

BACTERIAL CANKER - Role of Nematodes

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Objective:

To determine the effect of nematode parasites of prune on the development of bacterial canker.

Results and Conclusions:

In a lathhouse experiment, cankers developed on branches of Marianna 2624 plum trees injected with an aqueous suspension of the bacterium Pseudomonas syringae. Cankers did not develop on control trees injected with sterile water. More extensive cankers developed on trees whose roots were injected with the ring nematode, Criconemoides xenoplax, than on control trees not infected by nematode. P. syringae was isolated from the injection site and from necrotic tissue associated with the injection, but not outside the necrotic tissue, or from sites injected with water. The nematode-infected trees, which were more susceptible to the bacteria, also differed from the nematode-free control trees in other respects: Water stress was greater, and nutrient levels lower in their leaves. The trees were smaller, lacked feeder roots, and suffered from waterlogging.

But, progression of cankers to death of tops, as often occurs in the field, occurred in only two of the thirty trees inoculated with C. xenoplax and P. syringae. This indicates that additional factors are essential to full development of this disease.

Work Planned:

A similar experiment using the pin nematode, Paratylenchus neoamblycephalus, is planned. (Our pure population of P. neoamblycephalus became contaminated with C. xenoplax and it was necessary to start a new pure population, so this work could not be done this past year.)