

Developing Hedgerow Olives for Mechanical Harvest

**Bill Krueger, Louise Ferguson, Zachary Heath,
and Keith Landaiche**

California table olives are harvested by hand. This is the largest single cost associated with olive production and can account for from a to ½ of the total cost of production. Olive producers in California face increased competition from imported olives from countries with subsidized production or lower labor costs. This situation, along with the uncertainty of an adequate labor supply, poses a serious threat to the survival of this industry in California.

The California Olive Committee (COC), the federal marketing order for table olives, has devoted the majority of its research budget in recent years to the development of a mechanical harvester for table olives. Promising prototype machines are currently working in the industry. These machines use the principal of vibrating rods, which comb through the foliage to remove the fruit. They require considerable modification of existing tree structures to attain good fruit removal. The ideal tree and orchard configuration would appear to be a close spaced hedgerow system which would present a flat fruiting wall to the harvester. A thin fruiting canopy approximately 6 feet in width and approximately 12 feet in height would appear ideal for maximum machine efficiency. With a narrow tree canopy such as this, it would be necessary to have a narrow row spacing, approximately 18 feet, as compared to the more standard 22 to 24 foot, in order to have sufficient leaf area to

achieve maximum production. To date, no orchards fitting the above description have been developed in California.

Objectives

Evaluate and demonstrate the feasibility of a high-density hedgerow Manzanillo olive planting planted and developed specifically for mechanical harvest.

Compare four training regimes for the development of a 12 ft. by 18 ft. hedgerow planting.

Plans and Procedures

In May of 2001, a high-density planting of Manzanillo olives was planted at the Nickel's Estate in Arbuckle. The tree and row spacing is 12 ft. by 18 ft. respectively. Four training systems will be compared in a randomized complete block design with 4 replicates. The treatments follow: 1) Espalier with a trellis. The permanent limbs will be positioned parallel to the row and tied to the training wire to minimize early pruning and maximize early production. 2) Same as Treatment 1, except that limbs will be positioned between two wires on either side of the post and not tied. 3) Espalier without the trellis. The permanent limbs will be trained parallel to the row by pruning limbs that don't

conform. 4) Conventionally trained. The trees will be trained and pruned to a conventional open center type of tree for as long as the available space allows. Yield and quality data will be collected from the onset of production. Costs will be tracked in order to compare the economic feasibility of the systems.

The trees were planted in the spring of 2001 and made good growth during the summer of 2001.

Trellising, pruning and training will begin during the second growing season.

Dev Hedgerow Olives