Table 2. Softening time and decay of 'Tommy Atkins' mangos immersed in 0.1% benomyl at 52°C for various times and stored for 18 days at 13°C followed by softening at 22°C.[z]

Temp (°C)	Immersion time (minutes)	Benomyl concn (%)	Softening time (days)	Percent decayed fruits[y] After storage	After softening
29	1	0.0	5.3a	3a	64a
52	1	0.1	5.3a	0a	17b
52	3	0.1	5.4a	0a	25b
52	5	0.1	5.6a	3a	31b

[z]Each figure represents the average of 3 boxes of mangos with 12 fruits per box. Mean separation in columns by Duncan's multiple range test, 5% level.
[y]Percentage decayed fruits is only of fruits with moderate or severe anthracnose and/or diplodia stem-end rot or a combination of slight anthracnose and slight diplodia stem-end rot.

Table 3. Quality of 'Keitt' mangos immersed in 0.1% benomyl at 52°C for various times and stored for 17 days at 13°C followed by softening at 22°C.[z]

Time (min)	Benomyl concn (%)	Percent decayed fruits[y] After storage	After softening
1.0	0.0	0a	67a
0.5	0.1	4a	30b
1.0	0.1	0a	26b
1.5	0.1	4a	33b
2.0	0.1	0a	15b

[z]Each figure represents the average of 3 boxes of mangos with 9 fruits per box. Mean separation in columns by Duncan's multiple range test, 5% level.
[y]Percentage decayed fruits is only of fruits with moderate or severe anthracnose and/or diplodia stem-end rot or a combination of slight anthracnose and slight diplodia stem-end rot.

centage of decay in mangos during softening, but was slightly less effective at 0.05% than at 0.1%. Benomyl was not significantly more effective in controlling decay at 0.15% than at 0.1%.

Conclusions

Results with the two major Florida mango cultivars, 'Tommy Atkins' and 'Keitt', suggest that decay losses during marketing can be greatly reduced if mangos are treated after harvest for 1 to 3 minutes in hot water (52°C) containing 0.1% benomyl. A 2-minute dip would probably be most suitable since it would be long enough to provide effective disease control but short enough to avoid heat injury. Additional studies are in progress to determine the effects of the duration and temperature of immersion as well as the concn of benomyl on the amount of residue present in the fruit. This information must be obtained for examination by the Environmental Protection Agency of the U. S. Dept. of Health, Education, and Welfare. Its approval is necessary before a final recommendation can be made of the best combination of time, temp, and fungicide concn that would provide the most effective decay control in mangos with a minimum of fungicide residue.

Table 4. Decay of 'Keitt' mangos immersed in various concentrations of benomyl at 52°C for 1 minute and stored for 17 days at 13°C followed by softening at 22°C.[z]

Benomyl concn (%)	Percent decayed fruits[y] After storage	After softening
0	0a	67a
0.05	0a	37b
0.10	0a	26bc
0.15	0a	22c

[z]Each figure represents the average of 3 boxes of mangos with 9 fruits per box. Mean separation in columns by Duncan's multiple range test, 5% level.
[y]Percentage decayed fruits is only of fruits with moderate or severe anthracnose and/or diplodia stem-end rot or a combination of slight anthracnose and slight diplodia stem-end rot.

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JABOTICABA NUTRITION EXPERIMENT

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Abstract. **An experiment on the growth of jaboticabas, (*Myrciaria cauliflora* Berg (Myrtaceae) was established to determine the difference in effect of 2 fertilizers supplemented by minor elements.**

Several years ago the Rare Fruit Council, in cooperation with the U. S. Department of Agriculture, Subtropical Horticulture Research Station, established a project to conduct research in various species of exotic subtropical and tropical fruits. One of the experiments undertaken was to determine the difference in effect of 2 fertilizers, supplemented by minor elements, on the growth of jaboticaba, *Myrciaria cauliflora* Berg (Myrtaceae). Jaboticaba is a small, bushy tree originally from Brazil. It is uncommon in Florida but now grown in the Southeast coastal area by homeowners as an ornamental as well as for its fruit. Small white flowers are produced in clusters along the central trunk and larger branches. About 1 month after flowering the purplish-black fruits ripen. In appearance and flavor the fruits resemble grapes. They have a tough skin surrounding a soft, juicy, subacid flavored pulp that is very slightly aromatic. The pulp usually contains a single small seed. Fruit is produced twice a year in Florida and may be eaten fresh or made into jelly or wine.

The plants are propagated by seeds, which germinate about a month from sowing. Growth of the seedlings is slow, and plants require about 15 years to bear. Little is known regarding their nutritional requirements under local growing conditions, but experience in the Rare Fruit Council planting demonstrated clearly that jaboticaba plants suffer irreparable damage when they are allowed to dry out.

Materials and Methods

In January 1976, 63 one-year-old and 48 two- and three-year old seedlings were repotted in 3, 7, and 15 gallon (11.4, 26.5 and 56.8 liters) containers, respectively. The one-year old seedlings were planted in a mixture of acid sandy muck, vermiculite and peat (1:1:1). Older seedlings were planted in peat. Half of the plants were fertilized at ca monthly intervals with 19 g of 8-8-8 granulated fertilizer, and the remaining half were fertilized at ca 2.5 monthly intervals with 32 g of 14-14-14 Osmocote. Four subtreatments were established in each half, as follows: control, 10 g chelated iron, 10 g chelated zinc, and 10 g chelated manganese. Subtreatments were applied at ca monthly intervals for 18 months. Growth rate of the seedlings was determined at ca monthly intervals by measuring, in centimeters, the bole diameter 2.5 cm above soil level, height, and canopy diameter. Each plant was provided with a drip emitter and was supplied approximately 3 gallons (11.4 liters) pH 7.20 of well water every other day. During the 18 month experiment period the rainfall totaled 73.77 in (187.38 cm). Monthly rainfall varied from 1.12 in (2.84 cm) to 17.48 in (44.4 cm).

Effect of the growing medium

There was no significant difference in the growth rates of the plants potted in peat as compared with those potted in the sandy muck-vermiculite-peat mix. This is illustrated by the comparison below of the average growth of 3 plants from each group containing the different growing media.

	8-8-8- Fertilizer			Osmocote		
	Bole (cm)	Height (cm)	Dia. (cm)	Bole (cm)	Height (cm)	Dia. (cm)
Mix	2.0	68	72	2.2	69	72
Peat	1.6	65	72	1.7	60	70

Effect of fertilizers

One of the principal objectives of the work was to determine whether feeding 8-8-8 or Osmocote 14-14-14 would produce a difference in growth. Table 1 shows the growth of the 8 one-year old seedlings that were potted in mix. The significant advantage of the slow release Osmocote is seen in the means of the iron and zinc sub-groups. Although there was no significant difference in height growth of the control sub-groups, the canopy density and its quality was superior in the Osmocote sub-group. The mean of 87.5 cm for the canopy diameter growth of the Osmocote control unit also demonstrates this, as the mean for the 8-8-8 unit was 70.3 cm for the 1-year-old trees (Table 2). Data for the older trees not analyzed statistically are available in Table 3.

Table 1. Effect of fertilizers on growth of jaboticaba seedlings—February 1976 to July 1977.

Chelate	Fertilizer Granulated 8-8-8	Osmocote 14-14-14	Mean
None	59.0abc	64.1ab	62.6f[z]
Iron	50.6bc	65.6a	58.1f
Zinc	32.3d	47.6c	39.9fg
Manganese	17.5e	5.3e	11.4g
Mean	40.3	45.7	

[z]Numbers not followed by the same letter differ significantly at the .05 level.

Table 2. Plant growths of one-year-old jaboticaba seedlings—February 1976 to July 1977.

Plant	Control B[z]	H[x]	W[y]	Plant	Iron B[z]	H[x]	W[y]	Plant	Zinc B[z]	H[x]	W[y]	Plant	Manganese B[z]	H[x]	W[y]
Granulated 8-8-8															
A-1-1	2.1	62	68	A-2-1	1.4	61	68	A-3-1	1.4	31	55	A-4-1	1.0	39	34
2	1.5	59	71	2	1.7	57	69	2	1.5	46	59	2	0.8	23	25
3	2.1	75	73	3	1.9	56	80	3	1.3	36	62	3	0.7	7	27
4	1.7	55	85	4	1.2	43	56	4	1.8	38	57	4	0.6	7	20
5	1.6	50	57	5	1.6	50	78	5	1.4	23	58	5	0.9	1	20
6	1.9	34	50	6	1.5	54	75	6	1.0	19	35	6	1.2	29	36
7	2.3	78	86	7	2.1	26	56	7	1.4	40	63	7	0.8	28	36
8	1.8	55	72	8	1.3	58	72	8	1.0	25	34	8	0.5	6	35
Mean	2.5	59	70		1.6	51	69		1.4	32	53		0.8	18	29
Osmocote 14-14-14															
B-1-1	2.6	62	100	B-2-1	2.1	86	95	B-3-1	1.0	14	20	B-4-1	0.6	1	3
2	2.3	52	85	2	2.1	62	98	2	2.1	59	80	2	0.4	0	17
3	2.1	71	85	3	2.2	53	86	3	2.1	60	64	3	0.5	4	4
4	2.4	64	82	4	2.1	52	66	4	2.0	67	92	4	0.5	3	12
5	2.5	57	78	5	2.4	75	95	5	1.7	62	80	5	0.6	2	12
6	2.3	75	110	6	1.5	75	78	6	0.6	7	22	6	0.4	0	12
7	2.2	69	80	7	1.9	62	70	7	2.1	60	79	7	0.8	3	33
8	2.0	63	80	8	1.9	60	77	8	2.4	52	80				
Mean	2.3	64	88		2.0	66	83		1.8	48	65		0.5	2	13

[z]Bole diameter 2.5 cm above soil level (cm.)
[x]Height from pot rim (cm.)
[y]Diameter of leaf canopy (cm.)

Table 3. Plant growths of 2 and 3 year-old jaboticaba seedlings—February 1976 to July 1977.

Granulated 8-8-8	Control				Iron				Zinc				Manganese		
Plant	B[z]	H[x]	W[y]	Plant	B[z]	H[x]	W[y]	Plant	B[z]	H[x]	W[y]	Plant	B[z]	H[x]	W[y]
A-1-9	1.5	55	70	A-2-9	1.3	42	64	A-3-9	1.6	35	40	A-4-9	1.3	10	55
10	1.8	60	70	10	1.5	76	60	10	Died			10	1.5	22	40
11	1.5	81	80	11	1.8	60	75	11	1.1	38	65	11	0.7	22	60
12	1.1	25	65	12	0.9	30	52	12	1.1	40	42	12	0.8	40	82
13	0.8	20	45	13	0.7	15	55	13	1.2	45	30	13	0.6	26	40
14	1.3	50	45	14	1.3	50	30	14	1.8	65	50	14	1.0	35	40
Mean	1.2	45	63		1.3	46	56		1.4	45	45		1.0	26	56
Osmocote 14-14-14															
B-1-9	2.0	56	73	B-2-9	1.7	65	68	B-3-9	1.6	28	56	B-4-8	0.9	29	44
10	1.7	65	78	10	2.0	41	75	10	Died			9	1.1	22	62
11	1.3	60	60	11	1.6	50	70	11	1.4	42	65	10	0.9	8	30
12	1.4	35	40	12	1.0	40	60	12	0.9	40	58	11	0.6	7	31
13	1.5	20	47	13	1.3	50	65	13	1.2	12	20	12	0.9	10	25
14	1.9	58	40	14	1.2	48	30	14	1.3	12	55	13	0.9	12	31
Mean	1.7	49	56		1.5	49	61		1.3	27	51		0.9	15	37

[z]Bole diameter 2.5 cm above soil level (cm.)
[x]Height from pot rim (cm.)
[y]Diameter of leaf canopy (cm.)

Effect of the chelates

It had been thought that generous applications of iron chelate were required. The mean values of Table 1 and the individual growths shown in Table 2 indicate a lack of support for iron demand under the conditions of the experiment. The increases in the heights of the seedlings were statistically examined to determine significant differences; Table 1 carries notations of them. Although there is no significant difference between the control and iron subgroups, the negative effect of zinc and manganese is apparent. The plants treated with manganese suffered severe growth inhibition and were repeatedly defoliated. Six months after terminating the experiment, these plants resumed a more normal growth pattern.

Conclusions

The 18 months of growth records support these conclusions:

1. It is not necessary to grow jaboticabas in straight peat.
2. Long-acting fertilizer produces more growth than does regular fertilizer.
3. There was no significant growth enhancement provided by chelated iron.
4. Plants fed chelated zinc grew slower than those given iron or no chelated metal.
5. Chelated manganese defoliated the plants and stopped their growth.
6. Potted jaboticabas will not tolerate drying out.

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THE ROLE OF THE RARE FRUIT COUNCIL INTERNATIONAL, INC. IN THE DEVELOPMENT OF TROPICAL FRUIT CROPS FOR SOUTH FLORIDA

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Abstract. **The Rare Fruit Council International, Inc. was organized in 1953 by a small group of fruit enthusiasts. Since its inception it has grown to its present size of approximately 1,000 members located in many countries of the world. The function of the Council is to introduce and encourage research, propagate fruit plants and educate the public in the growing of fruit plants and the use of the fruits. The Council's many activities have generated interest in tropical fruits in South Florida, provided fruit producing plant material for home yards, and spurred commercial development of tropical fruit crops. During 1977-78 the Council conducted horticultural classes, financed research in tissue culture, made plant introductions, sponsored plant exploration, held seedling selection contests, conducted fruit displays, and established a fellowship in honor of one of its founder members as well as carrying on many other activities to further the goals of the Council.**

The Rare Fruit Council was organized in 1953 by a group of 8 people who were interested in introducing and popularizing tropical fruits in South Florida. Today the Council has approximately 1,000 members, some of whom reside in many countries around the world and, as a group, have made significant contributions to tropical pomology.

The Constitution of the Rare Fruit Council International, Inc., states that it is "an active, non-profit organization dedicated to promoting the progress of tropical pomology in areas of the world suitable for this purpose; to introduce, propagate and distribute new species, improved varieties, mutations and clones of fruit plants; to inform the public of the merits of tropical fruits and thereby encourage and extend their cultivation and consumption; to collect and disseminate information on cultural requirements and propagating techniques, rootstock trials and de-