

## Integrated Disease Management of Timber Rot of Tomatoes

Timber rot of tomato, also called white mold or *Sclerotinia* stem rot, occurs sporadically in tomatoes produced in open fields, high tunnels, and home gardens in the Southeastern United States. The disease is difficult to manage because the fungus, *Sclerotinia sclerotiorum*, attacks a wide range of vegetables (**Box 1**), citrus and other food production crops and survives in the soil for up to 10 years depending on soil conditions.

**Disease Symptoms:** Timber rot generally first appears as water soaked areas at the base of the main stem or in the axes of lower branches during cool (60-70 °F), moist weather. If moist cool conditions persist, cottony, white mold begins to grow on diseased areas (**Figure 1A and B**). As mold growth continues the branches and stems begin to girdle and wilt and small (1/4 inches), irregularly shaped black structures called sclerotia form on and inside of diseased tissue (**Figure 1C**). Sclerotia are often confused with soil particles but if a sclerotium is cut in half the center is white to tan in color. Sclerotia are very resistant to weathering, which allows the fungus to survive from season to season and year to year. Although difficult to see, the fungus also produces mushroom-like structures (apothecia) that release spores early in the season. The spores are dispersed long distance by wind.



Figure 1. Timber rot symptoms on tomato.

## Disease Management:

Once soil inhabiting fungal pathogens arrive in the production system they are very difficult to eliminate. As such, a long-term, integrated preventative management program is essential. The use of good cultural practices and fungicides are a grower's best options since no resistant cultivars of tomato are available.

### Cultural Practices

**Crop rotation:** Because of the wide host range of this disease establishing a multi-year crop rotation is not practical, especially in high tunnels. In the field, a sweet corn-small grain-tomato rotation is recommended. Do not rotate with alfalfa, soybean or canola as these crops are also susceptible to the disease.

**Sanitation:** Sanitation is the most important method for preventing the introduction of the fungus into the cropping system and management once an infection occurs.

- Always start with disease-free transplants. If purchasing transplants check the base of the stem and the soil surface for the presence of white cottony mold or sclerotia. If you are growing your own transplants use clean potting mix from a reliable source.
- Remove and destroy diseased plants before the sclerotia have a chance to drop to the soil. Place the plants in a closed container before removing them from the area to prevent dispersal of the sclerotia.
- Keep the cropping system and surrounding area free of weeds. Lambsquarters, pigweed, Canada thistle, and wild mustard are all susceptible to timber rot.

#### Box 1. Other important vegetable hosts of the timber rot fungus

While the disease name on other vegetables may be different symptoms are similar to those on tomato, especially the presence of cottony white mold.

Beans  
Cabbage and other crucifers  
Cucurbits  
Edamame (edible soybeans)  
Eggplant  
Lettuce  
Peas  
Peppers

**Plant spacing and pruning:** Space plants as far as part as possible and remove suckers and yellowing or wilting leaves from the bottom of the plant to promote airflow through the canopy.

**Cultivation:** Burying the sclerotia by deep inversion plowing (1 ft) may help reduce timber rot severity by reducing the number of sclerotia at the soil surface. However, subsequent tillage or another form of soil disturbance will bring the sclerotia back to the surface.

**Biocontrol:** When used as part of an integrated disease management program the biocotrol product Contans® WG is effective at reducing the occurrence of timber rot. Contans® WG contains a fungus that parasitizes sclerotia over a period of several months. Contans® WG must be applied 3-4 months prior to planting or immediately following harvest. Adequate coverage and incorporation is critical because the product must come in direct contact with the sclerotia to be effective. Contans® WG is OMRI approved.

**Fungicides:** Fungicides are most effective when applied at initial full bloom when the plant is most susceptible to the disease. Good coverage of the soil and base of the plant is important for good control. Consult the *Louisiana Plant Disease Management Guide* or the *Southeastern U.S. Vegetable Crop Handbook* for fungicides labeled for timber rot of tomato in Louisiana.

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Timber Rot images courtesy of A) Don Ferrin, LSU AgCenter; B) Rutgers Cooperative Extension Service and; C) Iowa State University Extension.

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