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# Control of WALNUT BLIGHT in Oregon

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# Control of WALNUT BLIGHT in Oregon

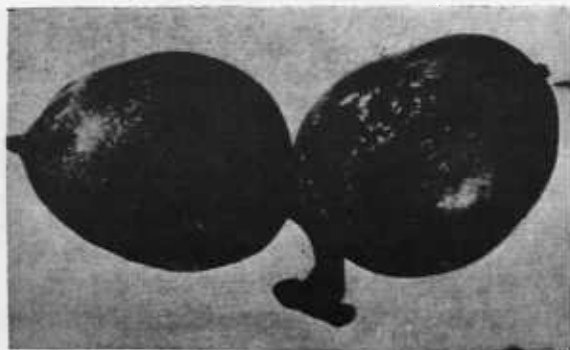
## Nature of the Disease

Walnut blight is the most widespread disease of walnuts in Oregon. The leaves, nuts, catkins, buds, and shoots of current growth are attacked. The disease is most serious and destructive on the nuts, where it causes black blotches of varying size often resulting in the death and premature dropping of the nuts (Figure 1).

Walnut blight is caused by a bacterial organism, *Xanthomonas juglandis*. It lives over from one year to the next primarily in diseased buds and to a lesser extent in hold-over cankers on twigs of the previous year's growth. The bacteria are spread by rain drip from these hold-over sources to current growth.

Frequent and prolonged rains just before and during the blossoming period and for about two weeks thereafter result in serious blight outbreaks. This is the time when the nuts are most susceptible to infection. Infections that occur after the nuts are about three-fourths grown are of little economic importance since they seldom reach the shell.

Figure 1. Walnuts infected with blight.



## Spray Program for Control of Walnut Blight

Application number	Time of application	Materials and strength
1	Early prebloom (See Figure 2, A)	(1) Bordeaux mixture 4-2-100 + 1 pt. summer oil emulsion, OR (2) Kocide 101 2 lb. + $\frac{1}{2}$ pt. superior type oil per 100 gals. of water, OR (3) Tribasic copper sulfate (approximately 50% copper content) at the rate of 3 lbs. in 100 gals. of water; add a good spreader-sticker.
2	Late prebloom (See Figure 2, B)	Same as first (early prebloom) application
3	Early postbloom (See Figure 2, C)	(1) Bordeaux 4-2-100, OR (2) Kocide 101 2 lb. + $\frac{1}{2}$ pt. superior type oil per 100 gals. of water, OR (3) Tribasic copper sulfate—same as early and late prebloom applications

<sup>1</sup> The schedule given above will meet maximum requirements. Under some conditions, the complete schedule of applications may not be required. Consult your county Extension agent or Experiment Station for modifications to meet local conditions.

## Control

### Recommended spray materials

1. Bordeaux mixture 4-2-100 + summer oil emulsion 1 pt./100.
2. Kocide 101 2 lbs. plus  $\frac{1}{2}$  pt. superior type oil per 100 gals. of water.
3. Tribasic copper sulfate (approximately 50% copper content) 3 lbs. per 100 gals. of water + spreader-sticker.

### Number and timing of spray and/or dust applications

The number of spray or dust applications needed to control walnut blight will vary with the season. In years when there is only a relatively small amount of rain during the infec-

tion period, two spray applications made in the late prebloom and early postbloom stages will usually control this disease. But if the rainfall is heavy and prolonged during this period, three spray treatments applied in the early prebloom, late prebloom, and early postbloom stages of development respectively are necessary to hold the disease in check.

Four dust treatments will generally help control the blight in a normal season, but in a wet season, six dust treatments are necessary for satisfactory control. Since it is impossible to predict the weather during the critical period for infection, the wisest course is to make the maximum number of applications. Omission of one or more applications involves the risk of unsatisfactory control.

The success of the control program depends on proper timing and thoroughness of applications. Delaying applications, even for a

## Dust Program for Control of Walnut Blight<sup>1</sup>

Application number	Time of application	Materials and strength <sup>2</sup>
1	Early prebloom	Copper + lime + sulfur + oil dust composed of 15% monohydrated copper sulfate, 30% hydrated lime, 10% dusting sulfur, 41½% talc, 2% bentonite, and 1½% light mineral oil
2	Repeat application for five weeks at one-week intervals	Same as application 1

<sup>1</sup> The schedule given above will meet maximum requirements. Under some conditions, the complete schedule of applications may not be required. Consult your county Extension agent or Experiment Station for modification to meet local conditions.

<sup>2</sup> Apply first two applications at the rate of 1½ lbs. of dust per tree; thereafter, 1¼ lbs. per tree.

few days after the proper stage of nut development has been reached, may mean the difference between success and failure of the control program.

Even if the applications are properly timed, the coverage must be thorough. For maximum protection, a film of spray or dust should completely coat the nuts throughout the critical period for infection.

For good coverage, the spray or dust machine should be drawn along one side of the tree row and back along the opposite side. It is impossible to do a good job of spraying, or dusting from only one side of the tree.

**Figure 2.** Stages of development of walnut pistillate flowers when spray treatments for control of walnut blight should be applied: A. Early prebloom stage, first application due; B. Late prebloom stage, second application due; C. Early postbloom stage, third application due.

