

# Krome Memorial Institute

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## GROWING PALMS WITH EDIBLE FRUITS IN FLORIDA

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**Abstract.** With the great reduction in the number of coconuts and of many other species of palms associated with the disease lethal yellowing, many people are concerned as to whether any palms can be grown in Florida for their fruits. The status of the species of palms that produce worthwhile fruits is presented along with some information on their culture.

Great reduction in the number of coconuts (*Cocos nucifera* L.) and other palms growing in Florida, caused by the disease known as lethal yellowing, has caused the public to wonder whether any palm is worthy of cultivation in Florida for its fruits. The lethal yellowing disease is assumed to be caused by a mycoplasma like organism. This disease has been in Florida for some 20 years and is known to affect over 20 different species of palms.

The status of the coconut palm in Florida has deteriorated greatly in the last 6 years. A very high percentage of the common tall coconuts has been killed by lethal yellowing. In much of Dade and Broward Counties there has been nearly a complete kill of these palms and the disease is still spreading.

Although it is to be expected that some of the tall coconut palms will escape lethal yellowing, particularly those on the fringe of the main coconut growing areas, there is much promise in the use of resistant varieties. The most available resistant variety in Florida is the 'Dwarf Malay Golden'. This has been planted extensively along with its 2 close relatives, the 'Dwarf Malay Green' and 'Dwarf Malay Yellow'. Since these 3 varieties are propagated by seed there is some variation, and a certain percentage, usually low, will be susceptible to the disease. Seed that comes from palms near susceptible varieties may be of hybrid origin and thus much more susceptible to the disease.

A variety of coconut from the Pacific Coast of Panama, known as 'Panama Tall', has been found to be about 50% resistant to the disease after intensive screening in Jamaica. Only a few of these are presently being grown in Florida, but they do promise to be a source of resistance. In Jamaica, hybrids between 'Dwarf Malay Golden' and 'Panama Tall' are being made on a massive scale and are proving to be highly resistant as well as strong growing and commercially very valuable. Some seed of this hybrid has been imported into Florida but the hybrids are not expected to be available commercially for several more years.

At the Fairchild Tropical Garden there is one other variety which has so far been unaffected by the disease. This is the 'Nawassi' from the Philippines. In the future it will be propagated and screened more widely to determine if the resistance is actual or just an accident.

It has been hypothesized that the coconuts on the Pacific coast of Mexico, central, and northern South America are

basically of Philippine origin. Presumably they were brought from the Philippines by the Spanish in their trading ships that were active between Mexico and Manila shortly after the conquest of Mexico. On the other hand the West Indian coconuts, and thus the ones growing in Florida, were more likely to have come from Africa or originally from areas in the Indian Ocean. This hypothesis would encourage us to experiment with Philippine varieties that might be related to the 'Panama Tall' to find further resistance. Hopefully, 'Nawassi' will be such a variety.

Besides the coconut many other palms produce edible fruit. Most important on a worldwide basis is the date palm *Phoenix dactylifera*. Although lethal yellowing has apparently killed some date palms, many have survived so far and it is hoped that there will be a relatively high degree of resistance. The date palm grows well in South and Central Florida, but usable dates are seldom produced. The reason is the high humidity and rain that occurs during the ripening period causing the immature fruit to rot and fall off the palm. There is no variety nor method of protection known that will prevent this. It is possible, however, that a long range breeding program with species of *Phoenix* from tropical, high rainfall areas might result in dates that would do well in Florida. *Phoenix loureirii* Kunth. from Southeast Asia would be a likely candidate for breeding. So far it has not been susceptible to lethal yellowing. It produces an edible fruit and does very well under high rainfall conditions. The fruit has such scanty flesh as to be worthless at present, however. Perhaps some day hybridization of these species will result in a worthwhile fruit for Florida.

The jelly palm, *Butia capitata* (Mart.) Becc., is already well known in Florida and popular among home owners for its decorative value as well as its fruits. It has several close relatives and hybrids are common; but there has been little selection for superior fruit. Recently we have seen fruit production on a hybrid, *Jubaea chilensis* (Molina) Baillon X *Butia capitata* or a closely related species of *Butia* perhaps *B. eriospatha* (Mart. ex Drude) Becc. The fruit is nearly an inch in diameter, round and orange-red in color. There is a small, apparently aborted, seed in the fruit and the flesh is juicy, sub-acid, and very pleasant in taste without too much fiber. Several examples of this or similar hybrids have fruited in Florida and others are coming along. A fine jelly has been made from the fruit by Mrs. U. A. Young of Tampa. Although the development of hybrids on a commercial scale will be slow, this fruit has great promise for culture anywhere in the state of Florida. None of the close relatives of the jelly palm has been susceptible to lethal yellowing.

Another palm with a good edible fruit is the beach palm, *Allagoptera arenaria* (Gomes) Kuntze, from Brazil. This low growing palm proved completely hardy during the freeze of last January, withstanding temperatures of 25° F with no damage. It will certainly be hardy in Central Florida and perhaps even further north. It has grown well in both sand and marl soils, and fruits almost throughout the year. It is a low growing palm that does not develop a trunk above ground. The taste of the fruit is somewhat like

the jelly palm. A recent report indicates the possibility of some susceptibility to lethal yellowing by this species, however.

In the most tropical parts of Florida the peach palm, *Bactris gassipaes* HBK., is found in many collections. This palm produces an excellent, highly nutritious fruit which is eaten after cooking. This palm must be grown in protected areas where the humidity is kept high and supplemental water provided during dry weather. Peach palms have survived the January freeze with little damage where they were in protected places. No species of *Bactris* has been susceptible to lethal yellowing so far.

There is much variation in the peach palm but no selecting has been done for varieties particularly suitable to Florida. The peach palm comes from the humid tropics of the new world and is a true rain forest species. Perhaps somewhere individuals adapted to a slightly cooler and drier area will be found and we will get selections that are better adapted to South Florida conditions.

The salak palm, *Salacca edulis* Reinwardt, is highly esteemed for its fruits in Malaysia and Indonesia. It is generally eaten raw as a dessert fruit but is also cooked and canned. A few specimens of this species have been growing in South Florida for many years but have not been known

to produce fruit. Ordinarily the species is dioecious but apparently only males have flowered in Florida. In the last few years many seeds have been brought in, partly under the auspices of the Rare Fruit Council International and the Palm Society, and a fairly good population of plants has been established. Since many of these new plants came through the freeze undamaged, it is to be anticipated that female flowers will be produced in time and we will have fruits from this palm.

Seeds from an alleged monoecious or perfect flowered strain of this species growing on Bali have been introduced, and we may soon find out whether or not this characteristic is reproducible under our conditions.

The salak palm is another palm from a high rainfall area and requires moist, warm conditions for optimum growth. Unless this palm is planted in a very moist area, supplemental watering will be necessary. The palm does not produce a trunk above ground and has long leaves that are very spiny. It is generally grown in partial shade which helps to keep the humidity high. Lethal yellowing has not affected this species so far.

Many other palms in Florida produce edible fruits or seeds but none is of as much interest or value as the above mentioned species.

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## DECIDUOUS FRUIT SPECIES AS LANDSCAPE ITEMS IN NORTH FLORIDA'S HOMEOWNER PLANTINGS

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**Abstract.** Many deciduous fruit species are excellent landscape plants in north Florida while others are limited due to climatic adaptability. Information on propagation, dimensions, adaptability, varieties, and uses are discussed for the homeowner. Commercial crops such as peaches, nectarines, pecans, grapes, and blueberries are included as well as less common deciduous fruit species.

The landscape value of many deciduous fruit species has long been realized in north Florida. The pecan as a shade tree and the muscadine grape trained to an arbor are found often in landscapes from the Gainesville area north and west to Pensacola. Other major fruit species as well as many less common fruits can be successfully grown if attention is given to adapted varieties, soil requirements and pest control.

The list of species discussed here attempts to present information useful for a landscape plan in north Florida incorporating fruit and nut crops. Each fruit type is followed by its scientific name and family to which it belongs. For each fruit type, landscape use, unique requirements of certain species and ultimate dimensions and/or proper growing dimensions are given.

Brief descriptions of species have certain words that occur frequently and are abbreviated. Terms used for the mode of propagation for each species are: S Ct, shoot cuttings; R Ct, root cuttings; Gft, grafts (including budding); Of S, off shoots; L, layering; A L, air layering; Sd, seed. Seed can be used for all fruits listed but is not recommended

since seedlings vary and are not true to type. Ultimate dimensions and/or proper growing dimensions are given in meters (m) and in feet (ft) in parentheses. Height precedes diameter or "spread". Cvs. is used for cultivated varieties. Information on fruit and fruit quality are excluded except where relevant. Using the standards outlined, the following fruits are valuable for inclusion in north Florida's landscape plantings:

**APPLE** (*Malus domestica* Borkh; *Rosaceae*). Moderate size trees used for free-standing shade trees or of considerable smaller size used as specimen plants. Tree size is dependent upon the dwarfing character of the rootstock. Most apple varieties are not well adapted to north Florida because of their high chilling requirement.<sup>1</sup> Cvs. 'Anna', 'Ein Shemer', and 'Dorsett Golden' are the only apples presently recommended for planting in the dooryard with the latter a good pollinator for the more popular 'Anna'. Gft. Attains dimensions of 4.5 by 3.75 m (15 by 12 ft) unless pruned or size controlled by rootstock.

**BUNCH GRAPE** (*Vitis spp.* L.; *Vitaceae*). Due to climate and lack of disease resistance, there are few bunch grape varieties adaptable to north Florida. Cvs. 'Lake Emerald', 'Blue Lake', 'Stover', 'Liberty', and 'Roucanneuf' can be trained to grape arbors or trellised for the landscape area. For commercial production, no other fruit has such demanding pruning requirement; however, home production requires a much less exacting program. Gft, S Ct. Restrained to an arbor of desired dimensions while trellis dimensions are 1.5 m by 3 m (5 ft by 10 ft arms).

**CHINESE CHESTNUT** (*Castanea mollissima* Bl.; *Fagaceae*). Grows rapidly into a well-shaped shade tree pro-

<sup>1</sup>See E. H. Rowland, "Low-chilling apples for Florida" pp. 224-225 and Liebeman et al. pp. 226-228.