From Forest Nursery Notes, Summer 2009

132. Chemical alternatives to methyl bromide for control of *Fusarium* spp. in conifer nurseries. (ABSTRACT). Leon, A. L., Edmonds, R., Glawe, D., Littke, W., and Zabowski, D. Phytopathology 99:S71. 2009.

Chemical alternatives to methyl bromide for control of *Fusarium* spp. in conifer nurseries

A. L. LEON (1), R. Edmonds (1), D. Glawe (2), W. Littke (3), D. Zabowski (1)

(1) University of Washington, Seattle, WA, USA; (2) Washington State Univ./University of Washington, Seattle, WA, USA; (3) Weyerhaeuser Company, Federal Way, WA, USA

Phytopathology 99:S71

Methyl bromide, a known ozone depleting agent, has long been used to control *Fusarium* spp. in conifer nurseries in the Pacific Northwest. The phase-out of methyl bromide as a result of the Montreal Protocol has led to reliance on other chemicals for pre-plant fumigation. The efficacy of Metam Sodium, Dimethyl Sulfide, Methyl Iodide, and Methyl Bromide against *Fusarium* spp. was tested at three conifer nurseries in western Washington and Oregon. In addition to testing the use of alternative fumigants, Methyl Iodide efficacy was examined under low and high permeability fumigation tarps: Virtually Impermeable Film (VIF) and the current industry standard High Density Polyethylene (HDPE), respectively. Rye seeds were inoculated with six *Fusarium* spp. isolates at each nursery, buried in fumigation plots 1–3 days before fumigation and removed 1 month after fumigation. Percent *Fusarium* spp. growth on PDA media after fumigation was measured. Soil samples from fumigation plots were collected 1–3 days before fumigation, 1 month after fumigation and 7 months after fumigation. CFU/g were measured on PDA media. Buried inoculum isolates and soil isolates were sequenced using mitochondrial rDNA (mtSSU) and elongation factor 1-alpha (EF-1α) to characterize *Fusarium* species, with specific emphasis placed on determining the efficacy of fumigation against *Fusarium oxysporum* and *Fusarium commune*, species that are non-pathogenic and pathogenic respectively.