

**Detection of *Phytophthora* in Recirculating Irrigation Water
and Evaluation of Bio-Filters for Water Disinfection: A Pilot Study**
by

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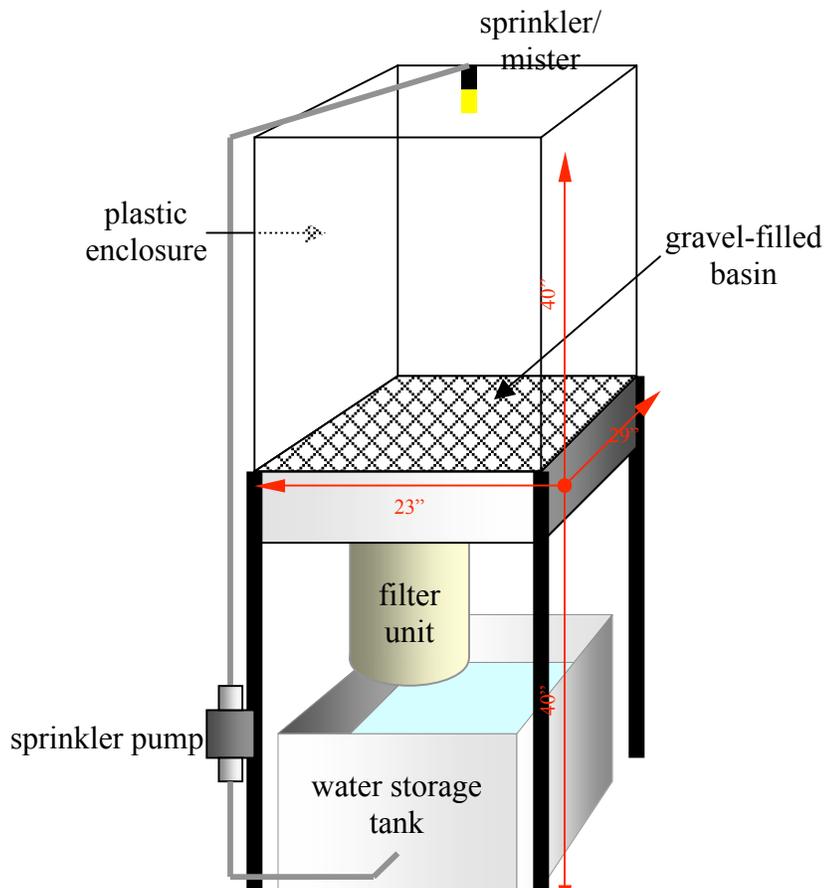
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We established a simulated nursery in a screenhouse at the Botany and Plant Pathology Farm east of Corvallis, Oregon. We designed and constructed 32 independent units, each with its own recirculating water system. These units are being used for replicated trials on dose-response experiments involving water-borne inoculum of *Phytophthora* species, and for testing biofilters for eliminating inoculum of *Phytophthora* species.

The design for individual mini-nurseries is illustrated below. Water from the storage tank is pumped to the sprinkler. Sprinkler water is captured in the gravel-filled basin and shunted to the filter unit which drains back into the water storage tank. Plants are placed on a screen resting on the gravel-filled basin. This recirculation design allows for easy access to several sampling points: (a) at the sprinkler head; (b) after the gravel-filled basin; (c) after the filter unit; and (d) in the storage tank.



We have also obtained 93 Oregon nursery isolates of *Phytophthora* from the Oregon Dept. of Agriculture. These are now being processed for species identification using molecular techniques. Some isolates will be used in initial tests of pathogenicity and to establish dose-response relationships in the simulated nursery study.

Tissue culture plantlets (2") of rhododendron cultivar Nova Zembla were donated by Briggs Nursery, Washington. Inoculation trials are being conducted with a nursery isolate of *Phytophthora citricola* to provide a base line for dose-response experiments. Zoospores are added to the irrigation supply at several concentrations, and disease levels will be monitored. Once dose-response parameters are known, we will test various filters, including biofilters, for efficacy in reducing inoculum and controlling disease.

This pilot project served as "seed money" to obtain continued support through the Northwest Center for Nursery Crop Research.