Phytopathology 94:S99 [2004]

Paper presented at the Annual Meeting of the American Phytopathological Society, Anaheim, CA. August 1-4, 2004.

Molecular characterization of *Fusarium oxysporum* from tree nurseries: Tools for early detection of pathogens. J. E. STEWART (1), M.-S. Kim (1), R. L. James (2), R. K. Dumroese (3), and N. B. Klopfenstein (1). (1) USDA Forest Service-RMRS, Moscow, ID; (2) USDA Forest Service-R1, Coeur d'Alene, ID; (3) USDA Forest Service-SRS, Moscow, ID. Phytopathology 94:S99. Publication no. P-2004-0675-AMA.

Root-rot disease caused by *Fusarium oxysporum* can cause severe losses in conifer nurseries. This fungus is commonly found in most container and bareroot nurseries on healthy and diseased seedlings, in nursery soils, and on conifer seeds. Nursery managers attempt to manage the disease through soil fumigation, seed treatments, container sterilization, and fungicide applications; but early detection of pathogens is difficult. Although isolates of the fungus differ in virulence, studies have shown that pathogenicity and culture morphology are not correlated. For effective disease management, it is critical to easily and quickly distinguish between pathogenic and non-pathogenic isolates. Isolates of *F. oxysporum* collected from nurseries (soils, healthy and diseased seedlings) were selected for molecular characterization based on *in vitro* pathogenicity tests. We are currently performing Amplified Fragment Length Polymorphism (AFLP) and DNA sequencing in an attempt to identify genetic markers related to pathogenicity. We plan to develop molecular probes to differentiate pathogenic from non-pathogenic isolates of *F. oxysporum* to enable nursery managers to implement timely and appropriate disease management practices.