



DISEASE MANAGEMENT: Bacterial Spot



Xanthomonas vesicatoria,
X. euvesicatoria, *X. gardneri* and
X. perforans

SIGNS & SYMPTOMS:

- Produces spots (<3 mm) on leaves stems and fruit.
- Spots are watersoaked when foliage is wet.
- Blighting of the foliage may occur.
- Defoliation of pepper leaves occurs under severe disease.

DISEASE CYCLE & EPIDEMIOLOGY:

- Organism survives on tomato volunteers and diseased plant debris.
- Contaminated seed serves as inoculum source.
- Disease development favored by high temperatures and high precipitation.
- Bacterium disseminated by wind-driven rain droplets, clipping of transplants and aerosols.
- Bacterium penetrates through stomates and wounds.

FIELD SIGNATURE:

- This disease is quite prevalent during warm, moist weather.
- During optimal conditions plants may have a blighted appearance.
- Symptoms are easily seen on the underside of the leaf.
- On tomato the lesions may have a shot-hole appearance.

PHOTOS:

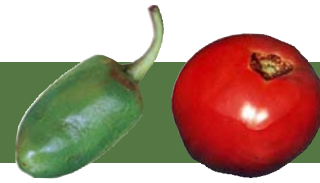
Figure 1. Bacterial spot of tomato. Note: the leaf spots, yellowing and defoliation. Photograph by: Jeff Jones.

Figure 2. Fruit lesions on tomato. Photograph by: Jeff Jones.

Figure 3. Leaf spots on pepper. See Fig. 5 for a close-up view of watersoaking. Photograph by: Ken Pernezny.

Prepared by: Dr. Jeff Jones

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CULTURAL CONTROLS:

- Crop rotation to avoid carry-over on volunteers and crop residue.
- Production of disease-free transplants.
- Seed treatment should be used.
- Eliminate any volunteers.
- Cull piles should be avoided near transplant or field production.

CHEMICAL CONTROL:

- Copper bactericides used in combination with mancozeb provides control of many copper-tolerant strains.
- The plant inducer, Actigard ®, provides significant disease control.
- Bacteriophages with specificity to the target bacterial strains provide significant control.

RESISTANCE MANAGEMENT:

- Widespread resistance to copper has been documented for both pepper and tomato strains.



Figure 4. Bacterial spot on pepper. Photograph by: Ken Pernezny.

Figure 5. Close-up view of watersoaked lesions on pepper. Photograph by: Ken Pernezny.

RESISTANT CULTIVARS:

TOMATO: None available

PEPPER: There are quite a few pepper cultivars, especially sweet bell pepper, with resistance to specific races (especially races 1-3) of the spot pathogen. Check with your seed supplier when purchasing hybrid seed to see what resistance is available. **See pg. 13 for resistant cultivars.**



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References:

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Jones, J. B., K.L Pohronezny, R.E. Stall and J.P. Jones. 1986. Survival of *Xanthomonas campestris* pv. *vesicatoria* in Florida on tomato crop residue, weeds, seeds, and volunteer tomato plants. *Phytopathology* 76:430-434.