



Extension FactSheet

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Bacterial Spot of Pepper

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Bacterial spot of pepper is one of the most destructive diseases of pepper in climates where high temperature and frequent rainfall occur during the growing season. The disease causes spots on leaves and fruit, leaf defoliation, and a reduction in plant growth, fruit yield, and quality. Bacterial spot is also a serious problem on tomato, although not all strains of the pathogen can cause disease on both hosts.

Symptoms

Characteristic bacterial spot symptoms can appear on the leaves, fruits, stem, and petioles. On leaves, symptoms begin as small, yellow-green circular lesions surrounded by a yellowish halo (Figure 1). These spots appear water-soaked under wet conditions. As the lesions mature, a general yellowing extending from the area around the lesions develops on diseased leaves and the center of the spots become brown to black and sunken. Tissue in the center of the lesion often dries and breaks away, giving a “shot-hole” appearance to the leaf. When spots are numerous, they may join together and form irregular discolored streaks along the veins and leaf margins. Edges and tips of leaves may die, then dry and break away, causing leaves to appear ragged. Severely spotted leaves turn yellow or brown and fall from the plant; young leaves can be distorted. Fruit spots begin as green, circular, slightly raised lesions which eventually become brown or dark, raised, and about 1/8 inch in diameter. Centers of the spots become necrotic, corky, and scab-like (Figure 2).

On stems and petioles, lesions are elongated and blackened, and can kill leaflets. Cotyledons are particularly susceptible to bacterial spot; lesions are initially small, sunken, and silvery. They later become darker in color.

Causal Organism

Bacterial spot of pepper is caused by a bacterium, *Xanthomonas campestris* pv. *vesicatoria*, which can overwinter in crop residue in or on soil, on or in seeds, and on wild host plants. Pepper seeds infested with the pathogen are a major source of inoculum for bacterial spot as well as the major means of long distance spread of the pathogen. The pathogen can

survive on dried seeds for up to 10 years. It is not able to survive free in soil for a long time, but can survive up to 6 months in infected crop debris in soil. The bacterium penetrates leaves through stomata and/or wounds, and fruits through wounds created by wind-driven sand, insect punctures, or mechanical injury. Dissemination of the bacterium occurs between and



Figure 1. Bacterial spot symptoms on pepper leaves.

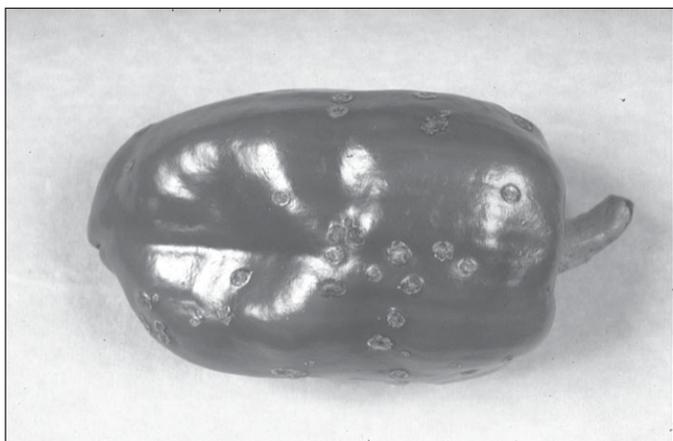


Figure 2. Bacterial spot symptoms on pepper fruit.

within fields by water-splashing, aerosols, or during cultivating, hoeing, thinning of direct seeded plants, transplanting, or harvesting.

In the United States, numerous physiological races of the bacterium are known, most of which have been found in Ohio.

Management

1. Use pathogen-free seeds and transplants.
2. Use sodium hypochlorite-treated seed to reduce bacterial populations. See the Ohio Vegetable Production Guide (OSU Extension Bulletin No. 672) for complete seed treatment instructions.
3. Practice crop rotation with non-host plants such as corn and soybean so that peppers are grown only every 3 to 4 years. However, do not use soybeans in the rotation if white mold (*Sclerotinia sclerotiorum*) has been a problem.
4. Deep plow to bury infected crop debris.
5. Avoid working in the field when foliage is wet.
6. Eliminate wild host plants such as nightshade and ground cherry in and around field.
7. Application of copper-containing pesticides may be helpful for preventing development and spread of bacterial spot. Consult the Ohio Vegetable Production Guide (OSU Extension Bulletin No. 672) for current recommendations.
8. None of the currently available pepper varieties are resistant to all known races of the bacterial spot pathogen. However, use of varieties resistant to one or more races of the pathogen may provide some control, depending on the races present.

This publication contains pesticide recommendations that are subject to change at any time. These recommendations are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. Due to constantly changing labels and product registration, some of the recommendations given in this writing may no longer be legal by the time you read them. If any information in these recommendations disagrees with the label, the recommendation must be disregarded. No endorsement is intended for products mentioned, nor is criticism meant for products not mentioned. The author, The Ohio State University and Ohio State University Extension assume no liability resulting from the use of these recommendations.

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