Field trials with

Herbicides in Vineyards

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. Chemicals and weed control methods adopted by grape growers in the irrigated San Joaquin Valley were tested under nonirrigated 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

under coastal valley conditions

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.

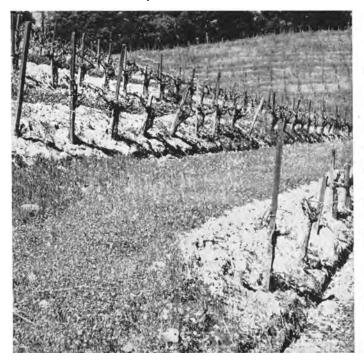
The table on page 13 presents the data on weed control gathered over three years in two field trials in Napa county. At the end of the third year of treatment no symptoms of injury from either chemical could be detected on the foliage of the vines in the trials.

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-

Concluded on page 13

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

Concluded from page 11

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 conplete 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 Val	ley
Notes taken in Anzil of each year	

Holes laken in April of each year							
	Relative annual weed control ¹			Principal weeds present			
Treatment in Ibs./acre	1958	1959	1960	on 4/15/60			
Valley vineyard		verage ratir	ng				
Diuron 4 lbs.	6	8	8	annual grass, morning glory, grape seedlings			
Diuron 4 lbs. plus 2 lbs	7	9	9	y. apo bocannys //	"		
Simazine ² 4 lbs	5	8	8	"	"		
Simazine 4 lbs. plus 2 lbs	6	8	8	"	"		
Hillside vineyard							
Diuron 4 lbs.	ھے	9	9	annual grass, shee live oak seedlings	p sorrel,		
Diuron 4 lbs. plus 2 lbs	–	9	10	"	<i>"</i>		
Simazine 4 lbs.		8	9	11	"		
Simazine 4 lbs. plus 2 lbs	–	8	9	"	"		

10 = no control and 10 = complete control.

² Not registered for use in California vineyards at the time of the trials.

³ Trial established in 1959.

Index-1960

Volume 14, January to December, Inclusive

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ACORNS

Supplemental feed Cattle on dry range

A

Nov., page 10 ALFALFA

Insect populations Vacuum sampling machine Jan., page 9 Lygus in seed alfalfa Resistance to toxaphene Feb., page 5 Pea aphid Imported Indian parasite Sept., page 5 Pelleted hay mixture Milk production study Sept., page 12 Strip-farming Biological control Jan., page 8

ALMOND

Mallet wound canker Fungus infection Aug., page 8

APPLE

Leaf analysis Lack of fertilizer response June, page 10 Orange tortrix Insecticide tests

April, page 5

APRICOT

Western peach tree borer Control program March, page 10

AVOCADO

Magnesium requirement Possible toxicity

July, page 5 Nitrogen fertilization Leaf analysis Jan., page 12

AZALEA

Root rot control Soil treatments Sept., page 9

В

Plant breeding program Root rot resistance Sept. page 8

BEET

BEAN

Table beet seed plants Green peach and bean aphids Oct., page 11

BIOLOGICAL CONTROL

Integrated programs Natural and chemical Sept., page 7

Olive scale Persian wasp

Dec., page 4

Pea aphid on alfalfa Imported Indian parasite Sept., page 5 Strip-farming alfalfa

Parasites of insects Jan., page 8 Walnut aphid Imported French parasite Nov., page 3

BURNING

Air pollution Agricultural burning Sept., page 3

Ponderosa pine Prescribed burning

Oct., page 5 Range improvement Control burning

June, page 2

С

CANNING INDUSTRY

Fruit and vegetable processing Market structure March, page 2

Grower cooperatives Participation, structure Jan., page 4