

Guidelines for Establishment of Cashew/Cocoa Nurseries under MIDH

(For production of high quality planting materials of Cocoa, Cashew)

**Directorate of Cashewnut and Cocoa Development–
Department of Agriculture, Co-operation and Farmers Welfare,
Ministry of Agriculture & Farmers Welfare,
Government of India, Cochin, Kerala.**

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Guidelines for Establishment of Cashew/Cocoa Nurseries

(For raising high quality planting material of cashew & cocoa)

1. Background

The Directorate of Cashew nut and Cocoa Development (DCCD) which has the mandate of holistic development of the cashew and Cocoa sector in the country, with a major thrust on increasing productivity through expansion of area under this in potential states with selected high yielding varieties suitable for different agro climatic conditions.. To achieve this, use of high quality planting material having potential for higher yield as well as adopting scientific management practices in all future plantation programmes is factors of paramount importance. The production of quality planting material can only be achieved through a regulated network of nurseries set up for production of certified planting material. This document will help in the process of establishment of accredited model Cashew/Cocoa Nurseries planned to be spread over the country. The nurseries will be under the monitoring of Directorate of Cashew and Cocoa development, National Accreditation Authority approved by the Ministry of Agriculture & Farmers Welfare, Government of India. The nurseries will have to undergo an accreditation process involving application to the Authority for approval based on certain essential and desirable criteria and granting of Accreditation for a year based on inspection by the Directorate.

2. Scope:

It gives guideline for establishing a model cashew/ Cocoa nursery under centrally sponsored scheme Mission for Integrated Development of Horticulture. It gives an overview of the essential as well as desirable infrastructure and the management regime to be adopted for large scale production of planting material through hybrid seeds in the case of cocoa and soft wood grafts for cashew.

3. Criteria for selection of Nursery site

The model cashew/ Cocoa nursery site should have the following features.

- Nursery site should be easily accessible.
- Soil should be well drained preferably sandy loam.
- Availability of adequate labor force from the vicinity of the nursery
- Availability of good quality water

- Availability of good quality top soil preferably of alluvial type.

- Protection from cattles and wild animals.

4. Nursery Layout and design:

It is desirable to have the whole nursery site divided into smaller sections so as to facilitate planning and implementation of various nursery activities in pre-designated areas which will impart a modular design for the model nursery. The nursery (big) shall be of 4.0 ha. with a capacity to produce 2.0 lakh grafts per year @ 50,000 grafts/ha, and the small nursery shall be of 2.0 ha with a capacity of 1.00 lakh grafts annually.

Section-I

Infrastructural facilities like the Malihouse, implements/fertilizer/shed, mist chamber/poly tunnel/Poly house, shade net,compost/ potting mixture shed, etc will be accommodated in this section. All future infrastructural developments/additions should only be planned and implemented in this section. .

1.Essential Infrastructural facilities

- Mali house.
- Barbed wire fencing
- Raised beds/hardening area
- Shade net.
- Poly tunnel
- Poly house (on need basis).
- Drip/Sprinkler irrigation system
- Overhead water storage tanks
- Potting mixture shed.
- Composting unit.
- Seed storage facility
- Fertigation unit for scion bank.
- Tools of nurseries.
- Proper road in the nursery

a. Mali shed: Each nursery should have a malishedfor accommodating a skilled man to supervise the workers in raising of root stock, hybrid seedlings and grafting work.

b. Composting unit: Setting up a composting unit attached to the nursery is recommended as it will be beneficial in the long run. The unit will consist of a roofed shed with partially open side walls for encouraging good air- circulation, a shredder machine to chop the weed material, and sieves to clean the composted material to make the final product. A portion of the composting shed can also be earmarked for developing a vermin- composting unit as vermin compost also has many growth promoting nutrients.

c. Media Sterilization: Facilities for solar sterilization/fumigation of the potting media will be advantageous to bring down the nursery expenditure and hence will be essential.

d. Potting mixture shed: To carry out the filling of polythene bags preparing the containers, mixing the potting mix and filling the bags a spacious shed will be required in the model nursery. The potting shed should be near the transplant bed with shade net so that potted planting stock can be transferred soon after potting to these transplant beds.

e. Mist chambers that are used for vegetative propagation are found useful for propagation of some bamboo species. Standard mist chambers with automated misting equipments and temperature control mechanism are desirable but low cost poly-tunnels will be an alternative. Poly-tunnels are fabricated structures which can be set above the raised beds with the dome covered with UV resistant polythene sheets and sprinklers/misting units fitted inside to maintain desired humidity to encourage sprouting of buds.

f. Shade net:A portion of the nursery should have shade nets made of Plastic nets that can cut the light intensity by 50%. These shade nets are to be stretched and spread over GI pipe fabricated structures. Mechanized shade regulation units with roller facility to roll up the shade net when not required can be easily installed in model nursery. The minimum size of shade net for a small nursery will be 600 sq.m and for big nursery should be 1000 sq.m.

g. Irrigation Systems: In order to reduce the labour costs and to avoid wastage of water and to ensure higher survival with faster establishment and growth of means modern mechanized irrigation systems with sprinkler and misting units are essential components to be installed .

h. Overhead Water Storage tanks: Pumping water from a dug well or flowing river to an over head water tank will ensure continuous water availability in the nursery. Such an un-interrupted supply of water will enable the operation of sprinkler/drip/mist irrigation system in a most effective manner. To save space over head water tanks can be constructed.

2. Section-II(Establishment of Cashew Scion Bank/ Polyclonal Cocoa Garden)

In **Cashew**, softwood grafts are the ideal planting material recommended for its propagation. Hence for generation of quality planting material the model cashew nursery should possess a scion bank of recommended varieties of the region for production of grafts. If the scion bank not existing near the nursery unit new scion bank should be established adjacent to the nursery unit. The recommended mother plants collected from reliable sources should be planted in a closer spacing of 4m x 4m , in order to get continuous supply of scions. It should be maintained well by application of recommended qualities of NPK, protecting the tender shoots by tingly spray of insecticides. The flower panicle should be cut off in order to get more number of scions. The plants in the scion bank should be maintained by heading back the top to a height of 1.5 m from the ground level and by pruning the dried branches. Pruning of trees may be carried out annually during September-October in the scion bank. Select non flowered, 3-5 month old lateral shoots of current season growth as scions for grafting. The selected shoots should be 10-12 cm long straight, uniformly round with pencil thickness, brown colored having dormant plumy terminal buds. The selected scions should be procured by clipping of leaf blades, leaving the petiole. The scions can be detached from the mother tree after to 8 – 10 days, before they scrount and utilized for grafting. Soon after separation from the mother tree scion should be dipped in water and placed in apolygene bag of 100 gauge thickness and brought to the nursery shed for grafting.

The **Cocoa** model nursery should have a mother seed garden to provide seeds of known performance for the nursery. This is achieved planting selected parents which are self incompatible but cross compatible for production of recommended hybrid planting materials for cocoa. Such seed garden with two parented plants are called biclonal orchards and with multiple clones as polyclonal gardens. If seed garden is not available the seeds for the nursery should be collected from reliable sources.

3. Section-III (Raising of roots stock seedlings)

The first step for production of cashew grafts is raising sufficient number of root stocks. The fresh seed nut should be collected during the peak period of harvest and dried in sun for 2-3 days. The medium sized nuts of 6-7 gm weight should be selected in order to get uniform and vigorously growing seedlings required for softwood grafting. Use high density polythene bags of 25 cm X 15 cm and 300 gauge thickness for filling the potting mixture. The seed nuts should be soaked in water for 12 to 24 hours before sowing to get good germination. Daily watering is required during summer season. 45 to 60 days of seedlings should be selected as root stock for grafting.

Quality standards-Cashew Grafts

Characters	Standards
Age of the graft	6 months
Number of leaves	5-7 functional leaves
Height of the graft	30-45 cm
Height of the graft Joint	15 -20 cm from collar region.
Growth	Healthy and vertical growing
Graft joint	Perfect without any girdling or constriction.
Nature of Polythene bag carrying the graft	Intact and not torn
Side sprout	Free from side sprout from the root stock

Quality standards - Cocoa hybrid seedlings

Characters	Standards
Age of the seedling	5-6 months
Number of leaves	5-6 pairs
Height of the graft	45-50 cm
Growth	Vigorous seedlings growing straight at the middle of the poly-bag.
Jorquetting	No jorquetting

5. Nursery records to be maintained in model nurseries.

Stock Register: The Register should record all details pertaining to the production and sales of planting stock raised in the nursery so as to assist in the nursery evaluation in meeting its annual target

iii. **Mali's and Workers** attendance registers

6. PROCEDURE FOR SANCTION OF PROJECT PROPOSAL AND RELEASE OF FUND

Registered/approved private and specified cashew nursery owners who own suitable land for raising cashew nursery can apply for availing assistance under this scheme. Modernization and expansion of existing cashew nursery by creating additional infrastructure facilities also can be considered for extending financial assistance under the scheme. Application for availing assistance of the scheme shall be submitted in the prescribed form through the Nationalized Bank with following documents.

1. The project proposal along with sketch of area marked for the nursery
2. Copy of possession certificate of land
3. Approval of the project and loan sanction letter from the bank

Each such application shall be accompanied by layout of Nursery showing location of infrastructure components and land utilization plan, details of technically qualified staff in the nursery, major farm machineries and operational manual prepared by nursery for selection and maintenance of mother plants, process followed for production of planting material and management of inventory of planting material. Nursery should be self-sustaining with the initial grant and need to be continued for a minimum period of 10 years and an MOU need to be signed with DCCD. The maximum financial assistance shall be limited to Rs.20.00 lakhs @ 40% of the total project cost for big Model nursery and Rs.7.50 lakhs @ 50% of the total project cost for small nursery. On receipt of the application, officers of DCCD/SAU/CRS shall inspect the site and on the basis of report, DCCD shall issue administrative approval for establishment of nurseries including modernization/expansion. Eligible subsidy will be released to the loan account of the beneficiary as

back ended capital subsidy in one installment based on completion of the project and report of the Joint Inspection Team. The subsidy released to the loan account of the beneficiary will be withdrawn, if the project is not being implemented as per guidelines or schedule of implementation. The project should have distinct identity with clear sign board.

APPLICATION FOR FINANCIAL ASSISTANCE MODEL BIG/SMALL NURSERIES

1. Name of the applicant (in block letters) :
2. Address of the applicant (in block letters) :
3. Location (exact route of approach to the nursery) :
4. Whether belongs to SC/ST :
5. State whether the applicant is a private entrepreneur/
Public institute :
6. If the unit is financed by a nationalized Bank,
give details
 - a) Total loan sanctioned :
7. Details of cashew nursery
 - a) Area (ha.) :
 - b) Number of grafts proposes to produce per year :
 - i) Name of the varieties :
 - ii) Source of procurement of scion :
 - d) Whether the nursery is approved by any
Government organization
If yes, give the approval number :
 - f) Proposed price of graft :
8. Details of expenditure propose to incur by the applicant Expenditure incurred

Rs. Ps.

- a) Cost of land :
- b) Fencing :
- c) Irrigation :
- d) Green house :
- e) Shade nets :
- f) Drip / sprinkler- irrigation system :
- g) Over-head tank :
- h) Service road :
- i) Nucleus Mother block :
- j) Equipments like power tiller and manure mixing machines :

Declaration of applicant

I/We.....S/o/W/o/D/o/M/s.....address.....

.....hereby declare that the information furnished above is true and correct and I/We shall abide by the terms and conditions prescribed by the Directorate of Cashewnut and Cocoa Development for availing myself/ourselves of the financial assistance for establishing cashew nursery. I/We propose to incur Rs.....(Rupees..... only as expenditure for the production of..... numbers of quality cashew seedlings per year from the cashew nursery covering an area of ha.

Place:

Date:

Signature of the applicant

Certificate

(Certificate of Agriculture/Horticulture Officer
of State Govt./officers of the Directorate)

I Shri./Smt.....have inspected the site for the cashew nursery of the above applicant, and to the best of my knowledge and belief, the applicant propose to establish cashew nursery in a suitable site, covering an area ofha, with a production capacity ofgrafts per year. The applicant has followed all the criteria prescribed for the production of quality grafts.

(Office seal)

Place:

Signature

Date:

Name & Designation
of the Officer