

Powdery Mildew of Tomato

Symptoms

Powdery mildew first appears on lower, older tomato leaves as yellow spots on the upper leaf surface (Fig. 1). Infected leaves will turn first yellow, then brown and shrivel, remaining attached to the plant (Fig. 1). The spots lack a distinctive margin, but become more noticeable as they develop a whitish-gray powder (conidia) on the opposite side of the lesions (Fig. 2). Under severe infections, defoliation leads to lower yields and sun-scalding of exposed fruit.



Figure 1. Yellow spots, followed by brown lesions on top surface of a tomato leaf. Photo: Ronald French

Causal Agent

Powdery mildew of tomato is caused by the fungus *Leveillula taurica* (Syn. *Oidiopsis taurica*). Another pathogen causing powdery mildew in tomato on the US east coast is *Oidium neolycopersici*. *Oidium taurica*, besides tomato, affects pepper, eggplant and cucumber crops. *O. neolycopersici* affects solanaceous crops (tomato, pepper, eggplant, potato and tobacco) and weeds (nightshade).



Figure 2. Fungal growth on lower and upper leaf surface.. Photo: Ronald French.

Inoculum Source and conditions

The fungus survives between crops as mycelium in volunteer hosts and weeds. Conidia (asexual spores) are easily dislodged by wind and rain, and carried long distances. Disease is favored by high humidity, high density stand and excess nitrogen fertilization contribute. Conidia are also spread within the same crop by insects (thrips, aphids and whiteflies).

Management

Plant healthy clean transplants. Reduce fungal inoculum by destroying crop debris between production cycles. Avoid high density stands, and promote air circulation through the canopy. Avoid high nitrogen rates. Scout regularly. Eliminate infected plants particularly in greenhouse production. Apply protective fungicides (organic/inorganic) particularly when transplants originated in areas where the pathogen is present year round. Spray fungicides at the appearance of first symptoms, rotating compounds to prevent the development of fungicide resistance. Thorough coverage is critical for effective control.

Prepared by Dr. Diana Schultz¹ and Dr. Ronald D. French²

¹Plant Pathologist (Fort Myers, Florida) ²Assistant Professor and Extension Plant Pathologist (Amarillo, TX)
Texas AgriLife Extension Service; The Texas A&M System

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