



**caribbean
food
crops society**

**Eighteen
Annual Meeting
August 22 to 28th 1982
Dover Convention Centre
BARBADOS**

Vol. XVIII

EARLY PERFORMANCE OF SOME NON-TRADITIONAL CROPS IN BARBADOS

Stan Michelini

A "production level" programme involving the (1) identification, (2) propagation, (3) planting, (4) distribution, and (5) evaluation of crops must be successful for a food industry to progress rapidly. This approach is used by established food industries both for introducing new crops and improving established crops.

Temperate climate crops have been continually selected and improved. It is our responsibility to build upon the valuable work done in Trinidad, Costa Rica, Puerto Rico, Brazil and Florida. Diversification in crops will increase our economic resilience, buffer against mono-cultural disasters, offer varied food for the populace, and provide a favorable culinary atmosphere for the Caribbean's tourist trade.

Some of the crops mentioned below are well established within the countries represented here. Greater exchange of information and material will facilitate progress for the entire area. Each nation has the potential to supply all its fresh food needs, with excess production important in off-setting the food import bill.

A. Sapotacean Family

1. Mamey Sapota - (Calocarpum mammosum) - tropical America. Large tree, nutritious fruit, heavy yielding with cyclic production. Improved varieties "Magana" (1.5 kg). "Potien" and "Cuban No. 1" take 3 years to fruit. Grows in alkaline soils, sea level to 1 km altitude.
2. Sapodilla - (Achras zapota) - tropical America, medium large tree, good quality, some varieties are heavy bearing ("Early Prolific", Florida, and "Prolific", Trinidad). Fruits in 2 years (grafted). Is susceptible to bat, monkey, and scale insect attacks. Grows well in alkaline and rocky soil.
3. Canistel - (Pouteria campechiana) - tropical America. Upright to 25 ft, fruit nutritious (2.5% protein, high Ca, P, Niacin, and vitamins C and A) with unique flavour. Cyclic production begins 3-5 years from seed, with up to .5 kg fruits. Tolerates poor soils, wind, neglect, and can bear well under adverse conditions. Tolerates high pH. Some selections have been made, notably "Ross Sapote", perhaps a different species.
4. Abiu - (Pouteria caemito) (Syn. Lecuma temari) - Amazon headwaters. Smallish tree, purely lowland tropical, 3" fruits within 2 years from seed. Termed "yellow star apple", as it closely resembles the more difficult to grow Chrysophylllum. Heavy yields.

5. Others - Green sapota (C. viride) highlands fruit of excellent flavour; Lucmo (P. obavata) which I have not tried, and 20 other species.

B. Litchi Group

1. Litchi - (Litchi chinensis) - China - Grows in Barbados but does not fruit. Reportedly requires 62°F to set flower buds (Jamaica). We are trying "Mauritius" as warmer climate litchi seedlings prone to rust. Prefers acid soils.
2. Longan - (Euphoria longana) - India - Seedlings from "Kohala" - grow well, but fruiting at low elevation is uncertain. Commercial production in Hawaii and Florida, as well as India and S.E. Asia.
3. Rambutan (Nephelium lappaceum) - S.E. Asia - Medium-large tree, fruit larger than litchi, excellent quality. Adapted to lowland climate. Shows severe leaf rust and/or nutritional deficiency symptoms. Does not tolerate container growing or wind. Has reputation of being difficult though not impossible to grow. Many Malaysian varieties.

C. Annona group

1. Soursop - (Annona muricata) - Tropical America. Well known. In Grenada cuttings are rooted in a cocoa frame. Side veneer grafting can be done. Fruit has pharmaceutical value as a relaxant.
2. Sugar apple - (A. squamosa) - Tropical America. 3 pound Thailand variety. Others need selection and propagation (side veneer used).
3. Ilama - (A. diversifolia) - lowland Tropical America. Beautiful 25 ft tree, fruits 3 years from seed. Pink fleshed fruits. Grafts easily on soursop. Called "Cherimoya of the lowlands" by Popenoe. Prefers sheltered locations.
4. Atemoya (A. chemimola X A. squarosa) Hybrid. Small tree, commercial in Israel, Florida, and S. Africa (Gefner, Gusman, African Pride). Grafts die on soursop, reportedly do well on A. reticulata atemoya seedlings and A. squamosa.

D. Myrtle Family

1. Pitanga or Surinam cherry (Eugenia uniflora) Brazil. Small tree some produce excellent fruit. Easily grown, fruits year round.
2. Pitamba - (E. inschnathiana) - Brazil. Beautiful, easily grown tree. Some fruits are very good, 1" long, pear shaped. Propagated by seed.

3. Grunichana (E. dombeyi) - Brazil - 20 ft. tree, dark, glossy foliage. Excellent fruit (tastes like Bing cherry). Matures quickly, bears during November to February (in Brazil). Needs acid soils. Fruits 4 years from seed. Rooting of small cuttings has been possible.
4. Rose Apple - (E. jambos) - East Indies - Beautiful 25 ft. tree. Handsome foliage, colourful fruit of some value.
5. Pomerac - (E. mallaccensis) - Asia - Large tree, used as wind break and for fruit. Mainly propagated by cuttings, budding is also successful. Fruits up to 5" long, "Rookmin" (Trinidad) and "Kingston" (Jamaica) are two varieties. Can be used fresh or processed. Prefers acid soils, should be sheltered in early stages of growth.
6. Jaboticaba - (Myriaria cauliflora) - Brazil - Small to medium tree, which can produce 6 crops per year of excellent grape-like fruits. Fruits borne on the trunk. Prefers acid soils. 5-7 years until bearing begins. Likes sheltered location. Ringing of bark reportedly speeds flowering, but has not effect after 6 months trial in Barbados.

Other Tropicals

1. Carambola - (Averrhoa carambola) - S.E. Asia - Small to medium tree, fruits 1 year from graft. Excellent selections available, some trees reported to bear 900+ fruit in one year. Fruit tasty, sweet, high in Vitamin C and can be used fresh, juiced, or dried. Prefers acid soils, can flower anytime.
2. White Sapote (Casimiroa edulis & C. tetramiroa) - Mexico - Small trees, fruit heavily, alkaline soil tolerant. Slugs relish the leaves and bark. Fruits have distinctive sweet flavour liked by many. Mooly White Sapote has fruits up to 5" diameter. Grafts easily. Selection IFAS Early has flowered at 700' in Barbados.
3. Black Sapote (Diopyros digyna) - Mexico, C.A. - Fruit processed. Large, handsome trees. Wind and poor soil tolerant. Good quality "chocolate pudding" fruit. Can be grafted; one selection has 6" fruits.
4. Barbados Cherry - (Malpighia glabra) - West Indies - Well known; cuttings best for clonal propagation. Overseas "acerola" markets excellent. Frozen product well liked.
5. Mammee Apple (Mammea americana) - America - 80% flesh selection from Guatemala. Grafting possible for uniformity, early bearing.
6. Sterculia nut (Sterculia apetala) - Central America - Large (100 foot) tree, prefers calm, wet environment. Produces large crops of very tasty nuts. 10 years to bearing.

7. Mysore Raspberry - (Rubus albescens) - India - Small, climbing plant to 5 ft. Vigorous, easily grown, somewhat wind resistant. Produces constantly, 1/2" plump raspberries of excellent quality. Sometimes fruits within 6 months from cuttings. Commercial possibility.
8. Tropical Apricot - (Dovyalis abyssinica x D. hebecarpa) - S. Africa. Early fruiting, heavy yielder. Tolerates alkaline soils. Fruits have tart flavour, suitable for processing.
9. Natal Plum - (Carissa grandiflora) - Natal - Easily grown, 10 ft. shrub - Excellent hedge plant. Bears 2" bright red fruit, some quite tasty; can be eaten fresh or cooked. Contains a few small seeds. Susceptible to scale insect attack. Fruits 1 year propagated from cuttings.

Sub-Tropical Species

1. Fig - (Ficus carica) - Mediterranean - Small tree - tolerates dry rocky conditions. Produces abundant crops of sweet fruits, used fresh, cooked, or dried. Many selections are available, and most fruit before they are 1 year old. Birds and slugs are a problem.
2. Strawberries - No major disease problems noted. Pre-chilled (6 weeks at 6°C) plants produce large fruits, and about 2/3 pint per set. Runners abundantly produced. Anthracnose resistant. Fla Belle which flowers January through June, has excellent commercial potential.
3. Blackberry - (Rubus sp.) - Grows reasonably well, some Cercospora leaf spot. "Brazos" cultivar should have flowered by now, but has not.
4. Peach - (Prunus persica) - Middle East - Small tree. Varieties are known to cycle, to flower at the end of the dry season in Brazil and the Canary Islands. Low chilling (50 hours) "Okihawa" may prove adaptable to this culture.
5. Apple - (Malus sp.) - Europe - Small trees. Excellent quality. "Anno" from Israel and "Dorsett Golden" (Bahamas) are the two very low (100 hours) chilling apples available. After 1 1/2 years here, they have been flowering regularly, and some have set fruit. No sign of physiological "no chill" disorders setting in. Biggest problem is powdery mildew.
6. Blueberry (Vaccinium oshei hybrids) - N. America - 6 to 10 ft. bush, acid soil loving, excellent quality fruit. "Aliceblue" and "Beckyblue" varieties are low chilling releases from the Univ. of Florida. Flowered Jan. and Feb., and a few flowers in July. Produced normal sized sweet fruit.

7. Japanese Plum - (Eriobotria japonica) - China, pos. Japan. Handsome, 20 foot tree. Tolerates coral soils, wind. Easily grown. Fire blight is the major problem. Fruited in Trinidad. Some seedlings may fruit well at sea level. A number of varieties are available. Fruit quality good to excellent. Flowers around September in Florida.

This outlines some of the more promising species for development in the Caribbean. Almost any fruit, with the proper attention, can become a commercial crop. Exclusion of species from this paper indicates constraints of space, not lack of value.

References

- Popenoe, Wilson, Manual of Tropical and Subtropical Fruits. Facsimile of 1920 MacMillan.
- U.S.D.A. Pamphlets, "Cultivation of Neglected Tropical Fruits with Promise", U.S.D.A. Science and Education Administration, August 1978 and February 1979.