

AGRICULTURAL EXPERIMENT STATION
Oregon State College
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Corvallis

Circular of Information No. 246
(Revision of Cir. of Inf. 222)

May 1941

LEAF- AND CANE-SPOT OF CANE FRUITS

by

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The common leaf-spot of cane fruits in Oregon affects especially the trailing blackberry. Trailing blackberries as used here include Loganberry, Youngberry, Boysenberry, Mammoth, Lucretia, the wild dewberry, and cultivated selections of our common wild trailing blackberry. The latter goes under the name of wild blackberry, certain selections of which are sometimes designated as Zelinski, Santiam, or Ideal Wild. Such varieties as Himalaya, Evergreen, and erect cane blackberries are sometimes affected but are more resistant than the trailing blackberries mentioned above. The leaf-spot and cane-spot disease is found in almost every locality, especially in western Oregon, where these fruits are grown. The disease is common and is quite usually serious in the Willamette Valley, especially during years of rather continuous rain in the fall and spring, and along the coast where there are heavy fogs, is very serious. In our drier sections, very little damage is ordinarily done by this disease.

The appearance of the disease varies somewhat on different varieties. On some varieties the spots on the leaves are light brown, while on others they are dark brown. These spots are comparatively small, measuring about one-eighth of an inch in diameter. The diseased portion is at first purplish, although a brown color is assumed as the affected tissues die. In older spots the center is whitish and the border is brownish or reddish. The spots on the canes are very similar to those on the leaves.

This leaf- and cane-spot is caused by a fungus known in botanical science as Mycosphaerella rubi. The fungus growing in local areas within the leaf tissues causes the color changes and finally death of the tissues within these small spots. The fungus forms tiny black fruiting bodies just beneath the upper surface of the leaf cuticle. As these mature they break through the cuticle and are exposed in the affected areas. There are usually two or three of these fruiting bodies in each spot, each capable of producing myriads of tiny spores. The spores at maturity ooze out under moist weather conditions and are scattered to other leaves by means of the splattering effect of raindrops. Here they germinate in water and the result is a new leaf spot from a single spore. During the winter other fruiting bodies producing another type of spore are found on the old leaves on the ground and on the spots on the canes, providing the old fruiting canes of the previous year are allowed to remain. This special type of spore which is shot out from the fungous fruiting body sometime from February to the later months in the spring infects the new leaves and canes. Infections, however, only take place during continuous damp weather either due to rainfall or continuous fog.

Control

Since the sources of infection are the spots on the leaves and canes, it is recommended that as a sanitary measure the old canes be removed as soon as the crop is harvested, especially in years of severe infection.

Undoubtedly the infection which takes place during late winter and early spring is the most serious. In order to control this infection and the late summer infection which takes place after the fall rains begin, it is necessary to apply one spray. Therefore, before the first rains in the fall and after as much growth of the new canes as possible, give a very thorough application of bordeaux mixture 4-4-50, which covers not only the leaf surface but all the surface of the canes, especially if the new canes are to be disturbed again in the autumn. This can be done thoroughly by the cooperation of two men. One handles the spray nozzle and the other with a pitchfork can lift the canes from the ground and give them a thorough covering. It is essential that the canes and leaves are thoroughly covered with the spray throughout.

If this late summer or fall application of bordeaux can be done later, after the canes are on the ground for the winter, it will not be necessary to agitate the canes while spraying, as suggested above, providing the canes are not to be disturbed before they are put up on wires the next spring. In this case give a thorough application of the spray with the canes in place on the ground.

We have found that this one application of bordeaux in the fall is most beneficial, but we feel that applications of bordeaux 3-3-50, just after the first leaves are fully developed in the spring, is advisable to aid in prevention of infection on the early leaves which are produced on the fruiting laterals. In extreme cases it might be advised also to put on a second application of spray about two weeks later in the spring.

If the canes are to be left on the wires through the winter, they should be sprayed after trellising, providing it can be done before wet weather.

In case conditions prevented the use of bordeaux mixture in the autumn, lime-sulphur (10 gals. to 100 gals. of spray) applied once during February or March will go a long way towards control of leaf spot. Some growers prefer this lime-sulphur spray, and secure good commercial control of leaf spot by its use.