

Control of Stink Bug on Pears

eradication of host plants in and near orchard and spring application of ground cover spray prove effective

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Field research and biological studies in the control of the consperse stink bug—*Euschistus conspersus* Uhler—attacking pears and other deciduous fruits showed the importance of host plant eradication and a spring ground cover spray.

Stink bug injury in the orchards of El Dorado County was first reported in 1950. Biological studies were undertaken in the 1951 and the 1952 seasons.

Injury on maturing pears does not necessarily show on the skin of the fruit. Peeling at the stem end reveals white corky tissues which turn brown when exposed to air. The injured fruit is unfit for the fresh market or for canning.

During the past two seasons the populations of stink bugs in the untreated orchards have remained at a high level. Parasitism of the eggs in the first generation showed an increase from 8% in 1951 to 18% in 1952 but this did not cause a noticeable reduction in the attack of this insect. The time of spring emergence, egg deposition periods and the development of the two generations were similar in the two seasons.

Broad-leaf host plants—such as mustard, dock, plantain—are necessary for the development of the first generation nymphs when they hatch from the eggs deposited by the overwintering adults. The nymphs can not develop on pear foliage or fruit. When the weed hosts were eradicated the first generation nymphs failed to mature and the stink bug population was greatly reduced within the orchard.

In areas adjoining the orchards the presence of mullein, wild blackberry, thistle, milkweed and other broad-leafed plants served as hosts to the adult stink bugs which migrate out of the orchards in the early spring. On these hosts the first generation of bugs reach maturity and migrate back into the orchards when the host plants on which they have been feeding begin to dry up. This population of adults—with those that may develop on host plants in the orchard—does most of the damage to the fruit usually attacking the fruit just prior to harvest—June-July in El Dorado County.

The eradication of host plants in areas adjoining the orchards is therefore most important. Berry patches are best eradicated by chemical control and burning in the fall followed by grubbing or chemical control in the spring to clean up any new growth. Mullein and other broad-leaf plants should be eradicated early in the spring and kept under control until there is no further growth. In fact, host plant eradication within the orchard and adjoining areas should be practiced from late March to early July—from blossom time to harvest. Failure to eradicate the broad-leaf host will result in an increase in the population of stink bugs with injury to the pear fruit.

In many orchards where permanent cover crops have been grown for a number of years there is often an accumulation of dried grass and debris on the ground about the base of the tree. This is a favored spot in which the adult bugs

will hibernate. Pulling this debris out into the interspace between tree rows will permit better control by spraying and disking in the spring.

A considerable number of chemicals have been field tested in the control studies of the stink bug during the past two seasons. The only practical use of spray chemicals in the control program is the ground application for the control of the pest as it goes into hibernation in the fall and as it comes out of hibernation in the spring.

Spraying the trees and fruit before harvest did not prove practical.

The most efficient of the chemicals tested were 25% wettable Lindane at a dosage rate of one pound per 100 gallons; 15% Dieldrin emulsion at a dosage of ½ pound actual per 100 gallons; and an emulsion containing 25% DDT and 4% parathion at a dosage of two quarts per 100 gallons. All of these materials gave control of adults and nymphs when applied thoroughly to the ground cover.

The amount of spray to be applied per acre to obtain a thorough coverage of the ground cover will vary with the amount of cover crop and the method of application. Employing a conventional spray equipment with 400 pounds pressure at the pump, two orchard guns with 7/64" disk openings on two hose lines, the applied gallonage averaged about 250 gallons per acre.

The effectiveness of host plant eradication and spray chemical control of the adults coming out of hibernation in the spring is shown in the accompanying table. The table also shows the amounts of injured fruit in commercial orchards where the recommended program was not followed carefully in the 1952 season.

These data were obtained during the 1952 harvest period by inspecting the fruit in orchards where the stink bug had been a problem previously.

It is apparent that a spring application of lindane or parathion as a ground cover in the orchard and the complete eradication of host plants in the orchard and in adjoining areas has given satisfactory control.

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Results of a Survey of Pear Fruit During Harvest in the Placerville Area During the 1952 Season

Orchard	Spray control measures used in		Weed control		Percentage of stink-bug injured fruit
	Fall	Spring	inside orchard	outside orchard	
A	none	Lindane	good	good	1.3
B	none	Lindane	good	good	0.4
C	none	Lindane	good	good	1.3
D	Lindane	Lindane (margins only)	good	good	2.8
E	none	Parathion	good	good	1.6
F	none	Parathion	poor	poor	11.0
G	none	DDT—Spring Parathion in summer (2 appl.)	fair	poor	14.4
H	none	none	fair	poor	15.4
I	none	none	poor	poor	90.0