

## Plectosporium Blight of Cucurbits

GARY K. ENGLAND<sup>1\*</sup>, J. STACY STRICKLAND<sup>2</sup>, AND ROBERT J. MCGOVERN<sup>3</sup>

<sup>1</sup>University of Florida, IFAS, Sumter County Extension, 7620 SR 471, Suite 2, Bushnell, FL 33513

<sup>2</sup>University of Florida, IFAS, Hernando County Extension, 19490 Oliver Street, Brooksville, FL 34601-6538

<sup>3</sup>University of Florida, IFAS, Doctor of Plant Medicine Program, 1453 Fifield Hall, PO Box 110680, Gainesville, FL 32611

**ADDITIONAL INDEX WORDS.** *Microdochium tabacinum*, *Fusarium tabacinum*, zucchini, diamond-shaped white to cream-colored lesions

**Plectosporium blight of cucurbits, caused by the fungus *Plectosporium tabacinum* (formerly known as *Microdochium tabacinum* and *Fusarium tabacinum*), is a relatively new disease of cucurbits that was first reported in Tennessee in 1988. Henceforth, it has been observed in numerous eastern states, causing significant damage in commercial plantings of summer squash, pumpkin, and some gourd cultivars. Trials conducted in various states showed a 50% to 85% loss of marketable fruit attributed to this disease. Symptoms of *Plectosporium* blight of cucurbits are diamond-shaped white to cream-colored lesions on the petioles and underside of the leaf blades. In severe infestations, the lesions on the petiole will coalesce, causing the petiole to become brittle and susceptible to breakage. The first reported observations of *Plectosporium* blight of cucurbits in Florida were made in Fall 2005 on two farms producing summer squash in Sumter County. This disease was observed in both yellow squash and zucchini, with the most severe symptoms expressed in the latter. Recommended tactics for the management of this disease in Sumter County included crop rotation, scouting, and fungicide treatments.**

*Plectosporium* blight of cucurbits, caused by the fungus *Plectosporium tabacinum* (formerly known as *Microdochium tabacinum* and *Fusarium tabacinum*) (Hansen, 2005), is a relatively new disease of cucurbits that was first reported in Tennessee in 1988 (Babadoost, 2000; McGrath, 2005). Since then, it has been observed as a disease of pumpkin and other cucurbit crops at several locations in the eastern United States from Vermont (Mullen and Sikora, 2003) and Massachusetts in the north to Alabama and Georgia (McGrath, 2005) in the south. *Plectosporium tabacinum* can infect and cause significant damage in yellow squash, zucchini, pumpkin, and some varieties of gourds (Boucher, 2005). The host range of the fungus also includes snap bean (Dillard et al., 2004) and an aquatic weed (Smither-Kopperl et al., 1999). The first recorded observations of *Plectosporium* blight of cucurbits in Florida were made in two commercial zucchini fields in Sumter County during Fall 2005. Crop yields in the infested fields were drastically reduced due to the unmarketability of infected fruit.

Yield losses of 50% to 100% were observed in *Plectosporium* blight-infested commercial pumpkin production fields in Connecticut that were managed under a low or no fungicide spray program (Boucher, 2005). The fungus caused 50% to 85% fruit losses across 11 cultivars in pumpkin variety trials in Tennessee (McGrath, 2005). A large plot fungicide evaluation conducted in an Alabama pumpkin field where *Plectosporium* blight of cucurbits was prevalent showed a 50% reduction in marketable fruit from an unsprayed area vs. one where a weekly fungicide application was made (Mullen et al., 2003).

### Disease Cycle

Little is known about the disease cycle. *Plectosporium tabacinum* is thought to overwinter in crop residue and can persist in the soil for up to 3 years. The small one- to two-cell spores of the fungus can be disseminated by the wind or by rainsplash (Fig. 1). There are differing reports on the optimal environmental temperature for disease development. Some publications state that cool temperatures are optimal, but symptoms of this disease were first observed in Florida when the air temperature exceeded 90 °F. As the disease progresses and the lesions on the petioles and underside of the leaf blades coalesce, the foliage will die if untreated.

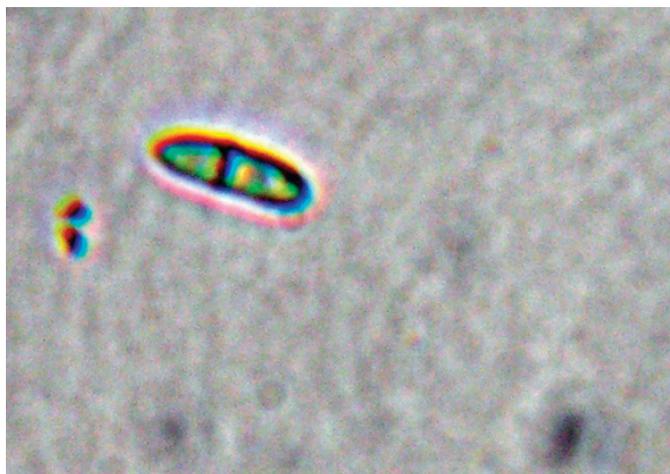


Fig. 1. Two-celled spore of *Plectosporium tabacinum* under very high magnification (~1000×).

\*Corresponding author; email: gke@ifas.ufl.edu; phone: (352) 793-2728.

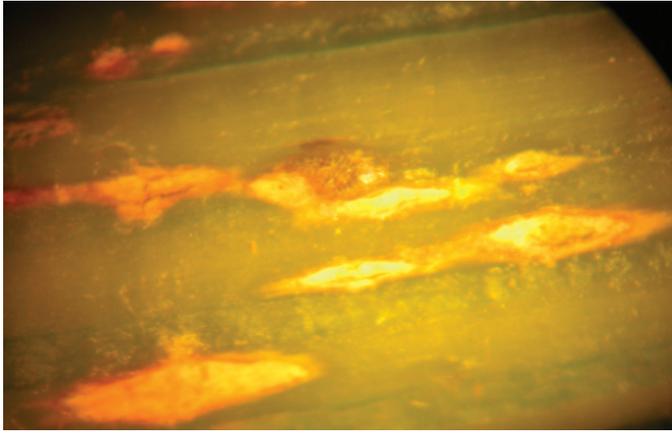


Fig. 2. Diamond-shaped white lesions on stem tissue.



Fig. 3. Raised circular lesions on zucchini fruit.

### Symptoms

The symptoms expressed were diamond-shaped white to cream-colored lesions on the petioles and on the underside of the leaf blades coinciding with the veins (Fig. 2). The fruit also exhibited raised, circular, and white to cream-colored lesions (Fig. 3). The lesions on the fruit do not coalesce or grow together as do the lesions on the leaves and stems. As the disease progresses, the infected petioles will become very brittle, often leading to breakage (Fig. 4). The lesions on the fruit can allow the entry of soft rot pathogens that could further reduce crop quality.

### Management of *Plectosporium* blight

1) Since this fungus exists on crop residue and can persist in the soil for several years, a *Plectosporium* blight of cucurbits susceptible crop free period should be practiced. In most areas where this disease is present, a 3-year rotation away from cucurbits is suggested.

2) Increasing air circulation in fields can enhance the drying of the crop foliage and thus help reduce disease incidence. This can be done by manipulating row orientation, field location, and plant population.

3) This disease is easily diagnosed by its characteristic symp-

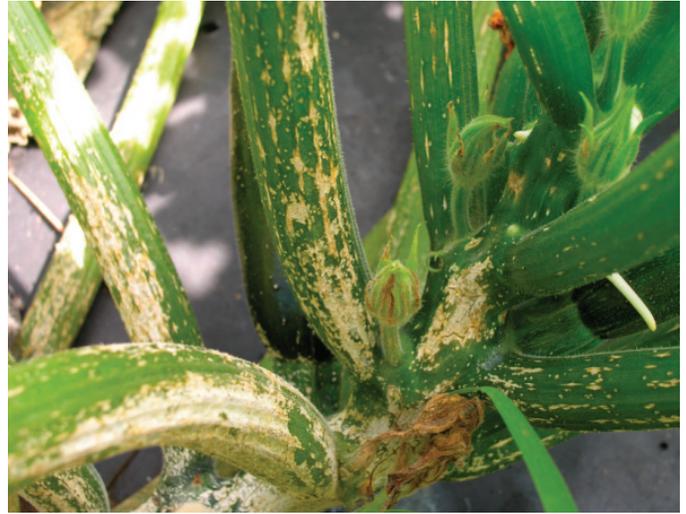


Fig. 4. Advanced symptoms of *Plectosporium* blight of cucurbits on petioles.

Table 1. Fungicides recommended for use in pumpkin and squash (from PPP6: 2004 Florida Plant Disease Management Guide: Chemical Control Guide for Diseases of Vegetables, Revision No. 16).

Active ingredient	Trade name	Fungicide group
Chlorothalonil	Several	Chloronitrile
Azoxystrobin	Amistar	Strobilurin
Pyraclostrobin	Cabrio	Strobilurin
Trifloxystrobin	Flint	Strobilurin
Boscalid + pyraclostrobin	Pristine	Anilide + Strobilurin

tom. Scout fields on a routine basis to monitor the disease levels in the crop.

4) If the incidence of symptoms appear to be increasing, applications of approved fungicides will be necessary to maintain the disease incidence below a level that will cause economic loss in the crop. See Table 1 for a list of recommended fungicides that have been shown to have activity on *Plectosporium* blight of cucurbits in other states (Boucher, 2005). Remember to rotate applications among the different fungicide groups to avoid the development of resistance to any given product.

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