

AVOCADOS SOUTH OF THE BORDER

Takashi Turu

When I was asked by the Society to attend the annual meeting and give a talk on the Avocado Industry of Mexico, I realized the significance of such an approach and felt very honored for this distinction. I thank the Board of Directors and all the members of this great Society for giving me an opportunity to speak about the avocado situation in Mexico.

We know that a close contact and understanding between you and our growers could bring major benefits to the Industry as a whole. But, to begin with, it is necessary for us to learn about your developments as well as for you to know what we are doing South of the Border.

I understand that true knowledge will come through a sincere desire of communication and understanding between our groups. For many years, in some degree or other, there has been a certain approach between a small number of persons on both sides. The goodwill created and the benefits received are countless. I sincerely hope that in the future, a large number of growers from both of our countries can get together often.

This subject is so extensive that I will first deal with some of the technical undertakings of the industry. Then I shall go into the important economic aspects that are taking place in it. Finally, I will give you information on interesting works that are going on in the country. I believe this will give you an overall picture of what is happening with avocados in Mexico.

We consider that avocados originated in this country. Throughout several centuries, avocados have been growing in most areas of Mexico. Statistical information indicates that this fruit is grown, in a certain degree, in most states of the country and in a large number of varieties. Its production depends on the climate, soil, irrigation conditions and the interest of the people. It is therefore a very important fact for those interested in the product to develop proper techniques as well as to receive information on more advanced cultural practices.

The enthusiasm of growers to improve their groves and obtain better products has grown in recent times and it is possible to state that there is a fever running among many persons in different spheres and activities of the economy who are engaged in growing avocados, There is a good number of persons who even leave their former activities to dedicate themselves to the production of this fruit.

From the observation of this intense activity, I shall present some of the most relevant developments and characteristics of the Industry, which are changing this old time product of Mexico into a dynamic and colorful industry.

First, we have to review some of the developments in the cultural practices that growers are acquiring and studying. There is a strong campaign to induce interested parties to

standardize the types of varieties that can be grown. Even though it is a very difficult task to convince people to change the varieties of their trees, a good number of growers are becoming conscious of the fact that an appropriate selected variety can bring higher returns to them, as well as the possibility to plan their production which would enable them to enter into a more balanced marketing program.

Different varieties come through selections of grafting and seedling.

In recent years there has been a proliferation of a good number of selected grafted varieties. Among them, the following are obtaining excellent results:

- a) In subtropical zones: Booth 7; Booth 8; Choquette and Hall.
- b) In temperate zones: Hass. Fuerte, Bacon, Zutano.

These trees are grafted according to the most experimented techniques, which are widely used in many nurseries. The most common ones are

1. - - Shield budding,
2. - - Veneer grafting.

The work done in budding has a high percentage of takes, up to 95%. This is due to the good manual ability of Mexican grafters. Usually the seeds for the rootstock are treated with fungicide and planted in sand beds with compost or in one gallon plastic film containers with the same material. In this operation it is interesting to note that many detailed recommendations are being made by growers. One of them concerns a detail in handling the seeds. It was a common practice to leave the thin layer covering the seed, and it took much patience and demonstrations to show the difference and variations in the percentage of germination, which was clearly influenced by the elimination of the seed coat.

In the past ten years or so, there has been also a strong interest in top working old trees and varieties which are obsolete because of their low resistance and productivity. The most used techniques are

- a) Cleft grafting.
- b) Crown grafting.

This system of improving the obsolete trees is bringing new perspective to many old avocado areas. However, we have to consider that advances of these types are slow, since most interested growers prefer to look for new land, rather than improve their trees. In Mexico, we have plenty of good areas as well as proper climates all over the country for avocados.

Apart from the grafted material there are also a good number of experiments done with seedlings of fine Mexican types selected from trees that have optimum characteristics for disease resistance and high yield. Transcendental developments can take place in these new varieties or sub-varieties which may help solve the problems faced by growers. There is a good deal of investigation done to select, through seedlings, the varieties that can control diseases like the Root Rot or *Phytophthora cinnamomi*.

Important investigations have been done, which indicate that there are some types of

trees resistant to the Root Rot. Through careful testing of trees, studies of varieties are done by isolating trees that resist the effect of the fungus. There have been interesting findings among wild Mexican type trees which have a higher percentage of resistance to the problem. It seems that these are stronger or have developed so through the process of natural selection. There is a preference among growers to have their root stock from wild avocado trees, this because of observing the behavior of these types. Although there are many investigations of this nature, still there is no specific variety known to be absolutely resistant.

Growers are awakening to the importance that the control of diseases and pests should be given. The most common diseases are

- a) The hitherto-mentioned Root Rot
- b) Cercospora Spot
- c) Anthracnose
- d) Scab

The pests found in most areas are

- a) White fly.
- b) The Avocado tree borer.
- c) The Avocado fruit borer, which is the most destructive pest in Mexico. Successful studies have been done in this connection, by the use of systemic insecticides accompanied by an application of B.H.C. at 5% directly to the ground.
- d) Red spider mites.
- e) Black scale.

We recognize that in Mexico there is not much done in the usage of insecticides and pesticides; yet, it is good to know that the interest in using them is gradually increasing. Another important factor for a good agriculture is the application of fertilizers. In this regard there is also little interest among growers in general, mainly because there is plenty of good and new land for agricultural purposes. Yet, there are groups who are beginning to realize that fine quality and good production depends on the control of nutrients in the land. In this respect, several institutes such as The National Institute of Agricultural Investigation, The Graduate Schools of the National School of Agriculture and The Chapingo Agricultural College, as well as The Mexican Institute of Coffee, are going into a great deal of research.

One interesting study is done at a research center in the town of Tlapacoyan. in the State of Veracruz, where investigators are making foliar analysis to determine the nutritional state of the plants so as to be able to recommend the types and quantities of nutrients required. Also, experiments are done to determine the most adequate nutritional levels for avocados. To do this, they arrange several plots with different percentages of nitrogen, phosphorous and potassium and other minor elements so as to determine the influence of fertilizers in the quality and quantity of the production as well as the strength and resistance of the tree.

The importance of these technical aspects is enhanced by campaigns promoted by the Government and private commercial companies awakening the consciousness among growers toward these necessary practices.

After this brief relation of some technical aspects let us approach the economics of the avocado industry. In this regard, we shall observe some characteristics and developments taking place in the packing, shipping and marketing of avocados.

Avocado growers are starting to feel the need of improving the handling and presentation of their product. The traditional way of sending it to the market is in wooden crates approximately 60 to 70 lbs. The fluctuation in weight is due to the common practice of putting an extra amount in each crate. To hold this extra quantity, the crate is wrapped with thick paper and tied up with a rope. This way of doing things has some commercial advantages for the buyer because prices are fixed on the basis of the crate and not on its weight. Therefore, the reason for the extra amount is to make up for the spoiled product that results from rough handling and overfilling.

Now, some producers are convinced that a good quality avocado must also have a special packing and that the old way is a demonstration of poor quality. Therefore, the markets started receiving wooden flats with only one layer of fruit of approximately 16 lbs. net weight. The result is rewarding since the return to the grower is higher and the loss by spoilage is less. This also forces growers to put special emphasis on quality and thus, taking better care of their groves. Such changes taking place in packing avocados are really developing the industry toward higher technique habits, although it may take some time before the majority turns to this practice.

In regard to shipping and storage, avocados are shipped directly from the producing areas into the market place for their sale. Due to the existing varieties and different producing areas, avocados are shipped year round directly from the producing areas.

To give an idea of harvesting periods, it can be said that the Mexican type avocados mature almost continuously throughout the year. Then, to back up this inflow, there are the Fuerte and Haas varieties coming from September to March and finally the subtropical varieties from October to December.

So far, little is done to keep the fruit under cold storage; therefore, there is much spoilage. Steps toward this direction would certainly benefit the whole industry, eliminating waste and stabilizing prices.

Concerning marketing avocados, there is much to be said on this subject, but let us just consider prices and fluctuations. Improvements in packing and presentation of the fruit by adding a label or special mark have brought better prices and the need of using marketing techniques like displays and distribution of the fruit, according to areas.

Avocados packed in traditional 60 lb. crates receive average wholesale prices of about .08 U.S. cents to .14 U.S. cents per lb. while quality products packed in one layer boxes and with a previous selection, average wholesale prices from .16 U.S. cents up to a high of .50 U.S. cents per lb. Such are the big fluctuations in prices around the country. For this reason, groups of growers are trying to organize themselves into associations and cooperatives to bring standardization and quality control into the market and have more stable prices. The results are still difficult to appreciate; yet, a big step is taken

when people feel a need to transform a problem into something positive. Gradually, avocado growers are becoming an enthusiastic group of persons struggling for a bright future.

Next, let us consider some special efforts realized in favor of the avocados in Mexico. In doing this, it is of vital interest to investigate all the official as well as private work and efforts that are taking place.

Due to the little information as well as coordination on a national level of the industry, few persons really know what is going on with the avocados. So it is a surprise for many of our growers to learn that a great deal of research as well as studies are done in the country. Among the most outstanding programs that are actually taking place there is that of the Mexican Institute of Coffee, which is an official organism of the Department of Agriculture.

Many persons may ask what a Coffee Institute is doing with avocados. This is an interesting part of the story. The Institute has always been preoccupied about the intense competition in the International Coffee Market which affects the welfare of the coffee growers. Due to this, they realized that one way of reducing the risks of their monoculture based on coffee was to diversify the production in the coffee growing areas. Among the lines selected to promote diversification, avocados took a very special place, mainly because it is found in many places and it is a very well known ingredient in the preparation of many popular Mexican dishes. In 1960 the Institute started an intense planting program of selected avocado varieties that have high production and fine flavor suitable to the Mexican taste.

First, they selected areas considered the most appropriate ones due to the soil characteristics as well as good transportation with the main consumption centers. In these areas nurseries and technical assistance centers were established, to aid all growers interested in avocado production.

The experience of scientists in these centers comes from research organizations in Mexico as well as those in other countries, especially, the United States. Technical assistance is given in all the cultural aspects, from the selection of land, its preparation, recommendation of seedling and grafted trees, fertilization, pollinization, control of pests, use of herbicides, harvesting practices, and so on.

The Institute grafts its own trees and has experimented with many varieties, from which they have selected as the most suitable, the following: Booth 7, Booth 8, Choquette, Hass, Fuerte, Bacon, Zutano and Nabal. The selection of seedlings and grafted material is based on the adaptation of the trees as well as their marketing possibilities.

The number of trees planted per year is quite considerable if we take the Institute, as only one of the organizations working in behalf of avocados. The following statistics disclosed by the Institute give us an idea of its importance.

<i>Year</i>	<i>Number of Trees</i>
1963	19,000
1964	59,000
1965	58,000
1966	73,000
1967	104,000
1968	81,000
1969	100,000
	494,000
TOTAL	

The estimate for the 1970-1974 period is to distribute the following quantities of grafted varieties.

<i>Year</i>	<i>Number of Trees</i>
1970	30,000
1971	30,000
1972	30,000
1973	30,000
1974	30,000
	150,000
TOTAL	

The Institute hopes to have in production this year 42% of the planted trees. Their aim is to bring consciousness among more growers to the preference that selected grafted varieties should be given over the wild native varieties which have a great demand due to flavor, but have many inconveniences because of their fiber content, small size, and large seed as well as difficulties in transportation and marketing. The effort that the Institute is doing in promoting the Avocado Industry and especially in selecting quality varieties is one of the most important factors which we can count on for the future.

Some time ago, in a meeting I had with its technical director, he proudly observed that the Institute of Coffee is engaging in first class investigative work, and they would be most interested in having a close technical, industrial and economic contact with growers and research centers of the United States. I am glad to see that one of the chief engineers of the Institute is with us in this meeting.

Continuing with this special report on the efforts in the Avocado Industry, it is important to note that apart from the Government's interest in it, there are many persons who are privately contributing in bringing better results and products into the industry. Many are enthusiastic growers who dedicate their time and economic resources to avocados. Others are agricultural scientists who work with real passion investigating in behalf of the Industry.

It is interesting to mention that in this direction there are also efforts done not only in the cultivation of avocados in itself, but in the commercial side of it. It is a well known fact that the commercialization of agricultural products is one of the most important objectives in a growing economy like that in Mexico. It is the basis for the formation of a sound economical structure. The importance of it implies the big difficulties that its achievement produces. In this regard, it is most interesting for all of us to know that an industry to extract avocado oil is already working in Mexico. Its establishment is a result

of much thinking, investigation and big investment risk done by engineer Salvador Sánchez Colin, former Governor to the State of Mexico, and an enthusiastic avocado grower. I am also glad to see that he is here at this meeting.

The important thing in setting up this industry is the fact that it is established in an area that has a large production of the Mexican type avocado, most of which has been growing without any systematic planning. The majority of these trees grow in the backyards of the houses, around the corn fields or along the country-side roads as well as in a wild manner, forming small spots of trees in a large extension located between Villa Guerrero and Coatepec de Harinas in the State of Mexico.

It is estimated that nearly 200,000 trees grow in this area. Many of them are more than 25 years old and there are quite a few that are 100 years old or more.

The commercialization of avocados in this area brought an enthusiasm to growers as they found an outlet for their product, much of which they used to throw away. The processor buys all the product no matter how it is and so the growers earn an extra income which they never thought of before. Through this new interest, growers started to think of working more on their avocados and started to look for better production and returns per tree. They are beginning to invest a little more on their trees and it is surprising to see that each time there are more individuals seeking advice to improve their trees or in setting up systematic groves with selected varieties in which grafted trees are included. We can, therefore, realize the tremendous impact that this sort of work is doing in the producing areas.

These two illustrations, one official with Government support, the other, private with personal resources, give us a good idea of some of the developments taking place in favor of the Avocado Industry in Mexico.

Although there are a great many things that have to be done for the Mexican avocado in general, it is comforting to know that gradually there is more sincere official and individual participation.

Ladies and Gentlemen, you are aware as well as we are of the restlessness of the spirit in a changing world. Great changes are taking place in our surroundings and it is our responsibility to direct those changes into noble principles. I believe that one of the necessities that an international society like ours imposes on us is that of knowing each other better and of having a more intense exchange of ideas. There are many things that we have to do in the coming years. I sincerely ask each one of you for your cooperation toward these goals. Let all of us Avocado Growers of the world unite in the benefit of a dynamic society.