



GROWING PLANTS

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May 7, 1968

PRE-EMERGENCE WEED CONTROL STUDY IN GROUND COVER PLANTINGS*

Effectiveness of pre-emergence herbicides in selected ground covers was evaluated with a field study during 1967 at the University of California South Coast Field Station.

Pre-emergence herbicides are those used to control weeds at germination, i.e., prior to the time the weed seedlings emerge from the soil. These herbicides are applied as close to planting time as possible for best weed control.

In this field study a high level of weed control was obtained with pre-emergence weed control chemicals. Several of the chemical treatments used had no noticeable effect on growth of the ground covers. Applications made after planting and irrigated-in, were safer than those applied before planting and mechanically incorporated. When Simazine was applied post-plant, injury was observed on most species in this study.

Ground covers included in the trial were primarily broadleaved herbaceous plant species. The following are a list of the plant species used in the study:

Aloysia triphylla (Lippia)
Baccharis pilularis
Cerastium tomentosum
Delasperma alba
Drosanthemum hispidum
Gazania splendens
Hedera canariensis (Algerian ivy)
Hedera helix (English ivy)
Hymenoclylus luteolus
Osteospermum fruticosus
Pelargonium peltatum
Sedum brevifolium
Sedum guatemalense
Vinca minor

The chemicals, application timing and methods, and rates of chemicals used are given in Table 1 (on page 2).

No mechanical incorporation of the post-plant treatments was used. However, sprinkler irrigation was utilized immediately after herbicide application to activate the post-plant treatments. The soil was a sandy loam.

Post-plant applications of trifluralin, diphenamid, and Sirmate, and the combination treatment of diphenamid plus trifluralin provided a high level of tolerance at the rates used in this study. Where Simazine was added in the combination treatments, a number of the ground covers exhibited considerable injury. On the other hand, P. peltatum and the sedums showed remarkable tolerance when Simazine was included in the treatments. Diphenamid in general showed less injury with the pre-plant treatments than did trifluralin. Sirmate provided adequate weed control and except for some early yellowing of foliage on some species no effect on growth was observed.

Weed control was improved by incorporating the chemicals into the soil. Diphenamid was enhanced more than trifluralin (Table 1). However, as the data indicates, satisfactory weed control can be accomplished

*Study conducted by C. L. Elmore, Weed Control Specialist, University of California Agricultural Extension Service; W. A. Humphrey, Farm Advisor, UCAES; and Tom Kretchun, Principal Superintendent of Cultivations, South Coast Field Station.

with post-plant applications when followed with sprinkler irrigation and plant safety is improved. The principal weeds occurring in this field were lambsquarter, several pigweed species, purslane and sowthistle.

CONCLUSIONS

Early post-plant applications of some of the pre-emergence weed control chemicals can be used safely in several of the frequently planted ground covers. Many of the common annual weeds are controlled with these herbicides. However, due to the selective nature of these herbicides, certain weed species may not be controlled at selective rates. An advantage of this type of chemical treatment is that a single treatment may last several months, in contrast to hand weeding which may be required several times during the establishment period. Establishment is more rapid with weed competition reduced, and less damage occurs to ground covers with foot traffic reduced through the planted area.

Other techniques such as black polyethylene films or pre-plant fumigation treatments would be more costly than the use of pre-emergence chemicals. These methods are useful under some conditions.

A similar study on ground covers is being carried on again this year. If more complete details are desired concerning these studies please contact me at 1000 S. Harbor Blvd., Anaheim, 774-0284.

Cooperation extended by the University of California South Coast Field Station personnel and Harry Oda of Oda Nursery, Westminster, added materially to this study.

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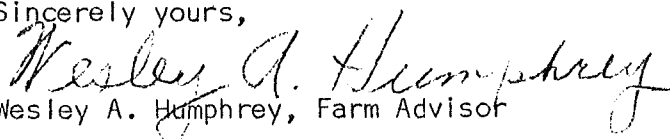
Trade names of products have been used to simplify the information presented. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

TABLE 1. Annual Weed Control Results Comparing Pre-plant Chemical Treatments on Ground Covers

<u>Chemical and Treatment</u>	<u>Rates**</u>	<u>Weed Control#</u>
Preplant incorporated (mechanical)		
Diphenamid (Dymid, Enide)	8	8.5*
Diphenamid	16	8.2
Trifluralin (Treflan)	2	10.0
Trifluralin	4	10.0
Postplant (sprinkler)		
Diphenamid	5	6.5
Diphenamid	10	6.2
Sirmate	4	8.2
Sirmate	8	9.2
Trifluralin	2	9.2
Trifluralin	4	9.9
Diphenamid + Trifluralin	10 + 4	9.8
Diphenamid + Simazine	5 + 1	9.5
Trifluralin + Simazine	4 + 1	10.0

* One month following treatments
 ** Rates are given in pounds of actual ingredient per acre (AI/A)
 # Rating scale -- 0=no control, 10=100% control

NOTE: The trademarked chemicals mentioned in this article are products of: Treflan and Dymid, Elanco Chemical Co.; Enide, Tuco Products; Simazine, Geigy Agricultural Chemicals; and Sirmate, Union Carbide Corporation.

Sincerely yours,

 Wesley A. Humphrey, Farm Advisor