

## **Initial characterization of *Corynespora cassiicola* affecting Florida tomatoes**

Gary E. Vallad, Department of Plant Pathology, Gulf Coast Research and Education Center, University of Florida. Wimucama, FL 33598. gvallad@ufl.edu

Florida is the largest producer of fresh market tomatoes in the United States. However, increases in production costs and foreign imports into the US continue to challenge the industry, diminishing crop returns. Minimizing losses to disease and the expenses associated with disease management will help Florida growers to remain competitive. Target spot caused by *Corynespora cassiicola* is one of the most important foliar fungal diseases of tomato in Florida that can lead to severe yield losses as a result of blighting of foliar tissues and fruit infections. While much is known about *A. solani* in regards to pathogen diversity and fungicide resistance in North America, there are few published reports for *C. cassiicola* which is mostly a pathogen of plants in tropical and sub-tropical environments. Observations at grower sites and in field trials have raised questions about the efficacy of QoI and SDHI fungicides for target spot management. Fungicide resistance is a big concern, especially with the addition of new SDHI products entering the market. Using a spiral plater-based media assay (Förster *et al.* 2004, *Phytopathology* 94:163-170), 5 field isolates were tested for sensitivity to the QoI fungicide azoxystrobin (Quadris), and the SDHI fungicides boscalid (Endura), fluopyram (Luna Privilege), and penthiopyrad (Fontelis). All five isolates exhibited high levels of tolerance to azoxystrobin with calculated EC<sub>50</sub> values that greatly exceeded the upper concentration of 1 µg/ml used in the assay. Only isolate GEV-7P exhibited a high level of tolerance to boscalid with calculated EC<sub>50</sub> values far exceeding the 5 µg/ml upper concentration; while EC<sub>50</sub> values for the other isolates ranged from 0.30 to 0.76 µg/ml. Sensitivity to fluopyram (Luna) and penthiopyrad (Fontelis) ranged from 0.35 to 1.21 µg/ml and from 0.09 to 0.50 µg/ml, respectively. To confirm our findings, controlled growth room studies were constructed to test individual *C. cassiicola* isolates on small seedlings treated with 0.5, 1.0, and 1.5 times the maximum labeled field rates of azoxystrobin, boscalid, chlorothalonil, fluopyram, mancozeb, and penthiopyrad. For two SDHI-sensitive isolates, the application of Quadris, regardless of rate, caused a significant increase in disease severity. Similar increases in virulence among QoI resistant isolates of *A. solani* were observed when inoculated onto tomato plants treated with azoxystrobin. The SDHI fungicides all gave fairly consistent suppression of target spot, while the multi-mode of action fungicide mancozeb appeared to be more effective than chlorothalonil. Testing of the boscalid tolerant isolate, GEV-7P, is in progress. Additional isolates will also be collected this fall to better assess the extent of tolerance/resistance to certain fungicides in the field and to make appropriate fungicide recommendations.