

REJUVENATION TECHNIQUES IN CASHEW



DIRECTORATE OF CASHEW RESEARCH

(Indian Council of Agricultural Research)

P. O. DARBE, PUTTUR - 574 202

Dakshina Kannada, Karnataka



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The old cashew plantations available in the country are mostly of non-descript seedling origin and have gone senile due to poor plantation management. There is urgent need to rejuvenate such plantations to achieve the targeted nut production in the country. The individual trees can be pruned or headed back to its primary branch frame work to a reachable height and new canopy can be developed to rejuvenate such senile trees. With regular nutritional and plantation management such old plantations can be rejuvenated with enhanced yield performance, provided such old trees have originated from elite planting material. If the old trees have gone senile due to their origin from poor performing trees, then such trees can be rejuvenated by heading back and then top grafting with elite scion shoots on the new sprouts arising from the remaining portion of the trunks which is called as "top working".

Purpose of rejuvenation :

- To enhance the yield performance of poor senile yielding trees.
- To change the variety of existing plantations.
- To include several cashew varieties in a single tree.
- To conserve large number of genetic stock in smaller piece of land.
- To redevelop the exhausted canopy.
- To improve the aesthetic performance.

Conditions for rejuvenation :

1. Tree should be healthy and free from cashew stem and root borer (CSRB) infestation.
2. Trees should not be very old and unrecoverable.
3. In plantations only senile and very low yielders need to be rejuvenated.
4. Pruned tree should have sufficient exposure to sun light.
5. Area should be free from bushes and trees competing for nutrition and space.

Rejuvenation by pruning :

Old and very low yielding trees of elite varieties are selected and their major branches are detopped at 1.00 to 1.50 m height from the ground. Care should be taken to prevent the breaking of or splitting of bark on remaining portion of the stump. The stump should be sprayed with Chlorpyrifos 0.2% to prevent the egg laying by CSRB. The operations can be taken up during April – May months in west coast region.

Heading back of the canopy needs to be done by cutting the major branches up to its frame work of primary branches. While pruning, the bark or stem portion should not be allowed to split or break away. The cut wounds should be treated with 10% Bordeaux paste or Blitox to prevent invasion of fungal pathogens. Pruned and brush wood need to be cleared within 1 or 2 days of pruning and the basin of the trunk be cleared and monitored to prevent the possible entry and damage by CSRB.

If the senile trees have originated from elite material, they may be allowed to redevelop the canopy from the new sprouts arising from the remaining portion of the trunk. The fresh canopy can start bearing flowers and fruits in the subsequent flowering season provided pruning is attended immediately after completion of the crop harvest. In a trial, average yield of such old trees prior to rejuvenation was approximately 3.0 kg per tree irrespective of varieties. The crop yield in the subsequent harvests was highly encouraging in the rejuvenated trees as given below-

Table-1. Yield performance of rejuvenated trees by heading back or limb pruning

Varieties	Yield (kg./tree)		
	2003-04	2004-05	2005-06
VRI-1	1.62	3.19	8.01
Ullal-1	2.95	4.42	8.84
VTH 30/4	1.18	4.61	9.30
NRCC Sel-1	0.44	1.23	8.10





The rejuvenated trees, however, require regular nutritional care, pest management and regular maintenance pruning. Enough care should be taken to prevent the damage by CSRB as the pruned trees are more vulnerable for the pest attack.

Rejuvenation by topworking :

The senile trees which are originated from low yielding progeny cannot be rejuvenated by heading back alone or by just pruning. Such trees require replacement of canopy with a new variety. The heading back of the senile trees should be taken up during April-May in west coast region. By heading back, the major limbs at 1-1.5m height and top grafting the sprouts on the remaining portion of the trunk can be done in 2-3 months. About 15-20 sprouts on different branches at different directions may be grafted with the scion sticks of required variety. Selected sprouts are grafted by employing the softwood grafting technique and remaining sprouts originating from same location on the trunk need to be removed. Subsequently, remaining sprouts on the trunk must be removed in a staggered manner. Finally about 10-15 successful grafts need to be retained on different branches. The successful grafts grow in a short period of time since well established root system is available. Initially the grafts need to be supported by staking. The flowering and fruiting will start from very second year onwards. The yield performance of a topworking trial at Shanthigodu Experimental Station of this Directorate and its expenditure is given in the following table.

Table-2. Expenditure and yield performance of top worked trees (94 Nos.)

Year	Expenditure on topworking and management (Rs)	Nut yield (kg/plot)
1996-97	3098	0
1997-98	2688	37.8
1998-99	2756	184.2
Total	8542	222.0



Pest management in rejuvenated trees :

Management of Cashew Stem and Root Borer (CSRB)



Cashew stem and root borer (CSRB) is the main pest attacking the rejuvenated cashew trees. Due to extensive feeding by irregular tunneling in the bark by the grub, the translocation of the nutrients is hampered leading to drying of leaves and twigs. In the infested portion, the gum and frass (chewed fibers and excreta) start oozing out from the tree; which is the initial symptom of pest attack for taking up curative measures. The infested portion having frass below the bark on either the main stem or the root

portion should be carefully chiseled causing minimum damage to the bark and tunnels should be tracked towards the fresh frass to locate the grubs, which should then be removed and killed, the chiseled portion of the bark should be swabbed or sprayed with 0.2% chlorpyrifos solution (10 ml of insecticide / one litre of water). Trees having more than 50% of the bark circumference damaged or with yellowing of the canopy do not recover, however the pest stages in such trees will act as inoculum for the next season. Hence, phytosanitation should be adopted by uprooting such trees which are beyond recovery and they should be disposed off immediately. In the process of removal and treatment of CSRB damaged trees minimum damage to the tree is appreciable. As a preventive measure, the pruned trees are to be sprayed with 0.2% chlorpyrifos twice or thrice in the initial 24 months of pruning.

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 lesions. These lesions on shoots and panicles coalesce causing shoot blight or blossom blight. The insecticides recommended for spraying are λ - cyhalothrin (0.003% or 6 ml/10 litre of water) or carbaryl (0.1 % or 2 g/litre of water).

Other foliage pests :

During early monsoon, the tender shoots are sometimes infested by red coloured beetles, which skeletonize the leaves. In severe case of damage, spraying of above mentioned pesticide can be adopted.



For More Details :

Published by : **Prof. P. L. Saroj**

Director

Directorate of Cashew Research, Puttur
Dakshina Kannada, Karnataka - 574 202, India

EPABX : 08251-230902, 236490

Fax : 08251-234350

E-mail : dircajures@rediffmail.com

dircajures@yahoo.com

dircajures@gmail.com

Compiled and Edited by :

Dr. M. G. Nayak

Dr. P. S. Bhat

Dr. T. N. Raviprasad



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