

The Avocado Industry in Australia

Allan Campbell

Avocado grower, New South Wales, Australia, and director at large, California Avocado Society.

Having travelled for over 7,000 miles to *learn*, and now finding myself standing right here before you, I feel the roles have been certainly reversed and the situation has become completely out of hand.

However, it will be my very great pleasure if I can in any small way contribute to the wealth of information and the wealth of stimulation which we have received over the past three days.

Don Gustafson has asked me to just say a few words on the industry in Australia and the various techniques and procedures which we are evolving.

For me to give a true picture of this situation, I do believe that I must give you a very brief non-historical, non-statistical picture of our country, its population, and where the industry is primarily located. So, if you will bear with me, I will endeavor to draw an outline of what is supposed to resemble Australia. The area and its population can best be understood when one compares it to a recognized and known situation. It is a large continent which is roughly equivalent in area to the mainland of the United States, and contains only 14 million people — a population less, I believe, than greater Los Angeles.

So, there's plenty of room for everybody, including kangaroos — though we do get rid of a few of them too, occasionally.

This brings us to the size and location of the producing areas. Identifying them in order of their times of production, we commence with the Atherton Table Land, inland from Cairns at an altitude of some 2,500 feet; coastal southern Queensland, just north of Brisbane; the adjacent coastal area of northern New South Wales, where I am located; the Tamborine Mountain area in southern Queensland; Mildura and Renmark, located on the Murray River at the common boundaries of the states of New South Wales, South Australia, Victoria.

Small plantings have also commenced in the west, near Perth. Fortunately, we have with us today two active avocado enthusiasts from that area who will be able to tell you much more accurately about their own situation than can I.

Current plantings in New South Wales are in the vicinity of 125,000 trees, of which approximately half would be of bearing age this coming year. So you will see that this is, by your standards, indeed an infant industry. You will now see why I hesitate to talk too much about the Australian industry as a whole, and will restrict my remarks to the experiences which I myself have suffered.

It will be appreciated a continent of this size enjoys a multiplicity and combination of climatic, seasonal, and soil conditions; and so the variations are immense. Our plantations are located approximately eight miles from the sea, at an altitude of 300 feet, on latitude of approximately 31 degrees south. The climate is basically subtropical, and we enjoy an average rainfall of some 75 inches per annum.

The soil types are of volcanic origin and are, in the main, deep red loams. However, being of volcanic origin, they are not consistent. In cases, there will be a top-soil of 60 feet deep; but in many other cases, there will be a top-soil of only six inches thick; and unfortunately, as we do not possess X-ray eyes, we can get into some awful headaches unless great care is taken in the selection of the area to grow the trees. So much for the climate and natural situation.

I think it would be fair to say that our planting and management procedures are now completely dominated by our endeavor to provide an environment in which *Phytophthora cinnamomi* will not survive, or at best will not thrive. The techniques which have been evolved and which seem to be becoming more and more popular are directed toward maximizing drainage, building a high organic concentration in the soil, and lifting the pH from its very low 4.5 up to 6.

The methods to increase the drainage are primarily in the building of mounds. After quite a bit of experimentation, we found that by "hilling" all the tree lines some 18 inches high, and running the tree lines "up and down" the slope, surplus water was shed away from the vulnerable root zone. After mounding and any surplus stone removed, the land is harrowed, fertilized, limed, and sown down to a cover crop. In summer, it is either cow-peas or tropical legumes such as dolichos lab lab which are used; and in winter, New Zealand blue lupins are planted. These crops are selected because of their ability to provide good ground cover, of being able to fix nitrogen in the soil, and also having a high organic residual value. New Zealand blue lupins have further benefit in that with their deep roots they do condition the soil.

Though we have an enormous rainfall, it is very seasonable, occurring mostly in the summer time; and so it is obligatory that we provide irrigation. We experience a very dry period in late winter and through most of the spring; and this being our flowering period and fruit setting time, we cannot afford to stress the trees in any way.

Water is generally applied in a drip or micro jet system. I prefer the latter, as in our mounded soils which possess excessively good drainage quality; we get a much superior spread of water in the root zone. Planting patterns in the past used to be 35 feet rows with 17 foot 6 separating the trees in the row. However, we are now changing and making for higher density plantings. It may be of interest that we have found in our conditions that the use of a post hole digger for planting trees has not been found satisfactory as it tends to polish the side of the hole, forming a glazed barrier difficult for roots to penetrate. Rather, we prefer a simple tined garden fork. Perhaps the most important part of our planting program is, immediately the tree is planted, the placing of mulch around the tree. This is a practice which is continued throughout the life of the tree. The procedure is to apply twice year sufficient mulch which will rot down in six months, and is so timed that the mulch will be at its maximum stage of decomposition at the commencement of the wet season. And so we avoid an environment which is damp,

wet, soggy, and would be so helpful to *Phytophthora cinnamomi*.

It has been found that wind has a distinct bearing on the successful growing of our trees, and so every endeavor is made to reduce the incidence of wind, by planting windbreaks. In the early stages, as it is a quick, vigorous, and successful windbreak, a South African import known as barrier grass, somewhat similar in appearance to sugarcane, is planted between every third or fourth row. Permanent tree breaks are also planted. The sun is also to be guarded against. All young trees have their trunks painted white to prevent sunburn. Additionally, all trees which are cut back or stumped are painted with a plastic white paint. Another major problem was the control of grass or weeds, particularly with small trees. We have inherited from the original dairy farming settlers kikuyu grass, which is a particularly vigorous crawling grass that will strangle small trees both from above the ground and below the ground in a very short time. Though valuable to the dairy farmers, it has been a great and expensive problem to control.

Three major varieties of avocado are grown, fortunately maturing at different stages throughout the year: Fuerte, which in our area matures May through July; Sharwill, an Australian variety which matures July through September; and Hass, maturing September through December. As you will appreciate, with the widely distributed areas and growing conditions, the harvest season in eastern Australia covers April through to January. We are still seeking the missing link — that magic fruit that will supply the blank period from January to April.

Our insect pests are basically contained in three types: the monolepta, a small, yellow, little fingernail-size beetle which scars the fruit and also is particularly fond of eating all fresh growth; the Queensland fruit fly; and the fruit stinging bug. Anthracnose is also a problem, particularly in wet, humid conditions.

Finally, the marketing situation:

At the moment, we are enjoying a most profitable industry. When I left Australia some fortnight ago, our prices were averaging \$25.00 per carton of some 14 to 15 pounds for green fruit (Sharwill) — admittedly, the last of the green fruit and nearly coming out of season — and \$16.00 per similar flat for Hass. With such a note it is perhaps the best that I should end being aware of the sad state of the market in California this year.

In conclusion, I must say how fortunate I feel to have been able to attend this extraordinarily stimulating and rewarding course. And to say, on my own behalf and, I am sure, on behalf of others, how fortunate this world- wide industry is that California has such a wide range of dedicated, enthusiastic, and generous scientists, researchers, and communicators.