# COMPREHENSIVE RESEARCH ON PRUNES

Program Area: Fruit Production and Quality

Project Number & Title: Prune Dieback: Carbohydrate Nutrition of Potassium Deficient Prune Trees

Project Leader: Patrick J. Breen

Personnel: Tom Muraoka

Objectives:

This project aims to define the relationship of carbohydrate nutrition to prune dieback by determining the effects of low potassium on photosynthesis and the level and movement of carbohydrates within prune trees.

Work in Progress:

Prune trees grown in sand under different potassium regimes are being used to determine the influence low levels of this element have on both the distribution of radioactive photosynthate from leaves and carbohydrate content of leaves, stems, and roots.

Experiments Completed:

None. Plant material from the above study is now being analyzed.

Work Planned:

A study of the carbohydrate composition of prune trees will be carried out in conjunction with Dr. Uriu's investigation of leaf scorch and its relationship to dieback. Of primary concern is whether a decline in carbohydrates occurs before symptoms of poor health appear.

Methods and equipment will be developed to allow accurate measurement of photosynthesis of prune trees. The effect of potassium on carbon dioxide assimilation will then be studied in order to determine the nutrient level at which the rate of this process starts to decline.

The decision on the direction of further work on the distribution of carbohydrates in potassium deficient prune trees will await information from the study now in progress.

Major Accomplishments:

None.

Immediately Applicable Research Results:

None.

Evaluation of Project:

Since this project is but a few months old evaluation would seem premature. However, recently reported results with other crops continue to show that low potassium markedly influences net photosynthesis and carbohydrate metabolism even when leaves fail to show deficiency symptoms.