Insect Damage to Apricots

DDD as petal fall spray and parathion as properly timed May spray control fruit-feeding insects

Harold F. Madsen and Arthur D. Borden

A yearly spray program is a necessity if the average apricot grower is to produce clean fruit—especially in the Santa Clara Valley where the codling moth and orange tortrix have become of primary importance.

In the past two years, the orange tortrix has been increasing, and at the present time is responsible for the majority of fruit damage on apricots.

In addition to the codling moth and orange tortrix, the twig borer, fruit tree leaf roller, tussock moth, canker-worm, diabrotica, case bearer, tent caterpillar and green fruit worm are involved. In some seasons these pests can cause considerable damage.

During 1951, there were reports that a suggested spray program directed mainly against the codling moth had not produced worm-free fruit at harvest. The timing of the May application was thought to be the key to control, so, in 1952, a series of test plots was set up to demonstrate this fact. The test orchards selected were the ones where the growers applied sprays according to the suggested program.

Timing of the May spray was determined by bait pans set up in various areas within the Santa Clara Valley. One important objective was to determine if a May spray timed for codling moth would adequately control the orange tortrix. Counts were made of wormy fruit at harvest and compared with orchards where the suggested program was not followed. The results of these surveys are shown in the table on this page.

The 1952 work indicates that a petal fall spray of DDD followed by a May spray of parathion timed to bait pan records will control both codling moth and orange tortrix as well as the other fruit-feeding insects.

If orange tortrix alone were involved, it probably would be possible to delay the May spray until early June but so long as the codling moth remains a potential threat the May spray should be timed to its flight. As shown this season, such timing also controls orange tortrix.

Most apricot growers apply a Bordeaux spray during the pink bud period to control brown rot and it is a common practice to include DDT with this application. DDT at this time of year will control the twig borer, but is too early for other insects.

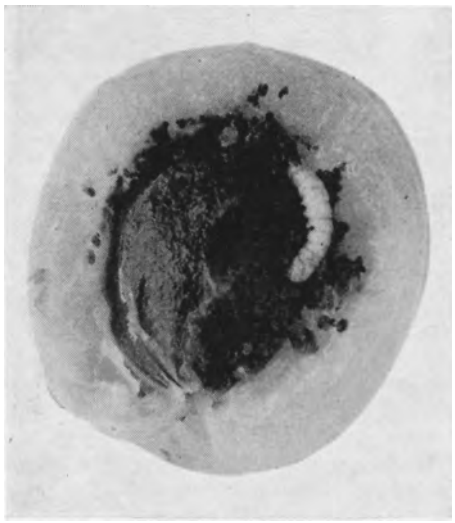
Growers may still wish to add DDT to the pink bud Bordeau spray, but this timing should not be depended upon to control orange tortrix, codling moth, and fruit tree leaf roller.

The petal fall spray on apricots will control fruit tree leaf roller and tussock moth. Twig borer may also be controlled at this period as well as during the pink bud stage. DDT, at a dosage of 1½ pounds of 50% wettable per 100 gallons has been commonly used. In areas where orange tortrix is a problem, DDD at 2 pounds 50% wettable per 100 gallons should be substituted, as DDT is not as effective against this pest. No DDT or DDD should be used after the petal fall spray, as a residue problem will result.

The timing for codling moth control is based on bait pan records of the past few seasons. These records indicate that the codling moth flight begins in early May, reaches a peak around the middle of May, and continues on into June. A spray applied around the middle to the third week of May is recommended for codling moth control. This timing will vary from season to season, and bait pans should be used to determine the correct timing.

Either parathion at two pounds 25% wettable or methoxychlor at two pounds 50% wettable will control the codling moth. This spray will also control the orange tortrix, and since this insect is the major pest at present, parathion is the preferred material for the May application.

A grower may be confused as to which pest is responsible for his fruit damage, but most of the insects listed here can be separated both on larval characteristics and by the type of damage caused to the fruit.



Codling Moth
Larva and typical damage.

Immature larvae are white with black heads; mature larvae are pinkish with a mottled brown head. They enter the fruit from the side, stem or blossom end, leaving a hole with frass protruding from it. The larvae penetrate to the pit, and feed internally.

A fruit thus attached shows a mass of frass and black fungus about the pit when split open. A codling moth damaged fruit is a total loss for either fresh ship or canning purposes.

Spray Program

Orchard	Location	Pink Bud	Petal Fall	May	% Wormy Fruit
A	Sunnyvale	DDT	DDD	Parathion	0.0
B	Sunnyvale	DDT	DDD	Parathion	0.0
C	Cupertino	DDT	DDD	Parathion	0.0
D	Mountain View	—	DDT	Parathion	0.2
E	Cupertino	DDT	—	Parathion	0.51
F	S.E. San Jose	DDD	—	Parathion	0.4
G	Sunnyvale	DDT	DDD	—	0.51
H	Mountain View	DDT	DDD	—	1.1
F	East Foothills	—	DDT	—	3.2
G	East Foothills	—	Lead Arsenate	—	3.4
H	Sunnyvale	—	—	Parathion Dust	4.8
I	Sunnyvale	—	—	—	5.2
J	Mountain View	—	—	—	11.4

Orange Tortrix
Larva and feeding area.

Larvae of the orange tortrix have tan or straw-colored bodies with brown heads. They feed on the leaves and the fruit and prefer the stem or the blossom end, where a web is constructed, and feeding takes place from under this protection. They will feed on the sides of the fruit, especially in the clusters, where several fruits may be damaged. The larvae do not penetrate deep into the fruit, but make shallow feeding areas, irregular in shape. Considerable webbing but little frass is produced.

Peach Twig Borer
Larva and feeding area.

The larva of the peach twig borer is chocolate brown with light colored intersegmental bands. The head and prothoracic shield are black.

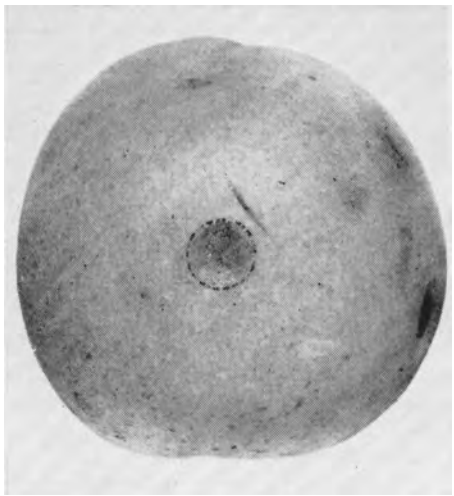
They attack near-ripe fruit, and enter along the seam or through the blossom end. Normally they do not penetrate deep into the flesh, and move about a good deal. In this way, one larva may make several entrance holes in a single fruit, or damage several fruits. Frass is produced at the entrance holes, but no webbing.

Fruit Tree Leaf Roller
Damage to fruit.

Fruit tree leaf roller larvae appear early in the spring. They have dark green bodies with black heads. When disturbed, they wriggle backwards rapidly.

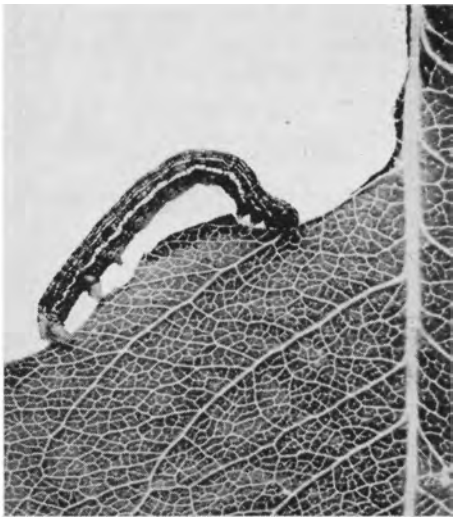
The fruit tree leaf roller larvae feed first on the leaves, which they roll up in a characteristic manner. Later, the larvae feed on the young green fruit—frequently penetrating to the pit—and leave large holes which usually will be scabbed over by harvest.

A leaf is often tied to a fruit and the larvae feed from under this protection. Webbing is produced on the leaves but not on the fruit, with little or no frass.



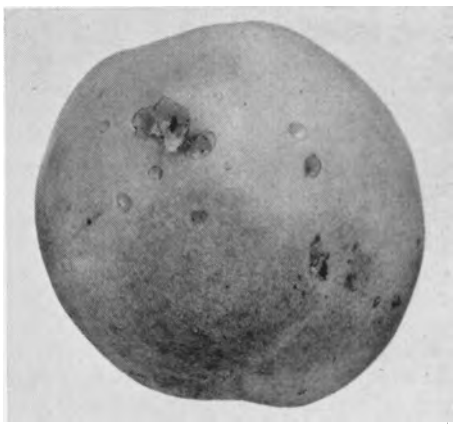
Tussock Moth
Fruit damage by early feeding.

The larvae of the tussock moth are gray with numerous bright red, blue, and yellow spots. They have four median and one posterior white tuft, and two anterior and one posterior black tuft. They feed on the leaves and fruit early in the season. On the fruit, the larvae make shallow holes which heal over, and at harvest time appear as scabby, slightly depressed areas.



Cankerworm
Damage to leaf.

Cankerworms belong to the group of loopers or measuring worms, and the larva moves with a characteristic looping motion. Larvae are dark green in color with yellow side stripes. They feed on both leaves and fruit, penetrating deep into the young apricots. Large irregular feeding areas are produced, with no sign of webbing or frass.



Diabrotica
Damage to fruit.

The adults of Diabrotica—the eleven-spotted cucumber beetle—sometimes attack apricots. The beetles are yellow in color with black spots. They fly into the orchards from adjoining weedy areas and feed on the ripening fruit. Small, irregular holes—but no webbing or frass—are produced on the sides of the fruit. Diabrotica are a local and seasonal problem, being more important in the interior valley areas.

Case bearers, tent caterpillars, and green fruit worms are only occasionally encountered in the field.

Harold F. Madsen is Assistant Entomologist, University of California College of Agriculture, Berkeley.

Arthur D. Borden is Entomologist, University of California College of Agriculture, Berkeley.