

## GROWING MANGOS IN HAWAII: A SMALL ORCHARD GROWER'S PERSPECTIVE

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Waianae

It has been about 16 years since I retired from the University of Hawaii as a fruit and nut extension specialist. Since then I have been growing mangos for the local market. I had dealt with the subject of mango growing for so long, I wanted to see if I could make a profit doing it. I have always told people that if it were done right, you can make some money growing mangos, and if you were to go into the mango business, the best thing to do would be to plant something that your competition does not have.

I had hoped to get a really good piece of land, flat and easy to cultivate with no rocks, good soil, and a stream to save money on water. What I got was four acres of subsoil good for taro paddy, which cracks when it dries out. It has been a challenge to see whether mangos can grow under such soil conditions. It has seemed to work out. If you put a lot of water on, the cracks close up. I tried to increase the soil organic matter by letting the grass grow tall in my field to make a mulch for the soil during the hot, dry summer months. It helped, but when you have a dry spell in Waianae, nothing can stop the cracking.

When I started, I did not know what variety of mango I wanted. I did know that I should grow a late variety, because the market was flooded during the main season, and it would be difficult to sell during that time. So I dropped out of the 'Haden' field, leaving that to my brother Wilbert on Maui. I had to choose between 'Kent', 'Keitt', and 'Brooks Late', which I thought would likely come out after the 'Haden' crop. I chose 'Keitt' because in 1946 when I was stationed in Orlando, Florida, I had seen a beautiful 'Keitt' tree growing in a yard, with nicely colored mangos on it.

What you see in Florida and what you see here, in the same variety, can be very different. When I brought my first mangos to the market, nobody knew what a green 'Keitt' was. I labeled my mangos with my brand, and brought them to a retail outlet when I had fruits, to see if it would move or not. It was very slow catching on. Nevertheless, I have now marketed green 'Keitt' mangos here for more than a decade, and 'Keitt' has established itself as a good quality mango.

I planted other varieties to see how they would do in Waianae. I planted 'St. Francis', or what they

call 'Francine', from scions I obtained from Dr. Campbell in Florida. I planted 'Carrie', 'Palmer', 'Parvin', 'Early Gold', 'Zill', 'Kent', 'Brooks Late', 'Sensation', and 'Irwin', some of the Hawaii varieties like 'Pope', 'Ah Ping', 'Waianae Beauty', and 'Pirie', and more recently 'Exel', 'Rapoza', 'Manzanillo', 'Wong', 'Fukuda', 'Tommy Atkins', and 'Glen'.

The problems with growing mangos in Waianae are probably similar to other areas. You have a long time before you can pick the first fruits, and that is where a lot of people get discouraged. It took me four to five years before I could produce fruits to see how they did in Waianae, how the coloring came out. I was a little disappointed, because they did not look as nice as in Florida. I have tried to fertilize to improve the color, and it may have helped.

I had worked very closely with Dr. Henry Nakasone and thought that during the early years it might be good to grow his 'Waimanalo' papaya cultivar between the mango trees. But my dark gray soil is poorly drained, which is not very good for papayas after a heavy rain. That idea might be good for growers with better soils. Intercropping with some short-term fruit or vegetable crops would be helpful during the orchard establishment phase.

I heard about using potassium nitrate and thought it might be useful to eliminate the erratic production of the 'Haden' mango. I also tried it on 'Keitt' and some of the varieties I grow a few of, like 'Waianae Beauty' and 'Wong'. I found that it works. I settled on using 10 lb of potassium nitrate in 100 gal of water. When I spray now, I spray the whole orchard. I started spraying in September, October, November, and December. Before I spray I observe whether most of the shoots are mature. Potassium nitrate works for me on 'Haden' mango during November. If I spray before then, it does not work, and if I spray later than January or February, it also does not work. If my first spray in November has no effect, I repeat it before the end of December. I have also seen that 'Exel' sprayed with potassium nitrate can come into production as early as two years after planting, if you want it to. I have about six young 'Tommy Atkins' trees and can get them to flower

with potassium nitrate by spraying every two or three weeks.

My production records are not as good as I would like them to be, but they indicate a fairly steady level of production from year to year. From my yield records, I estimate that if you do a fairly good job you should be able to get about 15,000 pounds per acre from 'Keitt'. I don't have enough trees to estimate yields for the other varieties.

Although the mango weevil is a major problem affecting export of fresh mangos to the U.S. mainland, it has not been a production or marketing problem in Hawaii. In ten years of marketing, I can recall only two incidents when customers have returned mangos because of mango weevil damage. My brother, who has been growing mangos since 1943, says that the best way to keep weevils down is to feed your seeds and surplus mangos to the hogs and cattle.

I do some of my own marketing, and I have wholesalers who help me with most of my crop. I like to have two or three wholesalers to give my fruits to so I can compare the prices they give me and make sure I get about the same price. I deliver to some retailers. Marketing mangos in July and August is terrible, with the prices so low, but I follow the trend and accept what they give me at the time.

I attended the 4th International Mango Symposium in Florida last July and was impressed by the large number of countries that were growing mangos and wanting to ship to the U.S. I was also surprised that the Mexicans were growing some of our varieties such as 'Momi K', 'Ah Ping', 'Gouveia', 'Joe Welch', and 'Pope'. They seemed to be impressed by the 'Ah Ping'. I had grown 'Ah Ping', and although I think it is a beautiful mango in appearance, I prefer mangos that are stronger in flavor, so I cut them down.

Different people have different tastes. Mr. Uyeda, who is a nurseryman, sells more plants of 'White Pirie' than he sells 'Haden'. That may be one of our problems, that home gardeners are buying a lot of trees, planting them, and bringing their fruits to the market. I don't blame them; I would do the same thing if I were them.

The possibility of organizing a mango growers' group in Hawaii was mentioned earlier. I like the idea, and we should think about that. We are a small group, but we can have a larger voice if we speak together. While on the University staff, I worked with many of the industry organizations, such as the macadamia, banana, and papaya associations, and I have seen that the benefits of being organized are tremendous. For example, we got the legislature to allow a six-year exemption on taxes on lands going into macadamia and other tree crops (including mango) that take a long time to get into production. That was accomplished by the Hawaii Macadamia Producers Association. Another thing they did was to ask for a high-elevation macadamia selection trial, and they got it by working with the state legislators. We might want to get a nucleus started to move toward our goals. We may not get irradiation approved right away, but maybe we can get it approved sometime in the future if that is what we want.

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Q: Does anthracnose bother your 'Exel'?

A: I spray Benlate and when I feel it is time for a change I spray tribasic copper.

Q: Is the mango midge a problem for you?

A: It wiped me out one year.