

## Observations on Avocados in Brazil

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While in Brazil for five months, from November 1936 to April 1937, and in Argentina and Paraguay for one month, I collected certain limited information on avocados, although my principal object was the study of Citrus, with special reference to diseases.

Avocado trees were growing well at nearly every agricultural institution in the states of Rio de Janeiro, Sao Paulo, and Minas Geraes, where I visited, but their culture had not as yet become of much commercial importance. The most important place that I observed where some commercial development was taking place was at Limeira in the state of Sao Paulo. There I visited Dierberger and Company, a large, reliable, well-run company, one of whose activities is an up-to-date nursery at Limeira and another a seed house and distribution center for all kinds of plants at Sao Paulo. Mr. Dierberger was a very fine straightforward business man of German origin, his father having also been in the nursery business at Sao Paulo. He had visited Florida and had shipped in many Florida and California varieties of avocado, citrus, mango, tung oil, and other fruits and trees. Dierberger had sold 10,000 avocado trees in the year before and expected to sell as many more the next year. He planned for his company 12,000 trees to be producing, he said, in five years. He was planting 2,000 of these Fuerte variety destined for future source of fruit for export. The Brazilians, he said, prefer a round type of avocado rather than the long, pear-shaped type. He thought there would not be any great export of avocados from Brazil for ten years or so from that time (1937).

### AN ORCHARD OF 160,000 TREES

At Dierberger and Company at Limeira, the best commercial varieties, I was told, were considered to be (1) Collinson (a West Indian x Guatemalan), most important of all, (2) Pollock, (3) Waldin, (4) Wagner, and (5) Linda. This company also has 160,000 orange trees, both large and small, in orchard form, from which they expect to export one case per tree. A block nine years old is estimated to yield three cases per tree varying from one to seven cases in individual trees.

At Piracicaba, in the state of Sao Paulo, a new avocado variety named "Dikaro", which originated in Brazil, seemed very fine. It was a round fruit and a heavy bearer.

I visited a number of experiment stations having test orchards of many varieties of avocado, mango, and other tropical and subtropical fruits too numerous to mention. Of these were test plots at Deodora near Rio de Janeiro, at the Agricultural School at Vicosa (which school Professor P. H. Rolfs of Florida developed), at Bello Horizonte (the last two are in the state of Minas Geraes), at Sorocaba, at Limeira, at the

Agricultural School at Piracicaba (the last three are in the state of Sao Paulo). I was told at Bello Horizonte that the varieties considered best there were Nimlioh, Fuerte, Gottfried, and Gloria.

Scab similar to citrus scab of Florida was found at Limeira and elsewhere in Brazil, one of the worst troubles of avocado fruits but can be prevented by spraying with bordeaux. By using an isolated lathhouse, Dierberger grew his plants for sale in other sections of Brazil free from scab, as required by government officials there.

## **MELANORHIZA DISEASE FOUND**

At an experimental test orchard at Deodora near Rio de Janeiro, I saw avocado trees dying back on sandy loam terraces with a heavy clay subsoil. Heavy rains had just preceded. As I wrote Professor Home, this trouble acted just like what he calls "melanorhiza" or "water injury." The leaves turned black and dried up in an irregular manner followed by death of branches.

At Sao Goncalo, a humid region near Rio, I saw avocado trees with mildew (*Oidium*) bad on leaves; also sooty blotch (*Strombosporium*), and alga spots.

At Ponte Nova, state of Minas Geraes, not far from the Agricultural School, avocados commonly had *Oidium* and anthracnose. Scab also occurred at Vigosa where it had probably come in from Florida.

At Lavras, in the same state, mildew was found commonly, and on one tree, a mosaic-like effect on leaves, quite different from sun-blotch.

At Sorocaba, in the state of Sao Paulo, avocados had scab on fruit, alga spot on Puerte leaves, and what appeared to be *Dothiorella* on Northrop leaves. It is remarkable that *Dothiorella* was not commonly seen at all in Brazil and no definite sun-blotch. The nearest to sun-blotch effect, but not typical, was seen on a Northrop tree at Limeira with virus-like symptoms of branches and leaves and with bark scaling somewhat like psoriasis of citrus. A Winslowson tree at Limeira had foot rot-like lesions on the trunk.

Avocados and mangos grew very well at Bahia, and mangos at Pernambuco, in both places the fruits being fairly free from markings or diseases.

I also saw avocados growing well in various places in Argentina—Belle Vista, Corrientes, Posadas, etc., and in Asuncion, Paraguay.

At Limeira, in the state of Sao Paulo, Dierberger, the nurseryman, thought Itamaraca mango, a small round fruit, the best. Bourbon was also considered good.

Mango varieties at Bello Horizonte, state of Minas Geraes, said to be the best were: Espodir, Rosa, Corlota, Augusta, Romida Bakim, Corocpiae boi, Govea, the last-named for Mr. S. Govea who selected it. This last has | shape and appearance of an apple.

At Deodora, near Rio, were a fine lot of mango varieties. The best varieties, according to the director, were Sandersha (a long, flat fruit), Itameraca (Pernambuco), Mango Rosa, Mango Espado, Haden, and Paheri.

The mango and other fruits appeared to be eaten much more in Brazil than was the

avocado fruit. If there was demand for the avocado in Brazil the possibilities are there, it seemed to me, for unlimited quantities to be grown.