

Dwarfing Tall Golden Apple (*Spondias cytherea* Sonn.) in Grenada



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Introduction

Golden apple, *Spondias cythera* Sonn. (Anacardiaceae), Figure 1, originated from the Indo-Malaysian region but has been spread throughout the tropics. It is also known as June plum, ambarella, Otaheite apple, and pomme cythere, among others.



Figure 1
Golden Apple Fruit

From the mid - 1980's to 2004 golden apple was one of the most important fruit crops exported from Grenada, West Indies. In 1995, Grenada exported 617.6 tonnes of golden apples to various export markets mainly Trinidad and the USA. This situation changed however with the onset of new pest interventions, namely the Hibiscus Pink Mealybug (*Maconellicoccus hirsutus* Green) in 1995 and the West Indian Fruit Fly (*Anastrepha obliqua* Macquart) in 2003.

It is grown mainly as widely scattered trees on farms, estates and in backyards as part of the tree crop mix.

Uses

In Grenada, golden apple has been a popular fruit grown and consumed mainly as a fresh fruit in both the green and ripe stages. Small quantities are processed into wine, chutney and jam. In recent years use as a fresh green juice has become popular in homes, restaurants and hotels.

Growth Habit

Golden apple trees are very tall, (Figure 2) up to 14m (45 feet) and therefore difficult to harvest. The difficulty of harvesting causes up to 30% of the fruits to be damaged in the harvesting process and are therefore unsuitable for marketing. The need therefore, exists to have trees which are low growing (dwarf) and therefore easier to harvest.

The recent introduction of a small fruited dwarf type of golden apple (Figure 3) has raised the realisation of agriculturists to the possibility of having dwarf golden apple trees bearing large fruits. The introduced dwarf type, has two disadvantages i.e. small fruits and low fruit quality in terms of taste. These cannot readily be substituted for the large fruited type, which have better tasting fruits.

CARDI has therefore developed a methodology to get low-growing golden apple trees bearing large fruits.

FACT SHEET



Figure 2
Dwarf Golden Apple

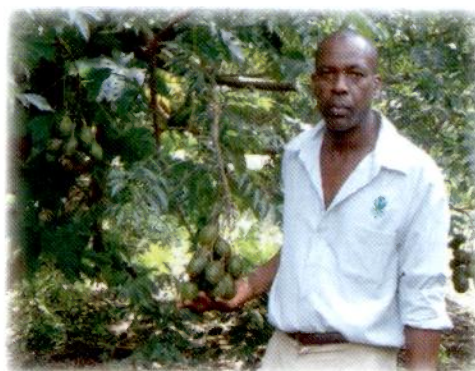


Figure 3
Low Bearing Golden Apple



Methodology

- Grow dwarf golden apple seedlings in suitable potting bags. Seedlings are ready for grafting when they reach pencil size in diameter.
- Trees selected for scion material should have desirable characteristics such as large fruit size and free of diseases.
- Wedge graft scion from selected tall golden apple trees on to dwarf rootstock of same diameter.
- Establish grafted plants in the field. Space plants 30 to 40 ft apart.
- After 6 years of growth trees are topped about 3ft above ground level (Figure 3) or just above branches that are 3ft high.
- Maintain low height of trees by topping every 6 years.



Figure 4
Tall Golden Apple

Initially, trees produce fruit after 3-4 years. Within 1 year after topping, economic yields are obtained from re-growth. Many low branches are produced and these produce substantial quantities of fruit close to ground level (Figure 4). Fruit sizes obtained from grafted trees depend on the genetic characteristics of the scion material, local climatic conditions and agronomic treatments given.

Caution



Topping of non-grafted seedling trees of the large type does not produce the same effect as with the grafted trees, as the re-growth of the former is not as low-growing as that obtained from the latter. Also yields are more severely affected from topping of non-grafted seedling trees as they take more than 6 years to return to the stage of fruit production they were in when they were topped. The grafted trees return to heavy bearing in 2 years.

Figure 5
Topped Tree

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