

Two-spray program controlled

Western Peach Tree Borer

on apricots in Contra Costa County studies

Properly timed trunk sprays with Dieldrin, Endrin, and Thiodan gave consistently better results than the standard DDT treatment in studies on the control of the Western peach tree borer—*Sanninoidea exitosa graefi* (Hy. Edw.)—during the past several seasons.

Two applications in the 1959 season—one in mid-May in advance of harvest and one in mid-July following harvest—were sufficient to span the long emergence period of the peach tree borer in California.

The 1959 trials were established in apricots in the Brentwood area to determine the proper dosage of Dieldrin, Endrin, and Thiodan. In addition, Sevin, a new carbamate compound, was evaluated against peach tree borer.

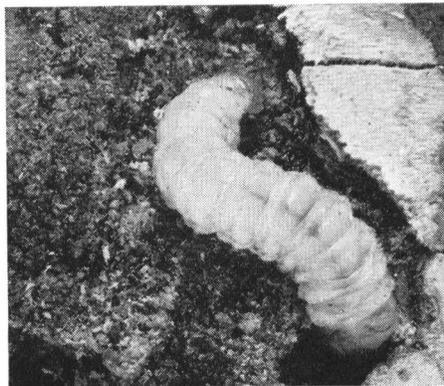
The test orchard had a history of severe peach tree borer attack, and in 1959 the trees showed evidence of heavy borer populations. Infested trees are subject to continued attack by the borers. Therefore, only those trees which showed evidence of a minimum of four borers were selected and marked early in the season for the treatment and for the check plots.

Dieldrin, Endrin, and Thiodan were tested at dosages of 1.0, 0.5, and 0.25 pound of active ingredient per 100 gallons. Each material and dosage was applied to three trees with four replications in a randomized plot design. Sevin was used at 1.5 and at 3.0 pounds of active ingredient per 100 gallons and was compared with a standard dosage of DDT. Instead of the usual DDT schedule of four sprays, the same two-treatment timing was used for all plots.

Materials were applied with a conventional high pressure spray rig and with hand guns. The pump pressure on the spray rig was reduced to 150 pounds per square inch to prevent splashing. A coarse spray nozzle avoided fogging of the spray and the consequent drift. The materials were applied to the tree trunks, from the main crotch to the soil line, in sufficient quantity to permit the runoff

from the trunks to form a small puddle at the base of the tree. In this plot, a fraction over one gallon per tree was necessary to obtain the desired coverage. Prior to the treatments weeds, sucker

Larva of peach tree borer.



growth, and dirt were cleared away from the base of each tree in the plot so the spray would not be blocked and poor coverage of the trunk result. If weeds are removed after a treatment, a portion of the trunk with poor coverage and deposit may be exposed to borer attack. In 1959,

the sprays were applied on May 8 and July 10. Because of an unusually warm spring, borer emergence was nearly two weeks earlier than in most seasons. Mid-May is when the first spray is usually applied.

The plots were evaluated in September by determining the number of new borers on each tree as revealed by a small area of fresh frass on the trunk that denotes the work of a borer. The areas of fresh frass were counted above and below the soil line.

Endrin and Thiodan were effective at a dosage of 0.5 pound active ingredient per 100 gallons. There was no significant difference between the 1.0 and 0.5 pound dosages. When the dosages were reduced to 0.25 pound, however, the materials were significantly less effective. With Dieldrin, the 1.0 pound dosage gave good control, but dilutions below this figure decreased in effectiveness.

Sevin apparently has little or no action against the peach tree borer, as there was no difference between the Sevin treated trees and the check trees. DDT

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Peach Tree Borer Plots—Tilton Apricots, Brentwood
(Sprays applied—May 8, July 10, 1959)

Plot	Material	Dosage per 100 gallons		Total borers per treatment	Average No. borers per tree
		Actual	Formulated		
A ¹	Dieldrin	1 lb.	6 pints	1	0.08
		0.5 lb.	3 pints	10	0.8
		0.25 lb.	1½ pints	16	1.3
	Check	—	—	24	2.0
B ²	Endrin	1 lb.	5 pints	1	0.08
		0.5 lb.	2½ pints	4	0.3
		0.25 lb.	1¼ pints	13	1.0
	Check	—	—	28	2.3
C ³	Thiodan	1 lb.	4 pints	2	0.1
		0.5 lb.	2 pints	3	0.2
		0.25 lb.	1 pint	15	1.2
	Check	—	—	26	2.1
D ⁴	Sevin	3 lbs.	6 pounds	38	3.1
		1½ lbs.	3 pounds	36	3.0
	DDT	4 lbs.	8 pounds	23	1.9
		Check	—	—	40

¹ L.S.D. at 5% = 5.76. ² L.S.D. at 5% = 5.34. ³ L.S.D. at 5% = 7.88. ⁴ L.S.D. at 5% = 8.76.

able potassium content but not from soils with high levels of available potassium. Crop uptake of cesium-137 was inversely correlated with the level of available potassium in soils.

The addition of stable cesium amendments to soils was ineffective in reducing cesium-137 uptake even when applied at levels that were toxic to the plant.

E. M. Romney is Assistant Research Soil Scientist in the Laboratories of Nuclear Medicine and Radiation Biology, School of Medicine, University of California, Los Angeles.

H. Nishita is Assistant Research Soil Scientist in the Laboratories of Nuclear Medicine and Radiation Biology, School of Medicine, University of California, Los Angeles.

A. Wallace is Associate Professor of Horticultural Science, University of California, Los Angeles.

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BORER

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gave a measure of control when treatments were spaced at monthly intervals.

The past four seasons' work on peach tree borer suggests that Thiodan, Endrin, or Dieldrin applied as trunk sprays will control the Western peach tree borer on apricots and, probably, on cherry, almond, peach, and prune.

When Thiodan, Endrin, or Dieldrin is used, extreme care must be taken to avoid contamination of fruit. Pump pressure must be reduced and a coarse spray nozzle used. Under no circumstances should a blower-spray be used. Hand spraying, with careful attention to confining the sprays to the tree trunk, offers the most readily controlled application.

What effect sprinkler irrigation may have on deposit of the toxicants is an important factor to be determined in further studies on trunk sprays to control the Western peach tree borer.

Harold F. Madsen is Associate Entomologist, University of California, Berkeley.

Ross R. Sanborn is Farm Advisor, University of California, Contra Costa County.

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FRUIT HANDLING

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ing from L-3 to bins with a one mile haul would involve bin methods and savings of: at an output rate of 100 lugs per hour, use of Method B-3 and an hourly savings of about \$1.85; with an output rate of 200 lugs per hour, Method B-1

and savings of about \$4.00 per hour; with an output of 300 lugs per hour, it would be Method B-2 and a savings of about \$6.45 per hour.

The savings shown by the table are strictly applicable only when operating conditions, variable cost rates, equipment investment, and allocation rates are as specified. However, considerable changes in these factors would be possible without important shifts in the relative cost of the various methods.

Investment costs and carrying charges for containers depend on construction details, but run 35%–65% less per unit of fruit handled with bins than with lugs. When container and handling costs are combined, bins are the more economical container throughout the range of operating conditions considered in this study.

John F. Stollsteimer is Agricultural Economist, Agricultural Marketing Service, United States Department of Agriculture, and Associate in Agricultural Economics, University of California, Berkeley.

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MARKET STRUCTURE

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has stayed relatively stable over the years, shifts among products are evident, and recent trends indicate a strong consumer preference for processed convenience foods.

Technological improvements developed to satisfy consumer preference for convenience foods emphasize the need for the fruit and vegetable canning industry to be progressive and dynamic—with new or improved processing techniques, cost-saving methods and specialized markets as in the cases of baby foods and dietetic products—to compete for consumer preference. Changes in marketing-sales-distribution organization and merchandising operations are being sought by some processors to strengthen their marketing position in the canning industry.

Industry Structure

A changing market structure confronts the canners of fruits and vegetables. The onetime prevalent independent wholesalers have been widely replaced by large scale organizations buying directly from canners for chain stores, voluntary cooperative buying groups, and wholesaler-retailer teams.

The competitive nature of the canners market is being restructured with altered bargaining relations. Some canners have turned to integration and merger and to improved and varied product lines as a means of meeting new and prospective market structure developments.

In efforts to protect and enhance their position, many growers have turned to cooperative bargaining associations and cooperative canning and to marketing order programs—under state enabling legislation—to regulate grade, size, quality and volume marketed and to increase demand through promotion and advertising.

From grower to retailer, the fruit and vegetable canning business has undergone significant changes and further change is in prospect. New and different market structures and institutions, technological developments, modifications in consumer attitudes and preferences require the canning fruit and vegetable industry to be alert and progressive to achieve further growth and development.

Market Demand

A current problem is the expanding farm output of fruits and vegetables for processing, because of increases in acreage and in yield.

Technological improvements in the canning industry seem able to meet the pressure of the increasing raw product supply while introducing increased canner case-yield per ton for some products. But break-even production capacities and break-even product prices are being edged upward because of external developments. Canners and growers operate between supply pressure and cost pressure, and unit-cost reducing technology is needed by both growers and canners.

The demand for processing fruits and vegetables is directly related to the demand on canners—at the f.o.b. level—for the canned product. There is a strong tendency for the season average price of the canned product—for the marketing year, on an industry-wide basis—to be related to certain economic-marketing influences: the quantity of canned product sold; the level of national disposable income; and the level of prices of competing products. The interaction of these influences is highly significant in determining the industry-wide seasonal average f.o.b. prices received by canners.

The uptrend in national income has tended to raise the f.o.b. demand for

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