

# Layering: The New Bindweed Combatant

Field bindweed, also known as Morning Glory, is one of the chief perennial weed pests in California vineyards. From San Diego, through the San Joaquin Valley, and on through the Sacramento Valley, the white and pink flowered plant strangles young grape vines. Bindweed roots can go down 17 feet, and its seeds can live 30 to 40 years, making it an extremely persistent, and costly, nuisance.

Dr. Arthur H. Lange, University of California Weed Control Specialist at the Kearney Horticultural Station at Parlier, and several of his colleagues think they have arrived at some promising findings thus far in limited studies in controlling bindweed with the herbicide, Treflan (trifluralin) layered by spray blade about six inches into vineyard soil.

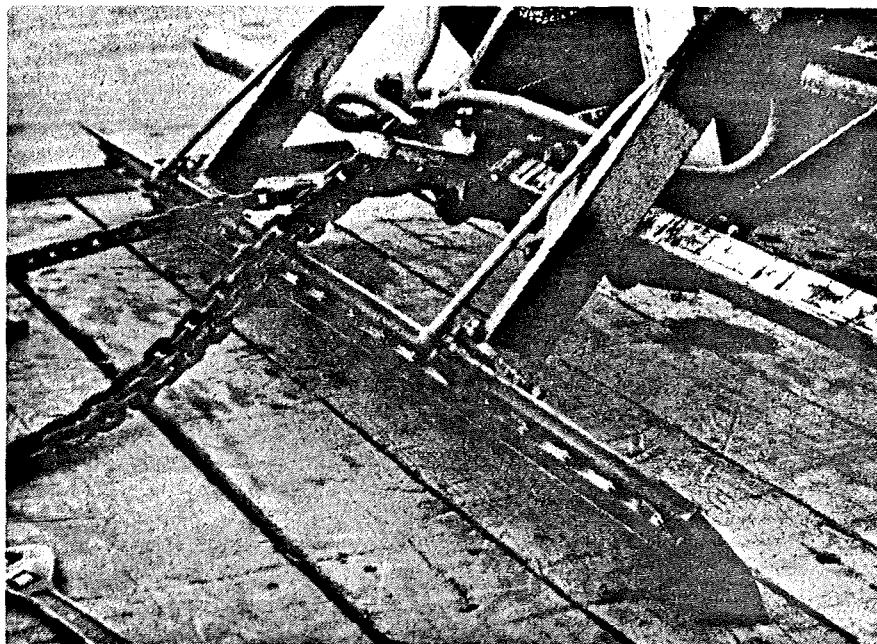
Cleared in May by the Environmental Protection Agency for spray blade layering in vineyards, Treflan was found by Lange and others to overcome bindweed. Amounts varying from two to eight pounds per acre not harmed grapes. In fact, young vines have been successfully placed to root beneath the layer.

The implement being used by Lange to apply the Treflan is an 80 inch long blade equipped with wide-angle nozzles spaced four inches apart. It emits the herbicide to the rear and under the blade as it is pulled through loose soil by a tractor. The resulting subsurface layer halts bindweed shoots from emerging. As a bonus, the layer has shown ability to kill annual weeds by stopping their roots from going through it. Two quarts of Treflan in 40 to 80 gallons of water per acre is the directed dosage.

The critical factor in blading, Lange warned, is to have the soil in a sluffy state, so that it will flow over the blade freely. Too moist a soil will just ball up.

All weeds and grasses have to be tilled prior to application, advised Lange. The vegetation should be decomposed to keep it from fouling the blade. Early spring after drainage of

winter rain seems to be the best time. The Treflan layer can be penetrated by bindweed where cracks form after rainfall or irrigation. This can be prevented by shallow discing, but deep



*SPRAY BLADE used in herbicide layering tests, shown here on trailer, is 80 inches long and attached to standard tool bar with three-point hitch to tractor. Wide-angle nozzles direct spray to rear and beneath blade as it is pulled through sluffy soil.*

tillage will disturb the layer, he cautioned.

"Thus far," the weed specialist commented, "we feel Treflan is as good if not better than the other chemicals we've tested. We don't know yet how long Treflan will control bindweed, but our longest tests indicate control for over two years."

Blade tests are continuing at the Parlier Station and at other sites, including plots on the West Side of the San Joaquin Valley, Alameda, San Benito, Monterey, and Napa Counties. These tests are also probing into what can be done to combat Johnson grass and Bermuda grass.

"The blade was designed in a practical fashion, without exhaustive research, so we're still a little fuzzy about things like the best type of nozzles and spacing of nozzles yet. We'll be doing

more work on that," Lange said.

The first 80 inch blade was built by L and H Manufacturing of Seima. The same firm produced shorter, experimental models for use with French plows.

Earlier work in blading was done by UC, Davis botanist, Oliver A. Leonard, in applying Casoron to fight bindweed. Other University researchers, such as Harry Agamalian, Dean Donaldson, Clyde Elmore, Douglas Hamilton, and Harold Kempner, have

pursued the bindweed problem and collaborated with Lange and Leonard in the recently-released progress report, *Bindweed Control in Vineyards*.

Other work with Treflan involves tests in which it is being tilled into soil. Lange said indications are that this is as good or possibly better than blade layering.

"One thing is certain," Lange concluded, "if bindweed is left to optimum growing conditions such as is found on much of the West Side, it will increase as it has done already in the older areas. Yesterday was the time to approach this problem, today is not too late, but tomorrow there may be an unsurmountable weed bill for the grower with a narrowing margin of profit."