



CONCLUSION

Farmers in production are already reaping the financial benefits from collaborating with TTABA in the development of this emerging vibrant industry. More farmers and agro-processors are needed to satisfy the growing demand that is developing and to maximise the potential of this fruit.

Table 1: Estimated cash flow, TT\$ for fruit production (Year 1 – 5)

CAPITAL COST	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Land preparation	3000	0	0	0	0
Pond construction (15'x15'x10')	5000	0	0	0	0
Rudimentary Irrigation (water pump)	7000	0	0	0	0
Mist blower	4000	0	0	0	0
Knapsack sprayer	400	0	0	0	0
Plants	450	0	0	0	0
Total capital cost	19850	0	0	0	0
RECURRENT COST					
Labour to harvest	480	2160	3600	4320	5760
Labour to plant	900				
Weedicide	240	240	240	240	240
Pesticide	120	120	120	120	120
Fertiliser	1440	1440	1440	1440	1440
Fertiliser application	900	900	900	900	900
Weedicide application	600	600	600	600	600
Pesticide application	900	900	900	900	900
Limestone	1000				
Limestone application	600				
Total recurrent cost	7180	6360	7800	8520	9960
Total cost	27030	6360	7800	8520	9960
INCOME					
lbs/acre (450 trees)	2700	16200	32400	43200	54000
INCOME @ \$1.25/lb	3375	20250	40500	54000	67500
YEARLY PROFIT/LOSS	-23655	13890	32700	45480	57540
CUMMULATIVE PROFIT/LOSS	-23655	-9765	22935	68415	125955



Caribbean Agriculture Research and Development Institute

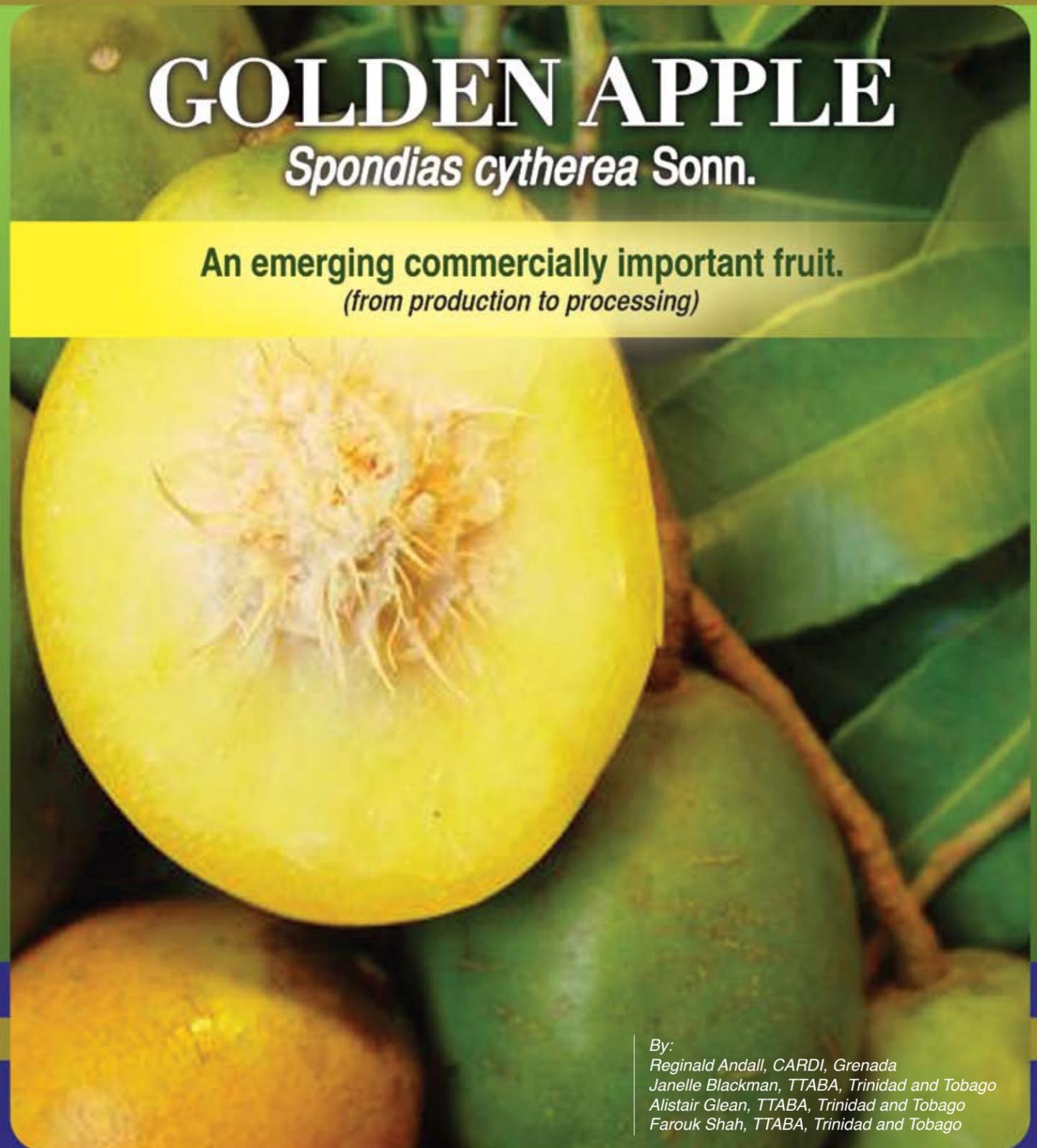
Headquarters Contact Information:

P.O. Bag 212,
University of the West Indies,
St. Augustine Campus,
St. Augustine,
Trinidad and Tobago.
Email: infocentre@cardi.org
Website: www.cardi.org
Fax: 1-868-645-1208
Tel: 1-868-645-1205/8120

GOLDEN APPLE

Spondias cytherea Sonn.

An emerging commercially important fruit.
(from production to processing)



By:
Reginald Andall, CARDI, Grenada
Janelle Blackman, TTABA, Trinidad and Tobago
Alistair Glean, TTABA, Trinidad and Tobago
Farouk Shah, TTABA, Trinidad and Tobago



INTRODUCTION

- Golden apple or pommecythere, (as it is popularly known in Trinidad and Tobago) *Spondias cytherea* Sonn., originated in the South Pacific and was introduced to the West Indies during the 18th century, where it has become well adapted to the local environmental conditions.
- In Trinidad and Tobago, trees are found scattered throughout the country growing in back yards and road sides with little or no agronomic attention being paid to them. Historically, there has not been any commercial production of this fruit. However the advent of a dwarf type has caused agriculturalists to realize otherwise.
- Pommecythere is a good source of vitamin C and iron and fiber.
- Traditionally it has been consumed as a fresh fruit at the mature green and ripe stages and to make wine. However, in recent years the fruit is being used in a number of new ways eg. to make fresh juice.
- During the 1980's, the dwarf type of pommecythere was introduced into Trinidad. It has some advantages over the traditional large type which includes the following:
 - (i) Availability - the dwarf fruit is available all year round while the large fruit is available for about 5 months in the year
 - (ii) Ease of harvesting - the smaller tree size facilitates harvesting by hand
 - (iii) Early bearing - initial bearing occurs in 6 months in the dwarf type while the large type takes 3 - 4 years.
 - (iv) Ease of material preparation for processing - the smaller fruit lends itself more easily to certain types of processing.
- In Grenada, the Caribbean Agriculture Research and Development Institute (CARDI) has developed a process (involving grafting and pruning) which results in the tall traditional pommecythere trees being dwarfed to a certain extent. As a result harvesting is much easier.

DEVELOPING AN INDUSTRY

Over the past few years, the Trinidad and Tobago Agribusiness Association (TTABA) has been working to develop a profitable industry using dwarf pommecythere. This industry is based primarily on new uses that are being developed for the fruit. Farmers and agro-processors, are being encouraged to participate in this profitable venture.

FOR FARMERS

- TTABA is supporting the development of the industry in the following ways:
 1. Contract farmers to grow particular acreages
 2. Supply seedlings
 3. Buy all marketable fruits at a guaranteed price
 4. Transport fruits at a price
 5. Provide extension advice
 6. A potential profit in the vicinity of TT \$125,955. over a 5 year period (see table 1).

FOR PROCESSORS

- TTABA has identified the following value added products for development with agro-processors under various contractual arrangements:
 1. 100% pure pommecythere extract or juice
 2. Pommecythere cordial or concentrate.
 3. Frozen pre-cut pommecythere,
 4. Whole peeled pommecythere for preserves
 5. Husk for condiments

The first two products above are already being produced by TTABA. The other three products are still being developed. Pommecythere 100% juice is produced from fresh unripe fruit which is washed and sanitised prior to crushing and compressing to extract the juice. The pure juice is filtered, pasteurised, packaged and frozen as a standard single strength juice for beverage processors.

Pommecythere cordial is produced from 100% juice to which sugar and preservatives are added as the product is pasteurised. The shelf stable beverage is used to produce a 25% ready to drink chilled beverage by a dilution of 3:1 water to cordial.