

## Plectosporium Blight of Cucurbits <sup>1</sup>

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Plectosporium blight, caused by the fungus *Plectosporium tabacinum* (formerly known as *Microdochium tabacinum* and *Fusarium tabacinum*), is a relatively new disease of cucurbits, found in Tennessee in 1988. 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 and Massachusetts in the north to Alabama and Georgia in the south. *Plectosporium tabacinum* can infect and cause significant damage to yellow squash, zucchini, pumpkin, and some varieties of gourds. The host range of the fungus also includes snap bean and a number of aquatic plants. The first recorded observations of Plectosporium blight in Florida were made in two commercial zucchini fields in Sumter County during the fall of 2005.

Yield losses of 50-100% have been observed in Plectosporium blight-infested commercial production fields in Connecticut that were managed under a low or no spray program. The fungus caused 50-85% fruit losses across 11 cultivars in pumpkin variety trials in Tennessee. A large plot fungicide evaluation conducted in an Alabama pumpkin field, where Plectosporium blight was observed, showed a 50%

reduction in marketable fruit from an unsprayed area versus one where a weekly fungicide application was made.

### Disease Cycle

Little is known about the precise disease cycle of the pathogen. *P. tabacinum* is thought to overwinter in crop residue and can persist in the soil for up to three years. The spores, which are small and one- or two-celled, can be disseminated by the wind or by rainsplash (Figure 1). There are differing reports on the optimal environmental temperature for disease development. Some publications state that the optimal conditions are in cool weather, but the first report of this disease in Florida was when the air temperature exceeded 90 degrees Fahrenheit. As the disease progresses and the lesions on the stems and leaves grow together or coalesce, the foliage will die if untreated.

### Symptoms

The symptoms observed on affected plant parts are small diamond-shaped, white- to cream- colored

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**Figure 1.** Two-celled spore of *Plectosporium tabacinum* under the microscope

lesions on the stems and on the underside of the leaves coinciding with the leaf veins (Figure 2). Affected fruit also exhibit raised, circular, white- to cream-colored lesions (Figure 3). The lesions on the fruit do not coalesce as do the lesions on the leaves and stems. As the disease progresses, the infected stems become very brittle often leading to breakage (Figure 4). The lesions on the fruit can allow the entry of soft rot pathogens that could further reduce crop quality.



**Figure 2.** Diamond-shaped white lesions on stem tissue.

### Management of *Plectosporium* blight

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



**Figure 3.** Raised circular lesions on zucchini fruit.



**Figure 4.** Advanced symptoms of *Plectosporium* blight on stems.

B. 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.

C. This disease is easily diagnosed by its characteristic symptoms. Scout fields on a routine basis to monitor the disease level in the crop.

D. If the incidence of symptoms appears 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. A number of fungicides have been shown to have activity on *Plectosporium* blight in other states (Table 1). Remember to rotate applications among the different fungicide groups to avoid building resistance to any given product.

**Table 1.** Fungicides Recommended for Use in Pumpkin and Squash\*

| <b>Active Ingredient</b> | <b>Trade Name</b> | <b>Fungicide Group</b> |
|--------------------------|-------------------|------------------------|
| chlorothalonil           | Several           | Chloronitrile          |
| azoxystrobin             | Amistar           | Strobilurin            |
| pyraclostrobin           | Cabrio            | Strobilurin            |
| trifloxystrobin          | Flint             | Strobilurin            |
| boscalid+pyraclostrobin  | Pristine          | Anilide+Strobilurin    |

\*From PPP6: 2004 Florida Plant Disease Management Guide: Chemical Control Guide for Diseases of Vegetables Revision No. 16