

## QUALITY PLANTING MATERIAL PRODUCTION IN ARECANUT

K. S. Ananda, N. R. Nagaraja and K. S. Krithika

Arecanut is propagated by seeds. Being a perennial and cross pollinated crop, adequate care should be taken in selecting the planting material.

### 1. Selection of mother palms

- ➔ Mother palms should be of more than 12 years age.
- ➔ Palms should be a regular bearer.
- ➔ Early bearing nature (36-40 months after planting).
- ➔ Partially drooping or drooping crown.
- ➔ More number of leaves (>10) and shorter internodes.
- ➔ High fruit set (>55% set) around 350-400 fresh nuts/palm/year.
- ➔ Consistent yield of about 3 kg or more dry kernel (chali)/palm/year.
- ➔ High recovery of chali from fresh fruit (>25%).
- ➔ Elite palms should be free from pests and diseases incidence.
- ➔ Mother palms should be selected based on the requirements for processing, chali or tender nuts.

### 2. Selection of seed nut

Seed nuts of three different types are preferred for seedling production viz., *Inter se*, Hybrid and Open pollinated.

**2.1. Inter se:** Seed nuts produced after emasculation and pollination by using the pollen of selected palms of the same cultivar/variety.

**2.2. Hybrid:** Seed nuts produced after emasculation and pollination between two different desired parents.

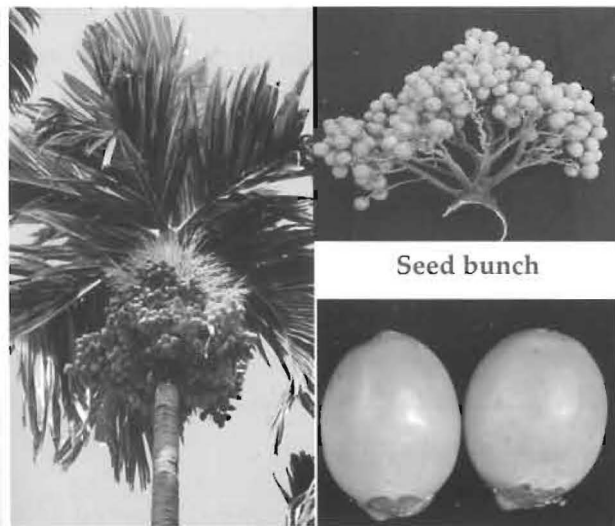
**2.3. Open pollinated:** Seed nuts harvested from selected mother palms of the desired cultivar/variety without any artificial emasculation (removal of male flowers) and pollination.

- ➔ Fully ripened nuts weighing more than 35 gram will give better germination than lighter nuts and give more number of quality seedlings. The mature nuts should be harvested when at least few nuts in the oldest bunch starts falling. Normally it takes 11-12 months to become a mature seed nut after pollination.
- ➔ Rope harvest of seed nuts is recommended from the trees, which are

very tall and in places where the ground is hard.

- ➔ The nuts, which float vertically with calyx end pointing upwards in water will produce more vigorous seedlings.

Harvested seed nuts can be stored only for about 3 to 6 days since the nuts are recalcitrant, *i.e.*, viability will be lost soon.



Mother palm

Seed bunch

Seed nut

#### 4. Hybridization

In arecanut, the hybridization technique consists of removing the portion of rachillae having male flowers (emasculation) soon after emergence of the inflorescence and covering the spadix bearing female flowers with a cloth bag. When the female flowers open, the anther from the desired male parent is rubbed against the stigma or the pollen is dusted on the stigmatic surface, by removing the bag. The bag is replaced over the inflorescence immediately after pollination. The process is repeated daily for about a week till all the female flowers in the spadix open and fruit set can be seen after 20 days. In artificial pollination, fully opened male flowers are collected from the selected

palms and are transferred to a reagent bottle containing 0.5 per cent solution of sucrose and the bottle is shaken gently. The pollen grains thereupon get released in the aqueous solution. The solution with the pollen grain in suspension is transferred to an ordinary hand atomizer and sprayed onto newly opened female flowers. The spraying may have to be done three to four times, as all the female flowers do not open at the same time. About 14 per cent increase in fruit set was obtained by this method and the same could be successfully used in commercial hybridization.



Emasculation

Pollination

#### 5. Primary nursery

Sowing the nuts immediately after harvest in soil/sand and watering once in two days will result in early and good germination. Selected seed nuts are sown with their stalk end pointing upwards, 5 cm apart in sand beds of 1.5 m width and convenient length. Thick mulching is to be done with straw/areca leaves. Beds are to be watered daily either by using hose or micro sprinklers. Germination of nuts usually commences by 43 days and completed by 94 days.

#### 6. Secondary nursery

For raising the seedlings in secondary nursery, beds of about 150 cm width and 15 cm height are suggested. A spacing of 30-45 cm is considered optimum for planting three months old sprouts in secondary nursery and repotting

in poly bags is also preferred. The secondary nursery should be given a basal dose of decomposed farmyard manure or vermicompost @ 5 tonnes per ha. The nursery should be partially shaded to get good seedlings.

### 7. Polybag nursery

- Seed nuts may be sown directly in poly bags of 6"x9" size and 250 gauge thickness, with holes for drainage.
- Potting mixture should be of Soil: FYM: Sand in the ratio 7: 3: 2. Well decomposed farm yard manure or vermicompost and sieved sand should be used for potting mixture preparation.



Sowing in nursery bed



Poly bag nursery

- Solarization of soil by covering with black polythene sheet and sun drying of potting mixture for one week may be practiced to avoid any soil borne diseases.

Daily watering during rainless period is needed to ensure desired growth.

### 8. Selection of seedlings

- Seedlings of 1-1.5 years of age having six or more leaves (early leaf splitting), 90 cm height and 26 cm collar girth should be selected. Seedlings having more than 5 nodes after two years are the best seedlings to get better yield.
- The seedling should have well established root system with 5-8 main fibrous roots intact and active while transplanting.
- The seedlings have to be uprooted with a ball of earth adhering to roots if they are raised in nursery bed.
- Seedlings should be free from diseases like leaf blight, leaf spot and collar rot.
- Poly bag seedlings are preferred for long distance transport. Care should be taken to prevent damage/breakage of seedlings at the collar region during transportation.

### 9. Nursery requirement

An area of 4,000 square meters is required to maintain 50,000 seedlings. Areca sprouts and seedlings are very delicate and do not withstand exposure to direct sunlight. Hence, proper shade should be provided to the nursery. The shade may be either of coconut or arecanut

leaves spread over a pandal or by covering with 50-75% shade net (green or black) or by planting some fast growing green manures or banana around nursery. The nursery should be watered regularly during summer and proper drainage should be provided during rainy season.

Periodical weeding and mulching is required. Nursery can be raised in the interspaces of coconut plantation and also in widely spaced arecanut gardens. Sprinkler/micro-jet/hose irrigation systems are well suited to arecanut nursery beds/polybag seedlings.

\*\*\*

**THE CASHEW NUT !  
A WONDER NUT OF NATURE  
HEALTHY YOU ARE WHEN YOU CONSUME IT.  
WEALTHY YOU ARE WHEN YOU GROW IT.**

**For more details - Read our publications :**

1. The Cashew
2. Cashew Cultivation Science & Techniques
3. Cashew Varietal Wealth of India
4. Indian Cashew Industry

**For further details Contact :**

**THE DIRECTOR  
DIRECTORATE OF CASHEWNUT & COCOA DEVELOPMENT  
KERA BHAVAN, COCHIN - 682 011  
KERALA**

**Web:<http://dccd.gov.in>, E mail : [dccd@nic.in](mailto:dccd@nic.in)  
Phone : 0484-2377151 Fax: 0484-2377239**