ALTERNATIVES TO MB FUMIGATION IN FOREST NURSERIES OF THE WESTERN US

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Since 1993, plant pathologists with the USDA Forest Service, Forest Health Protection have been working with researchers at Oregon State University to identify and implement feasible alternatives to pre-plant soil fumigation with methyl bromide (mb) in bareroot forest nurseries in the Western United States. In several nurseries, bare fallow, with or without tilling has been as effective as methyl bromide fumigation for production of conifer seedlings. In a large demonstration trial, started in 1997 by the USDA Forest Service, at J. H. Stone Nursery near Medford, Oregon, several cover crops, barefallow and dazomet soil fumigation were compared for effectiveness in reducing soil-borne diseases caused by *Fusarium* spp. for production of ponderosa pine and Douglas-fir seedlings. Damping-off and Fusarium hypocotyls rot only occurred at very low levels in all treatments. Conditions at the nursery were not conducive to disease development and there weren't significant treatment differences in seedling density among treatments were also insignificant. Studies were installed in four other western nurseries in 1998 and results are not yet available. Treatments being evaluated include cooling with irrigation to minimize losses from *Macrophomina*, dazomet, bare fallow, solarization, and amendments with the biocontrol agent *Trichoderma harzianum* (BioTrek®). Each nursery is developing customized alternatives to methyl bromide fumigation. Cover crops, fertilization regimes, organic matter amendments, irrigation procedures, etc. are being redesigned to produce high quality seedlings without pre-plant methyl bromide soil fumigation. Strategies to control persistent weeds, improvement of soil pathogen assay methods, and evaluation of soil and environmental factors that contribute to disease development need further investigations.