

# FRIDAY AFTERNOON SESSION

October 18, 1968

WALTER KRAUSE: Our moderator for this afternoon is Dick Maire of the University of California, Agricultural Extension Service in Los Angeles County. The topic is "What's New In - - - " various agricultural chemicals.

MODERATOR MAIRE: Thank you very much Walter. This is the last session of the meetings and even though we're having trouble getting our speakers together it won't be the least. Our first speaker will be Wes Humphrey who will tell us "What's New In Herbicides".

## WHAT'S NEW IN HERBICIDE USE CONTAINER-GROWN PLANTS?

W. A. HUMPHREY  
*Agricultural Extension Service*  
*University of California*  
*Anaheim, California*

The use of selective herbicides for weed control in container-grown woody ornamental plants is in itself a new practice. The increased use of herbicides has come about with the development of more selective pre-emergent herbicides. As nurserymen, you are well aware of the high cost of controlling weeds by hand in containers. It's a job that never ends. Often inadvertently you produce your own weed seed and the job needs to be done repeatedly. In addition, the number of plants grown which have thorns or spines makes for a very difficult weeding situation. In hand weeding, rarely is a complete weeding job accomplished.

A number of field studies have been conducted looking at two aspects of the use of selective herbicides for weed control in container-grown plants. The first question is tolerance of woody ornamentals to herbicides, the second is weed control. Several extension workers and nurseries have cooperated in these tests. Extension workers involved include Jim Breece, Clyde Elmore, Del Farnham, Richard Maire, and myself. Nurseries cooperating have included Armstrong, Hines, Oki and Select, to name a few.

In summary, the more promising herbicides are Treflan (trifluralin), Planavin (nitratin) and Dacthal (DCPA). Other herbicides evaluated such as Precept (simazine), Casoron (dichlobenil), Herban (norea) and Enide or Dymid (diphenamid) have shown more limitations. Simazine, for example, has caused plant damage with several of the broadleaf evergreen plants at the rates evaluated but with conifers in general, a reasonable amount of safety was shown. This, however, places a limitation on the use of these herbicides and it was

felt that for nurserymen, a material that could be used over a broad spectrum of plants would have more value from the management standpoint. When comparing a two-pound per acre rate of Simazine with a four-pound rate of Treflan, 4 out of 12 broadleaved ornamentals showed sensitivity to Simazine, and none showed sensitivity to Treflan. In general, conifers exhibited more tolerance with any of the chemicals mentioned above than did broadleaf species.

Most of the chemicals mentioned above have provided satisfactory weed control results though results have been variable. Seventy-five percent or better control has been the usual result, but this can change depending on the weed species. As might be expected, the safer the chemical to a wider variety of plants, the more apt it is to show limitations in weed control. Treflan, Dacthal and Planavin again have shown reasonably good weed control. The application method used has been to spray over the plants growing in containers and to follow with a sprinkler application of one-half hour's duration. Nursery results have shown these chemicals provided a reasonable length of control varying from 3 to 4 months. Higher rates are needed than typically used for agricultural purposes. For example, typical rates are Treflan 4# AI/A (pounds actual ingredient per acre), Planavin 4# AI/A and Dacthal 10# AI/A.

Some Orange County nurseries are now using some of these herbicides as a part of their weed control program. An interesting innovation is the technique of applying these materials through the sprinkler system normally used for irrigation. Surprisingly enough, if the sprinkler system is one with a high degree of uniformity, reasonably good results have been achieved. One large nursery has achieved a 50% reduction in man days per year devoted to weed control using this method. This has some advantages and disadvantages as might be suspected. More area than just the area in which the plants are growing is treated; however, this area is then also protected with a weed control chemical. Newly canned material placed in the same area may need to be protected from the application. The advantage of this method is covering large areas in a relatively short period of time, thereby reducing the labor input of applying the chemicals. At first it would seem that less uniformity of application might be achieved using a sprinkler system than by applying the material with a sprayer. However, unless a carefully calibrated boom rig is used with a sprayer, a far less uniform application will result with more chance for over-dosing. Uniformity of application is important both from the standpoint of tolerance of the plants to the herbicides and in the level of weed control achieved. Fewer trained people are needed using the sprinkler technique and also less equipment is needed with this spray technique.

Some additional aspects of this problem are being looked at in studies presently being conducted. A more careful study is being run on the comparison of the length of time weed con-

trol is provided by some of these chemicals. This is important in that even though the rates of the chemicals used are increased over agricultural rates, the length of time weed control is provided is usually only about 3 to 4 months. This is probably due to the large amount of water being applied and the nature of mix in which the plants are growing. Differences are showing up in this study. New chemicals are also being evaluated for increased spectrum of weed control and possibly tolerance by the ornamental plants. Eptam (EPTC) and TOK (nitrafen) have shown some promise in preliminary studies.

With the application of chemicals either through the sprinkler system or with other methods, the question of how much water to apply following the chemical has been raised. This is due to the possibility of water carrying the chemical too deeply into the soil mix and adversely affecting the plants or not washing it sufficiently from the plant. The problem is in the process of being evaluated in cooperative studies using precision irrigation equipment. Also, combinations of several of the above chemicals are being evaluated for broader spectrum weed control. Recommendations will be slow in coming because of the wide variety of plants involved and varying conditions under which the chemicals are used.

DICK MAIRE: Thank you, Wes. Are there any questions?

RALPH SHUGERT: What Dacthal rate were you using?

WES HUMPHREY: The rate we are using is 10 pounds actual ingredient per acre and it works out to about 12½ or 13 pounds of the 75% active, wettable commercial material.

RALPH SHUGERT: With simazine have you experienced damage in any of the pine or juniper varieties?

WES HUMPHREY: No, not at the 1 or 2 pound rates. We got along fine.

AUSTIN KENYON: How long will Treflan give weed control in containers?

WES HUMPHREY: Experience has shown us that four months is about the longest we can get any control. After that it just doesn't do the job for us.

UNIDENTIFIED SPEAKER: What is the life of Dacthal?

WES HUMPHREY: About the same as Treflan in containers but it gives a little broader spectrum of weed control than Treflan. We haven't looked at Dacthal as much in our studies as we might have. It was kind of a late comer into our studies but it looks pretty good.

MODERATOR MAIRE: Thank you, Wes. Our next speaker is Mr. Pat Morishita from the Department of Entomology at U. C. Riverside who will speak to you on the subject of "What's New In Systemic Insecticides". Pat.