

## Advantages of Low Grafting

### Willis Calkins

In the beginning, we wish to make it clear that we are not top-grafters, but rather, root-grafters. Even in our first work, we stayed lower than most other operators, but through close observation of results we have come to the conclusion that several good reasons can be urged for the root-grafting or low-grafting. We seldom go over two feet above the ground on any tree, and especially where the tree is restricted, it is good policy to go below the bud union, and set the scion in the original root stock. The great advantage of this method is that the tree will be started on the original foundation where it can be given proper care in shaping and staking at a minimum outlay of labor and material.

Another point is that the lower foundation eliminates restrictions, infections that might arise from scars, sunburns, die-backs, or any other results of mistreatment of the tree. The lower the new growth begins, of course the greater the strength to withstand the winds, and also bear the weight of the crop.

After cutting several hundred trees restricted at the bud union, varying from one to eighteen inches in size, the conditions invariably noted were: a large bud shield was used, a poor union had been made, and the wood behind the bud had decayed, showing that the first nourishment the bud received was sour and therefore it could not respond to the growth the root system was capable of putting forth. It has been our observation that this type of tree is susceptible to sunblotch.

We are now experimenting with seven sun-blotched trees of this type in one orchard, grafted January 25th last, all of which show a good healthy growth of from twelve to thirty-six inches. These trees are being watched with great care and their progress noted with interest, for if successful, it will be the solution of a serious problem in the avocado industry.

And in conclusion we wish to say that to change the type of tree, you should graft into the root instead of the limbs. In other words, you cannot build a large super structure on a California bungalow.

**Carter Barrett:** (Following talk by Willis Calkins) I want to thank these gentlemen who have assisted me in presenting these angles and I am going to ask the audience if they have any questions to reserve them until the Question Box, as there are some other speakers.

**Judge Halm:** I didn't know that Carter Barrett was going to have two or three barrels shot at us. I see a gentleman sitting in the back part of the audience whom I want to ask

to come to the front. Dean Hutchison of the College of Agriculture, who needs no introduction by me to you except that I want to say that Dean Hutchison is a good friend of the avocado growers. He can do<sup>1</sup> us a lot of good and I am sure is doing so now and has been doing so when we little suspected it. Have you a word in defense of your actions sir?

**Dean Hutchison:** I have been in the habit of receiving, about ten days after your meeting, some Resolutions passed by this organization, so I thought I would come down this time and receive them directly because you always find something to Resolve about. Usually you ask the University to do something about this avocado industry. If you haven't anything new to ask us to do, you ask us to continue the things which we are already doing.

Now I have sat in the audience all day and enjoyed your meeting very much, Mr. Chairman, and I have seen and heard references made to the work which the University of California is doing for the avocado industry, through our Experiment Station at Riverside, through other Divisions of the College of Agriculture, and through the Agricultural Extension Service. Of course, being human, we rather like to hear you say those things and we like to know that our efforts are appreciated.

You are quite right, sir, when you say we are interested in the avocado industry. As I have sat through meetings today things have been running through my mind. You have talked about a lot of problems today, and what has been most interesting is that you have been talking about production problems all the way through. To be sure, one or two men rather intimated that if it isn't right on you now, that you are facing some marketing difficulties, because of the rapid expansion that has taken place in recent years in this industry, but the majority of the problems you have been talking about have been production problems. That is a rather unique experience for me these days for when I go to farmers' meetings all over the state, I find them talking not so much about production problems as about their marketing problems. I don't mean to imply that we have solved all of the production problems of the other agricultural industries by any means, because we haven't, and it will be a long time before we do. They have production problems, as have you. But yours is a new industry, one of the youngest of the state and for that reason, if for no other, production problems are paramount.

You have talked about root-stocks, irrigation, diseases, insects, and other troubles. You are going to have all these to contend with and it is going to take some time before we learn how to control all of those things, if ever. But I think you are on the right track, because we are never going to have a stabilized industry in this or any other type of agriculture, so long as we have to depend upon droughts, floods, and fungus diseases and insect pests to curtail production. You can't do it that way. The sooner we learn how to control these enemies of our agricultural crops, to control and understand more definitely the reactions of the primary factors in plant and animal production, the sooner we are going to be able to work out plans of stabilizing industries.

About a year ago, the Congress of the United States passed the Agricultural Adjustment Act, and the Federal Department of Agriculture and the Agricultural Colleges throughout the United States have been concerned ever since in the administration of that act and

its provisions.

That act, broadly speaking, has for its purpose the attempt to restore agricultural prices—prices of agricultural commodities—to their pre-war level, 1909-1914 levels.

The philosophy of this legislation is that if that could be accomplished, the purchasing power of some 25% of our population would be materially increased and therefore that one thing would contribute substantially to the economic recovery of the nation. We hear a good deal about this act and what is being done about it today and we are beginning to talk about it. It is such a complex thing and so far, reaching in its implications that we didn't talk very much about it for the first few months of its existence. Now we are getting a little more courage and we are beginning to analyze this act to see if we can understand it better and are asking ourselves if after all the philosophy back of it is sound, and if we can, through the means of that type of legislation really improve the economic situation of American agriculture.

By and large, the provisions of this Act fall in two categories. There are two broad programs outlined by this Act to be followed, in an attempt to improve our situation, the one to improve our marketing procedure, the other to adjust production to demand. The latter of these programs, the one which perhaps is being criticized most at the present time and of which I want to speak for a few minutes, is one of which many among us find difficulty in accepting the basic philosophy upon which it is based.

I refer particularly to the program of curtailment in the production of the basic agricultural commodities. A year ago, the Congress named seven basic agricultural commodities, wheat, cotton, corn, hogs, rice, tobacco, dairy products, and a few weeks ago amended the Act and added six more basic commodities and this amendment has been approved by the President of the United States.

Now this legislation has for its purpose the reduction of the supplies of these basic agricultural commodities, on the philosophy that if we reduced the production of these crops, the prices received by growers thereof will automatically rise in response to the general economic law of supply and demand. The first one of those commodities to be handled was cotton. Last year the Agricultural Adjustment Administration reduced the acreage of cotton by contracting with farmers to pay them so much for the potential value of the crop which they would normally produce, if they would reduce their acreage by about 20%. This year they are attempting to reduce cotton acreage 40 %; in wheat the attempt has been made to reduce about 20%, and in corn and hogs about 25%.

Now there are a good many, as I say, among us who are asking themselves these days such questions as this—how long can we maintain, to say nothing of increasing our standard of living in America under a program which advocates the production of less and less of everything? And others are asking such questions as this—how long is the American consumer going to be willing to be taxed to raise funds with which to bribe farmers to grow less? Those are rather basic questions. I mention them today to drive home to you this thought—that this phase of the agricultural adjustment program is and must be considered a temporary emergency measure, designed to bring the old ship back upon the proper keel. She is listing rather badly these days and has been for several years. We want to get her back. But we have got to be pretty careful not to tip her over on the other side. So I would like to have you people, if you haven't thought of

this before, realize that the government is using these means as temporary and emergency measure to bring our over-expanded agricultural production back more in line with consumptive demands. There is no doubt, we did over-expand our agriculture. During the war, under the stimulus of patriotism and the high prices which we were getting in those days—and that was an important factor of stimulation which we mustn't forget—we went too far and expanded our agricultural planting beyond our needs. Now we have got to reduce it to bring about a better balance between production and consumptive demands. We often hear this statement—that our agricultural troubles are due to overproduction and I have just intimated that thought. On the other hand, that isn't strictly true. May it not be quite as much a matter of under-consumption? You have heard these two points of view debated for the last five years or longer.

Now the more I study this problem and the more I think about it, the more I am inclined to feel that both points of view are right. To the man and woman on the farm today there is no question that there is an over-production of many of our agricultural commodities because they cannot sell the products which they produce for sufficient money to cover the cost of production and leave them a decent profit. To the man and woman who are in debt and facing foreclosures—facing the loss of their farms and homes and life savings—there isn't any doubt that there is over-production, if you mean by over-production a surplus that prevents them from selling their products for more than what it cost them to grow them. From that point of view, we do have over-production in many of our crops and it is important to bring production more nearly in line with consumption. So the College of Agriculture is cooperating with the Department of Agriculture and the Administration in managing these reduction programs in California. We have conducted the wheat, cotton, corn and hogs adjustment programs and when they bring out plans for adjustment in other crops we will take charge of those too through the efforts of our Agricultural Extension Service. These programs this year I dare say will bring to the growers of these basic crops in California something like six million dollars in benefit payments.

Now let's look at the matter from the other side. Personally I find it difficult to accept the philosophy that from a long time point of view our trouble is one of over-production, when I see so many hungry and ill-clad people about me. Something is wrong with our economic system that admits of that situation—hunger, distress, almost starvation, in a land of plenty. I thought the Secretary of Agriculture made a very apt statement a few months ago in his report to the President for the year, when he said that our problem is essentially one of distribution. We have surpluses in agriculture and in industry, because the majority of the people spend all of their money before they have satisfied their wants, while the minority of the people have satisfied their wants long before they have spent all of their money. This minority, who have, under those conditions, the surplus funds of the country, reinvested those funds to produce more goods, more automobiles, telephones, avocados, oranges, etc.—and thus surpluses pile up. Why? Because people with surplus funds have already satisfied their wants. They don't want to buy any more. On the other hand the people over here, the great majority, have already spent all of their money. They still want things but they have spent all their money and can't buy more. Thus surpluses pile up, markets are flooded, debts increase, mortgages are foreclosed and there is much distress. I submit, ladies and gentlemen, that this is the angle of this problem, toward which the American people

should and must direct their attention if a solution thereof is to be found. I believe when we do that, we are going to bring about conditions under which more members of society may have an equitable share and benefit in the products of capital and labor.

I am not pleading for the shiftless or those among us who are content to sit back and let the rest of us support them and take care of them. I have just been in Imperial Valley, where as you know there have been recent agricultural labor troubles. I have seen grave evidences there and elsewhere of what that sort of thing leads to. I am talking about the thrifty, hardworking American man and woman who, under our present scheme of things, and through no fault of their own, lack of industry or thrift, cannot obtain even the bare necessities of life and they ought to have a few of the luxuries as well. That I submit is the place for us to begin to direct our attention to find the ultimate solution of this problem which has been worrying us for the last four years.

The people generally, Mr. Chairman, have learned how to produce things much better than how to distribute and consume the things they produce. We can grow all the avocados here in Southern California—several times the number the people in the country can consume. We know how to do it. Of course, we have problems of irrigation, insects and diseases but we can solve them ultimately and learn how to produce avocados in much larger quantities than we are doing now. But, how are you going to get those avocados onto the tables of more people of the country, so they may enjoy this delicious fruit in larger quantities? That is the problem of all agriculture, and the problem of all industry. The really big problem before us is unemployment. How are we to solve that? How are we to increase the purchasing power of more people so as to give them the opportunity to enjoy these things which we know how to produce in abundance? Solve that problem and most of our other troubles will seem insignificant.

**Judge Halm:** I am quite sure I voice the sentiments of everyone in appreciation of the very pointed remarks the Dean has made to us this afternoon and as he has suggested, it is a theme for study and thought. What we want to do is help put the ship on the even keel.

I see another gentleman sitting on my left, who addressed this organization a year ago. He was doing at that time considerable preliminary work in the avocado industry and has been making some progress on which he has reported not very long ago. I want to ask Professor Hodgson of Westwood to tell us how his work is progressing.

**Prof. Hodgson:** I have very little in addition to the report given at the Institute recently. I am merely able to say that we are making progress in our work. We have assembled a collection of seedlings, and have recently top-worked them to some eight strains of the Fuerte, hoping that among these strains we may have something more dependable in bearing behavior. It will take several years to determine the difference in these strains. Through the cooperation of the Association Committee we have received seeds of some of the better avocado varieties, very largely through the kindness of Dr. Colt. These seeds are being grown and in due course of time we expect to have some seedlings to plant out and use in our breeding project. We are hoping that we may, by

breeding, obtain something as good as the Fuerte but more certain, and on our field work we are making progress as rapidly as we can in relation to the other duties and responsibilities occupying our time and attention. I hope that within a year we may have something interesting to report with reference to ways and means for controlling the rather erratic bearing behaviour of the Fuerte variety.

**Judge Halm:** We all appreciate your very helpful work on this industry, and I am sure Professor Hodgson will be glad to have any of those interested come to Westwood and see what he is doing.