EVALUATION OF ADVANCED WALNUT VARIETY SELECTIONS AT THE KEARNEY AGRICULTURAL CENTER, PARLIER- 2000

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ABSTRACT

Beginning in 1996, two advanced selections from the walnut breeding program and four commercial walnut varieties were grafted onto both Northern California Black (NCB) and paradox hybrid seedlings in a 20' X 20' square configuration. Fourteen selections have now been established and they vary from vigorous central leaders to four-year-old trees. Due to poor chilling, delayed leafing and lack of harvest equipment, qualitative yield estimates were made on the following varieties and selections in their fourth leaf: Hartley, Vina, Payne, Chandler, 87-186 and 87-187. In addition to replanting weak rootstock seedlings, two grafting attempts were required to achieve almost 100% take on 10 of the selections. Hence, during my first year as principal investigator, most of the effort was spent on delayed pruning for vigor management, grafting and graft management and rodent control to ensure proper irrigation.

Of the two advanced selections now of bearing age, 87-187 appears heavy bearing and more promising than 87-186 which shows symptoms of the southern San Joaquin Valley "Howard syndrome"- pale trees with medium vigor that appear potassium deficient.

OBJECTIVES

Evaluate advanced selections from the UC walnut breeding program against proven commercial varieties in major California production areas.

PROCEDURES

Beginning in 1996, two rows of paradox hybrid seedlings were planted as a 20' X 20' square design. The commercial varieties Hartley, Vina, Payne and Chandler along with two advanced selections, 87-186 and 87-187, were then grafted onto these seedlings in 1997. A group of four trees was established for each.

In 1998, two more rows were planted using NCB and paradox seedlings randomized in four tree blocks. Grafting of the following selections was then attempted that same year: Livermore, 90-27-21, 90-27-23, 90-31-16, 91-96-3 and 90-42-2. Each selection was grafted onto two seedlings of each rootstock.

In 1999, the same process was repeated on two additional rows using the following advanced selections: 90-23-11, 90-23-37, 90-26-17, 91-90-41, 91-94-18 and 92-70-12. Grafts missed the previous season were regrafted.

In 2000, the year I assumed responsibility for the block, 13 grafts were performed on 10 existing selections. Two attempts were made to achieve almost 100 percent take. Due to extreme vigor on many of the commercial varieties established in 1997, a dormant and early leaf out pruning was performed to regain an upright growth pattern to the primary branches. Leafing and bloom data was not collected due to its questionable value in a poor chilling year. Since there is presently no method to "normalize" leafing and
bloom dates from low chill years, this data was not collected due to its questionable value. Due to the extreme vigor, heaving pruning and lack of harvest/hulling equipment, subjective yield comparisons were made on the oldest trees.

RESULTS

Hartley: Fourth leaf. Excessive vigor requiring winter and summer pruning. No crop.

87-187: Fourth leaf. Medium tree vigor. Very heavy crop, to the point of stopping canopy development on the weaker tree. Better on paradox than NCB. Will require skilled pruner to balance orchard vigor to how much fruitwood is retained during the fourth and fifth leaves. Foliage very slightly pale, as if it were nitrogen and potassium deficient. Appears to be slightly like the SJV "Howard syndrome". Little to no husk fly.


87-186: Fourth leaf. Medium vigor. Not as heavy bearing as 87-187. All four trees pale; resembles the "Howard syndrome" observed in the San Joaquin Valley. Look potassium deficient. Some husk fly.