

Cordon-Trained Plum Trees Show Promise

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No ladders are needed as pickers harvest fruit from these five-year-old cordon-trained El Dorado plum trees at the Elliot Ranch, Tulare County. Eight to 10 upright shoots developing from one horizontal limb (in each direction down the row) are selected for the permanent framework of the cordon trained plum trees. Horizontal limbs are trained for three years by bending and tying them flat along a staked wire at first dormant pruning.



CORDON-TRAINED PLUM trees in their fifth leaf exceeded all expectations at the Thomas Elliott Ranch, Tulare County, by yielding more fruit per acre than trees of the same age that had been normally planted and trained. This 8 x 12 foot hedge-style planting has 454 trees per acre, four times the normal number of trees usually planted. The Santa Rosa trees yielded 7.9 tons of fruit per acre in 1963, and the El Dorado variety exceeded 16 tons per acre. Eighty-four per cent of the Santa Rosa plums graded 4 x 5 or larger and 96.8% of the El Dorado variety met the 4 x 5, or larger, requirements. In a normal planting, yields vary from six to ten tons per acre, but all this fruit is picked and thinned by ladder.

CORDON-TRAINED PLUMS
Yield in Pounds of Fruit Per Acre

	1961	1962	1963
Santa Rosa	4,767 lbs.	11,123 lbs.	15,890 lbs.
El Dorado	6,174 lbs.	18,605 lbs.	32,188 lbs.

The first trial, started in the spring of 1959, included both Santa Rosa and El Dorado varieties. The trees were planted eight feet apart in the rows and twelve feet between rows. A grape stake was placed between every second tree down the row and a wire was attached at the two-foot level. The trees were headed at 20 inches and allowed to grow without any training the first season.

Milk Quality and MASTITIS CONTROL



At the first dormant pruning, one limb was bent and tied flat along the wire in each direction. Upright shoots developed from these horizontal limbs, and eight to ten were selected for the permanent framework. These limbs were headed at about 4 feet during the next winter. After the third growing season, the limbs were headed at 6 feet. The fourth dormant season, the trees were headed at 7 feet—about the height a man can reach from the ground to thin and pick the fruit.

Rows running north and south allow the most uniform light exposure on both sides with the hedge type planting. Cultivation is in one direction, similar to grapes.

Advantages of this system of training include not only the saving of labor costs through the removal of the ladder, but the possibilities of mechanized pruning, thinning and picking. This mechanization would require only ordinary vehicles to transport workers through these operations—not mechanized shakers and catching frames. Non-tillage by controlling weeds with oil sprays may also be a possibility with this type of planting. These trees are only five years old, however, and another five years of testing may be necessary before recommendations on this practice can be made to plum growers.

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Milk has been long recognized as a particularly nourishing and adaptable food, but was limited in use until production and quality controls were instituted about 50 years ago. The good reputation of milk as a highly nutritious, high quality food is firmly established today but it must be continually guarded and strengthened. This article reviews the effects of mastitis on milk quality and discusses the value of quality control testing programs as they affect dairymen, manufacturers and consumers.

ONE OF THE PRINCIPAL quality control procedures for milk has been the bacterial count which was instituted primarily to control contamination from outside sources and to insure good sanitation and refrigeration. These goals have largely been realized and the well operated, mastitis-free dairy today will have bacterial counts of only a few thousand or less.

Although mastitis has seldom been responsible for counts of 75,000 or over, it may very well be responsible for counts of 10,000, 20,000, or 30,000 which are now often regarded as undesirable. As mastitis causing bacteria increase in numbers, so do the protective leukocytes (white blood cells) which migrate into the udder. These leukocytes increase in parallel with the bacteria up to a point. Thereafter, the increase in leukocytes becomes overwhelming to the point that bacterial growth will be almost entirely prevented. Under these conditions, a bacteria count could falsely indicate milk of superior quality which in reality contained udder secretions almost entirely of an inflammatory nature.

It has become obvious that milk needs to be checked for quality as it comes from the cow as well as for the care in handling it receives between milking and

marketing. Public health agencies are therefore becoming increasingly interested in measuring leukocyte numbers in milk since they are the most accurate indicator of mammary inflammation available today.

Screening tests

Because the actual leukocyte counts are time consuming, a variety of screening tests have been devised. Most commonly used are the catalase test, the modified Whiteside test, and the California Mastitis Test (CMT). Each of these tests gives a rough estimate of the number of leukocytes present in the milk. The catalase test depends upon the release of oxygen from hydrogen peroxide by the enzyme catalase found in the nuclei of cells. Therefore, the more cells, the more gas. In the Whiteside reaction a thickening and a precipitate occur in the presence of excessive leukocytes when five drops of milk are mixed on a glass plate with one or two drops of 4 percent NaOH (sodium hydroxide). With the CMT test, a precipitate and gel will form in the presence of excessive cells when the milk and reagent are mixed together. The reaction occurs between the reagent and the DNA (deoxyribonucleic acid) in the nuclei of cells.

Originally used to detect mastitic quarters or cows, it has now been found that these tests are equally effective in testing the mixed herd milk from cows or from tanks. The quality level of the milk of any dairy can therefore easily be checked. Milk from a relatively few cows with severe active mastitis will alter the milk of a whole tank sufficiently to be readily detected by these screening tests.

Application of tests

The use of one screening test or another is being adopted by health departments in important milk sheds throughout the country. The tests are used in a manner