

Fruit Quality for Consumer Satisfaction

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Because Lois Todd has just received an award for her fruit quality activities, I think it is very appropriate to have a talk regarding this topic. Lois, may I give this talk in your honor? I would appreciate that very much... (Lois Todd: "It would be an honor.")...and I promise not to talk much about the details of our research.

As you know, my topic is "Fruit Quality for Consumer Acceptance," and I want to mention very briefly at least four things that have happened in recent years which have a bearing on the topic of fruit quality for consumer acceptance. Let me just list them first, and then I'll comment on each of them briefly.

One, increased production — that has a bearing on the topic of fruit quality, and I'll mention how a bit later. Another thing that has happened in recent years is the change from per cent oil to per cent dry weight as the fruit maturity standard. Thirdly, increased minimum fruit maturity standards which have been very recently implemented. And the fourth thing that I want to mention is currently under way, currently being developed: more stringent grades and standards. I think these are four very significant things that have happened in the avocado industry in recent years.

Let me, then, briefly comment on increased production. Some of the things I'm going to say are perfectly obvious to you, and some of the things I'm going to say have already been said by other speakers; but I need to say them again so that I can finally say something that I think all of you deserve.

One, supply exceeds demand, and that's no news to anyone; but this has resulted in a low per pound return at the same time that production costs have escalated. So, we have a current supply-demand situation that's unfortunate; and I believe that such a situation need not exist for very long. Of course, it's going to exist for longer than you want it to; but in the course of human history, I think we can say that this supply-demand situation that you're facing now need not exist for very long. Most residents of the United States of America are simply not avocado eaters — and I know that very well, being from North Carolina. I suspect only a very small percentage of North Carolinians have ever tasted an avocado. So there's a huge potential market for avocados. The question is how to convince these people to become avocado eaters.

Recently, fruit maturity standards have been increased. Currently, improved grades and standards are under consideration. I think that the effect of these two activities will be to place higher quality fruit onto the market. That's certainly the objective, and I think that

will be the effect of these activities. I think the objective is to improve quality in the hope that, one, avocado eaters will eat more avocados; and, two, in the hope that people who now do not eat avocados will become eaters of your favorite fruit. I believe such improvements in quality coupled with an aggressive advertising campaign could succeed. In my opinion, the advertising effort is essential, especially in connection with selling avocados to the vast numbers of people who currently do not consume the fruit.

Many people do not like avocados the first time around. This is true even if the first avocado a person tries is of good quality; and I think it's doubly true if the first avocado a person tries is of poor quality. I wish to tell you briefly of a personal experience. Shortly after I came to work at Riverside, someone gave me a prime quality ripe avocado. I took it home, and my wife and I decided to eat this new delicacy. We were told that avocado is one of the outstanding gifts of God, so we decided to try it, and with a very positive attitude. After tasting the creamy green stuff, and not liking it, we decided that perhaps we were eating the wrong thing. Nobody had given us any particular instructions, you see, so we tried to eat the seed, and very quickly discovered that the seed is virtually inedible. We knew that we should not eat the skin; so our immediate reaction was to just simply reject avocados. Just a very simple rejection. However, our Riverside friends assured us that we should acquire a taste for avocados; they assured us that it was worth the effort, so that we could enjoy Ufe more completely. And so we did. And we do — enjoy life more completely; because we now like avocados very dearly — and each of us had a delicious half of one with our lunch today. I'm sure that this kind of individual advertising that we experienced still occurs. This highly positive, individual to individual, advertising is constantly under way. But this kind of advertising obviously has not been sufficient to increase demand fast enough. Otherwise, supply-demand would not be out of kilter. So, with improved maturity standards and better control over fruit grades, the avocado industry can put its best fruit into the market place.

The challenge is to make the most of these improvements. You've decided to make the improvements; the next challenge is to make the most of those improvements. The challenge is to develop a substantially larger market, and I believe that the improvements that you have recently implemented will automatically lead to increased demand among those of us who already appreciate avocados. The challenge is to convert vast hordes of people who currently have never seen, or never tasted, or tasted and rejected avocados.

I wish to congratulate the California avocado industry for the bold and necessary step you took when you, the avocado industry, recommended improved maturity standards to the director of the California Department of Food and Agriculture. I classify this as a bold step because harvest of a given variety can not start as early, on the average, as previously. This means that the harvest season will be shorter. So, I classify it as a bold decision, on that basis. I classify the decision as a necessary one for two reasons. Increased production in recent years has placed more pressure on the front end of the harvest season; that is, there has been more pressure to harvest as early as possible. This means that larger quantities, and perhaps even larger percentages, of early-season fruit were seven per cent oil when they entered the market place. This means that many fruit which did not ripen properly entered the market place. This tends to depress demand.

The second reason that I view improved maturity standards as necessary, and obviously so did the avocado industry, is that the 8% standard itself was too low. For most varieties, fruits with 8% oil are not sufficiently mature to ripen into a good tasting fruit. In recent years, several things have happened which led to current maturity standards. I will briefly describe these for you.

First of all, a five-year taste test study was started in 1976 and was concluded in 1980. This study was conducted by Dr. Roy Young, of the University of California at Riverside. Unfortunately, Dr. Young died in 1981. In his study, five varieties were rather thoroughly investigated; and in each variety and for each year of investigation, 8% oil was on the average too low for fruits to ripen into something of acceptable taste. Okay, that's Point Number One.

Point Number Two. In 1980 — approximately 1980 -- the avocado industry learned that the solvent used in the standard Halowax oil analysis method would not continue to be available. Clearly, a new, fast, accurate maturity analysis method was needed. Based on information available at the time, and based on pressure from Lois Todd — advice from Lois Todd is a better way to put it — the decision was made to determine the correlation between per cent oil and per cent dry weight. A rather large study was undertaken in 1981-82, and the study was enlarged for the 1982-83 season. To make a long story short, we learned that there is an excellent correlation between per cent oil and per cent dry weight. The average correlation coefficient that we found in this rather enormous study was approximately .96 — a perfect correlation is 1.0. The correlation we found is not perfect, but it is unusually high for a biological system, certainly high enough to serve as an index for per cent oil and thus high enough to serve as a maturity standard index. In fact, per cent dry weight can be determined faster and more accurately than per cent oil, especially when per cent oil is determined by the Halowax method.

Beginning in June 1983, the legal standard for maturity of avocados in California changed from 8% oil to specific dry weight percentages. Initially, the per cent dry weight values which were selected were keyed to per cent dry weight equivalent to 8% oil; so in effect, at that point in time, the maturity standards were not changed. The only change was a different way to index fruit maturity. Earlier, I stated that the correlation between per cent dry weight and per cent oil is quite high — unusually high for a biological system. Typically such high correlations are found in living organisms only when very closely related things within individuals are measured. For example, a person's span (of hand) or the length of a person's forearm, those two things are closely correlated with the height of a person. And I suspect another example of a close correlation would be the number of hairs on a person's head, versus whether he's bald.

Now, let's consider the avocado fruit. The dry weight of a mature avocado fruit is made up of cell wall material, protein, sugars, pigments, minerals, a few other minor constituents, and oil. Some people don't realize that oil is one of the dry weight constituents. It's a dry weight constituent simply because it's not water — it's not driven off when you dry the avocado tissue. As the avocado fruit approaches maturity, most of the cell wall material, most of the protein, most of the minerals, and most of the other dry weight "goodies" are already there; and so from that point onward, most of the increase in dry weight is due to increase in oil. And at that point in time, oil is one of the

major dry weight constituents, so the high correlation coefficient is understandable.

Very recently—in fact, on September 17, and Ted Todd alluded to this— avocado maturity standards were increased, meaning that the dry weight percentages required for maturity were elevated above the equivalent of 8% oil. This is perfectly consistent with the taste test results mentioned earlier, and this is a decision that you should be proud of; and I think you deserve to give yourself a round of applause as you drive home for making that kind of a decision. Certainly, improved maturity standards will result in improved consumer satisfaction. Hopefully, consumer satisfaction will lead to increased demand and increased profits. I'm confident that you're in business for profit rather than simply trying to satisfy the palates of consumers.

I don't know how much has been done, in detail, with respect to fruit grades and fruit standard improvements; but I know that progress is being made, and I applaud you for those efforts.

In conclusion, I believe that the avocado industry is on the move; I believe you are moving forward — you know, just because an industry is on the move is not necessarily good news; you can move backward as well as forward — and I think you are moving forward into a healthy future. But don't rest! Your acreage in recent years has increased rapidly, it could increase rapidly again; supply is out of kilter with demand; and you have responded by making sure that you are going to place a better fruit on the market. I assume you will now take steps to introduce avocados to every person in the United States. If you do, and if you do it with good fruit, your market should expand such that demand will exceed supply.

It has been a pleasure for me to serve as one of your speakers today. Thank you very much.