

## WHAT'S WRONG WITH MY TOMATOES?

Helene R. Dillard

Associate Professor  
Cornell University  
New York State Agricultural Experiment Station  
Department of Plant Pathology  
Geneva, NY 14456

In New York State, tomato diseases are as consistent as taxes - they are guaranteed in one form or another! In 1993, the diseases that were most common included anthracnose, bacterial speck and spot, early blight, and Septoria leaf spot. The following information should serve as a guide to identification of those diseases, and common practices for disease control.

### **Anthracnose**

Anthracnose is caused by the fungus *Colletotrichum coccodes*, an organism that is naturally present in many soils in New York State. The fungus can infect both green and red fruit, but typical anthracnose symptoms develop only on ripe fruit. The symptoms produced on fruit are circular sunken lesions. When the humidity is high, a salmon colored spore mass may be observed on the lesion. As the lesion matures, the center may darken and produce survival structures. The fungus also infects tomato roots and produces a disease known as black dot root rot.

This fungus is especially difficult to control because it has weed hosts such as nightshade and velvetleaf, it can attack above or below ground parts of tomatoes and potatoes, and it is able to survive in soil for several years. The fungus produces survival structures on tomato fruit and roots that are called sclerotia, which have a function similar to seeds. The sclerotia are able to remain dormant in soil until conditions are suitable for them to germinate and infect a host. In our experiments, the sclerotia have survived for 5 years in soil without a host crop such as tomato or potato. For most tomato or potato growers, rotations of 5+ years are difficult if not impossible to achieve.

#### *Control:*

1. Rotate to prevent buildup of the fungal population in the soil. Once the fungal population has reached high levels in soil, it will be very difficult to reduce levels in soil via rotation.
2. Fresh market growers should plant tomatoes on raised beds, stake them, or use a straw mulch to keep the fruit from coming in contact with contaminated soil.
3. Avoid excessive irrigation; the fungus is most troublesome in wet conditions.
4. Harvest fruit as soon as possible after they ripen. Although green fruit are infected, symptoms develop on ripe fruit.
5. Protectant fungicides are registered and can provide good control. Consult the 1994 Pest Management Recommendations.

### **Bacterial speck and spot**

Bacterial speck and spot are caused by the bacteria *Pseudomonas syringae* pv. *tomato* and *Pseudomonas campestris* pv. *vesicatoria*, respectively. Both bacterial species produce symptoms on the leaves and fruit. Bacterial speck produces small black superficial specks on the fruit and the tissue around the specks sometimes is slow to ripen. Bacterial spot results in black, slightly raised superficial spots with lobed margins

