

OLD AGE INSURANCE

For Grapefruit Trees

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When are grapefruit trees old? Should they be considered old at 30 years or more? What are the factors involved that make us begin to wonder about the life span of grapefruit trees in Arizona?

Tree appearance is one of the things we look for, but more particularly good production and quality fruit are the factors that determine the economic life so far as the grower is concerned.

More than a thousand acres of grapefruit on the Yuma Mesa were planted between 1920 and 1928. Much of our acreage is therefore 30 years of age or older. At the Citrus Experiment Station at Yuma, research is now aimed at finding some of the answers for rejuvenation of mature grapefruit trees.

Nematode Infestations

Production of fruit has been reduced and quality of fruit lowered in a group of 36 year old trees known to be infected with citrus nematodes. With the cooperation of the USDA and a commercial company, corrective measures are being tested. Live trees have been treated chemically to kill nematodes. Another group of these trees has been removed and the area has received fumigation treatments to test growth of new trees to be planted.

Sour orange has been used as the rootstock for most of the older grapefruit orchards. In 1942 rough lemon rootstock was used for Red Blush grapefruit and other varieties to compare production and quality. Diversification of varieties for



Mechanical hedging was practiced in some rows, omitted from others. These pictures, taken at the same time from end of rows of trees of equal age, show contrast between the dense between-rows growth, at right, and the "open" aisles where trees have been pruned, at left.

marketing from the Yuma mesa has been another aim in this work. The rough lemon rootstock has brought trees into production earlier and increased production. Fourteen-year-old Red Blush grapefruit trees produced twice as much fruit on rough lemon rootstock as on the sour orange rootstock.

Pruning Is An Aid

Pruning is another means of rejuvenating old grapefruit orchards. Mechanical hedging of relatively mature trees has been done, with a different width of space left between the trees as compared to no pruning. Greater space between trees means more severe pruning, but is designed to give less shading effect. Pruning by hedging will cause that portion of the tree to be out of production temporarily.

Irrigation is one of the most important factors we have in cultural operations. In certain blocks of grapefruit where the average production per tree has been determined relative to its position from the source of irrigation water, there is an indication that the best production is from trees farthest from the irrigation openings, where the irrigation run is 15 trees.

Alternate row irrigations on a weekly schedule during summer months has given some indication of producing fruit

with such better quality characteristics as a thinner and smoother rind. This cultural practice is not in use because it increases labor costs and difficulties are encountered in scheduling irrigations.

Sprinkler irrigation was found satisfactory with old grapefruit except that the method of using movable pipe was too costly in labor. The results were published in *Progressive Agriculture* Vol. VI No. 3, 1954 by K. R. Frost.

Results From Nitrogen

Fertilization of grapefruit trees has received more attention than other cultural operations. From an earlier fertilizer study on mature grapefruit trees, Finch and McGeorge (University of Arizona Experiment Station Tech. Bul. 105, Jan. 1954) concluded that, "Nitrogen is the one fertilizing element which has influenced yields."

A recent project started on grapefruit trees growing on sour orange roots, planted in 1928 (29 years old) has the aim of testing the use of nitrogen, phosphorous and barnyard manure singly and in all combinations. In addition to those combinations the nitrogen is applied in different amounts and at different seasons of the year.

These research projects all have the objective of extending the productive life of mature grapefruit trees.