

Avocado Growers Study Cultural and Economic Factors—Hold Annual Field Tour

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Some sixty avocado growers of Orange and Los Angeles Counties participated in the orchard tour May 24th, 1938, conducted by the Agricultural Extension Service to study tree and soil management problems. The first stop at the Griswald orchard in La Habra Heights featured permanent cover crops and underhead irrigation. Italian rye grass is used by Mr. Griswald to prevent soil erosion. He stated that the shallow roots of this plant did not compete with the orchard trees. He was careful to apply ample nitrogen fertilizer and irrigation water to prevent competition for fertility and moisture. During the growing season the grass was mowed two or three times to return the green bulky growth to the soil and facilitate irrigation operations

This ranch also uses a portable low head sprinkling system that has given satisfactory results from the standpoint of even moisture distribution. Depth of penetration, it was explained, can be easily regulated by increasing or lessening the duration of sprinkling. On this orchard, water is available at 45 pounds pressure, which provides about one inch of water per hour of operation on the area covered. If the soil is sandy, the penetration is more rapid, thus requiring less time for each set. On heavier soils the time for each set is increased according to the rapidity and dept of penetration desired.

Several wind machines have been installed here to fight the frost if and when needed. These machines not only blow the air but also heat it from a central heating unit. It was explained that these machines are on trial. As yet they have not been subjected to damaging temperatures, having been erected following the extreme freeze of January, 1937. They are located in comparatively narrow valleys, bordered on two sides by steep hills. Neighbors are watching their performance with considerable interest.

TERRACE DEMONSTRATION

The Dr. Charlton avocado orchard provided an ideal demonstration of a good job of terracing. Much of the hill land in this district has been terraced for tree planting. The storms of last spring caused considerable damage from sloughing of terraces that have been constructed on too steep grades.

The Agricultural Engineering Division of the University of California has found that the range of limit of grade for cuts in shales and weathered sedimentary material is from a 1 to 1 slope to a 1 to 3/4 slope. They also point out that the practical range of grade limit for ordinary soils is from a 1 1/4 to 1 slope to a 1 to 1 slope. Furthermore, the practical limit of grade for a dirt fill with most soils is a 1 1/2 to 1 slope, otherwise known as a 66

2/3 per cent grade.

The reason for the occasion of terrace sloughing in heavy storms may be traced to excessive steepness of the slope structures that are not able to resist the movement of saturated soil strata.

FERTILIZER PRACTICE

The final stop of the orchard tour was made at the P. J. Weisel orchard, where Ray Marsh, superintendent, reported on the results of the fertilizer test plots established eight years ago in 1930. Four plots have been maintained and tree production records kept for each year during the eight-year period. The trees were five years old in 1930 when the plots were established. In summing up the results of his records, Mr. Marsh reported that plot No. 1, which received 10 pounds of sulphate of ammonia each year per tree, averaged a total production of 2,139 fruits per tree for the eight-year period. Plot No. 2, with sulphate of ammonia and dairy manure, averaged 1,887 fruits per tree. Plot No. 3, with manure alone (10 feet per tree) averaged 1,412 fruits per tree. Plot No. 4, which was a check plot with regular orchard application, averaged 1,209 fruits per tree.

Record was also kept by Mr. Marsh on four sun-blotched trees in the orchard covering the same period. These diseased trees averaged only 260 fruits per tree for the eight-year period. This provides a definite demonstration that diseased trees should be removed to make way for good producing trees.

The cost of production records and the economic analysis of avocado production conducted by the Agricultural Extension Service in Orange County during the past eight years clearly indicate that returns to the growers are influenced largely by the yield factor. Good production is dependent on healthy trees, good soil, freedom from wind and frost, desirable variety selection and good management.

"PAYING ORCHARD" DEFINED

The eight-year economic study reveals that it took an average of 1,656 pounds of avocados per acre at 9.9 cents per pound to meet the cost of production and depreciation. It took another 1,282 pounds of avocados per acre to pay 5 per cent interest on the average investment of \$2,540 per acre. To break even then on the basis of production costs during the past eight years, plus an earning of 5 per cent on the above investment, the orchard should produce about 3,000 pounds of avocados per acre per year, at an average return of 9.9 cents per pound.

Orchards in the study have ranged in long time production records from an annual average of 6,300 pounds per acre to less than 1,000 pounds per acre. The average yield for the 18 representative mature orchards in the study for the eight-year period was 2,624 pounds per acre per year, which is about 400 pounds below the 3,000 pounds necessary to meet all costs, including 5 per cent interest on the investment. It may be concluded from this economic study that a paying orchard is one that produces better than average yields.