PP242

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Charcoal Rot of Strawberries Caused by *Macrophomina phaseolina*[1]

N.A. Peres and James C. Mertely[2]

Introduction

Charcoal rot, caused by *Macrophomina phaseolina*, is a relatively new disease in Florida. This disease was first observed in December 2001, when collapsed and dying strawberry plants from a commercial field were submitted to our diagnostic clinic. During the 2003–2004 season, *M. phaseolina* was isolated from dying strawberry plants from the original field and two additional farms. Since then, a few additional samples are received in our diagnostic clinic every season. Affected plants are often found along field margins or other areas that were inadequately fumigated with methyl bromide. Charcoal rot has also been reported on strawberry in France, India, and Illinois.

Causal Agent and Symptoms

Symptoms caused by *Macrophomina phaseolina* are similar to those caused by other crown-rot pathogens such as *Colletotrichum* and *Phytophthora* species. Plants initially show signs of water stress and subsequently collapse (Fig.1). Cutting the crowns of affected plants reveals reddish-brown necrotic areas on the margins and along the woody vascular ring (Fig.2). To confirm a diagnosis, a sample must be submitted to a Diagnostic Clinic and the pathogen must be isolated from the diseased crowns and identified.

Figure 1. Plant wilt symptom of charcoal rot.

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2. N.A. Peres, assistant professor; and J.C. Mertely, coordinator research programs/services; Gulf Coast Research and Education Center--Wimauma, FL; Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611.

Figure 2. Internal crown symptoms of charcoal rot.

Disease Development and Spread

Very little is known regarding this disease on strawberries. *M. phaseolina* is a common soilborne pathogen in many warm areas of the world and has a very broad host range. Many vegetable crops planted as second crops after strawberry such as squash, cantaloupe, and peppers, legumes and others are susceptible. Those infections may increase inoculum levels of *M. phaseolina* in the soil in the off season for strawberries. In general, high temperatures and low soil moisture favor infection and disease development.

Control

No fungicides are labeled for control of charcoal rot on strawberries. Topsin M® is labeled for control of charcoal rot on other crops. Our preliminary results with Topsin M® have shown that application of this product may delay onset of symptoms. Studies are currently being conducted to determine if cultivars differ in susceptibility to charcoal rot. This disease may be an emerging threat as the Florida strawberry industry makes the transition from methyl bromide to other fumigants.