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**Bacterial Spot on Peaches**

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BACTERIAL SPOT OF PEACHES

Bacterial spot, a common disease of peach and other stone fruits, has also been referred to as "shot-hole," "bacterial shot-hole," "bacteriosis," "black-spot," and "bacterial canker." The disease occurs on leaves, twigs and fruits producing characteristic symptoms that readily distinguish it from other troubles.

How to recognize bacterial spot

The first symptoms of bacterial spot appear on the leaves as small, pale green, circular spots usually surrounded by a light-colored halo; they first appear on the underside of the leaf. As the disease develops, the spots enlarge, become irregular or angular in outline, and turn deep purple, brown or black, surrounded by a light, yellowish-green border. Usually, a line of cleavage develops around the spot and the dead tissue falls out, giving a "shot-hole" appearance (Figure 1).

Bacterial spot appears on the fruit surface as small, circular, brown spots (Figure 2). These spots become depressed, darker in color, and are usually surrounded by a water-soaked margin. Spots may be few in number or they may be so numerous that a large portion of the fruit is involved. As the fruit approaches maturity, the lesions cause a conspicuous "pitting" or "cracking," that is usually accompanied by gum production.

Cracking of the fruit may vary from very small, scarcely visible cracks surrounded by a light-green halo, to large lesions that deform the fruit.

Bacterial spot also causes spring and summer cankers on peach twigs. Spring cankers appear as water-soaked, dark blisters on one-year-old twigs. These cankers become visible about the time the first leaves are formed. Spring canker develop on twigs

Figure 1. Symptoms of bacterial spot on peach leaves.

Figure 2. Symptoms of bacterial spot on peach fruit.
infected during the late summer or early fall of the previous year. Summer cankers may develop on green shoots as dark purplish spots that later turn black and become sunken, elliptical lesions with a water-soaked margin.

Peach varieties vary greatly in their susceptibility to bacterial spot.

Resistant Varieties

| Early-Free-Red | Belle of Georgia |
| Jubilee        | Hiley           |
| Raritan Rose   |                 |

Satisfactorily Resistant

| Sunhaven       | Lizzie          |
| Redhaven       | Kalhaven        |
| Richhaven      | Icy's Delight   |
| Fairhaven      | Blake           |
| Redskin        | So Good         |

Susceptible

| Elberta        | Shippers Red    |
| Sullivan       | White Hale      |
| Gage           | Rio-Oso-Gem     |
| Sunhigh        | Jerseyland      |
| Afterglow      | Hale            |

For peach varieties recommended for Indiana refer to HO-51-2 Peach Varieties for Indiana.

What causes bacterial spot

Bacterial spot is caused by the bacterium Xanthomonas pruni that survives the winter in twigs infected during the late summer or fall of the previous season. Primary infections of leaves in the spring result from bacteria that are produced in spring cankers. Secondary infection of leaves, twigs and fruits may occur any time during the growing season when warm, moderate weather prevails with frequent light rains accompanied by fairly high winds and heavy dews.

How to control bacterial spot

1. Do not plant susceptible varieties.

2. There is a correlation between general tree vigor and the severity of defoliation from bacterial spot. Weak trees will be defoliated by late June when infected with the disease. Vigorous trees, on the other hand, may not be more resistant to bacterial spot, but do not defoliate as readily as weak trees and will produce renewal growth following damage from leaf spot. Attention to fertility requirements is, therefore, important in the control of bacterial spot. (Refer to HO-59-5 General Fertilizer Recommendations for Tree Fruits in Indiana).

3. Since the causal bacteria do not over winter in fallen leaves and rarely in visible twig cankers, little or no benefit results from sanitary measures or from pruning.

4. Many attempts have been made to develop an effective spray program for bacterial spot control. At present there is no completely satisfactory spray recommendation. Some success has resulted from the use of 4-6-100 Zinc-bordeaux (4 lbs. zinc sulfate, 6 lbs. fresh spray lime in 100 gallons of water) applied in the first three cover sprays. Zinc–bordeaux will also have a stimulating effect in zinc deficient orchards and may delay serious defoliation from bacterial spot infections under such circumstances. Zinc-bordeaux sprays should be continued in non-crop years to prevent a sudden increase in disease severity in following crops.

Zineb has also been suggested for control of bacterial spot. Sprays containing 2 pounds zineb per 100 gallons of water applied at weekly or 10-day intervals from second through fifth cover periods have given partial control.

The application of a cooper sulfate spray in late October just before leaf fall has shown
promise for bacterial spot control. Trees should be sprayed in late October just before leaf fall with 4 pounds of copper sulfate in 100 gallons of water without spray lime. Follow the application of copper sulfate 2-5 hours later with a second spray of hydrated lime at 6 pounds per 100 gallons of water. To be effective the copper sulfate and lime must be applied separately. The lime spray must be used to prevent the continued penetration of the copper sulfate which would cause bud injury. This treatment will also control peach leaf curl.

5. So far none of the antibiotics such as streptomycin sulfate have proven a satisfactory, economical control for this disease.

6. Bacterial spot will occur on all species of Prunus including peach, plum, sweet and sour cherry, apricot, nectarine and almond.

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