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ELECTION*Questions and Answers About***THE CHERRY FRUIT FLY**

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DISCARD

Agricultural Experiment Station
Oregon State College
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Questions and Answers About **THE CHERRY FRUIT FLY**

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Many questions about the cherry fruit fly have been asked by cherry growers. The information requested by the growers is presented in this circular letter as answers to the questions asked.

Life History

- Q. How does the cherry fruit fly spend the winter?
A. The cherry fruit fly winters as a puparium, buried from one to three inches in the ground under the infested cherry trees.
- Q. When does this pest emerge as a fly from the soil?
A. The fly emerges from the soil usually during the last week in May or the first week in June. The time of appearance will depend on climatic factors.
- Q. How long are the flies on the trees before egg laying begins?
A. The flies spend approximately 10 days on the foliage of cherry or other trees before they begin laying eggs.
- Q. Where are the eggs laid?
A. The eggs are laid under the skin of the cherry.
- Q. How long does it take for the eggs to hatch?
A. The eggs hatch in from five to seven days.
- Q. When does the maggot or larva become mature?
A. The maggot matures in about 14 days.
- Q. Where does the maggot go after reaching maturity?
A. The maggot drops to the ground and works its way into the soil where it remains as a puparium until May or June of the next year.
- Q. How long do the flies continue to emerge?
A. Flies may emerge over a period of five to six weeks.
- Q. How far will the flies migrate in one season?
A. This question is not yet settled. They are not strong fliers but have been reported to migrate as far as 100 yards.

Control

- Q. What sprays or dusts are recommended for the control of this pest?
- A. Seven spray or dust formulas are recommended: (1) Lead arsenate $2\frac{1}{2}$ pounds, lime sulfur 2 gallons, or wettable sulfur 6 pounds, in water to make 100 gallons of spray; (2) 90-10 sulfur or lime-lead arsenate dust; (3) Poisoned bait spray consisting of lead arsenate 5 pounds, molasses 5 gallons and water to make 100 gallons; (4) 4 per cent rotenone 3 pounds, molasses $2\frac{1}{2}$ gallons, water to make 100 gallons of spray; (5) $\frac{3}{4}$ per cent rotenone, sulfur and talc used as a dust; (6) Rotenone extractives $2\frac{1}{2}$ per cent in emulsible oil $1\frac{1}{2}$ quarts, water to make 100 gallons of spray; (7) 50 per cent methoxychlor 3 pounds to 100 gallons of water, or 5 per cent methoxychlor combined with sulfur as a dust.

Lead arsenate complete cover spray

- Q. Can lead arsenate be combined with a fungicide for the control of both cherry fruit flies and fungus diseases?
- A. Yes. Lime sulfur can be combined with lead arsenate for use on sour cherries. Wettable sulfur should be used in place of lime sulfur on sweet cherries to avoid possible injury.
- Q. How many sprays are necessary for the control of the fly?
- A. Two or three sprays should suffice. The number of applications will depend on the amount of rain. If no rain occurs two applications should suffice.
- Q. When should these sprays be applied?
- A. The first spray should be applied immediately after the first fly emerges from the soil, the second from 10 to 14 days later.
- Q. How can one tell when to apply the first spray?
- A. The Oregon Experiment Station will determine the time of emergence of the first fly. This information will be given to County Agents concerned, canners, packers, or individual growers asking for this information. The time of emergence of the fly will also be released by the press and by radio.
- Q. How much spray or dust should be applied to an average-sized tree?
- A. The sprays must be thorough cover sprays. The average sweet cherry tree will require from 10 to 15 gallons of spray.
- Q. What is the formula for this spray?
- A. The formula is $2\frac{1}{2}$ pounds of lead arsenate to 100 gallons of spray. A spreader such as casein should be added to this mixture. Add wettable sulfur, 6 pounds, on sweet cherries or lime sulfur, 2 gallons, on sour cherries if a fungicide is desired. If a fungicide is used, omit the spreader.
- Q. Will a heavy cover spray such as is recommended when lead arsenate is used as a cover spray cause a residue problem?
- A. Chemical analyses of cherry samples from canneries show that effective washing procedure, usually employed by commercial canneries, satisfactorily removes the residue from the cherries.

- Q. Will there be a residue problem if the cherries are sold locally for fresh-fruit consumption?
- A. Yes. Care should be taken to wash the cherries thoroughly before selling. See Station Circular #298 or use non-arsenical sprays or dusts.

Lead arsenate dust combinations

- Q. Can lead arsenate dust combinations be used on all varieties of cherries?
- A. Yes, but it is recommended chiefly for sweet cherries.
- Q. How many dust applications should be applied?
- A. Three applications will suffice on sweet cherries if no rain occurs. Late varieties, such as Lamberts, may require an additional treatment. Dusts must be repeated after rains.
- Q. When should the dusts be applied?
- A. Dusts should be applied at the same time sprays are applied. Dust is dissipated more rapidly than sprays through rain or wind action.
- Q. Should the dust applications be thorough?
- A. Yes. It is important that the dust be applied thoroughly with power equipment at the rate of 45 to 50 pounds per acre for sweet cherries and from 35 to 40 pounds per acre for sour cherries.
- Q. What is the dust formula?
- A. A dust consisting of 10 parts of lead arsenate and 90 parts of sulfur is advised. The sulfur is used as a fungicide for brown rot and the lead arsenate for cherry fruit fly.

The lead arsenate poisoned bait spray

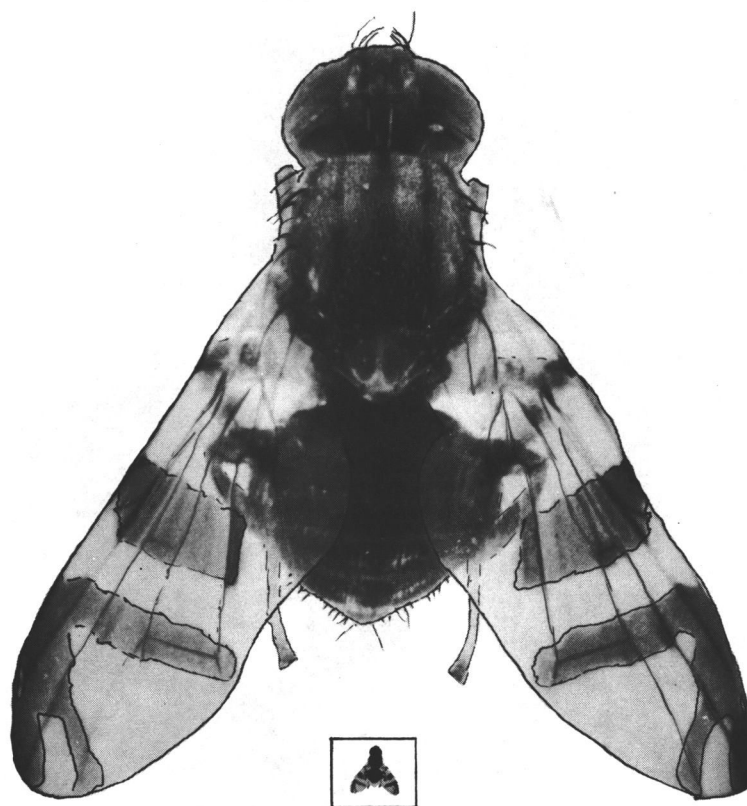
- Q. What is the poisoned bait spray?
- A. This spray consists of lead arsenate 5 pounds, molasses 5 gallons, in water to make 100 gallons of spray.
- Q. Is more than one bait spray necessary?
- A. Yes. Three or more sprays are recommended. The first spray should be applied when the flies first emerge from the soil; the second seven days after the first; and the third seven days after the second. Royal Ann cherries may require only two applications before harvest. The bait spray is easily washed from the trees and should be repeated after rains.
- Q. What kind of a sprayer should one use to apply the bait spray?
- A. Either a power or hand sprayer may be used. Apply the solution as fairly fine droplets on the upper surface of the foliage on all sides and at the top of the tree. The amount of material used per tree will depend upon its size.

- Q. Is it necessary to drench a tree to control the pest?
- A. No. The trees, however, should be well covered by directing the spray over the trees and permitting the liquid to fall on the upper surfaces of the foliage. The spray should reach every part of the tree.
- Q. Should interplanted trees be sprayed?
- A. All trees, regardless of kind, should be sprayed if they are interplanted with cherries. Any brush along fence rows adjacent to cherry orchards should also be sprayed. Flies harbor in other growth and later infest the cherries.
- Q. Should Royal Ann and varieties of sour cherries be sprayed as other varieties of cherries?
- A. Yes. Any variety of cherry is subject to infestation and should be sprayed. Sour cherries are very susceptible to cherry fruit fly infestation.

Non-arsenical sprays or dusts

- Q. What non-arsenical sprays or dusts are recommended for cherry fruit fly control?
- A. Rotenone or methoxychlor sprays and dusts are recommended.
- Q. What rotenone-bearing sprays are recommended?
- A. Four or five per cent rotenone 3 pounds, molasses $2\frac{1}{2}$ gallons, water to make 100 gallons; rotenone extractives $2\frac{1}{2}$ per cent in emulsible oil $1\frac{1}{2}$ quarts, in water to make 100 gallons of spray.
- Q. How are rotenone sprays applied?
- A. These sprays are applied as complete cover sprays.
- Q. Is there any advantage gained in using a rotenone spray?
- A. This spray is non-arsenical and is intended for growers who ship cherries for fresh-fruit consumption. Cherries treated with rotenone need not be washed.
- Q. How often should this spray be applied?
- A. The spray should be applied at weekly intervals, beginning when the first fly appears in the field until the cherries are harvested.
- Q. Can a rotenone dust be used?
- A. Yes. Rotenone dust ($\frac{3}{4}$ per cent rotenone, sulfur and talc) can be used in place of the spray. The dust must be applied thoroughly.
- Q. Can methoxychlor be substituted for rotenone?
- A. Methoxychlor can be substituted for rotenone in the first spray.
- Q. Will one application of methoxychlor suffice to control the cherry fruit fly?
- A. No. Methoxychlor should be used in the first application at the rate of 3 pounds of 50 per cent wettable methoxychlor to 100 gallons of spray. This spray is followed in 14 days with rotenone sprays or dusts and repeated at weekly intervals until harvest. Use the same concentrations of rotenone as recommended above.

- Q. Can methoxychlor dust be used instead of the spray?
- A. Yes. Five per cent methoxychlor sulfur dust combination may be used instead of the spray. The dust, however, is slightly less effective than the spray.
- Q. Should methoxychlor applications be complete cover sprays or dusts?
- A. Yes. The applications should be applied as complete cover sprays or dusts.
- Q. Can methoxychlor sprays be combined with wettable sulfur as a spray against the cherry fruit fly and brown rot?
- A. Yes. The two materials are compatible.



Cherry fruit fly, greatly enlarged. (Insert shows natural size.)