COMPREHENSIVE RESEARCH ON PRUNES

PROGRAM AREA: D-POM 2664 - Plant Improvement

PROJECT NUMBER & TITLE: 1) D-POM 3136 - Stone fruit varietal improvement - apricots, peaches and plums.

2) D-POM 3137 - Improvement of Rootstocks for Stone fruits.

PROJECT LEADER: C. O. Hesse

PERSONNEL: C. O. Hesse, R. Fenton, and J. Doyle

OBJECTIVES: 1) a. Radiation induced mutations of 'French' prune to provide material for selectioon for earlier maturity or other useful forms.
b. Evaluation of seedling P. domestica hybrids as prunes.

2) Evaluation of seedlings of various Marianna plums as a source of vigor controlling rootstocks.

WORK IN PROGRESS:

1) a. Radiation induced micro-mutations of 'French' prunes have been secured. These are under test and observation, and those proved to be true mutant forms need more extensive test at the present time. Earliness, productivity, and fruit size are the primary micro-mutations observed. Their possible commercial value still needs clarification.
b. Although currently being terminated, evaluation of seedlings of P. domestica reveals items which meet the physical standards as possible prune cultivars; e.g., high soluble solids at maturity. Ten or 12 such hybrids are available.

2) Approximately 100 seedlings of various Marianna clones have been grown, and are under investigation. That a series of ploidy levels is involved is apparent from stomatal sizes observed. The ability of these to root is being investigated.

WORK PLANNED: 1) a. Propagation of selected radiation induced items which appear to differ most markedly from the 'French' mother clone will be propagated and tested in replicated plots to secure valid statistical estimates of differences, and to further characterize their possible commercial value.
b. As soon as the trees reach sufficient size and production capacity, small samples will be dried to determine their possible value as prunes.

2) The ability of the various items to propagate easily by cuttings will be determined. Further cytological observations will be made to determine the actual ploidy levels involved. Eventually, selected seedlings - those which propagate readily - will be multiplied and used as rootstocks for prunes and other plum and Prunus cultivars to determine their effect on growth and production. Both vigor-inducing and vigor-controlling items will be sought. Such selections will also be tested against soil-borne pests and diseases, as the opportunity offers. For example, resistance to root knot nematodes will be tested in the tank cultures of these organisms maintained at Davis.

MAJOR ACCOMPLISHMENTS: As outlined above, for each objective materials have been developed which reflect success in meeting the objectives.

IMMEDIATELY APPLICABLE RESEARCH RESULTS: None

EVALUATION OF PROJECT: At this time no further developmental investigations are contemplated. Evaluation of materials secured will be continued to final evaluation.

PUBLICATIONS OR REPORTS: None