Anthracnose of Peach

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Peach anthracnose is a "new" disease in southeastern peach orchards. So recent is it that many salient points in its cycle of development remain to be investigated.

It was described in England as early as 1859 on peach fruit and it was known in Japanese orchards, but peach anthracnose did not attain commercial importance in the United States until 1947. Before then only occasional specimens were seen in the eastern peach-growing sections, but in 1947 many affected peaches were found in carloads of fruit shipped to Chicago from Marshallville, Ga. Additional specimens were observed in South Carolina and Georgia in 1948 and 1949. By 1950 the disease had become so serious in Georgia that the crop in some orchards was not harvested and some lots of fruit were rejected at the shipping points because of anthracnose infections. In 1951 very few infected peaches were found in Georgia, but a mild outbreak was noted in some orchards in West Virginia and South Carolina.

The first visible symptom of the disease, which is caused by *Glomerella cingulata*, is one or more tiny, round, brown spots, one-sixteenth to one-eighth inch in diameter, on the surface of the peach. The spots can be confused with the first symptoms of brown rot, caused by *Monilinia fructicola*. Infecteds of brown rot, however, enlarge rapidly and soon involve the entire peach, whereas anthracnose lesions persist as circular spots.

The circular anthracnose spots slowly enlarge and may eventually attain a diameter of 1 inch. A light-colored depression forms in the center of the spot as the result of the collapse of the underlying tissues rotted by the fungus. Concentric rings of salmon-pink spore masses soon form in the depression and give the spot a distinctive appearance. No other fungus or bacterial pathogen produces on peaches a circular, depressed spot covered with rings of spores. Those symptoms persist even after the infected fruit has dried into a hard, almost shapeless mass. Symptoms of the anthracnose disease are known only on the peach fruit.

Apparently none of the commercial peach varieties grown in Georgia is immune to attacks of the anthracnose fungus. It has been observed on Early Rose, Uneeda, Erly Red Fr, Pearson Hiley, Early Hiley, Hiley, Dixired, Dixigem, Southland, Belle of Georgia, Golden Jubilee, U. S. No. 10, Dixigold, Redhaven, Ambergem, Sullivan Elberta, Halehaven, and Elberta.

The sudden appearance in 1947 of anthracnose on peaches in Georgia and its prevalence until 1951 is hard to explain.

Bitter rot, the analogous disease of apples caused by *G. cingulata*, has been known for many years. Peaches and apples have been grown close together for decades in many sections without any widespread development of the disease on peaches even when nearby apple orchards were seriously affected. Moreover, the peach district of central Georgia, where anthracnose has occurred since 1947, is south of the commercial apple sections; there are so few apple trees in home plantings in central Georgia that the spread of the fungus from apple to peach seems unlikely.

Nevertheless, the fungus destroyed many peaches in this section after 1947. The spores that caused the first infections each season must have come from a source other than the peach. This possibility is limited at present to
the initial infections, since it is not known whether the disease spreads from peach to peach after the first infections appear.

The anthracnose disease was not observed in central Georgia before 1947, the first year that blue lupine was grown extensively for seed production in the peach section. That new agricultural practice takes on special significance when it is realized that the anthracnose fungus also attacks the blue lupine plants and that spores from blue lupine can produce typical anthracnose symptoms on peaches.

Blue lupine had been introduced into Georgia as a winter cover crop in 1942 or so. For that purpose the plants are turned under early in the spring. Starting with a few fields in 1946, a constantly expanding acreage of blue lupine was left to mature seed in 1947 and the succeeding years. Thus, instead of being turned under early in the spring, the lupine plants, with sporulating anthracnose lesions on the stems, leaflets, and seed pods, were left near peach orchards until much later in the season, when peaches were beginning to mature.

In 1950 this possible correlation between lupine plantings and peach anthracnose was studied in 46 blocks of peach trees in 25 commercial orchards. In many of the blocks of trees, the disease was most severe on the fruit of the first few rows of trees adjacent to a field of lupine stubble, the lupine seed having been harvested about the time the first varieties ripen. Growers who did not have lupine near peach orchards in 1950 escaped injury. In 1949, with lupine near the same orchards, the peaches of the same growers had been damaged by the disease. Anthracnose was found to be more severe in orchards adjacent to fields where lupine was grown for seed than where it was turned under green. Exceptions were noted in places where there was no anthracnose even though orchards were next to fields of lupine.

Severe frosts during the winters of 1950–1951 and 1951–1952 destroyed the commercial plantings of blue lupine in central Georgia. The elimination of one host provided a unique test of the possible relationship between the fungus on blue lupine and peach in central Georgia. Observations throughout the 1951 and 1952 peach harvests revealed only an occasional diseased fruit in the orchards.

The fact that anthracnose spores from blue lupine plants can produce anthracnose of the peach, the correlations observed in the orchards in 1950, and the almost complete absence of the disease on peaches in 1951 and 1952 when the lupine plantings were destroyed by low temperature all indicate that the occurrence and spread of the anthracnose disease of peaches in central Georgia can be attributed to the practice of growing blue lupine for seed in the area. However, the reports of peach anthracnose from areas where lupine is not grown indicates that the complete story is not known. The source of the infective anthracnose spores in these areas has not been determined.

Experiments to protect peaches from anthracnose infections with various fungicides were carried out in 1950 and 1951 but no conclusive results were obtained. Experiments in South Carolina in 1952 indicated that the fungicide N-trichloromethylthiotetrahydrophthalimide (captan) may materially aid in reducing the amount of infected fruit. The number of sprays needed and the frequency of application has not been determined. The tests indicate that sprays applied earlier than 6 weeks before the beginning of harvest were of doubtful value. It is best not to grow blue lupine for seed in fields next to peach orchards.

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