

## 8. Tree Fruit Diseases

### Status of Oak Root Fungus (*Armillaria mellea*) in North Coast Pear Orchards

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*Armillaria mellea*-infested areas continue to expand in infected orchards. Research to date has shown that:

- 1) Orchards have existed for many years with infection centers that were initiated up to 300 years prior to planting;
- 2) Pathogen spread is primarily by rhizomorphs, which extend 30 cm. or less through the soil. This contradicts previous assertions that infection is spread mainly by root-to-root contact;
- 3) Infections become debilitating when they occur at the root collar, but are tolerated as long as they remain on peripheral parts of roots;
- 4) Cultural practices, most likely irrigation, have hastened rates of tree decline and death in recent years.

Several areas of study are continuing or planned:

- 1) Evaluation of pre-plant, pre- plus post-plant, and post-plant chemical controls using metam sodium (Vapam®, Amvac Corp.), sodium tetrathiocarbonate (Enzone®, Entek Corp.), and propoconazole (Orbit®, Novartis Corp.) (1997-current);
- 2) Exposure of infected primary roots and collars to air to a) dry the bark and offset the influence of excessive moisture, b) prevent initial rhizomorph infection of the collar area, and c) allow infected tissues to recover (1999);
- 3) Evaluation of sprinkler vs. flood irrigation regimes on ORF infection and spread (1996-present);
- 4) Evaluation of black and India mustard covercrops as a biological fumigant (fall 2000);
- 5) Screening of new pear rootstocks for *Armillaria* resistance (in conjunction with the NC-140 rootstock trials) (2001).