

CDB registers elite tall & dwarf mother palms for seedling production

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Malayan Orange Dwarf

The Coconut Development Board is in the process of preserving native tall and true genotypic dwarf palms to utilize the pure line plant resources to large scale multiplication. This is a farmer participatory massive programme of the Board to identify mother palms. The Board will keep a data bank of the registered mother palms of both the tall and dwarf varieties. Those farmers who are having high yielding good mother palms in their field can associate with the Board in this endeavour.

The perennial nature of coconut, its tall stature, the heterozygous nature and long gestation period make the crop un-amenable to genetic improvement. In the absence of a standard technique

for multiplication of quality coconut seedlings which are true to the parentage, it is necessary to continue the practice of production of seedlings through scientific selection.

Among important criteria for the production of quality seedlings, the selection of consistent and high yielding mother palms is considered to be the prime factor. Board's efforts are to decentralize the commercial production of quality coconut seedlings by strengthening the private sector nurseries. Coconut, being a cross pollinated crop, exhibits considerable variability in the tree size, nut character and other traits like; drought resistance, pests and diseases tolerance etc. The standard practice for the multiplication of such highly cross

pollinated crops are based on the series of standardized selection criteria to be associated with the yield of the palm. The selection methods practiced in different stages are;

- 1) Selection of mother palms having consistent bearing and high yielding nature with other phenotypic characteristics.
- 2) Selection of well developed and matured seed nuts from the selected mother palms.
- 3) Selection of healthy and disease free seedlings raised from the selected nuts, on the basis of their vigorous growth characters.

The important phenotypic characteristics of a mother palm are;

- The mother palm should be regular bearer and should be giving an annual yield of not less than 80 nuts and the copra content of a nut should not be less than 150 gm.

Coconut, being a cross pollinated crop, exhibits considerable variability in the tree size, nut character and other traits like; drought resistance pests and diseases tolerance etc.

- When mother palms are to be selected from a large plantation of unknown parentage it is necessary to select palms which are of 15 years of age or above and have reached the full bearing stage. They must be giving regular high yield for at least four years.
- Isolated palms or blocks of palms growing even under favorable conditions can also be selected, provided the productivity of such palms should be above 100 nuts per annum.

- In case of selection of seed nuts from the root (wilt) affected area the mother palms selected should be apparently healthy and free from disease. The age of the palm should be above 25 years.

- A mother palm should have at least 30 fully opened leaves on the crown. The leaves should have short strong petioles with wide leaf base firmly attached to the stem. The disposition of leaves on the crown should be such that the leaf petioles of the lower whorl will provide adequate support to the developing bunches thus reducing the possibility of buckling of the bunch stalk and shedding of nuts in the immature stages.

- At any time, the tree should carry a minimum of 12 bunches with nuts at different stages of development.

- Palms having medium sized nuts (about 1,200 gm when the husk is fully dry with round and



DxT

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oblong shape are better than others. The husked nuts should be large (about 570 gm) with thick kernels.

- The trees exhibiting deformities and producing barren nuts should be avoided.

Selection criteria for dwarf mother palms

The dwarf palms like Chowaghat Green Dwarf, Chowaghat Orange Dwarf, Malayan Green Dwarf, Malayan

Yellow and Orange etc. are largely self-pollinated and are being utilized for breeding purpose and for the production of tender coconut. The important criteria for the selection of dwarf mother palms are;

- The palm should be atleast 10 year old.

- The mother palms should be giving an annual yield of not less than 100 nuts

- Should have at least 30 fully opened leaves on the crown. Leaf scars on the stem will be very closely arranged and the leaves will be shorter, petiole length less and leaflets closely arranged on the leaf.

- Should have atleast 8 inflorescence

- Dry coconut with husk should weigh 1 kg and dehusked nut

should weigh 450- 500 gms.

- Select only medium sized nuts.

- The tender coconut water content should be: 200 ml for Chavakkad Green Dwarf, 350 ml for Chavakkad Orange Dwarf and 300 ml for Malayan Orange Dwarf.

Hybrid production:

In the DxT production programme, the dwarf palms should be emasculated at least by the end of first week of the inflorescence opening. This is done by cutting and removal of spikes 3 to 5 cm away from the last female flower as well as the removal of the remaining male flowers by hand. Bagging is done when the dwarfs are scattered. In compact blocks this can be avoided. In the case of the CGD crossing it is



WCT

always advantageous to select coloured Tall as male parent. In seed garden the ratio of 8 dwarfs and one tall can be adopted in the planting. Emasculation of dwarfs with assisted pollination will increase the recovery of hybrids. The COD x WCT (DxT) hybrids seedlings are selected based on the petiole color. In the case of CGD x WCT (DxT) the hybrid seedlings can be identified based on the petiole color as well as late splitting of leaflets and vigor of the seedling.

Season for collection of seed nuts:

The proper time for the harvest of seed nuts depends to a large extent on the seasonal conditions of the locality. December to May is considered to be optimum on the West Coast because the nuts harvested during this season are generally bigger in size with higher copra content than during other months and ensure maximum germination. Apart from this nuts harvested during these months can be sown in the nursery during April to May- June. The summer rains in April and the onset of South

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West Monsoon rains in May-June are the added advantage for the better germination and the growth of the seedlings. The season of harvest may have to be adjusted to suit local conditions so that the seed nuts can be sown in the nursery after about two months' storage.

Maturity of nuts:

The seed nuts should be fully mature, i.e. about twelve months old. Mature nuts can be identified on the basis of the following characteristics.

1. Mature nuts will produce, on tapping with a finger, a resonant and ringing sound which can be identified by experience. Immature nuts will produce a dull sound.
2. Fully matured nuts will have dry husks with a distinct browning of the inner fibres.
3. Free movement of water

within can be felt on shaking the nuts.

Because of the heterogeneous characteristics coconut does not breed true to type. The tall cultivars are more amenable to this genetically phenomenon its multiplication is subjected to rigorous procedures of selection. The selection procedure and nursery techniques recommended by Central Plantation Crops Research Institute (CPCRI), Kasaragodu and the State Agricultural Universities are recommended as the good management practices for nursery production program.

The interested farmers can now apply to the Board for registration of their high yielding mother palms by providing the details of the palms along with a recent photograph of each selected palms, survey no etc. Seed nuts from such selected mother palms will be given premium price of 30 per cent more than the market rate of good quality nuts.

Through databank of the mother palms, the Board is ensuring the availability of good quality mother palms and hybrid seedling with farmers' participation. The Board will also procure seednuts from these mother palms.

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