

PLACE OF COCONUT IN HOME GARDENS

In an average family, the major share of its income is spent on purchase of food items. In most cases, family income has been found to be insufficient even to obtain this requirement. This causes malnutrition and other socio-economic conditions amongst most low income groups in Sri Lanka.

Properly organized home-gardens can provide the family food requirements which would relieve the families from malnutrition. Well developed home gardens are found in many parts of the country. Unorganized and unproductive units can be developed systematically to produce the daily food needs of the family.

A wide variety of crops such as vegetables, leafy-vegetables, condiments, yams, tubers and root crops and fruits could be successfully grown, together with coconut, in the home garden. Systematic home gardening requires carefully selected crops and the plot-layouts should be well planned for maximum sunlight utilization and also to cover the entire ground area with appropriate crops. Unsystematically planned home gardens do not use the resources fully. Excessive cropping also tends to diminish returns due to overcrowding of vegetation and competition exerted by plants. Productivity from the home garden can be further enhanced by integrating livestock into the unit. Livestock will recycle nutrients.

Coconut is an important component in Sri Lankans' diet, and is used extensively in cooking. About 22% of the calorific intake of Sri Lankans are derived from coconut. The per capita consumption of coconut by Sri Lankans by way of fresh nuts and oil is estimated to be about 120 nuts per person/year. Therefore for a family of five members the nut requirement per year is around 600. This can be obtained from eight good yielding palms. Besides, the coconut palm provides many requirements of

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life such as firewood; cadjans and numerous other items like coir fibre, coconut leaves, shells, timber, etc. Therefore coconut should be identified as a pool of multiple resources in a home garden.

Planting system

The coconut palm requires a fairly large space for its canopy to receive sufficient sunlight. Overcrowding prevents sunlight reaching the foliage which retards the growth of the palm. Such palms give poor yields. When coconuts are newly planted in home gardens planting points should be so selected that they receive maximum sunlight. When a cropping model is designed for a home garden, planting holes for coconut should be marked first to avoid interference with other plants.

When a new home garden is planned, the ideal method of planting coconut would be to establish them in rows aligned east-west. The distance between two palms in a row should be 5 m apart. The next row of palms should be placed at a distance of about 10 m. This avenue system of planting would provide sufficient space for planting other crops.

Planting Material

It is important to plant an improved coconut variety in home gardens to obtain a high yield.

The dwarf x tall hybrid (CRIC 65) is a high-yielding, early flowering (3-4 years) palm and has a potential to produce about 200-250 nuts/year, under favourable weather and soil conditions and good management practices. It is ideal for home gardens, but is rather susceptible to moisture stress. It is therefore

advisable to water the plants during prolonged dry periods. Unsatisfactory management of CRIC 65 hybrid palms would result in heavy button shedding, immature nut fall and drooping of fronds and bunches. If the soil is poor or gravelly, it is preferable to plant tall x tall (CRIC 60) variety.

It is also an improved variety and flowering starts from 5-6 years. It is a hardy, drought-tolerant palm resistant to pests and diseases. This variety generally produces about 100-150 nuts per palm per year.

Planting of Seedlings

The dimensions of the planting hole should be 1m x 1m x 1m (3' x 3' x 3') except in sandy soil, where the depth can be reduced to 0.75m (2'). Two layers of husks or coir dust alternated with layers of soil will have to be placed at the bottom of the planting hole before filling it with surface soil to about 25cm (9") below the ground level. Some organic manure (about 10 kg of cow dung or 5 kg goat dung), 1 kg of Young Palm Mixture and 1 kg of dolomite should be added to the planting hole. The seedling should then be planted in the centre of the planting hole. Too deep planting with the collar region buried should be avoided to prevent collar rot.

It is recommended that the seednut of the seedling is immersed in an insecticide to prevent termite attacks. A traditional practice is dressing of the top layer of the seed hole, around the seedling, with fair amounts of kitchen ash and about 1 kg of common salt. Common salt is thought to soften lateritic soils also. Traditionally, villagers plant a few "Wal Habarala" (*Alocasia macrorrhiza*) "Kiri Habarala" (*Xanthosoma sagittifolium*) plants around the seedling to deter termites.

Seedlings would perform well if they are watered during dry periods. They should also be mulched. A traditional and an inexpensive method of providing moisture to the seedling is the use of pitcher irrigation. In this method two earthenware pots of about 3-4 gallon capacity are buried about 0.75m (2 1/2') away from the seedling on either side. The surface of pots facing away from the seedling should be

painted with tar to prevent seepage of water. The pots should be kept full of water.

Application of manure to seedlings is very important for proper growth. They should be manured once every six months with inorganic Young Palm Mixture and available organic matter.

Plant refuse and animal excreta collected in home gardens should never be burnt. They could be buried for manure or could be used to make compost. Cow dung, goat dung and poultry droppings can be used profitably for manuring of coconut. Although these organic materials do not contain plant nutrients in proportions required by the coconut palm, they could be supplemented with inorganic fertilizers to form a balanced fertilizer.

Gliricidia is one of the most promising green manure crops which can be easily grown along the fences of home gardens. Gliricidia leaves are rich in nitrogen and contain other plant nutrients also. About 30 kg of gliricidia leaves could provide the entire nitrogen and part of phosphorus and potassium requirements in an adult coconut palm.

After-care

Coconut seedlings will have to be protected from goat and cattle damage by constructing a cage with sticks or a husk bund around the seedlings.

Two important pests of seedlings and young palms are the Red Weevil and the Black Beetle. Young palms and seedlings should be examined frequently for the presence of these pests. Black beetles bore into the soft regions in the bud area and the damage could be detected by the presence of crushed fibrous tissues at the point of damage. The adult beetles could be extracted with a pointed metal hook. The bud region should be dressed with coal tar to prevent beetle attacks. Application of crushed naphthalene balls or placing intact naphthalene balls or the insecticide, BHC powder in the bud region would prevent beetle attacks. Traditionally, various fibres such as coir fibre and even human hair is pressed in the bud area to act as a physical barrier for the beetle.

Name of crop	Recommended varieties and harvesting	Seed rate per 10 sq m	Method of cultivation	Spacing	Fertilizer (N:P ₂ O ₅ : K ₂ O)
1. Brinjal (Solanum melongena)	i. S.M. 164-3- 31/2 months ii. Thinnavelly purpel – 3-4 months	0.5g	Transplant on flat beds	90 x 90 cm	16:20:12
2. Okra (Hibiscus esculentus)	i. M.I.1 -130 days ii. M.I.5 -120 days	5 g	3 seeds/flat beds	90 x 90 cm	16:20:12
3. Snake gourd (Trichosanthes anguina)	i. T.A.2 - 04 months ii. M.I.short- 04 months iii. Thinnavelly white – 04 months	6 g	3-4 seeds/flat beds	1 1/2m x 1 1/2m	16:20:12
4. Bitter gourd (Mormordica charantia)	i. M.C. 43- 4-41/2 months ii. Thinnavelly white-4-41/2m	5 g	3-4 seeds/flat beds	1m x 11/2m	16:20:12
5. Luffa (Luffa acutangula)	L.A. 33-04	4 g	3-4 seeds/flat beds	1 1/2m x 1 1/2m	16:20:12
6. Cucumber (Cacumis sativus)	Large yellow – 58 – 21/2 -3 months	1.5 g	Planting in pits of 25 x 25 x 25 cm	90 x 90 cm	16:20:12
7. Tomato (Lycopersicum esculentum)	Roma – 21/2 -3 months	0.5 g	Transplanted on ridges or flat beds	60 x 75 cm	16:20:20
8. Ginger (Zingiber officinale)	Local ginger-9 months	1.5 kg Rhizome	Rhizome cuttings	20 x 20 cm	12:20:12
9. Sweet potato (Ipomea batatas)	Wariyapola type	50 cuttings	Vine cuttings transplant on ridges	60 x 45 cm	16:20:12
10. Pineapple (Ananas sativus)	Kew Mauritius	50 suckers	Transplant suckers having 10 leaves in rows	60 x 25 cm	12:6:30

ADVISORY CIRCULARS

A new series of Advisory Circulars on the following aspects of coconut cultivation has been issued by the Coconut Research Institute of Sri Lanka.

1. Coconut cultivation and management
2. Crop protection
3. Intercropping under coconut.