Forest Disease Management Notes

United States Department of Agriculture

Forest Service
Pacific Northwest Region

Fusarium Root Rot

Fusarium root rot of conifer seedlings caused by the fungus *Fusarium oxysporum* f. sp. *pini* is the most serious disease in Pacific Northwest bareroot nurseries. Damage in the form of seedling death and stunting can become very serious if sites are not treated.

Hosts: Conifer seedlings.

Recognition: In newly emerging seedlings, causes "damping off' (collapse of the seedling at ground line); in older seedlings, causes typical root rot symptoms: rootlet deterioration, foliage yellowing, general decline, and death; bark of infected seedlings sloughs off easily; mortality generally scattered randomly throughout nursery beds.

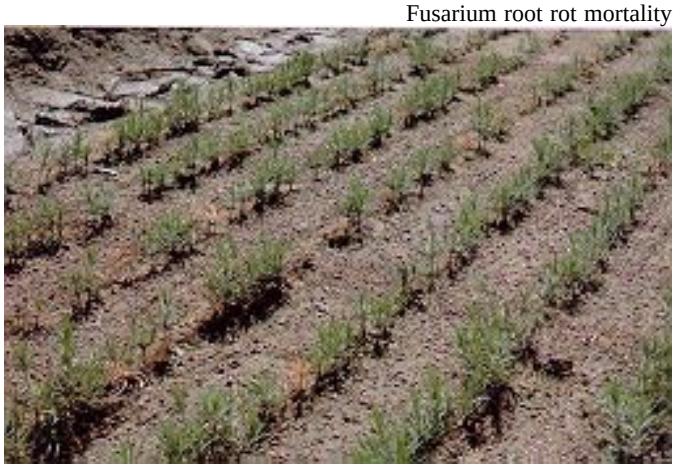
A variable colored mycelial growth can sometimes be seen on roots and at the base of the stem; diagnostic microscopic canoe-shaped (macroconidia) and smaller round spores (microconidia) form readily in culture.

Disease Spread: The fungus survives in soil on organic matter or as resting spores (chlamydospores) and infects succulent, young roots; warm, moist conditions favor the fungus; especially damaging to very young seedlings (seldom serious in seedlings 2 years old or older). Soil and seedling movement in nurseries can spread the disease.

Management : Fumigate nursery soils with methyl bromide -chloropcrin; maintain good soil drainage in nurseries.

May be Confused With: *Pythium, Phytophthora.*

Nursery bed experiencing scattered Fusarium root rot mortality



Seedlings killed by Fusarium root rot