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Oral Technical Session: Pathogen Resistance

163-O

Prevalence and characterization of iprodione and fludioxonil resistance in *Botrytis cinerea* isolates from small fruits in the southeastern U.S..

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The control of gray mold in small fruits is largely dependent on the application of fungicides, including iprodione and fludioxonil. A total of 516 single-spore isolates of *Botrytis cinerea* were collected from commercial strawberry fields in Florida, North Carolina, and South Carolina and blackberry fields from the Carolinas to determine occurrence and prevalence of resistance. Based on a spore-germination assay, most isolates were either low resistant (LR) or sensitive (S) to iprodione. Five isolates (1%) highly resistant (HR) to iprodione were found in blackberry fields and isolates with moderate resistance (MR) were found at low frequencies in strawberry fields. Detached fruit assays indicated that field rates of Rovral (a.i. iprodione) controlled the S and LR but not the MR and HR isolates. Moderate resistance to iprodione was associated with both the Q369P and N373S mutations in the Class III Histidine-Kinase Bos1. The I365S and I365N mutations were present in LR and HR isolates indicating that these mutations were not responsible for the HR phenotype. Of the five HR isolates to iprodione, two were S, one was MR, and two were HR to fludioxonil. The presence of the R632I mutation in the *mrr1* transcriptional regulator gene and overexpression of the *atrB* gene indicated MDR1 activity in the two isolates highly resistant to fludioxonil.

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coat protein gene was mutated in our viral vector. Nematode transmission assays were conducted with recombinant, reassortant, and wild-type strains of GFLV in grapevines and herbaceous plants. The results showed that transmission of our modified GFLV vector by *Xiphinema index* is abolished under all conditions tested. This research will facilitate the widespread use of a GFLV vector for grapevine functional genomics by restricting its unintended dissemination.

Assessing the competitive interaction between two groups of pathogenic pine root fungi

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Heterobasidion irregulare and *Leptographium/Grosmannia* spp. are several of the most important root pathogens of pine in the Southeast U.S. As a causal agent of Heterobasidion root rot, *H. irregulare* is one of the most damaging forest pathogens worldwide, causing losses in both wood yield and quality. *Leptographium/Grosmannia* spp., are a contributing factor, along with abiotic factors and insects, to a relatively recently described decline complex, Southern pine decline. Despite overlapping in geographic and host ranges, little is known about how *H. irregulare* and *Leptographium/Grosmannia* spp. interact competitively in pine roots. The experiment proposed here will help to elucidate and quantify these effects and will provide a basis for understanding how these pathogens interact in a natural setting. Preliminary results show that

forced to remove trees to prevent liabilities that result from declining trees.

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methyl (ASM, Actigard, Syngenta) were compared to untreated controls and 9 or 10 standard 21-day interval copper sprays for protection of foliage and fruit on 5 to 6-yr old 'Ray Ruby' grapefruit trees in an orchard in Ft. Pierce, Florida. Soil drench and trunk applications similarly reduced the incidence of