LOUISIANA PLANT PATHOLOGY
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Sweet Basil Downy Mildew

Peronospora belbahrii

Downy mildew of sweet basil is a destructive disease that was first detected in the United States in 2007. Since that first discovery in south Florida, it has rapidly spread to other parts of the United States and was detected in a Louisiana home garden in spring 2009.

The disease is caused by a fungus-like organism known as *Peronospora belbaharii*. The pathogen belongs to a group of organisms called Oomycetes, commonly known as water molds.

Symptoms of downy mildew include irregular yellowing of leaves (Figure 1). The yellowing starts on the lower leaves first and then progresses upward.

The yellow areas initially are confined by the major veins (Figure 2), but as the disease progress, whole leaves may turn yellow (Figure 3). Gray, fuzzy growth appears on the undersides of the leaves as the disease develops (Figure 4), and that fuzzy growth consists of sporangia and sporangiophores of the pathogen (Figure 5).

Severely infected leaves curl upward, and later on the leaves turn brown to black. Rapid defoliation may occur under favorable environmental conditions.

Peronospora belbaharii is an obligate parasite, and recent studies have shown it is a seed-borne pathogen that also can cause downy mildew on ornamental types of basil.

While the disease rapidly develops and spreads during warm humid weather with overcast skies, the pathogen also can tolerate cooler temperatures. Water on foliage or high relative humidity favors disease development. The pathogen can spread long distances via contaminated seeds, wind-borne spores and movement of infected plant material.

Effective management of downy mildew requires incorporation of cultural and chemical management practices. Management starts with planting uncontaminated seeds. Do not start plants from seeds collected from infected plants.

In addition, home gardeners should properly check basil seedlings for any suspicious symptoms, including yellowing of leaves and gray fuzzy growth on the undersides of leaves, before purchasing.

Figure 1. Sweet basil infected with downy mildew.

Figure 2. Irregular yellowing of leaves confined by veins.

When planting basil, improve air movement by orienting rows parallel to the direction of prevailing winds to promote rapid drying of foliage. Leaf wetness can be minimized by avoiding overhead sprinkler irrigation and increasing row spacing and distance between plants. If overhead irrigation cannot be avoided, water early in the morning.

Remove infected plants immediately and dispose of them properly to reduce spread of disease. Once the growing season is over, all basil plants must be completely removed or buried underground.

Greenhouse producers should maintain low relative humidity and good air circulation in greenhouses to reduce periods of leaf wetness. Commercial basil producers should follow cultural practices that make the environment less conducive for the pathogen to grow, as well as using chemical spray programs as preventive measures.

For selection and use of fungicides for sweet basil downy mildew, consult your local LSU AgCenter county agent or check the LSU AgCenter's Plant Disease Management Guide

Figure 3. Yellowing of entire leaf.

Figure 4. Gray, fuzzy growth on the underside of leaf.

Figure 5. Sporangia and sporangiophores of sweet basil downy mildew under a microscope.

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