

Wood Pocket

may be result of virus or toxin in parent tree in certain strain of Lisbon lemon

H. S. Fawcett and E. C. Calavan

A defect or break in the bark is often the first outward symptom of wood pocket in a certain strain of semidense Lisbon lemon. A discoloration of the wood immediately inward from the break is found at the cambium.

The break in the bark may be preceded in some trees by a deterioration of certain branches or by mature leaf symptoms. The lesions vary in size from an inch in length to large, one-sided lesions extending several feet along the branches.

As the disease progresses, branches lose part of their leaves and die back gradually and the remaining mature leaves often become a paler green. Young trees are sometimes killed by trunk lesions.

When cut into, the wood underneath a lesion is found to be discolored in an irregular pattern and filled with gum. The discoloration in longitudinal view is irregularly darkly dotted on a lighter colored surface. The first interior symptoms on close examination are small lenticular, yellow to ochreous spots, averaging 0.5 to 1.5 mm in size.

These spots, though few at first, may become numerous and meet to form an extensive discolored area in the cambium region.

A characteristic leaf symptom occurs in some of the leaves of diseased trees. It is a type of variegation, ranging in appearance from barely visible to sharply outlined.

The colors range from green to yellow or white, with a sharp line of demarcation between different shades. The variegation occurs as broad bands or webbing of lacelike thread reticulations involving a part or the entire blade. Leaf symptoms usually appear before branch lesions are visible.

First symptoms on diseased trees may develop at any age up to at least 20 years.

Transmission Experiments

In 1938 soon after the wood pocket was first observed, sets of trees were propagated from some of the diseased trees to determine whether the disease could be carried by budding. Five years after planting the progeny of the diseased trees showed both bark and leaf symptoms. Progeny trees from apparently healthy trees of the same semidense Lisbon were also propagated.

Six years after planting some of the progeny from one of the apparently healthy parents showed leaf symptoms. A careful search in this parent tree revealed a small wood pocket lesion on one branch and leaf symptoms not previously detected.

The average severity of the disease in the progeny has been generally in direct proportion to the severity of the disease in the parent trees.

Citrus trees of the following varieties

have been inoculated by means of live tissue or buds from diseased trees placed in the trunks of young nursery trees; Lisbon lemon, Eureka lemon, Valencia orange, and Marsh grapefruit. Definite symptoms of wood pocket have not yet appeared in any of these trees.

Healthy scions of various strains, varieties, and species of citrus were placed in 33 seven-year-old trees already affected with wood pocket on August 13, 1946. These scions were allowed to grow to see if the growth would show symptoms. First symptoms appeared less than four months later. To date leaf symptoms have been seen in three shoots of Lisbon lemon, two shoots of Eureka lemon, and two shoots of Dorshapo sweet lemon. No symptoms have appeared in the orange, grapefruit or tangelo scions included in the experiment.

In May, 1946, 544 seeds from six diseased semidense Lisbon lemon trees and 279 seeds from three healthy Lisbon trees were planted in a lathhouse.

Of the 480 seedlings which emerged from the semidense Lisbon seeds, 45—nearly 10%—developed wood-pocket leaf symptoms within four months.

No symptoms appeared in any of the seedlings from healthy parents.

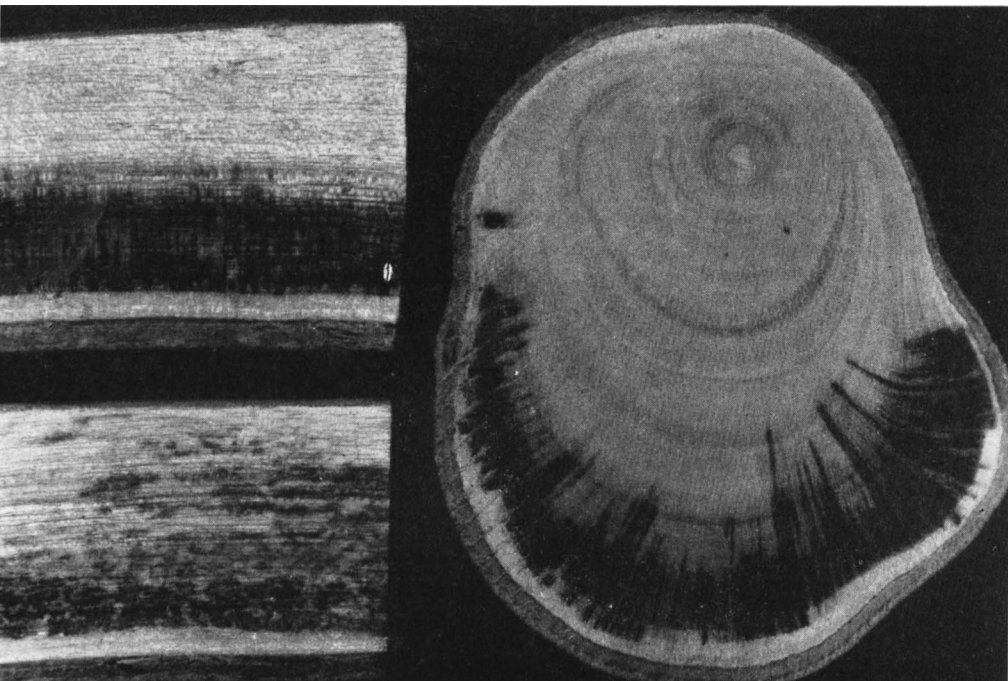
In some individual lots of 100 seeds as high as 19% of the seedlings have shown leaf symptoms. In other lots from less severely diseased trees, few or no diseased seedlings have appeared.

The results of these experiments show that wood pocket is carried along in propagation from buds of diseased trees and that the leaf symptom is transmitted from the seeds to at least a part of the seedlings.

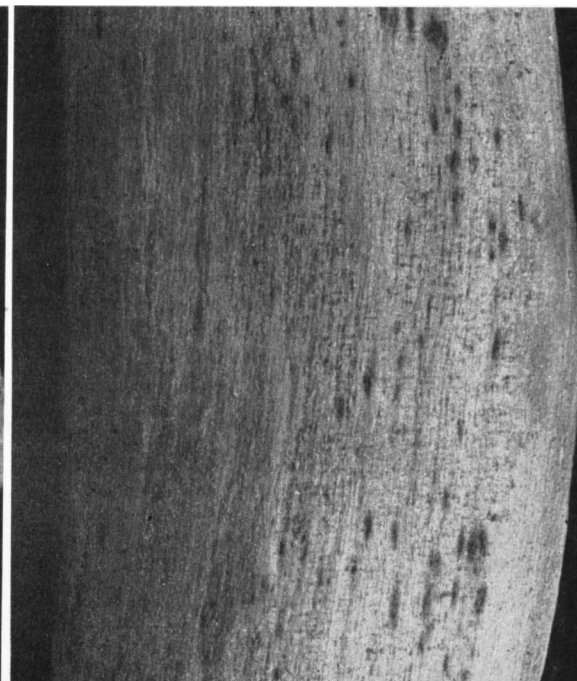
The occurrence in seedlings would not of itself show that the symptom was any more than a genetic variation. However, the reproduction of leaf symptoms in

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Longitudinal—radial—and cross-sections through a wood pocket lesion.



Small lens-shaped spots on cambial face of wood.



Swine Production

development of bacon-type hog considered by California growers

E. H. Hughes

Before World War II there was an inclination on the part of all producers of swine in California—purebred breeders, the commercial hogmen and the garbage feeders—to settle on a uniform type.

During the war, when fats were needed and pork tonnage was desired, there was a tendency among pork producers to market their hogs at heavier weights and, in some instances at least, to select for the wider, thicker kind of hogs.

Toward the end of the war and shortly after V-E day those people who were looking toward the future called attention to the fact that lard had many competitors and that there would soon be surpluses of this produce. In other words, they were saying that we should market our hogs at lighter weights and that we should be careful not to select brood sows that are too short and thick and heavy in the jowl. Some producers heeded the warning while others did not.

In California most producers have what might be called the middle-of-the-road type which is a brood sow with some length and width, strong legs and depth of side and with indications of superior udder development.

The progressive hogmen, including the purebred breeders and commercial producers alike have been selecting boars that show masculinity, ruggedness, without too much coarseness, yet having considerable depth and fulness of ham, medium width of back and loin, with deep sides and without too much jowl.

The offspring of such animals, if properly nourished, should grow rapidly and be ready for market at ages that will vary from six to nine months of age, weighing from 190 to 230 pounds. These fat hogs should yield from 75% to 79% if killed "shipper style."

Such market hogs, if they are of the proper type, should provide hams of the

proper weight, bellies that are thick enough and have considerable lean with the fat. The pork loin should be excellent and the shoulders, when properly processed, should meet the demands of the consumer. The carcasses from such pigs should have a back fat of about 1 $\frac{5}{8}$ inches in thickness.

There is some discussion among producers and others on the Pacific Coast about attempting to produce a bacon-type hog.

Generally speaking, bacon hogs are more expensive to produce than the so-called meat-type hog. More protein is required in the diet to produce bacon hogs.

Possible Development

There has been some discussion as to whether new breeds should be brought in or whether the breeds now here might, by selection, be developed into a type of hog suitable both for the producer and consumer.

Excessively fat hogs are not needed, nor are hogs with heavy jowls. What is needed, are hogs that will provide carcasses with a relatively high percentage of muscle to fat and yet of a kind which will yield a high percentage of fat when slaughtered.

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Wood pocket lesion on semidense Lisbon branch.



LEMON

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healthy lemon scions indicates either the presence of a virus or a toxin in the diseased tree affecting the growth of the scion. Further evidence is needed to determine the exact nature of this disease.

All known cases of wood pocket can be traced back to a semidense strain of Lisbon lemon in one orchard near Corona. Considerable numbers of this strain were distributed before it was known to carry wood pocket.

It is highly important that any further propagation of trees from this semidense strain of Lisbon lemon be avoided. It is also important that, unless and until this disease is proven not to be due to a virus, none of these trees be topworked with any citrus that would be used for seed purposes, and that no growth from the rootstock of any diseased tree be used for seed purposes. So far as we know, this disease spreads only through buds, scions or seeds and does not spread from tree to tree in the orchard, but the possibility of its spread by some other means must not be overlooked.

Because it is impossible to locate and eradicate all lemons affected by wood pocket, it is advised that growers control the disease by avoiding further propaga-

tion of this semidense strain of Lisbon and by removing diseased trees as soon as they become unprofitable.

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ABSCISSION

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is essential since the chemical affects only the leaves on which it is applied and not the plant as a whole.

Abscission-hastening compounds also are effective in blossom thinning of fruit trees. While this work still is largely experimental, research has shown that results are best when the center blossom is open and pollenized, and then sprayed before the remainder of the cluster is pollenized.

Blossom-thinned trees appear to bear a higher proportion of marketable size fruit than do nonthinned trees. Blossom thinning in apples promotes annual bearing in biennial varieties. Occasionally severe foliage injury has occurred but no serious after effects have been noted.

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