

## PRODUCTION AND MARKETING OF AVOCADOS AND LIMES, DADE COUNTY STYLE

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The avocado and lime industry has flourished in South Florida because of generally favorable climate, up to now a generous water supply, heretofore well drained and low cost land, coupled with the efforts of growers, handlers, the results of research and extension programs and industry sponsored market quality control programs. Added to these factors has been increasing consumer acceptance of these commodities.

There have been some occasionally unfavorable weather conditions such as frosts, freezes, and hurricanes. Infrequent and temporary local flooding had made certain areas unsuitable for avocado production over the years. Recent flood control developments, however, have not only sharply reduced the flood and root rot problems in those areas, but have also made more land available by drainage. On the other hand, the drainage program has resulted in lower water tables making some form of irrigation mandatory for both avocados and limes if consistent production is to be maintained. This has resulted in increased production costs as well as increasing land costs. Along with the increased costs have come intensive grove management programs. In the past, the average number of avocado trees per acre was 70 and for limes was 110. Trees were planted in "grubbed out" or dynamited holes in soft limestone rock (Rockland soil). Fruit growers in the past were resigned to waiting until groves were 5 to 8 years old for reasonable returns. In early days, groves were irrigated only occasionally, if at all. Fertilizer programs consisted of the application of mixed goods containing considerable amounts of natural organics and relatively high phosphates. Spray programs included uses of Bordeaux for disease control, sulfur for mite control and oils for scale control. Minor elements, such as zinc and manganese, were applied as a nutritional spray on an annual or biannual basis. Trees were allowed to grow unchecked. Production was low. Cold protection, if any, was through the use of heaters, "lighter knots", or by burning tires. Trees were generally starved to "harden them off" for winter cold hardiness.

Today, we are planting from 150 to 200 trees per acre initially. Today most groves are planted on cleared, scarified and cross trenched land resulting in better and more deeply rooted systems as compared to the old "flat planted" situations. We fertilize our young trees at 4 to 6 week intervals during the first year or two. We irrigate at the rate of 3/4," to 1" per week. The interval may be adjusted to soil and rainfall conditions. Minor elements, except for iron, are applied as a nutritional spray to the foliage two to four times a year. Iron deficiency which became severe following the drought of 1961, is corrected through soil applications of chelated iron, formulated for alkaline soils. We find that after the iron deficiency has been corrected, maintenance applications of this chelated iron in small quantities is profitable Small amounts of zinc are included as long as it is compatible in every foliar application or fungicide and insecticide.

Our initial high density plantings will be reduced by 50% in tree number as soon as the trees have grown to the point where they are crowding each other and the sharply increased production of the high density population begins to decline. Our ultimate tree numbers per acre are 70 to 100 trees, depending upon varietal characteristics and management programs.

Our program is channeled for maximum growth and to give our young trees the best care in their first three years, which we consider to be the most important years out of the first ten years of grove management. We do not tolerate lack of growth, stunting, nor any indication of severe and lasting disease problems. Young trees manifesting any symptoms of these conditions are either removed immediately or treated with necessary materials and care without delay, depending on the severity of the symptoms.

The question of cost in our program is considered more in terms of how much it will cost if we do not carry out a beneficial practice when needed, rather than considering only how much it will cost to perform this practice. Benefits derived from each production cost determine each step we take. We do not believe in pruning during the first three years except where necessary. Young trees are not stripped of their crops. We expect production of at least 1/4 of a bushel of avocados per tree in the third year. At least 1/2 bushel per tree in the fourth year with a constant increase in production thereafter until a peak of more than 400 bushels per acre is obtained in the tenth year.

Our cost during the first three years of growth of a newly planted grove for fertilizer, weed control, disease and insect control and irrigation for supplemental soil moisture and frost protection is approximately \$200 or more per acre per year. After these first three years, the cost begins to increase and becomes slightly greater than \$300 per acre per year. Although we were one of the earliest to attempt severe hedging and topping in avocados, we have adapted our hedging and topping program to the needs of the tree in terms of varietal characteristics, yield, grove management and requirements of the individual tree. In terms of maximum production, disease and insect control, and harvesting, our avocado trees will be limited to a height of 25 feet. We plan to maintain the maximum number of branches and fruiting terminals through a management program that will permit the maximum amount of light to reach the canopies of the trees. We tend to cut back after particularly heavy crops. We do not tolerate open spaces. An open space program costs us money. Any missing tree or any tree in trouble that does not respond favorably to treatment is replaced immediately with a new tree. Our replacement program includes top working of non-producing varieties to productive varieties of avocados. Our program is to top work the least productive 10% of our avocado trees per year. This cannot hurt us in the over-all production and returns picture, while at the same time we are eliminating our non-productive areas. For example, top working of old trees cost us approximately \$1,600 per acre plus \$400 production costs in the next 18 months. At the end of 30 months, the gross return from the topworked trees has been as high as \$4,000 per acre.

We cannot operate without responsible employees, nor can we operate with a high turnover in our work force. To develop the feeling of belonging and responsibility we treat all employees in such a way that they may maintain their dignity and a sense of accomplishment. We have five paid holidays per year. We provide Christmas presents for every employee. Each employee of our firm receives at least one week's paid

vacation per year. We participate in Extension training schools for farm labor.

In order to market avocados successfully, an organization must completely integrate knowledge of all the factors involved. The salesmen and the growers must be aware of and understand each other's situation. With all of this information, and cooperation between the salesman and the growers, we strive to maximize returns and feel that we are doing so.

In our marketing programs, we attempt to maximize returns to the grower each and every day. Quite often we cannot be sure what may transpire the next day, month, or year. You may not pick next year's crop. In planning sales, we keep in mind that we want to sell all the packed products each day. It is necessary for each packinghouse to have a cooler, but the cooler should not be allowed to be a crutch for the salesmen. To make this policy become reality, we maintain a good and constant flow of information to our sales organization with regard to what our growers have available for harvesting.

In our organization, we make it our business either to try to see or talk to each of our growers every day and to keep them apprized of general industry conditions and keep ourselves informed of the grower's situations.

Almost all shippers in this industry give comparable service to their customers. In securing customers, we look for those who will buy from us every week and, should customer demand exceed supply, we make certain that all of our customers shall receive their pro rata shares of what we ship. We do not attempt to sell in every available avocado market.

Although much of the fruit from this area is sold on consignment, most of our fruit (75%) is sold through FOB or delivered sales during peak harvest. We try to know the dollar value of a crop prior to picking.

The outlook for avocado production for the next ten years in Dade County appears to be excellent. Basically, there are only two areas that produce avocados, California and Florida. In Florida and California, increased plantings will be severely limited as a result of land cost. Over the past ten years, there has been an increase in per capita consumption of avocados and this trend should continue. Another reason for this optimistic outlook is the natural trade barriers. The avocado seed weevil in the Latin American countries has prevented the fruit from being shipped into the United States. At the present time, we also have the benefit of a trade tariff of 7% cents a pound on avocados shipped into the United States. Avocado returns for the past 4 years have been highly profitable. Presuming no disastrous hurricanes for the next 5 to 7 years, avocado production will continue to return favorable net returns to the grower,