

MOTHER PALM SELECTION IN ARECANUT CULTIVATION

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THE IMPORTANCE of genetically superior planting material particularly in a perennial crop like arecanut needs no emphasis. One of the established methods of selecting such genetically superior planting material is to select palms possessing characters of high heritability and correlation with yield.

Mother Palm Selection

Of the many mother palm characters studied, age at first bearing and percentage of nut set were found to be correlated with yield and having high heritability. Thus confining selection of seednuts to mother palms which commence bearing early as well as to those which give a high percentage of fruit set, the yield of the resulting plantation can be increased. For selecting mother palms which commence to bear early, the plantation should be kept under regular observation from the beginning and early bearing palms marked out. Selection of seednuts from such plants may be commenced after the yield of the plant is stabilised which normally takes 4 to 5 years from first bearing. The existing practice of selecting seednuts from high-yielding mother palms alone also requires modification. The percentage of fruit set should be checked up based on the number of female flowers produced and fruit set obtained. Seednuts should be selected from those palms which give a high percentage of fruit set.

From the marked out mother palms fully tree-ripe nuts are gathered. All undersized and malformed nuts and nuts having less weight must be rejected. Heavier seednuts within a bunch give higher percentage of

germination and produce seedlings of better vigour than lighter ones.

Raising Seedlings

The selected seed-nuts are sown soon after harvest 5 cm to 6 cm apart in sand beds under partial shade with their stalk ends pointing upwards. Sand is spread over the nuts just to cover them. The nuts are to be watered daily. Germination commences in about 40 days after sowing and the sprouts are ready for transplanting when they are about three months old. At this stage the sprouts would have produced two to three leaves.

Nursery beds of 150 cm width and of convenient length are prepared for transplanting the sprouts. If banana is used as shade crop the same should be planted in advance at a spacing of 2.7×3.6 cm with the onset of monsoon. A basal dose of well decomposed cattle manure at the rate of 5 tonnes per hectare may be applied in the secondary nursery. Partial shade to the seedlings can also be provided by erecting an artificial pandal or growing *Coccinia indica* as an overhead pandal. Shade crops such as banana and *Coccinia* not only provide shade but also give good returns to the grower. Care is to be taken to drain the nursery beds during monsoon and also to irrigate them during the hot weather periods, weeding, mulching, etc. may be attended to periodically. The seedlings are ready for transplanting to the mainfield when they are 12 to 18 months old. Selected seedlings are removed with a ball of earth for transplanting, wrapping the base with plastic film keeps the seedlings in good condition for long distance transport, studies on selection of seedlings have shown that considerable increase in yield can be obtained by judicious selection of seedlings at the time of planting as well as in subsequent stages. For planting, seedlings having maximum number of leaves and minimum height alone should be selected. To be precise, the number of leaves present at the time of planting is to be multiplied by 40 and the height of the concerned plant subtracted from this figure. Plants which have a high value for this alone should be selected (For example, if a plant has five leaves and 90 cm height the value will work out to $5 \times 40 - 90 = 110$, and suppose the values range from 50 to 150, plants having higher values may be selected to the extent practically feasible). Correlations worked out between plant characters recorded after one and two years of growth in the transplanted field with yield have shown that girth at collar one year after transplanting and the number of nodes two years after transplanting are highly correlated with yield. Rejection of plants which have poor girth one year after planting will help to increase the yield potential of the plantation.