

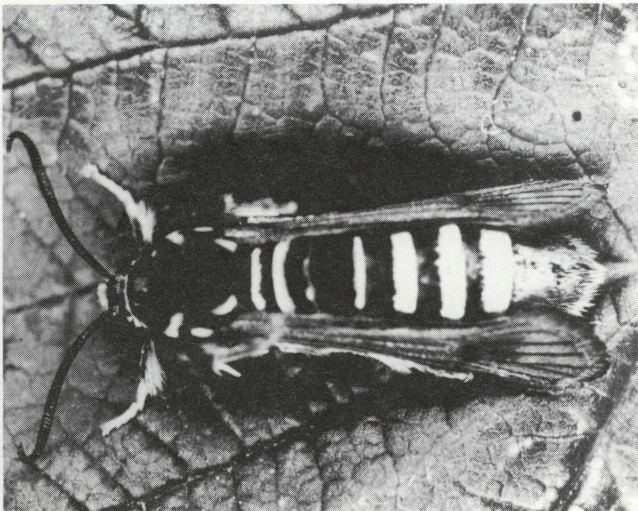
Insect Control

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For APR 2 1970

Home Garden Fruits

UNIVERSITY OF IDAHO



RASPBERRY CROWN BORER

Everyone can enjoy the satisfaction of growing fruit. These recommendations are a guide for the control of the common insect pests of tree fruits, brambles and berries grown in the home garden.

Generally, insects attacking fruit escape detection until their feeding damage is found. For this reason the control treatments in this leaflet are based on tree development.

Effective control is based on *proper application* of an appropriate chemical at the correct time. There is no one chemical that will adequately control all pests. The control of susceptible stages of any pest requires precise timing of insecticidal treatments. Skips and misses in applying these treatments will result in insect damaged fruit. Proper pruning that removes diseased and dead wood will provide better insecticide coverage, resulting in better pest control.

Insecticides can be purchased as wettable powder or as emulsifiable concentrate formulations. Both must be diluted in a prescribed amount of water and applied as sprays. Sprays prepared with emulsifiable concentrates require less agitation and will have longer lasting insect

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toxic residues. However they may burn tender foliage, especially when applied during the heat of the day. In addition to the chemicals listed, general purpose insecticide mixtures can be purchased.

Certain insects require special treatment. Proper timing of applications and thorough coverage of leaves and fruit are as important as the chemicals used. Follow the label directions closely when preparing and applying all insecticide sprays. Remember, the leaves have two sides. Be sure to wet both. Treat the foliage until the spray starts to drip from the leaves. Generally, the average 10-year old fruit tree will require 4 to 5 gallons of spray to thoroughly wet all the foliage. However, dwarf fruit trees may require considerably less spray.

Equipment

Many types and sizes of sprayers suitable for spraying home garden fruit planting are available. The type you select will depend on the number of trees, the size of trees, and your preference.

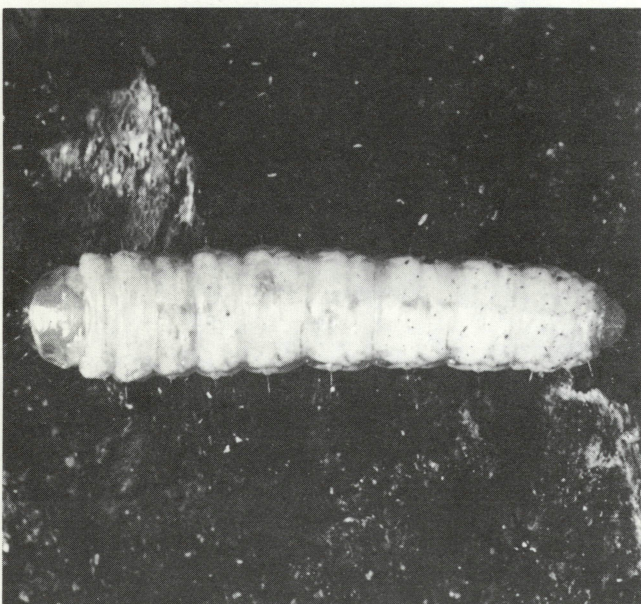
Hose-on Sprayer Simple to operate, these small sprayers are attached to a garden hose. They require no spray tank but operate by measuring out a desired amount of chemical into a stream of water. Problems encountered with some types of these sprayers have been poor spray distribution, clogging of nozzles, and non-mixing of the insecticide with the water.

Trombone sprayer The spray mixture can be prepared in any size container and applied by inserting the intake apparatus into the container and operating the sprayer with a trombone-like motion. A uniform concentration of the spray can be maintained since the insecticide is mixed in a known quantity of water. However, frequent agitation of the spray mixture is necessary when using a wettable powder formulation. This sprayer is the easiest to wash and keep clean.

Compressed air sprayer Compressed air sprayers with a 1- to 5-gallon capacity have wide adaptability for spraying small plantings. Air is pumped into the tank and forces the spray out when the nozzle is opened. It is advisable when using a wettable powder insecticide to shake the sprayer periodically to keep the material in suspension.

Knapsack sprayer Carried on the back, this sprayer has a piston pump which supplies the spray pressure. It is operated by hand, allowing ease of movement while spraying trees. The capacity of this sprayer is 3- to 5-gallons.

Small power sprayers There are many small motor driven sprayers mounted on wheels which can treat large fruit trees. Some are self-propelled. The auxiliary attachments to "snow blowers" and "riding mowers" can be quite effective when the limits of their capacities are not over-extended.



PEACH TREE BORER LARVA



OYSTER SHELL SCALE

All sprayers should be thoroughly washed, dried, and the moving parts and the threads of nozzles oiled before storing. Proper maintenance immediately after using will lengthen the trouble-free life of the sprayer.

In the absence of adequate spray equipment, the services of a reputable commercial operator should be secured.

THE GROWER IS RESPONSIBLE FOR residues on his crops as well as for problems caused by drift from his property to other properties or crops.

Hosts, Common Pests and Insecticides

Many different insects attack our home garden fruits and berries. The following are the common pests for the different fruits listed. However, there are many other pests not listed here. For further assistance in their control, send pest and damaged plant specimens to the Extension Entomologist, Department of Entomology, University of Idaho, Moscow, Idaho 83843.

Remember: Read the label directions thoroughly before preparing and applying insecticides. Many of the commercially prepared mixtures contain fungicides as well as insecticides.

Spray Schedule for Home Garden Tree Fruit, Bramble, and Berry Pests

Time Of Application	Purpose of Application	Material and Amount per Gallon of Water
ALL TREE FRUITS, every year		
Delayed-dormant application. Apply after buds begin to swell and before the buds open	General insect clean-up for overwintering insect eggs, larvae, mites, scales and pear psylla	½ cup Superior oil plus ¼ cup calcium polysulfide.
Summer sprays as needed	Aphids	1 tsp 57% malathion EC or 2 tsp 25% diazinon EC or 4 tsp 25% endosulfan (Thiodan) EC
	Mites	1 tsp 18% dicofol (Kelthane) EC. Two sprays at 14-day intervals or 1 tsp 57% malathion EC or 2 tsp 25% diazinon EC. Two sprays at 7-day interval.
APPLES AND PEARS		
At 95% petal fall: this application is necessary when dormant application was not applied	Overwintering larvae; several kinds	1 tsp 57% malathion EC or 2 tsp 25% diazinon EC.
At 3 weeks after petal fall	Codling moth	Same as 95% petal fall spray for overwintering larvae. Repeat applications at 3 week intervals or after heavy rains until mid-August.
Pear petal fall and in summer when psyllids are numerous	Pear psylla	2 tsp 50% Perthane EC or 3 tbl Superior oil.
APRICOT, PEACH and PLUM		
Petal fall	Peach twig borer Oriental fruit moth Peach tree borer	Spray with 2 tsp 25% diazinon EC. Repeat again in 10 days. Apply 5 tbl 25% endosulfan (Thiodan) EC spray to trunks from ground to lower scaffold limbs and repeat in 3 weeks.
July 15		
Fall peach tree borer control. The preferred time for treatment is about September 15 when the soil temperature will not fall below 60°. The soil surface around the base of the tree should be level. Spread a narrow ring of paradichlorobenzene evenly around, about 2 inches away from the tree trunk, and cover with 4 inches of fine soil. Slope the soil, cone-like, toward the trunk and pat down. Use ½ ounce of paradichlorobenzene for young trees, ¾ ounce for trees 5 years old or older. The following spring the mounds of soil should be leveled down to the general soil surface. Fall application eliminates the injury caused by the overwintering borers. Lesser peach tree borer infestations are sometimes high on the tree trunk and in the crotches of the large limbs. They may be controlled by painting the affected areas with a solution of 1 pound paradichlorobenzene in 2 quarts of cottonseed oil.		
CHERRIES		
Delayed-dormant application	Aphids	See Delayed-dormant treatment: ALL TREE FRUITS every year. 1 tsp 57% malathion or 2 tsp 25% diazinon EC.
Early spring; where delayed-dormant application was not applied Spring or late summer as needed	Pear slugs	1 tsp 57% malathion or 2 tsp 25% diazinon EC.
June 15 or when first flies are captured on "Stickum" trap boards	Cherry fruit flies	2 tsp 50% Perthane EC applied at 10-day intervals until 2 days before harvest.
RASPBERRIES		
At pruning time in early spring before buds swell	Mites	½ pt calcium polysulfide. For summer sprays see mites under ALL TREE FRUITS.
In spring	Crown borer	Remove infested and weak appearing canes 6" below ground surface and burn them immediately. 1 tsp 25% diazinon or 57% malathion EC. Use one quart to drench each infested plant and repeat treatment two weeks later.
September 15		
STRAWBERRIES		
Before setting plants out	Root weevil	Spread 10 oz. 40% chlordane WP or 1 pt 40% chlordane EC evenly over an area of 20 to 50 sq ft and thoroughly mix into top 6 inches. 2 tsp 57% malathion EC.
At first bloom when moths are seen and later as needed.	Leafroller Root weevil	

In addition to the above insecticides, many other effective materials are available.
EC: emulsifiable concentrate, WP: wettable powder.

PESTICIDE RESIDUES. These recommendations are based on the best information currently available for each chemical listed. If followed carefully, residues should not exceed the tolerance established for any particular chemical. To avoid excessive residues, follow recommendations carefully with respect to dosage levels, number of applications, and minimum interval between application and harvest.

General Warnings

All pesticides are poisonous to warm-blooded animals in some degree. They should be handled cautiously to prevent poisoning pets, livestock, wildlife, children, or the user. When using any chemical, observe the following safe-use procedures:

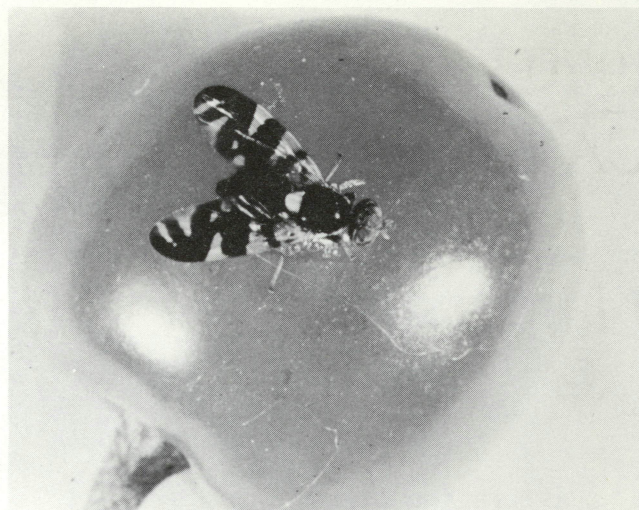
1. Always read the label before using any chemical, and carefully follow the directions. Note warnings and cautions **each time** before opening the container.

2. Keep insecticides out of the reach of children and pets. Pesticides should be kept in their original containers outside the home and in a locked storage.

3. Do not spill concentrates or sprays on the skin or clothing. If they are spilled, remove the contaminated clothing immediately and wash body and clothes thoroughly.

4. Never smoke while spraying.

5. Avoid inhaling insecticide mists and vapors and, when directions specify, wear protective clothing and a mask. A handkerchief fitted to the face, a long-sleeved shirt and gloves will help prevent excessive inhalation and contact with the insecticide.



CHERRY FRUIT FLY

6. Wash hands and face and change to clean clothing immediately after spraying. Always wash clothing before re-use.

7. Cover food and water containers when treating around livestock or pet areas. Do not contaminate fish ponds.

8. Use separate equipment for applying hormone-type herbicides to avoid accidental injury to susceptible plants from contaminated spray equipment.

9. Always dispose of empty containers in trash or by burning or burying so that they pose no hazard to humans, animals or plants. When burning containers avoid inhaling the smoke.

10. Observe label directions and cautions to keep residues on fruits within the limits permitted by law.

PUBLISHED AND DISTRIBUTED IN FURTHERANCE OF THE ACTS OF MAY 8 AND JUNE 30, 1914,
BY THE UNIVERSITY OF IDAHO AGRICULTURAL EXTENSION SERVICE, JAMES E. KRAUS,
DIRECTOR; AND THE U.S. DEPARTMENT OF AGRICULTURE, COOPERATING.

James E. Kraus