SECTION VII - DISEASES

DEEP BARK CANKER

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Studies on deep bark canker, caused by Erwinia rubrifaciens, are being conducted in four commercial orchards and in experiments at SJVAREC. The disease has been constantly associated with stress thus attempts are being made to document this phenomenon through observation and a replicated trial. Test orchards are mapped each year during late fall and the percentage of trees with active or inactive deep bark canker lesions is determined. In order to follow the course of disease activity more concisely, all bleeding cankers on selected trees in each orchard are marked with paint each year, then the number of bleeding cankers are compared over a period of years. Three orchards are observational, that is no replicated treatments are present, but each grower is performing some cultural practices (tree removal, increased irrigation, fertilization) aimed at reducing stress. A differential irrigation trial with ten replications is located in the fourth orchard.

The percentage of trees with deep bark canker increased in 1978 over that of 1977 in the three observational orchards. An overall decrease occurred in the irrigation trial orchard, and the improved irrigation treatment had a lower percentage of diseased trees (50.6%) and number of bleeding cankers (149) than did the standard irrigation treatment (61.5% and 307). However, the data are inconclusive at present.

Current experiments testing the possibility of graft transmission have been completed. All grafts failed to take when budwood or the grafting knife was dipped in suspensions of any of three plant pathogenic bacteria (E. rubrifaciens, E. nigrifluens, Pseudomonas syringae) prior to grafting. Non-pathogenic bacteria, water dip, or untreated control grafts all were successful. Trees that had been grafted with budwood from healthy trees and others with budwood from Hartleys with deep bark canker did not develop external symptoms of active disease. However, in November 1978 when the bark was peeled away from just above the graft unions, internal pitting, similar to that found in infected trees was found in three of 103 trees grafted with budwood collected from infected trees. E. rubrifaciens was cultured from all three trees.