

AGRICULTURAL ENGINEERING

LAC CULTIVATION (RANGEENI) IN PALAS AND BER

Lac is an important source of income especially for the tribal population of lac growing areas. *Palas* and *ber* trees are abundantly available in the plateaus of Jharkhand State on which farmers produce lac. In order to have sustainable lac production from those trees, the Indian Lac Research Institute (ILRI), Ranchi, has developed improved techniques for combined lac production from *palas* and *ber*.

PARTITIONING OF HOST TREES

By giving proper rest to host trees, it is possible to have less attack of enemy insect leading to increased lac production. Therefore, the trees should be divided in groups and lac cultivation done alternatively by giving proper rest to trees. The available *palas* trees should be divided in two groups and a third group is made of the *ber* trees. Six months before inoculation, all *ber* trees and one group of *palas* trees should be pruned in April. During October-November, the two groups of tree are inoculated. In April, next year *ari* lac crop from *ber* trees is harvested and the second group of *palas* trees are pruned. The lac crop on first group of *palas* trees is left for self inoculation in June-July and in October-November complete crop should be harvested.

The lac thus obtained is used for inoculation of other group of *palas* trees and the group of *ber* trees. If some lac encrustation are left on *palas* trees after harvesting, these should be left as such and be harvested while pruning in April. Thus on two groups of *palas* trees, *Baisakhi* and *Katki* and on *ber* trees *Baisakhi* crop can be taken regularly.

Those of the farmers having only *palas* trees, the above technique can be adopted by dividing *palas* trees in three groups.

PRUNING OF TREES

For survival of lac insects on host trees, presence of abundant number of new and succulent shoots is essential. The *palas* trees on which lac crop is taken should be pruned in April and all trees of *ber* should be pruned in April-May. *Ber* tree needs pruning initially only once. Later on *ari* harvesting can also serve the purpose of pruning.

PRUNING CONSIDERATIONS

- Undertake only mild pruning.
- Branches which are more than 2.5 cm (1 inch) in diameter should not be pruned.
- Branches between 1.25 to 2.5 cm (0.5 to 1 inch) diameters should be pruned beyond 0.5 m from its point of emergence. However, the branches of less than 1.25 cm (0.5 inch) diameter should be pruned right at its point of emergence.
- Branches which are dry, broken or split, disease infected should be fully pruned.
- Undertake pruning with a sharp knife, and tree pruner by giving a slant cut, so that during rainy season rain water does not stagnate.

INFESTATION OF HOST TREES

During October-November, pruned trees should be inoculated with healthy broodlac. Following aspects should be considered during inoculation:

- One meter length of broodlac is sufficient to inoculate 25 m length of new shoot. On an average, for a medium sized *palas* and *ber* trees, 0.25-0.50 kg and 1-2 kg of broodlac respectively will be required. However, this quantity of broodlac can be varied depending tree size.
- Inoculate mature and healthy broodlac free from enemy insect. For this, branches 15-20 cm (6-8 inch) in length (weighing about 50-100 g) are filled in a bag (made of nylon net of 60 mesh size) and these bags should be tied on the branches of the tree.
- In case nylon net bags are not available, treat the broodlac by dipping in 0.05 % solution of Endosulfan (Thiodan) for 8 to 10 minutes and allowed to dry. The dried broodlac (100g bundle) is then tied with nylon strings on the tree branches in a way that it remains in contact with the branch. This will enable insects to crawl on branches of the tree from the broodlac.



broodlac

CONTROL MEASURES OF ENEMY INSECT

For sustainable production of broodlac, control of enemy insect is essential. The rainy season crop (*Katki*) is more prone to attack. About six weeks after self inoculation, spray 0.05 solution of Thiodan (Endosulfan) in June-July. If need be, second spray may be carried out after one month of first



Different quality lac

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spray. In order to prepare Endosulfan solution, add 20 ml of Endosulfan solution in 14 liter of water and thoroughly mix it. This solution can be used either for broodlac treatment or for spray on the trees.

REMOVAL OF USED BROODLAC (PHUNKI)

Remove *Phunki* from the tree after three weeks of inoculation; otherwise emergence of enemy insect takes place which may spread in the new crop. The lac encrustation on *phunki* must be removed by scraping with pruning knife or scraping machine and can be appropriately marketed.

CROP HARVESTING

Ari lac from *ber* should be harvested by scraping in April-May for marketing. The harvesting of *palas* crop should be undertaken in October-November when yellow spots appear on lac encrustation and lac insect start emerging out of the cell. Usually yellow spots appear ten days before emergence of lac insect.