

Downy Mildew of Cucurbits

Downy mildew, caused by *Pseudoperonospora cubensis*, affects all cucurbit crops. In Illinois, this disease usually occurs toward the end of the season. There has been no report of occurrence of downy mildew in Illinois in 2005 yet. Downy mildew, however, has been reported on cucurbit crops eastern US, from Florida up to New Jersey. Periodically scouting cucurbit fields for presence of downy mildew symptoms would help to effectively control this disease.

Downy mildew only affects leaves. Symptoms of downy mildew vary with the host and the environmental conditions. The first symptom is usually the appearance of indistinct, pale green areas on the upper leaf surface. The pale green areas soon become yellow in color and angular to irregular in shape, bounded by the leaf veins. As the disease progress the lesions may remain yellow or become brown and necrotic. During moist weather the corresponding lower leaf surface is covered with a downy, pale gray to purple mildew. On watermelons, yellow leaf spots may be angular or non-angular, and they will later turn brown to black in color. Often on watermelons, an upward leaf curling will occur.

Downy mildew pathogen survives only on cucurbit hosts. The pathogen overwinters in the southern United States where cucurbits are grown during winter. It progresses northward with cucurbit production each spring. Usually by the time downy mildew becomes established in the Midwest, it is toward the end of season for most of the cucurbit crops. Once infection has taken place, the pathogen can produce spores (sporangia) in about four days, which initiate another infection cycle. Downy mildew is favored by cool, wet conditions.

Control of downy mildew on cucurbits is achieved by planting resistant cultivars, early planting of crops, and/or fungicide sprays. Cucumber cultivars resistant to downy mildew are available. Early plantings for crops for July harvest often escape infection with downy mildew, while plantings for harvest in August or later in the season are vulnerable. Because of the potential for rapid plant infection, sprays should be initiated on a preventive basis for vulnerable plantings. Fields should be scouted regularly for disease development. When downy mildew is present, fungicides with systemic activity tend to be more effective than protectants. Using systemic fungicides with protectants will minimize resistant development in the pathogen. A disease-forecasting program is available (www.ces.ncsu.edu/depts/pp/cucurbit).





Downy mildew lesions on the lower surface of a pumpkin leaf

University of Illinois