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Notes on Avocados in Central Florida

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I have no excuses to make since I have had plenty of time to think this matter over and if I do not pen my thoughts correctly, I may be corrected. The foregoing salutation may be different to some of our valued speakers; nevertheless, I want as a leader, to say, that on the Avocado question today, we need state aid from the Agricultural Experiment Station but I shall refer to this later on. From experience, we are apt to get into that spirit of telling our neighbor what a "Gold mine" there is in the Avocado industry, but be assured there is always some difficulty to be overcome.

The term "Avocados in Central Florida" is rather a wide one and my remarks apply to the high pine land districts. By co-operation and through a free exchange of ideas relating to the Avocado in Florida I feel sure much may be done towards building up a prosperous sub-tropical fruit industry.

Let us think of its sustenance next, for here comes one of the great points which elevates it far above the majority of other fruits known. Its dietetic value is known to many and aside from the actual nutrients which it contains, lies its succulency, its mineral matter and organic acids and from which we learn quantities of water soluble vitamins are obtained

Two years ago I spoke on this same subject and at that time we were passing through trials which occurred from various dry periods and although this may not seem so conspicuous to some I must say that in my opinion our Avocados received a great check on our high pine land and this has been more forcibly shown since that time. Last year we were favored with nice rains which put our trees in fine condition again; naturally in a large plantation we are apt to find a few which do not grow as luxuriantly as others and we are often asked the reason for this. Our expressions are in the first place that all trees when planted were of the same size and all planted exactly alike. I have carefully watched the progress of these slower growing trees and I am of the opinion after examining the roots from time to time that it may be probable in many instances that these occurrences are chiefly brought about through a bad root stock.

I am under the impression that the first six hundred trees which we planted in July, 1917, were budded to stocks which were from seeds picked up here, there and everywhere. Although we are apt to be over-exacting sometimes, I am of the opinion that great care is required to insure a fine seed supply and reliable root stock. Generally speaking I would select for our locality, stocks from thrifty bearing trees of Guatemalan or West Indian preference to the Mexican, for the latter pushes forth growth much earlier than the former. However, it may be possible that a few of the Mexicans are not so early, but on general lines I am not convinced that it is as good as the two former for Central Florida. Perhaps I ought to mention that I have not proved if is more drought-

resistant than the two former named.

My observations lead me to say, that unless good food and plenty of water are given to these trees on our high pine land we cannot reasonably expect profitable returns for a long period of time. If we take into consideration a trite term given me one day by a friend, that these trees are a woody plant we may get nearer their requirements, for the so-called woody plant usually is one that although a little dry on the surface at times, we invariably find it has an even, cool root run.

In all our later plantings we have proved that after greater applications of decayed matter or decayed manure our trees have thrived more abundantly. For the welfare of the tree and as an active stimulus to all new planters it might be well to add that all newly planted trees should be regularly watered during the first year also that they should be shaded from the rays of the mid-day sun. Much may be written and much advice given, but the main point is yet to come and I refer to the results of what fruit I have obtained and what other people have gathered from their young trees the problem of non-setting, hence shy-bearing Avocados on young trees appears to be spoken of in many localities. Further it is not confined to our State alone but also in California where I have noted much comment on this matter. We are all experimenting, each one with a view that he may find out how to increase his crop by getting a better setting of fruit and so far there appears to be a great deficiency in our yields although our trees may have put out a good bloom. I have used all the sprays as recommended by Mr. Moznette and have experimented with light sprays of water on certain blocks also. My hives of bees have been increased but have as yet found no difference from those not treated; never the less I have still got a leaning towards increasing my bees again.

This non-setting of fruit through which I am passing must be brought out in order that we may try to help each other for although there may be some who might say that it would have been better if I had not touched on this point I feel convinced that if we will only be outspoken and more co-operative some assistance may be forthcoming. We are all working in our own way and naturally culling from one another in order that any success shall be ours.

This brings me to the point where I think we need some definite aid from our State Agricultural Experiment Station or from the United States Department of Agriculture. I have already received much valuable advice from these sources but I feel we have reached the point when you should join me in a body and say yes.

In order to obtain the best assistance whereby we can produce this valuable fruit in quantity it is necessary that our Agricultural Experiment Station select for us their best investigators and give them the best opportunity to study our methods and requirements at regular periods after which a base line of methods can be decided upon. Of course there may be a few who think they do not require any suggestions but to those I would say do please work in harmony with the investigator who may call on you.

If we are to come out on top we must have more force and soon, for Florida has the land to grow this fruit in plenty and there is no excuse for our standing behind any state. Some of you may rise and say I have had this crop and that crop and have had good profit but what we should aim for is that co-operative feeling and seeing that all are succeeding.

We have several Trapps which were planted first, a few Pollocks and several other kinds, including some of the new Guatemalans collected by Mr. Popenoe. Also we have about forty Guatemalan seedlings collected by Mr. Popenoe and as the latter grow along I propose to commence experiments in root pruning certain trees. This method some years ago was proved conclusively to be well worth the money spent. In our large grove I am now working in other kinds, on every other tree and thereby endeavor to promote a better means of cross pollinization.

I trust that my endeavors of thought on this all important subject may be considered with care and thereby assist us all and for your courtesies I tender my thanks.

Mr. Thompson: Could I just read a paragraph here in reference to the ways of the Avocado, as given by Dr. A. B. Stout, who was in California and was invited by the California Association to study the matter:

The January Bulletin of the New York Botanical Garden contains some interesting notes on the flowering of the Avocado in California. Dr. A. B. Stout, while staying in California, was requested by the Avocado Association to seek the reason for the uncertain fruit of the trees which always flowered freely, and were apparently fertile. Assisted by the Pomona College. Dr. Stout discovered that Avocado flowers open twice a year. On the first occasion the pistil is in a receptive condition but the stamens possess no pollen. When the flowers open the second time the stamens are shedding pollen, but the pistil is dead. Consequently self-fertilized flowers are practically impossible. The different varieties are apparently of two classes. Class A opens some of its flowers in the morning, and closes them at noon, reopening them twenty four hours later. In the late afternoon a second lot of flowers open for the second time. The other group, Class B, operates differently. Some of the blooms open for the first time in the afternoon, and open the second time on the morning of the second day, about thirty-six hours later. All the twenty-one varieties under survey behaved in one or another of these ways. Under the circumstances there is but slight or no chance of a variety in Class A fertilizing with others of the same class; consequently to ensure fruit, varieties of both classes must be planted together, in order that the opening of the pollen bearing flowers may synchronize with those opening for the first time, and which are pistillate. It would seem that each group—Class A embraces some twelve varieties, and Class B nine varieties—do not vary much in the opening of their flowers. Therefore it is futile to plant any one or all of the twelve Class A in one orchard, as their flowers are all pistillate or staminate at the same time, for the same reason Class B varieties are also unsatisfactory.

Dull or wet weather rather upsets the sequence of the opening and closing of the flowers—may even reverse the order which obtains in bright weather. Only through this influence do Avocados set fruit, irrespective of whether both classes of trees are near each other. For the reasons explained, however, the two classes should always be planted together. The why of such behavior is unexplainable, and so far as we are aware, no other species of plant follows so closely this policy of dichogamy.

Mr. Morley: I would certainly tender thanks to Mr. Thompson for his assistance. It is very fine and helpful to bring out this matter

Mr. Skinner: Mr. Krome, have you any comments to make on this?

Mr. Krome: The work that Dr. Stout carried on in California a year ago last winter and spring was published fully in the California Horticultural papers, at that time, and Dr. Stout wrote several quite exhaustive articles on the subject of the different opening period of the Avocado flower. It seemed to necessitate the inter-planting of the Class A and Class B Avocados, and even with the best intentions in the way of inter-planting, it looked as though we were up against a serious proposition to bring about the proper pollination. At one time during the fall we made arrangements with Dr. Stout to come to Florida this winter, but were not able to perfect the arrangements in time to secure his services this year. Fortunately through the assistance of Mr. Robinson we secured the services of Mr. Savage, of Eustis, who has had considerable experience in that line, and Mr. Savage began his work near Homestead in February this year—about the time that the first Avocado bloom began to appear. He worked there most of the month of February and then returned the latter part of March and April to take up the later bloom varieties. He is completing his work there now, and while he has not assembled his data for a complete report I think I may be safe in saying that he has found conditions in Florida very different from what Dr. Stout found in California. I think he found practically no variety (between 40 and 50 varieties) but what gave opportunity of the opening of the flowers for close pollination. Evidently the conditions that exist during the blooming period in California are so markedly different that the results of Dr. Stout would be very misleading to the Avocado growers in Florida.

Mr. Skinner: May I ask a question? Over in Pinellas County we seem to find that a pretty good application of nitrate of soda at the blooming time acts very strongly in the setting of the crop. Have you had any experience with that, or have you any comments to make upon it?

Mr. Krome: I don't know; over in Dade County we think that nitrate of soda put on Avocados is just about the same as poison.

Mr. Robinson: I want to say in reference to that article by Mr. Stout, that some results were published in California which shows it may not be altogether a normal condition in California. Orange Clarke carried on some experiments with somewhat different methods, by which he demonstrated conclusively that as long as he had bees operating among the trees he got good fruiting. I am not sure but what we may have similar districts in Florida where we have cross-fertilization, or the kind that Dr. Stout found; in fact, within the last two weeks I have tested out Avocado bloom in a number of places where the conditions were very similar to those described by Dr. Stout in California.

Member: How far apart is the best to plant Avocados?

Mr. Robinson: I think that is dependable on the location and soil.

Member: I live on Lake Magdalene, north of Tampa, and my land is a little sloping west to east, it is flat.

Mr. Robinson: I should prefer planting in hedge row style, 25x15.

Member: What is the best? Open style or wind-break style?

Mr. Robinson: Open style.

Mr. Skinner: I think the Avocado is one of the most important subjects we have to

consider. At Miami about three years ago I was in company with Mr. Krome and Mr. Hume and Dr. Fairchild. We went down to the Government Station and they gave me a couple of Avocados. I planted the seed as soon as I got home. One is 15 feet high and is full of bloom on half of the tree that I girdled in November.