

COMPREHENSIVE RESEARCH ON PRUNES

PROGRAM AREA Stone Fruit Breeding - RadiationPROJECT LEADER C. O. HessePERSONNEL C. O. Hesse, David O. WalkerOBJECTIVES

To determine if radiation of buds would supply variation useful in the selection of French prune types differing in size and time of maturity.

WORK IN PROGRESS

Selections of limbs grown from irradiated buds have been propagated to determine if, and to what extent, mutations have been obtained.

EXPERIMENTS COMPLETED

The original irradiation was done in 1962 ;33 items were selected from limbs grown from scions topworked on 'Marianna 2624' at the Wolfskill Experimental Orchards. Selections were based on two years data on size, productivity, ripening time, and soluble solids at maturity. These items were propagated (over)

WORK PLANNED

Evaluation of the propagated trees. 1970 data is yet to be analyzed.

MAJOR ACCOMPLISHMENTS

Depend upon evaluation. Items selected showed apparent minor mutational differences in size, productivity, and date of maturity.

EVALUATION OF PROJECT

Too early to determine if results are positive.

PUBLICATIONS OR REPORTS

None

Project report should not exceed 5 pages Before the inception of this experiment, prune industry factors had stated that the French variety was suitable, but a slightly larger fruit of the type maturing about two weeks earlier than the standard French would be more desirable. Irradiation breeding was thought to be one answer to this problem, as minor differences might be induced (mutations) by irradiation, without changing the basic characteristics of the variety. Therefore, scions of French prune were subjected to irradiation at 4,000, 6,000, 8,000 and 12,000 RAD. These were topworked on scaffold limbs of 'Marianna 2624', and fruited through three years. Records of shoot growth, productivity, fruit size, and soluble solids were recorded in two fruiting seasons. All samples were harvested on one day; differenced in maturity were related to differences in soluble solids and pressure test of 25 fruit samples taken on that day. Thus, very hard fruit were considered to be less mature than soft fruit; high soluble (over)

EXPERIMENTS COMPLETED (cont)

(two trees each) to determine if the differences observed on the topworked limbs are true differences or due to the crowded conditions on the original topworked trees.

PROJECT REPORT :

solids were considered representative of more mature fruits. Appropriate combinations of these factors were then used to select items believed to be earlier or later than the standard French. (As represented by limbs which showed only average conditions, and hence were believed to be unaffected by the treatment). Productivity was determined by the number of fruit per cm.² of limb cross-sectional area.

Crowded conditions on the topworked trees made it impractical to directly evaluate differences found; also the two years data showed considerable seasonal interaction. Nevertheless, 33 items were selected which showed consistent variation from the average in one or more of the characters measured. These were propagated on plum stock, and planted at the Wolfskill Experimental Orchards for fruiting as standard trees.

The first data was obtained in the 1970 season.