

## Field trials with

# Herbicides in Vineyards

## under coastal valley conditions

Conservation of soil moisture by weed control is important in the vineyards of the non-irrigated coastal valleys of northern California where heavy cover crops grow during the winter rainy season. It is essential to completely remove the cover crop growth as soon as possible after the spring rains terminate.

In plantings of low headed grapevines, on rocky, irregular soils, and contoured hillside vineyards—often found in the coastal valleys—the removal of weeds around the base of the vines, and sometimes between the vines in the rows, is often difficult and expensive. For example, the conventional tractor mounted vineyard hoes, either hand or mechanically operated, do not perform satisfactorily in the hillside plantings. Herbicide sprays which would control the weed growth in those portions of the vineyard difficult to till could reduce the costly hand labor now required. Chemi-

cals and weed control methods adopted by grape growers in the irrigated San Joaquin Valley were tested under non-irrigated conditions usual in the coastal valley vineyards.

In the tests two chemicals—diuron and experimental simazine—were applied at two rates of active ingredients per acre. Both herbicides were applied at four pounds—active ingredients—per acre in mid-winter and at four pounds per acre in mid-winter, with two additional pounds per acre applied in early March. The rates refer to the actual ground area sprayed as the chemicals were applied in a 4' band in the vine rows. Thus in a vineyard with vines spaced at 12', one-third of the vineyard soil would be treated at the rates used in the tests.

The herbicides were applied in 200 gallons of mix per sprayed acre using a hand operated pressure sprayer, equipped

with a spray wand having a single No. 8004 TeeJet spray nozzle. The two vineyards in which the trials were located were composed of mature, bearing vines and neither vineyard contained young replants.

The table on page 13 presents the data on weed control gathered over three years in two field trials in Napa county. At the end of the third year of treatment no symptoms of injury from either chemical could be detected on the foliage of the vines in the trials.

As the weed control data in the table indicate, some difficulty was found in obtaining good coverage of the soil area in the initial treatments. Vineyard trash, leaves, and the uneven tilled soil made proper spray application difficult. However, after the first season of non-tillage, the soil surface condition improved markedly and better weed control re-

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**Weed control in a contoured hillside vineyard after two years of treatment using diuron at the rate of four pounds per acre.**



**Weed control in a valley floor vineyard after one year of treatment using experimental simazine at the rate of four pounds per acre.**



## HERBICIDES

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sulted, especially in the hillside vineyard. The soil surface on the valley vineyard was somewhat disturbed each year by cultivation, reducing the effectiveness of the chemicals.

The split applications appear to have been the most effective, especially in the initial treatment. It also appears from other experimental weed control tests with these chemicals as well as from experience elsewhere, that the actual dosage may be reduced after the second year, and satisfactory weed control still be obtained. Such a reduction in the quantity of chemical used would reduce costs and add to the safety of the vineyard.

Some perennial weed growth was present in both trials and should be expected in all vineyards. Morning glory was present in the valley vineyard and was not damaged by either herbicide; in addition, grape seedlings developed in the rows. The hillside vineyard contained a perennial mint and sheep sorrel. Both

of these plants were severely damaged or killed with diuron but not with simazine. Live oak seedlings became established and were not damaged by either herbicide.

The weeds not controlled by the treatments—especially perennials—will increase in abundance and become a problem. The lack of such control may initially seem unimportant, but complete control of all weeds in the treated area is

essential to prevent serious weed problems from developing.

Diuron was registered for use in vineyards in California at the time of the tests but simazine was restricted to experimental use only.

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The Control of Annual Weeds by Simazine and Diuron in Two Vineyards in Napa Valley  
Notes taken in April of each year

Treatment in lbs./acre	Relative annual weed control <sup>1</sup>			Principal weeds present on 4/15/60
	1958	1959	1960	
Average rating				
Valley vineyard				
Diuron 4 lbs. ....	6	8	8	annual grass, morning glory, grape seedlings
Diuron 4 lbs. plus 2 lbs. ....	7	9	9	" "
Simazine <sup>2</sup> 4 lbs. ....	5	8	8	" "
Simazine 4 lbs. plus 2 lbs. ....	6	8	8	" "
Hillside vineyard				
Diuron 4 lbs. .... <sup>3</sup>	-	9	9	annual grass, sheep sorrel, live oak seedlings, perennial mint
Diuron 4 lbs. plus 2 lbs. ....	-	9	10	" "
Simazine 4 lbs. ....	-	8	9	" "
Simazine 4 lbs. plus 2 lbs. ....	-	8	9	" "

<sup>1</sup> 0 = no control and 10 = complete control.

<sup>2</sup> Not registered for use in California vineyards at the time of the trials.

<sup>3</sup> Trial established in 1959.

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