronomist, Lafayette, Ind., indicated in his talk on the usefulness of dethatching machines.

"Often after turf is killed with cacodylic acid or a urea formaldehyde solution, the thatch (that layer of dead stems and leaves over the soil) ruins the opportunity to reseed because it prevents seeds from reaching the soil," Dr. Daniel explained.

"Removal of thatch beforehand with a machine will permit seeds to contact soil and produce a more healthy stand," the agronomist feels.

Dethatching machines, as Dr. Daniel pointed out, can also produce a more healthy stand of grass if stoloniferous weedy grasses, such as goosegrass, creeping bent, and chickweed are removed with a machine. "Considerable thatch, mat, and

old clippings can be loosened, then swept up," he concluded.

Dybar Used For Right-of-Way

"Mechanical control of rights-of-way with saws and axes only postpones problems, and increasingly dense regrowth makes greater problems later for us," Charles P. Aho, Public Service Co., Division of Commonwealth Edison, Chicago, Ill., pointed out in the brush control session.

"We've found fenuron pellets (Dybar) to be very satisfactory for woody plant control along power lines to keep down large brush. It is better than liquid toxicants for us because it is cleaner, lighter, effective, economical and can be applied in wind and rain," he cited.

"We have lines in our area which are as far as two miles from roads. Chemicals must be packed in, since we use hand labor for selective control," Aho explained. "Here is where we find the pelleted formulation handiest."

"On rights-of-way through suburban areas, care must be exercised to avoid damage to desirable shrubs and trees. Fenuron pellets applied on one

brush species can damage a nearby tree if the tree is on the downhill side and leaching will carry toxicant to its roots," he cautioned.

Part of Commonwealth's lines run through the Cook County Forest Preserve and Aho indicated that selective control with fenuron avoided problems of drift to forest trees and enabled workers to keep low-growing shrubs while eliminating higher growth that interferes with power lines.

Warren Succeeds Shaw

At the banquet of the Weed Society of America, new officers were installed. Dr. Warren C. Shaw, Crops Research Division, USDA, Beltsville, Md., handed the presidential gavel over to Dr. G. F. Warren, horticulturist of Purdue University, Lafayette, Ind.

The new president-elect is Dr. William R. Furtick, Oregon State University, Corvallis.

Weeds & Turf was advised that the last biennial meeting of WSA will be held Feb. 6-11, 1966, at the Sheraton Jefferson Hotel in St. Louis, Mo. Beginning in 1967, meetings will be annual.



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