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Softwood Grafting Technique in Cashew

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SOFTWOOD GRAFTING TECHNIQUE IN CASHEW

Cashew was introduced in Goa by Portuguese during 16th Century, mainly to Control the Soil erosion and to increase the forest cover. Today this crop is one of the major cash crop of Goa covering an area of 51,000 ha. The climate and soil of Goa is idealy suited for cashew cultivation. However, the average yield of cashew per tree is as low as 2.0 kg per annum, as against 15-20 kg nuts per tree obtained from grafts of high yielding varieties of cahsew. One of the major reasons for low yields of cashew in Goa is that most of the plantations were raised from seedlings which usually are genetically heterogenous and hence variable in quantity and quality of produce. Plantations raised, with grafts give more and uniform yield, come to fruiting earlier and are true to type. Therefore it becomes imperative to use the grafts of cashew for planting instead of seedlings.

Until recently cashew was propogated by seeds. Among various methods of vegetative propogation tried in cashew, the "Softwood grafting" is found to be the best method, giving maximum success. This is easy and simple method and can be practiced throughout the year raised with 60-90 percent success. It gives 80-90 percent success during monsoon period under Goan conditions. The various steps involved in "Softwood grafting" are described below:

MATERIALS REQUIRED

a) Cashew seedling (root stock)

b) Cashew scion

c) Polythene bag of size 25 x 15 cm and 300 gauge

d) Polythene strip of 30 cm length, 2 cm breadth

e) Scicator and knife

RAISING OF SEEDLINGS (root stock)

Collect the seednuts of any local variety and dry them in sun for 2-3 days. Immerse these seed nuts in 10% saline solution (1 kg common salt in 10 litre. of water). Select the nuts from the bottom and reject the floating ones. Wash the selected nuts in sweet water. Soak the nuts in water for overnight before sowing in order to get good and faster germination. Take polythene bag of size 25 x 15 cm and 300 gauge and punch 15-20 holes on it, for good drainage. Fill the .g with 2:1:1 proportion of soil, sand and cowdung and add two g each of Mussoriephos and Endosulfan dust 5%. Mussoriephos helps in strengthening the root system of the seedling, thereby making the seedling vigerous. Endosulfan takes care of the insect pest present in the soil. Fill the polythene bag with the soil mixture upto the brim and sow the seednuts in the soil with stalk end up 2 to 2.5 cm deep. Water the bags everyday during morning hours. Seed nuts will germinate 15-20 days after sowing. Forty to sixty days old seedlings are used for softwood grafting.

SELECTION OF SCION

Following points should be remembered while selecting the scions for grafting:

a) Scions should be taken from the high yielding varieties eg. V-1, V-4, V-6, V-7 or local selections.

b) Select mature scions (one season, 3-4 months old).

c) Take 10-15 cm long scions preferably straight, uniform round having and prominant terminal or side bud.

d) Select only healthy scions, free from pest and diseases.

e) Selected scions should be precured by clipping of the leaf bladers, leaving behind petiole stubs, seven days before grafting.

COLLECTION OF SCION STICKS.

Following precautions need to be taken while collecting the scion sticks:

a) The scions should be collected before the terminal bud sprouts.

b) Scions are detached from the tree preferably during early morning hours to avoid desiccation.

c) Care should be taken to prevent mixing up of scions of different varieties.

d) Scions should be wrapped in moist cloth or newspaper and put in polythene cover as soon as they are detached from mother tree and preferably be used for grafting on the same day. They can be kept for 3-4 days and used if necessary.

SELECTION OF SEEDLING (root stock)

All the raised seedling will not be suitable for grafting Following points are to be considered while selecting th seedling for grafting:

a) Select the seedlings which are healthy and vigerou having single main stem. Avoid seedlings having sid branches.

b) Select the seedlings which are growing in the centre c the polythene bag.

c) Select 40-60 days old seedlings for grafting.

PREPARATION OF ROOT STOCK

Remove the leaves of the selected seedling using shar knife, retaining one or two pairs of bottom leaves. Give a transverse cut on the top soft portion of the seedling. Mak a cleft of 3-4 cm deep in the middle of the decapitated sten of the seedling by giving a longitudinal cut. A little wood i removed from the inner side of the cleft at the top.

PREPARATION OF SCION

Mend the cut end of the scion into wedge shape of 3-4 cm in length by chopping off the bark and little wood from the two opposite sides, taking care to retain some bark on remaining two sides.

GRAFTING PROCEDURE

Insert the wedge of the scion into the cleft of the seedling taking care that cambium layers of stock and scion come in perfect contact with each other. Secure the joint firmly with polythene strip (30 cm long, 2 cm broad, 150 gauge). Cover the scion with polythene cap (15 cm x 10 cm, 100 gauge) and tie it at the bottom to maintain humidity and to protect the apical bud from drying. The cap should not touch the terminal bud.

AFTER CARE OF THE GRAFTS

a) Keep the grafted plants in shed and water them regularly. For watering the grafted plants, use water can or hose pipe fixed with fine rose.

b) The grafts will sprout in 15-20 days time. Remove the polythene cap at this stage.

c) Shift the graft to open place as soon as the leaves on scion turns green.

d) Remove the sprouts emerging below the grafted joint, at frequent intervals.

e) Remove the polythene strip from the grafted joint 2-3 months after grafting to avoid girdling.

f) Shift the graft once in a month, to avoid root striking or arrange them on polythene sheet (1000 gauge).

g) Remove excess water during heavy rains by pressing the sides of the bags.

h) Most of the grafts produce flower panicles during normal flowering season irrespective of age. Such panicles should be removed as and when observed.

In addition to cashew, mango and sapota can also be propogated by soft wood grafting technique.

Krishi Vigyan Kendra of ICAR Research Complex, Ela, Old Goa, conducts regular courses of three days duratiion on cashew and mango grafting. Interested persons may write to: The Director/Training organiser (KVK), ICAR Research Complex, Ela, Old, Goa-403 402, to enroll their names.

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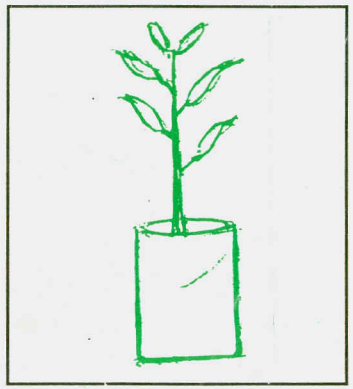
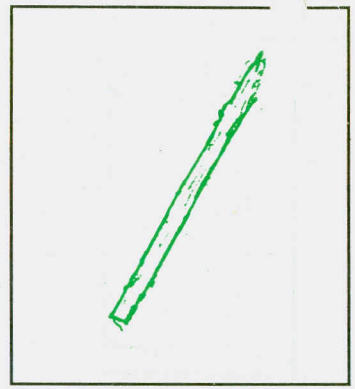
Fig. 1



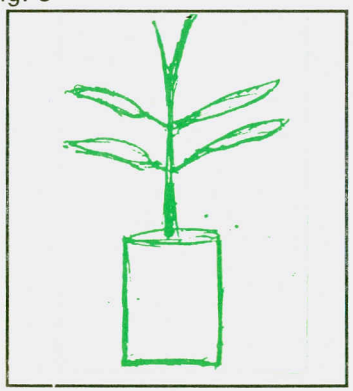
Cashew seedling (root stock)

Fig. 2



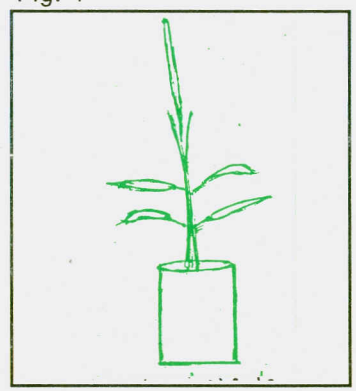
Cashew scion

Fig. 3



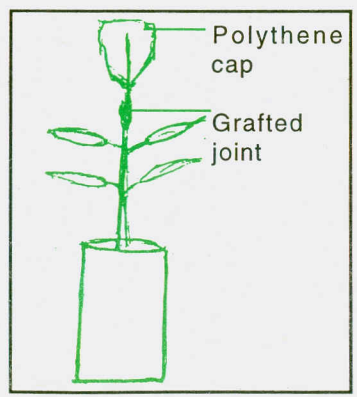
A cleft of 3-4 cm made in the centre

Fig. 4



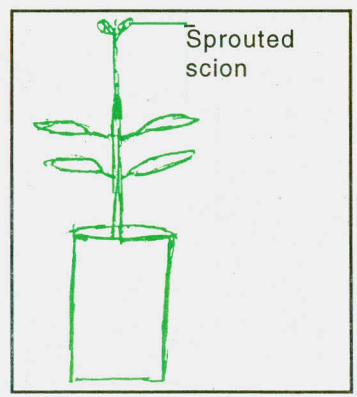
Scion is inserted in the cleft

Fig. 5



Graft covered with polythene cap

Fig. 6



Scion sprouted after 15-20 days