

PEACH

Spray and Dust

Program

For Kentucky Fruit Growers

By P. O. Ritcher and
W. D. Armstrong

RECEIVED

MAR 26 1947

EXPERIMENT STATION
LIBRARY

Circular 427

UNIVERSITY OF KENTUCKY

College of Agriculture and Home Economics
Agricultural Extension Division

Thomas P. Cooper, Dean and Director

CONTENTS

	Page
Jar for Curculio	3
Spray and Dust Schedules	4-5
Destroy Dropped Fruits	6
Dormant Sprays	6
Mixing Sprays	6
Avoid Spray Injury	7
DDT Notice	8

In the fruit-growing districts of Kentucky, Spray Service work is being carried on under the Special Horticulture Appropriation. For help with your problems consult your spray letters, your County Agricultural Agent, or the Agricultural Experiment Station.

If you have only a few trees or wish to use only a minimum schedule, see Circular 353, "Sprays for the Home Fruit Garden."

For a detailed discussion of fruit insects and diseases in Kentucky, see Ky. Agr. Exp. Sta. Bulletin 393, "Fruit Pests and Their Control."

(This circular is a revision of Leaflet 9)

FOR EFFECTIVE CONTROL OF CURCULIO, and to avoid foliage injury from unnecessary spraying or dusting, the spray or dust program should be supplemented by jarring adult curculios to find out when and where treatment is needed. Dropped fruit should be picked up and destroyed.

In western Kentucky most commercial peach orchards need a month-before-harvest spray (No. 6 in the spray schedule; No. 7 in the dust schedule). This depends on how long curculio adults continue to lay eggs and on whether or not new adults, emerging in late June and in July, develop eggs. Curculio emergence and egg development are followed each year as a part of the Spray Service, and growers will be advised whether or not the spray is needed. In eastern and northern Kentucky, where curculio is not serious, two early season lead-arsenate sprays usually give adequate control.

Jar for Curculio

Jarring should be done several times a week, starting soon after full bloom, when the petals are falling. In most years, adults appear between shuck-split and shuck-off time, but in 1946 adults appeared in large numbers when half the petals were still on. Jarring is most effective between daylight and 8 a.m., while it is still cool and curculios are less active. However, jarring may be done any time of day with good results. Curculios are small, grayish-black snout beetles about $\frac{1}{4}$ inch long, with rough humps and gray spots on their wings.

Spread a large tarpaulin or canvas about 9 x 14 feet in size (a bed sheet can be used) beneath the limbs of one side of a peach tree. Then give the limbs above a few sharp blows with a padded mallet. Curculios if present, will fall to the sheet below and lie still for a short time, "playing possum." Record the number jarred from each tree and destroy the curculios. Since adults usually appear earliest on plum trees or along the edges of orchards near woods or plum thickets, jar in these areas first. If jarring shows curculios present on the outside rows, continue jarring at intervals throughout the orchard. In this way the movement of curculios in from winter quarters can be followed.

Spraying or dusting will probably be justified when and where an average of one or more curculios is found per tree. When adults can be found only in the outer edge of the orchard, the first lead arsenate application need be applied to only the outside 5 or 6 rows.

PEACH SPRAY SCHEDULE

The same schedule suggested for plums.
(Growers who do not practice jarring should use the starred sprays as a fixed schedule.)

Spray	Time	Materials for 100 gallons of spray mixture	For
*1. Dormant	Before buds swell	3 gal. oil plus 4-lb. bordeaux or Liquid lime sulfur 1 to 8 or Dry lime sulfur	Scale and leaf curl.
2. Blossom	Late pink to early bloom	Wettable sulfur 6 lb	Blossom blight stage of brown rot. Often needed on Red Bird, rarely on other varieties.
*3. Shuck fall	When 75% shucks off—2 to 3 weeks after bloom	Lead arsenate 2 lb Hydrated lime 6 lb Zinc sulfate 4 lb	Curculio. Delay if no curculio present, or spray in spots for scattered infestations.
*4. Ten-day	Month after petal fall or 10 days after shuck fall. This spray should not be postponed.	Lead arsenate 2 lb Hydrated lime 6 lb Zinc sulfate 4 lb Wettable sulfur 6 lb	Scab, curculio. If jarring shows no curculio, omit lead arsenate, lime and zinc sulfate.
5. Twenty-four-day	Two weeks later only if jarring indicates the need.	Lead arsenate 2 lb Hydrated lime 6 lb Zinc sulfate 4 lb	Curculio. Omit this spray if possible, to prevent foliage injury.
6. First preharvest	Month before harvest. Apply about July 1 or when second brood curculio adults become numerous.	Lead arsenate 2 lb Hydrated lime 6 lb Zinc sulfate 4 lb Wettable sulfur 6 lb	Curculio and brown rot. Omit lead arsenate, lime and zinc sulfate if curculio is not a factor.
*7. Second preharvest	Two weeks before harvest. Repeat a week later in rainy season.	Wettable sulfur 6 lb	Brown rot.
*8. Third preharvest	Just before harvest	Wettable sulfur 6 lb	Brown rot.

PEACH DUST SCHEDULE

To give complete and adequate coverage apply dust from both sides of trees and to 1 pound of dust per mature tree. Most growers will find it advisable to use commercial dusts because of the difficulties in preparing satisfactory home mixtures.

Dust	Time	Materials	For
1. Dormant	Before buds swell	See Spray Schedule	Scale and leaf curl.
2. Blossom	Late pink to early bloom	Sulfur 90 lb Lime 10 lb	Blossom blight stage of brown rot. Often needed on Red Bird, rarely on other varieties.
3. First cover or shuck fall	Usually 2 to 3 weeks after bloom when 50 to 75% shucks are off.	Sulfur 55 lb Lead arsenate 10 lb Lime 15 lb Talc 15 lb Oil 5 lb	Curculio. Omit if jarring shows no curculio present, or dust outer rows or spots where infestation is found.
4. Second cover	Month after petal fall or 10 days after shuck fall. Do not postpone this dust.	Same as above	Scab, curculio. If jarring shows no curculio use dust containing no lead arsenate.
5. Third cover	One week later.	Same as above	Curculio, scab. If jarring shows no curculio use dust containing no lead arsenate.
6. Fourth cover	One week later.	Same as above	Curculio. Omit unless jarring indicates the need.
7. Fifth cover	Month before harvest. Apply about July 1 or when curculio adults become numerous.	Same as above	Late curculio and brown rot. Substitute sulfur-lime dust if curculio not a factor.
8. Sixth cover	Two weeks before harvest.	Sulfur 90 lb Lime 10 lb	Brown rot
9. Seventh cover	Just before harvest.	Same as above	Brown rot

Destroy Dropped Fruits

Peaches that drop because of curculio injury usually contain one or more live developing larvae. If these wormy drops remain on the ground, the larvae soon complete development and enter the soil. They emerge about 5 weeks later as adults which either cause a second brood or live overwinter and cause injury the following spring. The first drop of wormy fruits comes when fruit is about $\frac{1}{2}$ inch or more in size. The second drop (prematurely ripened fruit that falls just before harvest) is caused by second-generation and very late first-generation curculio worms.

It is a great aid toward worm control to pick up and destroy, twice a week, all dropped fruits. The curculio worms in the drops may be killed by submerging the drops in water for several days. Pick-up of drops is a standard practice in Georgia peach orchards, and was practiced to some extent in Illinois in 1946. As brown rot often follows curculio injury, the control of curculio is an important step in the control of that disease.

Dormant Sprays

Lime sulfur is both a scalecide and a fungicide. It is the simplest dormant spray and is usually effective if thoroughly applied. The liquid form is preferred. Dilute each gallon with 8 gallons of water. Dry lime sulfur should be used as recommended by the manufacturer.

The cheapest combined fungicide and insecticide spray is bordeaux mixture added to the tank-mixed oil emulsion, or oil-bordeaux in which concentrated bordeaux is used as an emulsifier. Oil emulsions have given better control of San Jose scale than lime sulfur.

It is important that every twig be covered, because every scale must be wet with spray to give adequate control. Hence, apply the dormant spray from both sides of the tree, and cover the trunk and the bottoms and tops of all limbs. Apply sprays in the spring, before growth starts, when temperature is above 45° F.

Mixing Sprays

Tank-Mixed Oil-Bordeaux Dormant Spray

Use lubricating oil sold by petroleum companies at their bulk stations under such names as "agricultural spray oil," "orchard spray oil," or "scale oil." Use oils with the following specifications:

Viscosity at 100° F 125 to 200 seconds Saybolt
Volatility at 105° C (221° F) not above 2 percent

It is suggested, where power outfits are used, that bordeaux mixture be used as the emulsifier. For 200 gallons of spray use 8 pounds bluestone (copper sulfate), 8 pounds hydrated lime, 6 gallons of oil, and water to make 200 gallons. Use hydrated lime, chemical grade, made especially for use in sprays. Don't use lime kept over from the year before.

Start agitator with 20 gallons of water in 200-gallon tank. Add 6 pounds of powdered bluestone and 6 pounds of hydrated lime. Start pump and allow discharge from spray rod to shoot back into tank under full pressure. Pour in slowly 6 gallons of spray oil, continuing the agitation, and pump until thoroughly mixed. Next add 2 more pounds of bluestone, 2 pounds of hydrated lime, and water to make 200 gallons of 4-4-100 bordeaux plus 3 percent oil. Apply the spray immediately.

Mixing Cover Sprays

Start engine and run a few gallons of water into the tank. Wash the zinc sulfate through the screen, being sure it all dissolves. Then continue filling the tank while adding the lime, previously made into a paste, through the strainer. If wettable sulfur is required, wash it through the strainer, and when the tank is nearly full, wash the lead arsenate through. Wettable sulfur is sold in Kentucky under various trade names.

Avoid Spray Injury

An extra spray of lime alone, 10 days after the last first-brood curculio lead-arsenate application, is recommended. Use 8 pounds of lime per 100 gallons. In lead-arsenate sprays where zinc sulfate is not used, increase the lime to 8 pounds for each pound of lead arsenate.

In all sprays calling for lime, be sure that only fresh "chemical" hydrated spray lime is used. Demand that your dealer furnish you fresh high grade spray lime each spring and several times a year. Do not use old lime (that carried over winter) in any peach or apple sprays, because lime rapidly loses its ability to retard spray injury.

Apply lead arsenate sprays or dusts only on bright, quick-drying days when foliage is dry, and don't apply sprays when the temperature is above 90° F. Avoid drenching the trees, and apply the sprays as a

finely divided mist. Otherwise, there is danger of burning. Zinc sulfate and lime are added to lead-arsenate sprays to reduce spray injury to foliage and twigs.

Neither lime sulfur nor bordeaux mixture should be used as a summer spray on peaches.

DDT Notice

It has been found in Kentucky and elsewhere that DDT is very effective in reducing peach losses from cat-facing and oriental fruit moth injury. However, because of the possible effects of DDT on bees and parasites, and because of the later build-up of leaf mites where DDT is substituted for the materials commonly used, the use of DDT on peaches is not recommended, except in special cases.

DDT is not effective against curculio and has no place in curculio sprays.

Lexington, Kentucky

February, 1941

Cooperative Extension Work in Agriculture and Home Economics: College of Agriculture and Home Economics, University of Kentucky, and the United States Department of Agriculture, cooperating. Thomas P. Cooper, *Director*. Issued in furtherance of the Acts of May 8 and June 30, 1914.

4M-2-41