IMPROVING LIVES THROUGH AGRICULTURAL RESEARCH

CARDI

FACTSHEET

PRODUCING COCONUTS USING THE DWARF PLANT

Ronald Pilgrim

INTRODUCTION

Producers cultivate the coconut (*Cocos nucifera* L.) for its kernel of water and soft jelly; both these have health and nutritional benefits which consumers like. The water and kernel are known to build body muscles of thin and emaciated individuals, cure sore throats and relieve stomach ulcers. Consumption of coconuts helps diabetic sufferers and those with kidney ailments. The water serves as a refreshing drink or it may be added to cocktails. The dwarf coconut plant has economic value and importance.

This factsheet will provide producers and potential producers with the essential requirements to cultivate the crop.

CULTIVATION SYSTEMS

Dwarf coconut plants have an average productive life span of 30 years as compared to the tall varieties with a life span of 70 years. Producers usually intercrop a cultivation with bananas, plantain, coffee, cocoa, food crops and vegetables. Some producers establish these plants in animal pastures and on plot borders

Farmers are beginning to establish single cultivations of the dwarf variety. This method of production will be useful to meet an increased demand with the introduction of a thriving trade in bottled coconut water.

CULTIVARS

The most popular dwarf cultivars are the Malayan Green, Red and Yellow which can be distinguished by the colour of the central leaf vein, flowers and nuts (Plates 1 - 3). Although the Malayan Red displays a yellow image, there is a distinct red hue which the plant also displays. Some nurseries supply a cross between a tall Jamaican cultivar and a dwarf Malayan. This cross is taller than the dwarf types and resists the Lethal Yellowing virus. The Malayan Green appears to be most tolerant to the pest, Red Palm Mite (*Raoiella indica*).

SITE SELECTION

Producers may cultivate dwarf coconuts in most types of Caribbean soils. The ideal site is an area with well distributed rainfall of 1500 – 2500 mm (approx. 60-100 inches) per year and a deep soil which overlies softer parent rock. Producers must avoid shallow soils with underlying hard rock, low lying areas subject to water logging and heavy clay soils. Use supplementary irrigation in the drier areas and during the dry season.

Plate 1: Malayan Green

Plate 2: Malayan Red

Plate 3: Malayan Yellow

PLANTING MATERIAL

Use seeds and seedlings from nurseries where dry mature seed nuts are selected from high yielding healthy trees and propagated in seed beds (Plate 4)

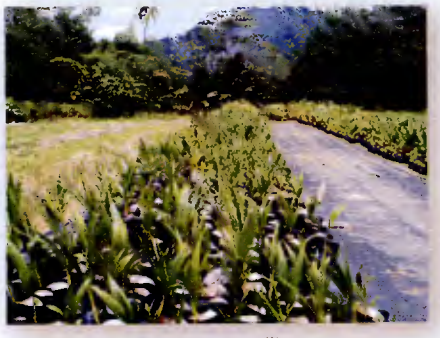

Plate 4: Coconut seedling nursery

Plate 5: Coconut seedling ready for planting

Select seedlings at 6-9 months old or those with 6-8 leaves. The leaves must begin to split, an indication of desired photo-synthetic activity. Select plants with straight, wide stems (3-4 cm or approx. 1.25-1.5 inches). The area which joins the leaf to the stem (the petiole) must be short and broad. The leaves must be broad, dark and green (Plate 5). Discard thin, long seedlings with weak or curved and pale, green, narrow leaves. Ensure seedlings are free from pests and diseases.

TREATING THE PLANTING MATERIAL

Apply an acaricide such as New Mectin (active ingredient: Abamectin) to seedlings in order to control the Red Palm Mite. Spray these pesticides on the underside of leaves every 2 months. Apply Banana Mineral Oil to the plants 1 month after each acaricide application. This pesticide is petroleum based oil which destroys the mite. The Red Palm Mite and other mites cause yellowing of the leaves and weaken the young plants.

PLANTING AND SPACING

Begin planting at the start of the rains. For pure stand planting, prepare large size planting holes, 30 x 30 x 90 cm (1 x 1 x 3 ft) at a spacing of 8 x 8 m (30 x 30 ft) apart on the square. Plant along the contour on sloping lands. Use wider spacing when intercropping with tree crops such as citrus, cocoa or mango. Wider spacings of 10 x 10m (35 x 35 ft) will accommodate an intercrop. Never use spacings closer than 2.1 m (approx.7 ft).

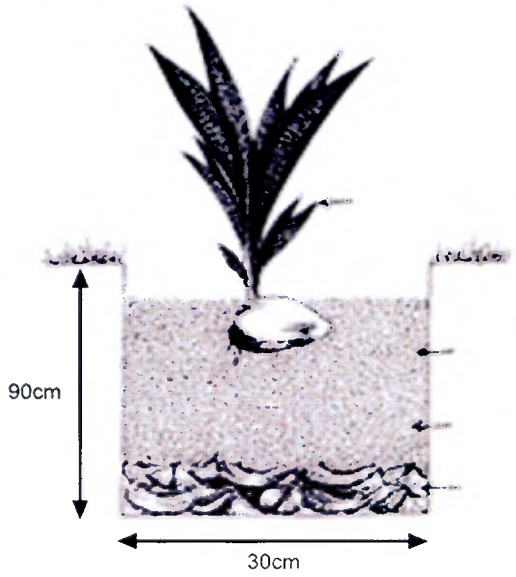

Plate 6: Diagram of a newly planted coconut tree

Dig a deep hole, 30-60 cm (approx. 1-2ft). Place organic material such as dry coconut husk at the bottom of the planting hole and cover with a 3:1 mixture of soil and pen manure. Place 100 g (approx. 3 ounces) of NPK fertiliser to encourage rapid growth (Plate 6).

CONTROLLING WEEDS

Occasionally clear heavy weed cover and control lighter weeds in order that the young plants receive maximum sunlight during the period of establishment.

Use an integrated weed control strategy as plants continue to grow. This strategy applies a systemic herbicide such as Round-Up or Touch Down (active ingredient: glyphosate). Use a weed eater (weed whacker, string trimmer) and/or manual methods (e.g. cutlass) to complement spraying. This practice continues throughout the life of the crop.

APPLYING FERTILISER

Regularly apply fertiliser during every 3 months for the first year at the respective rate of 0.5 kg, 1kg, 1.5 kg and 2 kg per plant (1.1 lbs, 2.2 lbs, 3.3 lbs and 4.4 lbs per plant). This will encourage vigorous growth and early bearing. Thereafter apply compound fertilisers high in potassium (e.g. 16:8:24) every 6 months after the first year at 1kg (2.2 lbs) per plant.

CONTROLLING PEST & DISEASE

Establish an early pest management programme from transplanting in the field, then throughout the life of the crop. In the Caribbean mites are the most serious pests affecting trees. The mites will affect both the leaves and the nuts and reduce crop yields. Continue the spray regime which began at the seedling stage in order to control mites. Use a mist blower, to spray the under surface of the leaflets and young inflorescence (flower bunches) where the pests thrive.

Become familiar with the symptoms of the Red Palm Mite. The mite appears in colonies on the under sides of the leaf. On feeding they produce small yellow spots which develop into lager visible scars. (Plate 7).

On-going research is seeking to use bio-control methods for controlling the Red Palm Mite among the dwarf varieties.

Plate 7: Leaf affected by Red Palm Mite

HARVESTING

Dwarf coconut cultivars bear fruit after 3-5 years. They become fully productive after 6 years. Harvest the fruits on shorter trees by hand while standing below the tree or with a picking pole. When the tree becomes too tall, climb the trees to pick the nuts. Do not let the fruits fall to the ground. Harvest the nuts regularly and do not allow the nuts to dry on the tree. This will delay new inflorescences and reduce yields.

YIELD

Yields vary depending on the level of management. With good management each tree can yield 100-120 nuts per year. These production levels can be an economic success.

DISCLAIMER

Mention of any manufactured products in this fact sheet does not prevent readers from making other choices which may be available.

FURTHER READING

Benefits of coconut
http://lifestyle.iloveindia.com/lounge/benefits-of-coconut-1718.html
Retrieved 2/02/11

Coconut Research Institute of Sri Lanka. n.d. Recommendations: planting materials. Lunuwila, Sri Lanka: Coconut Research Institute of Sri Lanka
http://www.cri.lk/rec_materials.html
Retrieved 2/02/11

Duke J A. 1983. Cocos nucifera L. In: Duke J A. Handbook of energy crops. unpublished.
http://www.hort.purdue.edu/newcrop/duke_energy/Cocos_nucifera.html
Retrieved 2/02/11.

Purseglove J W. 1985. Tropical Crops: Monocotyledons, rev. and updated edn. Harlow, England: Longman.

PSC# SL/001/10

Caribbean Agricultural 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

This document has been produced with the financial assistance of CTA. The views expressed herein are those of CARDI and can therefore in no way be taken to reflect the official opinion of CTA.