North needs, and must have, and must pay for."

General H. S. Sanford, who purchased Belair about 1870, near what is now Sanford, Florida, was a pioneer in the introduction of sub-tropical fruits and plants into the United States from all over the world. Sub-tropical fruits, such as oranges, limes, lemons, avocados, mangoes, lychees, and guavas, many of which were "rare exotics" to this country in those days are now established or potential commercial crops in Florida today.

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A PROGRESS REPORT ON RESEARCH IN TROPICAL AND SUB-TROPICAL FRUIT AT THE GOVERNMENT EXPERIMENT STATION, NASSAU, BAHAMAS

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Although research is being conducted at the Government Experiment Station at Nassau with such crops as onions, sweet corn, field corn, crowder peas, tomatoes, cantaloupes and watermelons, this paper will be confined to tropical and sub-tropical fruit tree crops.

The people of Florida, by the keen interest they have taken in tropical fruits during the past two or three decades, have stimulated greater interest among the residents of the American tropics and the Caribbean in the native fruits of their lands. Like many others who were born and brought up among tropical fruit, I took them for granted. After spending nearly four years in Florida, I returned home with a greater interest in the native fruit of my island and with a determination to try to improve them by selection.

Mango (Mangifera indica)

During the past two years, a mango collection consisting of twenty-nine varieties has been established. Included are the well-known Florida varieties such as Brookes, Carrie, Edward, Florigon, Fascell, Haden, Irwin, Kent, Smith and Zill. Comprising the collection also are the Bombay Green from Jamaica, and the Mango Francis or Madam Francis of Haiti. The Bombay Green is a so-called freestone mango. This fruit, although it has a pleasant taste, by no means surpasses in quality the leading Florida varieties. The fact that when it is cut crosswise the seed is easily removable, thus allowing it to be eaten with a spoon, makes it popular with persons being introduced to the mango. The Madam Francis is a fairly consistent bearer and is of fair to good quality. The seed is polyembryonic.

The above mangos are grafted on rootstocks consisting of No. 11, Turpentine, Zill, Sandershaw, Haden, Mulgoba, Sumatra, Saigon, Cecil and Mango Francis. Already, cases of partial uncongeniality have been noticed. It is hoped from this collection to find the rootstock and variety best suited to the Bahamas. The principal soil types are not unlike the Rockdale series of the Homestead region and the soils of the Florida Keys.

Avocado (Persea americana)

An experimental block of sixteen varieties of avocados, consisting of such varieties as Booth 7 and 8, Taylor, Lula, Linda, Hall, Nabal, Marguerite, Choquette, Areu, Hassock and Pollock has been established. It may be interesting to note that although the Itzamna will hold fruit in the Bahamas as late as the end of June, and are consistent heavy bearers, the fruit will mature with a water-soaked brown spot. Ten local seedlings of the West Indian race are also under observation. They are all good to excellent in quality but it will take a year or two more to determine their prolificness and regularity of bearing.

Breadfruit (Artocarpus altilis Fosb.)

Attempts have been made to propagate breadfruit on a large scale by marcottage with the use of "Air-Wrap." This has not proven too successful. A small percentage will root quite readily, but the remainder will only cal-

lous. It was found that when the bark is removed from the limb, the wood is quite brittle and the weight of the large leaves causes the branches to snap quite easily during the slightest wind. Attaching small bamboo splints outside the wrapped marcot eliminates this problem. The use of a "Fog-Box" or mist-type propagator has not proven very successful, especially with new wood consisting of growing tips from terminal and lateral branches. Wood, two to three years old, is showing more promise of success. It is proposed to try a method of propagation used in Jamaica and Trinidad, whereby mature wood is buried in moist sand and the young sprouts arising from adventitious buds are removed with a large heel and then potted.

Coconut (Cocos nucifera)

Since coconuts are not grown extensively in the Bahamas as a plantation crop and are used especially in Nassau for ornamental purposes, it is felt that if dwarf coconuts were used more extensively, they would be less susceptible to hurricane damage. Experimental blocks of two dwarf forms which produce yellow and green nuts have been established. These plants bear nuts three to four years after the seedling is set out and may eventually reach a height of ten to fifteen feet. It has been noted that these dwarf forms show vigorous growth response to applications of fertilizer. The golden coconut is also being propagated for ornamental purposes.

Citrus (Citrus sp.)

Citrus are propagated at the Experiment Station for distribution throughout the Colony. Marked improvement has been noted in the past two years in run-down trees which have been given two to three applications per annum of a nutritional spray consisting of copper, zinc and manganese. The sprays were coupled with applications of fertilizer in spring, early summer and fall.

Papaya (Carica papaya)

The Hortus Gold papaya has proven very prolific in the Bahamas, and the fruit is of good quality. Its medium height makes it very desirable since it is less subject to wind damage. A red-fleshed variety from Colombia has also been tested. This variety takes two to four months longer to fruit than the Hortus Gold, and the quality of the fruit varied greatly with day length.

Miscellaneous Tropical Fruits

Local selections have been made of White Sapote (*Casimiroa edulis*), Sugar Apple (*Annona squamosa* L.) Custard Apple (*Annona reticulata*), Genip (*Melicocca bijuga* L.) and Barbados Cherry (*Malphigia glabra*).

During the past two years, some of the better Florida selections of sub-tropical fruit such as Black Sapote, Loquat, Macadamia Nut, Mysore Raspberry, Red Ceylon Peach, Mabolo, Woolly Leaf White Sapote, Canistel, Lychee, Sweet Carambola, Antidesma, Jaboticaba and hybrid Guavas have been introduced. These selections will be used as standards by which to judge local selections of tropical fruit.

The writer would like to take this opportunity of publicly thanking the Sub-Tropical Experiment Station, Homestead, the Morton Collectanea and Botany Department of the University of Miami, the Florida Agricultural Experiment Station, Gainesville, and Mr. A. R. Caves and Mr. Robert G. Newcomb of Homestead, all of whom have been most helpful in supplying plant material or technical advice to the Experiment Station at Nassau.

HORTICULTURAL DEVELOPMENT OF FLORIDA BLUEBERRIES

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This paper discusses the possibilities, limitations, and present stage of development of some of the blueberry species of Florida. For those interested in culture and general information on blueberries, excellent information is available elsewhere (5). Contrasted with Coville's breeding work (3) with northern species which began in 1909, the first breeding work with a Florida species was apparently the crossing of two rabbiteye blueberry selections by the U. S. Department of Agriculture in 1940 (6). With a wealth of native material in Florida, and improvement

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