

COCONUT

Cocos nucifera L

Varieties:

Kamrupa: Selection from Assam Green Tall commences flowering 6-7 years after planting. Nut yield is 101 nuts/palm/year, copra yield 2.86 t/ha, oil content 65.0%, contains 253 ml tender nut water. High nutritive value of tender nut water with total sugars 5.16 g/ 100 ml, potassium 2294 ppm, Sodium 39 ppm. Tolerant to diseases (stem bleeding, bud rot), moisture stress, low temperature during winter and adaptable to a wide range of soil.

Assam Tall: Similar characters with Kamrupa except yield varies from 90-105 nuts/palm/year.

West Coast Tall (WCT): Tall palms, come to flowering in 7-8 years planting. Yields 96 nuts/palm/year, copra yield 2.96 t/ha and oil content 67.8%. Moderately tolerant to moisture stress, comes up well in varied types of soil including sandy, sandy loam and red sandy loam.

Bengal Hazari: Tall variety, flowering starts 7-8 years after planting. Yields 85- 90 nuts/palm/year, copra yield 2.5 t/ha and Oil content: 64.0 %. Moderately tolerant stem bleeding and moisture stress

Kalpa Samrudhi (MYD x WCT): This (D x T) hybrid palm is semi-tall with compact spherical canopy, commences flowering 5 years after planting. Yields 117 nuts/ palm/year, copra yield 4.38 t/ha and oil content is 67.5%. Tender nut water content is 346 ml, total sugars 4.17 g/100 ml, potassium 2370 ppm, Sodium 35.1 ppm. The hybrid is relatively tolerant to moisture stress, suitable for copra and tender nut purposes.

Selection of Mother Palm:

1. Select palm producing above 100 medium sized nuts /palm/year
2. Age of the mother palm should be above 20-25 years
3. Mother palm should have a well developed crown with maximum number (>30 nos.) of horizontally oriented leaves.
4. Sept.-Dec. harvested nuts should be used

Soil: Sandy loam

If the soil is clay, 1 or 2 baskets of sand per pit should be applied.

Sowing of nut:

Sowing time is from December to February. 1 m wide and 30 cm raised beds of required length should be prepared. Large size nuts are planted horizontally with the widest of the three segments upwards which helps in the plumule emergence.

Selection of seedlings:

1. One year old seedlings should be planted.
2. The seedling with early splitted leaf is preferable. The seedlings having 5-6 leaves or just after splitting of leaves become ready for planting.
3. The seedlings should have a stout collar.

Planting Distance: 7.5 m x 7.5 m

Pit size: 1 m x 1 m x 1 m

Time of Planting:

March-April under high land condition September-October under low land condition

Pit filling:

Pit should be filled up with mixture of topsoil, 20 kg compost or well rotted cow dung and to 2/3rd of pit.

Fertilizer Dose: (per palm per year for bearing plants)

Fertilizer	Improved varieties	Hybrid varieties
Urea	1.50 kg	1.10 kg
SSP	2.50 kg	3.12 kg
MOP	1.75 kg	3.34 kg
Borax	25 g	25 g

The fertilizer should be applied in two equal split doses, i.e., in April and October. The fertilizer should be applied to a trench of 30 cm width and 10 cm depth at a radius of 1 to 1.75m away from the trunk depending upon the age of plant and covered with green leaves and then by soil. For seedling, the dose should be increased up to 4th year at the following rates:

1st yr – 1/5th of the full dose

2nd yr – 2/5th of the full dose

3rd yr – 3/5th of the full dose

4th yr – 4/5th of the full dose

From 5th year onwards-full dose of fertilizer for bearing palm

For integrated nutrient management in T x D hybrid (Chandrasankara) 500 g N wherein 50 % N substituted by vermicompost, 500 g P₂O₅ and 2000 g K₂O per palm per year should be applied.

Irrigation:

Irrigation increases total number of female flowers, nut setting, endosperm content, fruit weight and ultimately crop yield and reduces immature nut fall. Palms should be irrigated at 10 days interval during the dry months @ 32 ltr water per day.

Weeding:

Light ploughing or harrowing twice a year in February-March and September-October.

Weed management by mulching in coconut nursery:

50 micron black polyethylene film mulch can be used as mulching material in coconut nursery with a benefit: cost ratio of 2.36.

Intercropping:

The crops, like black pepper, betelvine, grasses, turmeric, ginger, pineapple, banana (Chenichampa), Kachkal, Assam Lemon and vegetables like pumpkin, okra, brinjal etc. have been found to be very profitable as intercrop in coconut orchard. Intercropping with colocasia under half dose of recommended fertilizer and ginger and turmeric with full dose of fertilizer can be grown profitably.

Coconut based cropping system: Refer to Chapter

Coconut based multiple cropping system: Page No. 164-165

Plant Protection:

- 1) **White Ant:** Apply Bifenthrin 2.5 EC @ 0.05% ha as soil application
- 2) **Rhinoceros beetle:** Keep Naphthalene balls @ 4 Nos. at axils of leaves to repel the insect
- 3) **Red palm weevil and Mealy bug:** Spray Thiamethoxam 25% WG @ 26 g a.i./ha against sucking pests
- 4) **Teratheba and Betrachedra spp:** Clean the palm twice a year before and after monsoon and spray Thiamethoxam 25% WG @ 26 g a.i./ha
- 5) **Crown choking:** Apply 50 g Borax in a trench of 15 cm width and 10 cm depth at a distance of 1 to 1.75 m away from the trunk along with the recommended dose of fertilizer. In acute cases repeat the application after one month of first application for three times.
- 6) **Stem bleeding:** Scrape out the infected portion completely and apply Bordeaux paste or coal tar. Chiselling out of the infected portions followed by wound dressing with hexaconazole (1 ml/ltr) or trifloxystrobin (1 g/lit) and finally application of hot coal tar will manage the stem bleeding disease of coconut.
- 7) **Spindle rot:** Spray 1% Bordeaux mixture immediately after emergence of seedlings.
- 8) **Ganoderma disease:**
 - a) Drainage should be improved.
 - b) Recommended dose of fertilizer should be applied.
 - c) When disease symptoms are observed, isolate the diseased plant by digging a trench 60 cm deep, 30 cm wide and 1 m away from the trunk and drench the trench with 0.2% carboxin.

- d) Application of 5 kg Neem cake per palm in addition to organic matter.
 - e) Apply 1.5 to 2 kg Sulphur powder around the palm.
 - f) Palms showing initial disease symptoms should be treated with 0.2% Carboxin three times at monthly intervals with 10 litres of solution per palm.
 - g) Strict phytosanitary measures should be taken by removing the diseased palm along with roots and burying them completely.
 - h) Grow one row of banana plants as a disease resistant crop in between two rows of coconut.
 - i) Soil drenching with 1 g copper sulphate + 1.5 g Auriofungin solution in 100 ml of water.
- 9) Bud rot:** Clean the affected portion and apply 1% Bordeaux mixture.
- 10) Leaf blight:** Remove the older affected leaves and spray 1% Bordeaux mixture.
- 11) Immature nut shedding:**
- a) Apply recommended doses of fertilizer per year.
 - b) Apply pesticides and fungicides against pests and diseases.
 - c) Irrigate the palms during dry months to prevent formation of abscission flowers at weekly intervals for a month after fruit set.

Squirrel pest management:

Trunk banding with aluminium sheet (0.5 mm thickness and 4 feet wide) at the height of 8 feet around the coconut tree for reduction of squirrel infestation

Benefit: cost ratio:

1.60 after 7 years

5.70 after 15-18 years (full bearing plant)