

# Ohio Agricultural Experiment Station

## CIRCULAR No. 109

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### ORCHARD SPRAYING SUGGESTIONS FOR 1911.

#### ADVICE SUPPLEMENTAL TO SPRAY CALENDAR (BULLETIN 199)

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In orchard spraying for 1911 inquiries are received as to what fungicides to use to control apple scab and other diseases, and what insecticides to combine with them or to use separately for codling moth, curculio, etc.

#### I. SPRAYING TO PREVENT APPLE SCAB

Heavy foliage injury from sprays and russetting of fruit in 1910 brings questions concerning necessity for use of Bordeaux mixture and possibility of substitution of lime-sulfur preparations.

In spraying for scab it is necessary to distinguish two classes of varieties of apples.

Class 1. Scab susceptible varieties, such as Rome Beauty, Winesap, Newtown Pippin, Rambo, Fameuse, and certain others.

Class 2. Varieties not susceptible to scab, such as Baldwin, Ben Davis, Gano, Stark, Wagner, Hubbardston, Jonathan, Rawles' Janet, Belleflower and some others.

Also more especially for Class 1:

- (a) Vigor and resistance of some varieties to spray treatment and of some trees under certain conditions.
- (b) Previous spray history of the orchard.

On Class 1, certainly, and on Class 2, except in case of orchards that have been regularly and very thoroughly sprayed for a succession of years, a thorough spraying with fungicides is necessary upon the new shoots and blossom clusters just before the blossoms open to control the scab.

For this first scab application Bordeaux mixture may be used without risk of serious injury on all varieties—upon Class 1, it is an efficient and safe spray for scab control; for Class 2, good

results have been secured in many cases for both San Jose scale and scab by the use of lime-sulfur, when the buds are just opening. The scurfy scale is also reached by this spray.

## II. COMBINED SPRAYING FOR SCAB AND CODLING WORM

For Scab: For subsequent treatments, that is, for second spraying to be made just after the blossom petals fall, and for third spraying made 10 days to two weeks thereafter, because of liability to russet fruit, Bordeaux mixture is not likely to prove safe on Class 2; instead, half strength of Formula No. 7 (1-2-3-50 formula) or summer strength of lime-sulfur, such as Formula No. 14 diluted to 350 to 400 gallons, or commercial lime-sulfur 33°B. at the rate of 1 gallon to 40 gallons of spray, is to be preferred.

On class 1 where previous experience shows light spray injury from Bordeaux mixture and where the orchard vigor is good, little fear need be felt from use of Bordeaux mixture, and generally none at all need be felt from formula No. 7, or its half strength: where experience shows serious injury from Bordeaux mixture, the half strength of No. 7 and lime-sulfur, as above described, will be safe.

For Codling Worm: On all varieties the Spray Calendar recommendations for arsenicals added to the fungicides are required in second and third spraying. If lime-sulfur is used, arsenate of lead should be used in combination. If treatment is very thoroughly made, 2 lbs. of commercial arsenate of lead to 50 gallons of spray is generally sufficient. As spraying is ordinarily done 3 lbs. is more reliable.

## III. SPRAYING APPLE TREES FOR BITTER-ROT AND BLOTCH

Where bitter-rot or blotch prevails some difference may be found as between copper sprays (Nos. 1 & 7) and lime-sulfur. The evidence seems to favor the copper sprays. However, effective control of either bitter-rot or blotch will probably require, in addition to the foregoing sprays, the summer treatments with ammoniacal copper carbonate as outlined in the Calendar under bitter-rot.

## IV. SPRAYING FOR SOOTY FUNGUS

This is usually covered where a third spraying (second after bloom) is thoroughly made. The relative efficiency of copper sprays and lime-sulfur is not clearly determined for sooty fungus.

## V. SPRAYING OTHER TREES AND VINEYARDS

Upon Pear trees in leaf, lime-sulfur sprays may prove unsafe.

Upon Peach trees in leaf Formula No. 10 of 10-10-50 strength is recommended as heretofore.

Upon Plums that may safely be treated in leaf with copper sprays, these will possibly be most useful; upon American and Japanese varieties Formula No. 10 is recommended.

For Grapes, lime-sulfur sprays are not reliable.

#### VI. SPRAYING FOR SAN JOSE SCALE AND SCURFY SCALE

In spraying for San Jose scale and scurfy scale on dormant trees with commercial lime-sulfur preparations, the dilution should be 1 part of mixture to 9 to 11 parts of water. The exact degree of dilution needed may be determined, if desired, by hydrometer test. Without test, 1 to 9 is recommended.

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