

Factsheet: Late blight of Tomato – Symptoms, Causes, and Control.





Name of Disease: Late Blight in Tomatoes

Pathogen: *Phytophthora infestans*

Host Plants: Various species belonging to family Solanaceae like Tomatoes, Potatoes, Nightshades

Symptoms:

- Late blight disease in tomatoes is identified by the initial appearance of small water-soaked brownish lesions starting from the margin of leaves, which may have chlorotic borders. Such lesions expand rapidly, which causes necrosis in entire leaves.
- During the high humid conditions, the pathogen produces sporangiophores and sporangia on the surface of the infected tissue, resulting in the whitish color of sporulation on the lower surface of infected leaves, which is characteristic of the disease.
- As the disease progresses, such lesions on the leaves coalesce, and the whole foliage looks blighted quickly.
- The disease primarily causes foliar blight, but it causes black discoloration in the stem and shoulders of ripe fruits in a later stage.
- If fruits get infected, lesions with brownish or purplish discoloration can be observed.
- Infected plants have shallow, brown, or purple lesions on the surface of the leaves and fruits.

			
<p>A late blight-infected test plot. The front plot is a susceptible variety severely infected, while the back plot is a resistant variety with no symptoms.</p>	<p>Tomato leaf infected with late blight. In humid conditions, sporangia (whitish structures present on the leaf) will become noticeable on advanced infections.</p>	<p>Tomato stem infected with late blight.</p>	<p>Late blight can infect fruit causing rot and yield reductions in susceptible plants.</p>

Disease Cycle and Epidemiology:

This disease is caused by oomycete or water molds and it primarily overwinters in plant debris as mycelia, a filamentous, thread-like growth of the pathogen. The pathogen spreads through asexual

spores, including airborne sporangia and waterborne zoospores. It infects host plant cells, ultimately leading to plant death.

The spread and epidemics of late blight in tomatoes highly depend upon the relative humidity and temperature during different stages of the pathogen's life cycle. The pathogen requires nearly 100% RH and an optimum temperature of 75 °F to cause widespread damage in the field.

Disease Management:

Resistant varieties:

Planting resistant varieties or early maturing varieties that can escape high disease pressure during the late season can be the best option for organic growers. Some late blight-resistant varieties include Mountain Magic, Plum Regal, Mountain Merit, and Defiant.

Cultural Practices:

Removing volunteer plants from the field and properly managing crop debris can be good practices to prevent the disease. Similarly, regular scouting of the fields and early removal of infected plants and fruits can be very helpful.

Biological management

Organic growers cannot use chemicals to manage this disease, so they have very few options. The only OMRI-labeled active ingredients that have decent efficacy against late blight are fixed copper formulations.

Further reading:

- Panthee, D. R., Pandey, A., & Paudel, R. (2024). Multiple Foliar Fungal Disease Management in Tomatoes: A Comprehensive Approach. *International Journal of Plant Biology*, 15(1), 69-93. <https://doi.org/10.3390/ijpb15010007>

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