



Powdery Mildew on Greenhouse Tomatoes

Introduction

Powdery mildew can be particularly damaging on greenhouse tomatoes causing leaf yellowing, necrosis and defoliation.

Symptoms

Symptoms begin as light green to chlorotic lesions on the upper leaf surface. Small, whitish areas of whitish fungal growth with sporulation may be seen. Although white, powdery spots develop, they are not as powdery or fluffy as powdery mildew on other hosts. When severe, a white powdery layer may occur. Once infected, entire leaves may quickly brown and shrivel on the plant. Powdery mildew occurs on the leaves and petioles, but not the tomato fruit.

Causal Organisms and Host Range

Powdery mildew on greenhouse tomatoes is caused by *Oidium neolycopersici*, which was first identified in greenhouse tomatoes in CT in 1995. This pathogen has a host range of 60 species in 13 plant families, especially plant species in the Solanaceae and Cucurbitaceae families. Because of this wide host range, *O. neolycopersici* may survive on other hosts or volunteer tomato plants between production cycles. Powdery mildew fungi are obligate parasites that need a living host. Spores are readily blown throughout the greenhouse on air currents and on workers as they work on the plants.



Figure 1 & 2: Powdery mildew on greenhouse tomatoes. Photos by L. Pundt

Optimum conditions for disease development are low light levels and temperatures between 68F and 80F and high relative humidity (85-95%). However, infection can also occur with low relative humidity (50%). Powdery mildew spores do not require leaf wetness to germinate and cause infection.

Scouting

Powdery mildew is easily overlooked because the fungal strands (mycelium) are sparse in the early stages of infection and the powdery mildew spots are not as white and fluffy with other powdery mildew pathogens. Do not confuse powdery mildew infection with leaf mold, where there is brown sporulation on the underside of the leaves. Do not confuse with whitish spray residue. Use a 10x hand lens to look for whitish threads radiating out from a central point or for chains of spores. Spray residue does not appear as fluffy and tends to have more of a droplet like outline.

Management

- Control alternative weed hosts
- [Reduce humidity levels](#) in the greenhouse
- Provide sufficient space for plants
- Properly prune plants to increase air flow

- Select varieties less susceptible to the disease. For example, the cultivar Grace has resistance to powdery mildew
- Apply fungicides when symptoms are first observed. Both organic and conventional fungicides are labeled. See the latest edition of the New England Vegetable Management Guide for more information.

By Leanne Pundt, Extension Educator, UConn Extension, 2020

References

Campbell-Nelson, K. 2020-2021 New England Vegetable Management Guide. Available online at: <https://nevegetable.org/>

Douglas, S.M. 2003. [Leaf Mold and Powdery Mildew of Tomato](#). CAES Fact sheet.

LaMondia, J. A. 1999. [Powdery Mildew on Tomato](#). New England Vegetable and Berry Growers Conference. 326-330.

Sideman, B., and C. Smith. 2018. [Powdery Mildew of greenhouse & high tunnel tomato](#). NH Vegetable and Fruit News.

Disclaimer for Fact Sheets:

The information in this document is for educational purposes only. The recommendations contained are based on the best available knowledge at the time of publication. Any reference to commercial products, trade or brand names is for information only, and no endorsement or approval is intended. UConn Extension does not guarantee or warrant the standard of any product referenced or imply approval of the product to the exclusion of others which also may be available. The University of Connecticut, UConn Extension, College of Agriculture, Health and Natural Resources is an equal opportunity program provider and employer.