

BACTERIAL CANKER

Harley English
Department of Plant Pathology

Objectives:

To obtain more information on the source of the bacteria that cause this disease, on their mode of infection, and on the predisposing factors that contribute to canker development. It also is necessary to determine if practices effective in controlling this disease in other stone fruits can be used effectively with French prune.

Results and Conclusions:

Studies during the past two years have shown that subjecting young prune trees to moisture stress during late summer and fall does not increase their susceptibility to bacterial canker resulting from winter inoculations. An experiment is in progress to ascertain if soil saturated with water during the winter increases the susceptibility of prune trees to canker. Another study in progress involves inoculations of trees with labelled bacteria and isolations at various intervals to ascertain the ability of the pathogen to spread and remain viable within portions of the tree that do not show canker symptoms. In another test, the susceptibility to infection of pruning wounds in early and late winter is being investigated.

Control studies involving backhoeing with or without fumigation with Telone or methyl bromide are in progress in Sutter, Butte and Tehama counties. Postplant fumigation with Fumazone is being investigated in two orchards in Yuba County. In these orchards records are being taken on tree growth and on canker incidence and severity. With the cooperation of other investigators, nematode and Phytophthora populations, soil type, and nutritional status of these orchards will be monitored.

Work Planned:

Most of the contemplated work on this project is already underway and records will continue to be taken until the experiments are completed. Additional planned work includes:

1. Cooperative work with Nematology to determine if pin nematodes predispose prune trees to bacterial canker.
2. Recent work in California and previous work in other areas has shown that certain specialized fungi, called mycorrhizal fungi, establish a relationship with the roots of trees and other plants that is very beneficial to these plants. In a nursery test in the San Joaquin Valley, the addition of a mycorrhizal fungus to the soil resulted in a 2-fold increase in the growth of young peach trees. It is planned to introduce this fungus into the planting holes for prune trees, in sites where bacterial canker has been a problem, to ascertain if mycorrhizae improve the growth and increase the resistance of young prune trees to canker. Orchards in Butte and Tehama counties have been selected for this test.

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3. In cooperation with Pomology it is planned to test the resistance to bacterial canker of new selections of myrobalan rootstocks. The stocks would be established in sites conducive to the development of bacterial canker and inoculated with virulent isolates of the pathogen.
4. Cooperatively with Cooperative Extension personnel a questionnaire pertinent to bacterial canker is being prepared for circulation to prune growers.