

CASHEW CULTIVATION PRACTICES



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Dakshina Kannada, Karnataka



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Cashew is an important plantation crop, cultivated in Andhra Pradesh, Chhattisgarh, Goa, Karnataka, Kerala, Maharashtra, Odisha, Tamil Nadu, West Bengal, Gujarat, Jharkhand and North East Hilly States. Cashew kernels are used as an ingredient in ice-cream, pastries and confectionery, in addition to its consumption as popular snack item. It is also assuming more importance as an ingredient in health foods owing to its high protein and low sugar content. During 2015-16, the production was 6.70 lakh tons of raw nuts from 10.35 lakh hectares area. Considering the demand in the domestic as well as international market, the level of kernel production at present is low. In India the established processing capacity is >15.0 lakh tons of raw cashew nuts. But, present production is far below which necessitates to adopt scientific management practices for improving productivity of cashew. Infact, majority of existing cashew orchards have been raised with seedling progenies, which are heterogeneous with respect to flowering, fruiting and other characteristics due to the cross pollinated nature of the crop. Establishment of cashew plantations in degraded lands without proper management is the main reason of low productivity. In this folder, useful tips on improved methods of cashew cultivation are presented.

Varieties

So far, forty two high yielding varieties of cashew have been released for cultivation. The varieties recommended for different states are as follows :

● **Karnataka :**

Bhaskara, NRCC Sel-2, Ullal-1, Ullal-3, Ullal-4 and UN-50 (Dakshina Kannada and Udupi), Vengurla-4 and Vengurla-7 (Uttara Kannada), VRI -3, Madakkathara-2

● **Karnataka (Plain Region) :**

Chintamani - 1, Chintamani - 2 and Dhana.

● **Kerala :**

Madakkathara - 1, Madakkathara - 2, K - 22 - 1, Kanaka, Dhana, Priyanka, Amrutha and VRI - 3.

● **Maharashtra :**

Vengurla - 1, Vengurla - 4, Vengurla - 6 and Vengurla - 7.

● **Goa :**

Goa - 1, Vengurla - 1, Vengurla - 4, Vengurla - 6, Vengurla - 7, Vengurla - 8.

● **West Bengal :**

Jhargram - 1, BPP - 8, Bidhan Jhargram 2

● **Odisha :**

Bhubaneswar - 1, BPP - 8, Dhana, Jagannath, Balbhadra

● **Tamil Nadu :**

VRI - 3 and VRI (Cw) 5.

● **Andhra Pradesh & Telangana :**

BPP - 4, BPP - 6 and BPP - 8.

● **NEH Region :**

Ullal - 3, Ullal - 4, Vengurla - 1, Vengurla - 4 and Vengurla - 7, Priyanka, NRCC Sel - 2, Jhargram 1

● **Gujarat :**

Vengurla - 4 and Vengurla - 7

Orchard Establishment

Wild growth including forest cover and weeds should be cleared from the site selected for cashew plantation. The roots of the weeds and bushes should be completely uprooted from around 2 m radius of the plant. This ensures competition free environment for the newly planted cashew graft.

Pits of 1 m x 1 m x 1 m dimension should be dug at a spacing of 7.5 m x 7.5 m or 8 m x 8 m across the slope. If there is hard pan in the sub surface of the soils, the dimension of the pits should be enlarged to 1.2 m x 1.2 m x 1.2 m. Hedge row system of planting with a spacing of 10 m x 5 m will be beneficial for growing intercrops such as colocasia, turmeric, elephant foot yam, beans, cucurbits etc.in initial years of cultivation. Pits should be dug 15-20 days before planting and exposed to sun so as to get rid of soil borne pests especially termites. Later the pits should be filled to three-fourth level with a mixture of top soil, 10 kg of compost and 200 g of rock phosphate.

The pits should be provided with side drains to avoid water stagnation.

Only vegetatively propagated (softwood grafting) quality planting materials should be used. Usually more than five month old healthy grafts should be planted after carefully removing the polythene bag without disturbing the ball of earth. Soil at the centre of the pit should be scooped out to plant the graft. Later, the soil should be pressed gently after placing the graft with the ball of earth intact into the scooped out pit. Care should be taken to see that the graft joint is at least 5 cm above the ground level. This will help to locate and remove the sprouts on the root stock below the graft joint. The remaining portion of the pit should be gradually filled upto the ground level within 2 years. After planting the graft, a stake should be provided to the plant and tied by a loose knot with the stake. This prevents damage to the graft by wind. The soil around the plant should be mulched with dried leaves or green leaves for conservation of moisture.

After care, training and pruning

The shoot growth below graft union should be removed periodically. The lower branches should be removed with secateurs so that a clear trunk up to a height of 45-60 cm may be developed. This operation should be done gradually so as to facilitate easy cultural operations, nut collection, monitoring of cashew stem and root borer etc. The old stakes should be removed and longer stakes should be provided during the 2nd and 3rd year of planting. De-blossoming should be carried out during the first two years after planting. First fruiting should be allowed in the third year after planting. After 4-5 years, the main branch growing vertically should be cut at a height of 3.5 m to 4.0 m in order to promote lateral shoots for better fruiting.

Nutrient Management :

In the loamy soils and in low rainfall areas (East Coast and interior region), the fertilizers should be applied in 50 cm circular strips at a distance of 0.5 m, 0.7 m, 1 m and 1.5 m away from the trunk during first, second, third and fourth year after planting and onwards respectively. In laterite soils and soils of slopy lands in heavy rainfall areas (West Coast), the fertilizer can be applied in circular trenches of 25 cm width and 15 cm depth prepared at a distance of 0.5 m, 0.7 m, 1 m and 1.5 m away from the trunk during the first, second, third and fourth year of planting and onwards, respectively. Immediately after application, fertilizer should be raked into soil. Green leaves can be spread as mulch to enhance fertilizer use efficiency. Application of 10-15 Kg. of farm yard manure or compost per plant is found beneficial. Fertilizer application should be avoided during heavy monsoon and also when the soil moisture status is poor. Application of fertilizers, however, can be taken up during the second week of August during receding period of monsoon. The agewise fertilizer schedule is given below.

Fertilizer Schedule (g/plant/yr.)

Years after planting	Urea	Rock phosphate	Muriate of Potash
I	330	125	40
II	660	250	80
III	990	375	120
IV	1320	500	160
V and onwards	1650	625	200

Soil and water conservation measures

In case of sloppy lands, terracing should be taken up around each plant within third year. Terraces should be of 1.8 m to 2.0 m radius with a catch pit (2 m (L) x 0.3 m (W) x 0.45 m (D)) on the upper side of the slope. The soil around the plant should be mulched with organic matter during rainy season to prevent soil erosion and also direct exposure to sunlight there by conserving soil moisture.

Irrigation

Supplementary irrigation during January - March at fortnightly intervals @ 200 litres per plant has proved to increase nut yield. Drip irrigation to the crop @ 60-80 litres of water per tree once in four days from flower initiation till fruit set and development also increases yields significantly.

High density planting system

Through high density planting system, vacant land in the early stage of orchard life is profitably utilized by increasing plant population per unit area of land. High density planting of cashew is more suitable in less fertile area, because in areas where soil fertility is low, growth of the plant is very much slow resulting in less ground coverage in the initial years. In such locations, if normal density planting with 8 m x 8 m spacing (156 trees/ha) is done, the yield will be very low / unit area in initial stages of plant growth. It has been proved that cashew yield can be increased in poor soils (less fertile soils) by 4 folds upto 6th year and 2.5 folds upto 12th year if high density planting system of 625 trees/ha (4 m x 4 m) is maintained. The other spacings normally recommended for high density planting are 5 m x 5 m (400 trees / ha) and 6 m x 4 m (416 trees / ha) in medium soils. However, special attention is required for nutrition, irrigation and canopy management of high density planting system.

Plant Protection

Management of Tea Mosquito Bug (TMB)

Both adult and nymph of tea mosquito bug (TMB) suck the sap from tender shoots, panicles and immature nuts and apples which results in formation of black necrotic lesions. These lesions on shoots and panicles coalesce causing shoot blight or blossom blight. In outbreak situations, timely spraying should be taken up to manage the pest. The younger plantations (1-5 years), which produce flushes continuously, need to be protected by insecticidal intervention. Need based application should be taken up in bearing plantations by regular survey for the initial symptoms of pest incidence.

The insecticides recommended for spraying are as follows :

Flushing stage	Monocrotophos (0.05% i.e., 1.5 ml/L)
	Imidacloprid 17.8 SL (0.6 ml/L)
	Acetamiprid 20 SP (0.5 g/L)
	L-Cyhalothrin (0.003% i.e., 6 ml/10 L)
	Profenophos 50 EC (0.05% i.e., 1.5 ml/L)
Flowering / fruiting stage	L-Cyhalothrin (0.003% i.e., 6 ml/10 L)
	Carbaryl (0.1 % i.e., 2 g/L)
	Triazophos 40 EC (1 ml/L)
	Profenophos 50 EC (0.05 % i.e., 1.5 ml/L)

The same pesticide should not be repeated for the next spray to avoid build up of pesticide resistance. Spraying should be taken up only during cool hours of the day up to 10 AM and after 4 PM. Spray against the wind direction should not be done. A cloth mask covering nose and mouth should be used by the persons while spraying the chemicals.

Management of Cashew Stem and Root Borer (CSRB)

Older cashew trees existing in or nearby the neglected orchards are more prone to infestation by CSRB, however, young plants are also infested by the pest. The female beetles lay eggs in the bark crevices near the collar region or on the exposed roots. After hatching, the young grubs tunnel immediately into the bark. Extensive feeding by the grubs hampers the translocation of the nutrients leading to drying of leaves and twigs. In the infested portion, the gum and frass start oozing out from the tree; which is the initial symptom of pest attack for taking up curative measures. As the pest incidence occurs during the period of nut collection (Feb. to May) the infested trees can be marked suitably for subsequent treatment. The infested portion should be carefully chiselled off to locate the CSRB grubs, which should then be removed and killed. In case white powdery fibres are seen, a pliable wire should be inserted deep into the pupation hole to kill the grub or pupa. Later, chlorpyrifos (0.2%) solution should be swabbed or sprayed over the chiselled portion. Trees having more than 50% of the bark circumference damaged and/or with yellowing of the canopy do not recover. Hence, they should be disposed off immediately to prevent build up of pest inoculum. Regular adoption of phytosanitation by removal of dead CSRB infested trees and those beyond recovery is essential to reduce the pest inoculum. Continuous pest management reduces the number of freshly infested trees and also the number of CSRB grubs per infested tree.

Minor pests of Cashew

Some minor pests of cashew are leaf miner, which mines below the epidermis of tender leaves and reduces photosynthesis; leaf beetles are endemic and cause leaf skeletonising during the early monsoon period; apple and nut borers which tunnel in the joint of the apple and nut and cause premature fruit and nut drop; leaf and blossom webber which damages the panicles; shoot tip caterpillar which damage the tender shoots reducing the panicles per unit area as well as leaf and flower thrips which cause flower drying and outward curling of the leaves, respectively. These minor pests generally get reduced with the sprays taken up for TMB management.

Harvesting

Only fully ripe / fallen nuts should be collected from below the tree. The nuts, after separating from the fruits, should be sun dried for 2-3 days and stored in gunny bags at a height of atleast 4" from the ground level at any place.

Nut Yield

All the varieties recommended have a yield potential of over 8 kg / tree or 1-0 - 1.5t/ha. Though cashew yields from the third year, its full potential (about 8 kg / tree) will be realized at 8-10 years of age, depending on level of management.

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