

FRUITING HABITS OF BUDDED TREES OF THE DIFFERENT AVOCADO VARIETIES

T. U. Barber
Puente, California

Fruiting records and the different growth characteristics of budded avocado trees planted throughout California are of considerable importance to the growers. Through careful study of such records and the consequent selection of varieties, the value of future plantings can be greatly increased.

Varieties such as Dickey, Royal, Murrieta, and Colorado will be eliminated as the records will show that over seventy-five per cent of the budded trees have died within two years and that only a very few of the remaining trees are in a healthy condition.

As time passes, it is quite probable that certain varieties will be shown to be far better suited to one district than to another, and also that the season of fruiting may change one or more months. Such facts as these are all necessary to the best development of the industry.

Up to the present time, only a comparatively small number of trees have come into bearing, but the next few years will show a tremendous increase.

To obtain the greatest benefit from such work, it is absolutely essential that the growers cooperate with the Association by sending in each season, the complete records from their trees. Do not wait for a request from the main office, but send what information you have at once and keep it up. The Association is called upon constantly for information regarding varieties, and it is impossible to give an intelligent up-to-date answer unless complete records are before them.

From the notes which I have made during the past two months, the following list shows the varieties of budded trees which are fruiting and the age that they started to bear.

Local Thick Skin Varieties		Imported Varieties		Thin Skin Varietis	
Blakeman	3 years	Fuerte	2 years	Azusa	2 years
Challenge	3 years	Grande	2-3 years	Carton	3 years
Dickinson	3 years	Merito	4 years	Chappelow	3 years
Lyon	2 years	Perfecto	3 years	Ganter	3 years
Miller	5 years	Sinaloa**	3 years	Northrup	2-3 years
Sharpless*	2 years			Harman	3 years

* Top worked tree on 12-year old root.

** Top worked on 10-year root.

Different Characteristics of Growth

I am sure most of us did not realize when we planted our first budded trees, that there would be such a marked difference in their growth. In nearly all cases, the originals were seven or eight years old before our attention was attracted to them by their first fruits, and

at this age were so large and well covered with foliage, that few opinions were formed.

We have several distinct types—the tall, slender, sentinel trees like the Lyon which could be planted as close as fifteen feet and have plenty of room for many years of growth; the trees of long branched open growth as the Blakeman and Meserve, and those of wide spreading, heavy growth so well represented by the Taft. There are many other individual characteristics, the examples given being merely representative.

In pruning to form a proper frame work, these traits must all be taken into consideration. One variety will need heavy pruning to hold back the tall growth, while another may have to be constantly checked to keep it from producing long willow-like branches that will droop to the ground. We hear of varieties being impossible on account of their growth. This may be so in extreme cases, but beautifully shaped and well balanced trees can be found in nearly every variety. The avocado requires attention just as any other orchard tree, if we desire to produce a frame which is resistant to wind, well formed to hold a large crop and to give the greatest possible bearing surface. For example the Blakeman, if allowed to follow its natural habit, will be irregular, long branched and exposed to sunburn. When the branches are about two feet in length, they should be cut back to three good buds, leaving about 18 inches of limb. This pruning will usually send out two well spaced branches and these in turn can be headed, resulting in a strong framework well protected by its foliage and having a bearing surface three times as large as an unpruned tree.

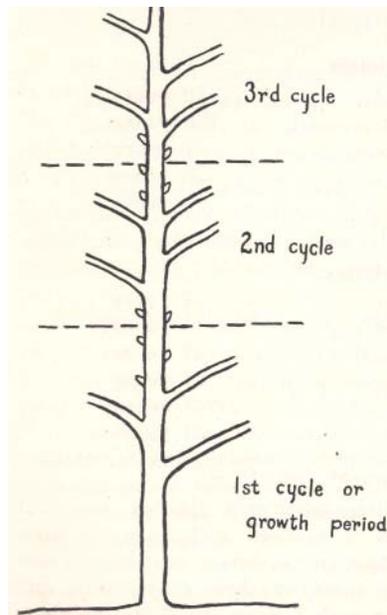


Figure 11.—Diagrammatic sketch, showing general type of desirable growth and growth periods in young avocado tree. Discussed by Mr. Barber under methods of pruning and heading.

In some varieties, it is absolutely necessary to top the young bud and force branching at the proper height. When this is done, care should be used to select an undeveloped bud and not one which has started to form a limb. If a limb bud is chosen, the terminal growth is entirely stopped, and the center of the tree exposed to sunburn. Much of the preliminary pruning should be done in the nursery or at the time the trees are balled for transplanting to the orchard. Trees properly pruned with well spaced branches forming a head from 20 to 30 inches above the bud, will need no further attention until a full season's growth has

been made.

I desire to mention a question of importance pertaining to the bearing surface of our orchard trees—to what height should we allow the tree to grow before completely checking the terminal growth? The tree produces a series of limbs or what is called a cycle of growth or growth period, then we find six to a dozen dormant buds followed by another series of limbs and so on (Fig. 11). Our frame work can be built from one or more of these series of branches. My investigations lead me to believe we must choose between two and three, yet I am not willing to pass final judgment until the trees become older and carry a full crop of fruit.

Irrigation and Fertilization of Fruiting Trees

Records have so far shown that the avocado requires irrigation every two weeks until it is three years of age under average conditions, when the root system has become large enough to carry the tree in good growing condition on the usual monthly irrigation basis. The older fruiting trees appear to be producing satisfactorily under citrus irrigation methods.

Fertilization, as related to budded trees, is a question of the future, but I feel sure the avocado will respond well to a liberal supply.

Variation in Bloom

As in nearly all fruit trees, we have a marked variation in bloom in the avocado; some produce a large amount the very first season, others will grow for several years without showing a single blossom, and still others will gradually increase from a small showing to a sufficient amount to produce a normal crop of fruit. The last condition is by far the most desirable, as the strength of the tree is not affected nor do we have the trouble of thinning our fruit. Some varieties have bloomed so abundantly that the entire foliage has been caused to drop—namely, the Walker and the Lyon. Certainly this draws heavily upon the reserve energy. Perhaps this can be controlled to some extent by pruning, although I have not heard of any experiments along this line. It appears to me, especially in the thick-skinned varieties, that trees which bloom moderately are showing the largest and most vigorous growth.

Fruit Setting

It is not unnatural that we should be anxious to see our trees come into bearing, or wonder why they do not set fruit after blooming and why the fruit drops after having started to develop. In most cases this is the way Nature protects the young trees. We must allow the stock to become mature before it bears any great quantity of fruit. In fact, I believe varieties which scarcely bloom at all until three years of age, will in the end become our largest and most consistent producers.

The beautiful experimental orchard of Mr. Joseph Sexton at Goleta will prove of great interest to any avocado grower who finds time to visit it. The trees are from one to five years of age, and this season eighteen varieties have set fruit, which is a wonderful example of the avocado's adaptability to the Santa Barbara district.

At Monrovia, we have another fine grove which shows the constant and careful attention of one of our members, Mr. Thomas H. Shedden. This grove is but two and a half years of age, yet Mr. Shedden has an exhibit at this meeting of twelve varieties of fruit and several

more are bearing, which have not reached sufficient maturity to display.

Mr. J. T. Whedon has a five acre planting at Yorba Linda, which contains a remarkable showing of the Fuerte, an imported variety, and many others. In this orchard is the most healthy tree of the Dickey variety that I have ever seen. It is excellent in form, vigorous of growth, and at present carries a crop of 80 fruits. This variety, as many of us know, is almost impossible to grow because of an undetermined trouble which usually kills the budded tree during the first two years of its growth. It may be well to state that the Murrieta, Royal and Dickey have produced very unhealthy growth in Florida, and in most cases have finally died. Other plantings showing interesting growth are those of Mr. H. M. Haldeman, Beverly Hills, Mrs. J. T. Stewart, San Fernando, and Judge Charles Silent of Glendora, who has the best demonstration of the Dickinson variety. Mr. Wm. A. Spinks of Duarte, has more interesting new varieties fruiting than any other grower in California besides most of the varieties of local origin. Mr. Spinks also has fruiting, the only budded Florida or Hawaiian trees that have so far come into fruit in California. Among these is one specimen of the Trapp. The West India Gardens; Mr. C. P. Taft of Orange and Mr. C. E. Utt of Tustin all have important demonstrations.

In a recent letter, Mr. Geo. B. Cellon of Florida states that they have fruiting this season on top worked trees the Sinaloa, Schmidt, Grande and Fuerte. It is his expectation that these will mature several months earlier than in California. This question of season is an important one. It seems as though some of the California fruits have been picked before they were entirely mature. For instance, the Dickinson variety has always been picked during April and May until this season, when the crop of 450 fruits from the original tree was marketed through the months of July, August and September, and those picked during the latter part of September were delightfully rich in flavor and in perfect condition. Those on exhibition today are the very last of the crop and have been in cold storage since October first. Another change of season is that of the Sharpless. Mr. Sharpless picked nearly all his fruits last year before October first—today, October 31, 1916, he still has about half the crop of 700 fruits on the tree and hopes to hold some for the Christmas trade.

Seldom in the history of fruit growing, if at all, do we find any branch of that important industry fortunate enough to possess a cooperative association of growers to guide its development through the early and experimental years, as is found in the California Avocado Association. We are indeed favored to have the assistance and guidance of so many scientific and practical people as those who are to be found among our members.

In closing I must call your attention again to the valuable opportunity which we have through our Association to collect, compare and finally disseminate through our publications and semi-annual meetings authoritative information covering every stage of this interesting branch of fruit growing.

Let every grower do his small part by keeping correct records covering the behavior of his trees, such as fruiting and growth habits, pruning, frost and wind resistance and the results of general cultivation methods and help to increase the essential knowledge by sending this data regularly to the California Avocado Association, care of The Citrus Experiment Station, Riverside.