

Crops Other Than Cotton Need Attention from Weed Control Researchers

Southern Weed Conference approves plan to organize national weed society . . . Nitrogen fertilizing solutions good carriers for herbicides

MEMPHIS.—It is not surprising that weeds in cotton have been the subject of most investigations in the South, but not enough attention has been given to weeds in other crops such as soybean, corn, and tobacco. This opinion was expressed by W. B. Ennis, Jr., Mississippi Agricultural Experiment Station, in his presidential address before the Southern Weed Conference meeting here Jan. 11 to 13.

We are making progress on brush control, he said, but the diversity of problems encountered render complexity to an effective solution. Weeds in grasslands of the South are serious. Certain vegetable crops and horticultural crops are not produced profitably in some southern states largely because of weed problems and plant diseases.

Why have some problems apparently been neglected? The lack of concen-

trated research is due to an inadequate number of personnel, said Dr. Ennis. However, there is now a rather healthy attitude on the part of administrators in supporting weed investigations. Estimated total funds have increased fourfold in the South since 1947. As new advances are made there is reason to believe the work will receive additional support.

There would be few research men who would disagree with the statement that as yet there are no foolproof herbicides, he said. Herbicides must be used in accordance with sound principles and good judgment. Accordingly, there is need for an informed and alert group to initiate strong educational programs. Too frequently the method of approaching a particular weed problem requires an "on the spot" decision. The leaders in our farm communities must have sufficient background information so they can offer sound advice to farmers on when, what, and how to use herbicides in solving a particular problem.

National Society. Organization of a national weed society seems well underway. A vote of approval was received at the Southern Weed Conference, the second approval within a week (the Northeastern Weed Conference gave the national society its approval on Jan. 6). The other two regional weed conferences will vote on the proposal later this year, the Western Weed Conference at its meeting in Tucson March 22 to 24 and the North Central Conference in December.

Herbicides in Nitrogen Solutions. At the North Carolina Experiment Station, J. C. Davis and G. C. Klingman are studying the herbicidal influence of ammonium nitrate solutions in combination with wetting agents, 2,4-D, dinitro, and 3-(3,4-dichlorophenyl)-1-methylurea. Nitrogen solutions, they said,

provide a cheap source of a salt as a contact herbicide, especially where the cost of nitrogen application is completely justified for its fertilizing properties. Applied as a spray directed to the base of corn plants and to weeds in the middle, a water solution of ammonium nitrate plus a wetting agent with or without 2,4-D is a very effective post-emergence treatment.

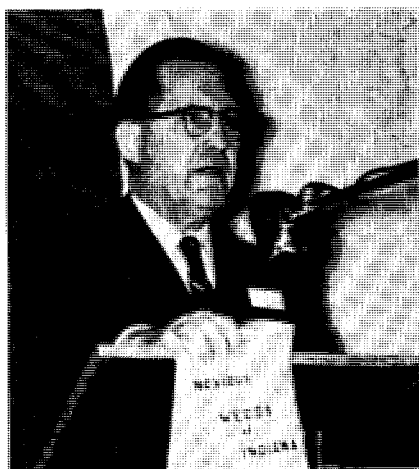
Broad leaf weeds are controlled more effectively, however, when 2,4-D is included in the spray.

Ammonium nitrate applied as a directed spray is fully as effective a fertilizing material as the solid form, they say. With no apparent injury to the corn, 3-(3,4-dichlorophenyl)-1-methylurea gives weed control one to two times as long as 2,4-D.

Dinitro applied as a post-emergence, over-the-top spray is injurious to the corn and fails to give satisfactory weed control. During the study they found what appeared to be a close relationship between corn yields and the degree of weed control.

W. B. Ennis of Mississippi Agricultural Experiment Station and president of the Southern Weed Conference told members that more attention should be given to the weeds that attack crops other than cotton

L. I. Jones of the USDA extension service gives some good examples of how the farmer can be aided in his weed control program



Control Measures. Pre-emergence treatment of cotton with dinitro can now be handled more safely in view of results presented by F. L. Davis and D. E. Davis, Alabama Polytechnic Institute. The danger of vapor burn when daily temperatures go as high as 85° F. may be decreased 50% or more by using slaked lime either as a dust or a spray. The lime may be applied to reduce volatility as much as three days after the cotton has been planted, but before it has emerged. At least 50 pounds per acre should be applied to the chemically treated band, based on their tests with Norfolk soils.

Some interesting results were disclosed in this study. Rain falling within a few hours after planting and before the cotton has germinated may move sufficient dinitro down around the seed to decrease the stand. On the other hand, rain falling after the cotton has germinated and before it is well out of the ground may decrease the danger of vapor burn. Dangers of vapor burn are greatly increased by high volatility where there is a rainfall for the first time three or four days after the cotton has emerged. A very slight or heavy rainfall could change this behavior based on 0.5 inch of simulated rainfall.

Integration. Those in the administration of research have a special interest in weed investigation, according to A. H. Moseman, director of crops research, USDA.

An outstanding example of integration, it demonstrates how the efforts of scientists in public service can be teamed effectively with those in the equipment and chemical industries. The research cuts across a number of lines in agronomy, horticulture, chemistry, plant physiology, agricultural engineering, and other disciplines.

High on the list is work on brush control. With strong support from industry the work has not required a large investment of public research funds. Farmers throughout the South have watched with great interest the results in controlling sandsage and mesquite through aerial sprays.

And now growers from the Arkansas Ozarks through the Piedmont region further east are pressing for similar recommendations. They need an effective, low-cost method for bringing the woody species in cut-over timber lands under control. This is an important step toward building a more productive grassland agriculture.

There will be no let up in the pressure for new information on the control of weeds and other crop pests, said Moseman. Instead it will increase. There will be added pressure for information on the effects of new pesticides on public health and safety, an area of knowledge of first importance to those in public service research.

Granular Herbicides Showing Promise

NEW YORK.—Experimental use of herbicides on granular Fuller's earth is showing promise for the control of weeds in vegetable crops, according to L. L. Danielson of the Virginia Truck Experiment Station. While reporting on small-scale tests at the Northeastern Weed Control Conference, held here from Jan. 5 to 7, Danielson indicated that results justify further work on an expanded scale. These were carried out in an attempt aimed at broadening the use of herbicides. The convenience of applying dry materials rather than sprays was also considered.

Previously, the application of CIPC (isopropyl-N-3-chlorophenyl carbamate) and Sesin (2,4-dichlorophenoxyethyl benzoate) to vegetable crops has been limited, in general, to preemergence spray applications on the soil. Efforts have been made to impregnate these and other herbicides on granular carriers so they may be used on growing crops in postemergence applications. In practical field use, the herbicide-impregnated granules could be applied as either a directed or over-all treatment, followed by the use of a cloth drag to shake the material off the foliage. Granular Fuller's earth (Attaclay) and granular tobacco pulp have been employed in recent years as carriers for insecticides and also lend themselves quite well to use with herbicides.

Granular applications of CIPC appear to have about the same weed-killing potency as that normally obtained with spray applications, said Danielson. Granular applications of CIPC over the

foliage were tolerated by such transplanted crops as tomatoes, peppers, and sweet potatoes, even though the material was allowed to remain on the foliage. Although cantaloupes were severely injured by postemergence granular applications of CIPC, kale was able to tolerate postemergence applications of CIPC and Sesin either singly or in combination. These small-scale tests show, said Danielson, that this approach has considerable promise, and experiments should be continued and expanded.

Translocation Downward. Various organic compounds are known to be readily translocated upward through the stems and into the leaves of plants, said John W. Mitchell of the Department of Agriculture. In contrast, he said, relatively few compounds are readily translocated downward from the leaves to the stems and roots. From a practical standpoint, translocation downward in plants represents a major problem in utilizing the systemic effects of organic compounds for weed control and other types of crop protection.

As has been known for some time, the downward movement of such compounds as 2,4-D in plants is associated with the downward transport of sugars and possibly other products of photosynthesis. Recently, it was discovered that boron accelerates the rate at which plants translocate sugar from their leaves to their stems. This direct effect of boron can influence indirectly the rate of translocation of 2,4-D and other growth-modifying compounds.

Several compounds of the indole and

Discussing program of the Northeastern Weed Control Conference are A. E. Hitchcock (left) of Boyce Thompson, D. E. Wolf of Du Pont, and P. W. Zimmerman of Boyce Thompson

