



Participant Handbook

Sector
Rubber

Sub-Sector
Natural Rubber (NR) Plantation

Occupation
Production- NR

Reference ID: **RSC/Q6103, Version 1.0**
NSQF Level 4



**Latex Harvest
Technician (Tapper)**

Table of Content

S. No.	Modules and Units	Page No.
1.	Orientation and Introduction (Bridge Module)	1
	Unit 1.1 – Introduction to Rubber and Rubber Sector	3
	Unit 1.2 – Roles and Responsibilities of a Latex Harvesting Technician	11
2.	Latex Harvesting and Processing (RSC/ N6103)	13
	Unit 2.1 – Tool and Equipment for Latex Harvesting	15
	Unit 2.2 – Harvesting and Collection of Latex	18
3.	Preservation and Protection (RSC/ N6103)	31
	Unit 3.1 – Preservation and Protection	33
4.	Natural Resource Management (RSC/N 5005)	47
	Unit 4.1 – Soil Erosion and Prevention	49
	Unit 4.2 – Terrace Preparation and Drainage	55
	Unit 4.3 – Preventing Water Source from Pollution, Proper Irrigation and Rain Water Harvesting	58
	Unit 4.4 – Mulching and Correct Use of Fertilizers	62
	Unit 4.5 – Input Management	64
	Unit 4.6 – Waste Management and Healthcare	71
5.	Feedback to Authorities (RSC/N 5006)	77
	Unit 5.1 – Providing Feedback on Innovation, Troubleshooting, Indigenous Knowledge, Socio-economic Problems and Conflicts to Authorities	79
6.	Health and Safety	83
	Unit 6.1 – First Aid and CPR	85
7.	Soft Skills And Communication Skills	97
	Unit 7.1 – Introduction to the Soft Skills	99
	Unit 7.2 – Effective Communication	102
	Unit 7.3 – Grooming and Hygiene	106
	Unit 7.4 – Interpersonal Skill Development	116
	Unit 7.5 – Social Interaction	127
	Unit 7.6 – Group Interaction	132
	Unit 7.7 – Time Management	136
	Unit 7.8 – Resume Preparation	140
	Unit 7.9 – Interview Preparation	145



2. Latex Harvesting and Processing



Unit 2.1 - Tool and Equipment for Latex Harvesting

Unit 2.2 - Harvesting and Collection of Latex



2.2.2 Tapping

Tapping aims at cutting open the latex vessels in the case of trees tapped for the first time or to eliminate the coagulum which obstructs the cut end of the latex vessels in the case of trees under regular tapping.

2.2.2.1 Standard of Tappability and Height of Opening

The required breadth for budded plants to be tapable is 50 cm at the required height is 125 cm from the bud union. Virgin panels and renewed panels are opened at the same height i.e., 125 cm. Tapping should begin when 70% of the trees in the selected area attain the standard girth so that it is economically viable. It is mostly seen in the traditional rubber growing region that it takes an average of seven years to reach this state whereas it is nine or ten years in non-traditional regions. Planting advanced materials like polybag plants, selecting and planting vigorous material help to reduce the immaturity period.

In India, the most suitable time to open new areas for tapping is March-April. The trees left untapped during this season in order to have sufficient girth may be opened in September. In the immature phase annual growth rate is around 7cm, whereas it will be 2cm or less under tapping. Hence, trees of lower girth than recommended should not be opened for tapping.

2.2.2.2 Marking, Slope and Direction of Tapping Cut

The budded trees should have a tapping cut of about 30° to horizontal. For seedling trees, the cut is required to have a slope of approximately about 25°, as the bark is fairly thick. It is undesirable to have a very steep cut as it leads to wastage of bark as when tapping it reaches the base of the tree and too flat a cut leads to overflow to latex. The slope must be indicated, maybe annually, by employing a suitable template. The latex vessels in the bark run at an angle of 3- 5° to the right and hence an incision from high left to low right will open more latex vessels. To avoid spillage, and inward slope towards wood has to be maintained on the tapping cut. In general, tapping on the basal panel in on half circumference (S/2) of the tree. It is desirable to divide the circumference into two equal halves in the first year of marking itself to ensure exactly half circumference tapping throughout the harvesting period.

2.2.2.3 Tapping Depth, Bark Consumption and Bark Renewal

The finest yield is sought by tapping to a depth of less than one millimeter close to the cambium as more latex vessels are concentrated near the cambium. Shallow tapping leads to considerable loss of crop. To obtain optimum yield, care must be taken not to injure the cambium at the time of tapping. Nevertheless, small tapping wounds which will be set right in due course is not needed to be considered serious, in the case of medium and low yielding clones.

To resume flow from a tapping cut on a subsequent tapping, all that is needed is to cut and then take away a lean shaving of the bark (thickness of shaving should vary based on the tapping frequency adopted) along with which the plugs of coagulated latex are also removed. Latex flow ceases when latex gets coagulated, clogging the cut ends of the vessels with minute plugs of coagulated latex. While fixing spout, care should be taken to fix it at half way mark of annual bark consumption (for effective protection of the cup by rainguard during monsoon). Bark regeneration is brought about by the activity of the cambium. The rate and extent of renewal are dependent on the genetic characters of the plant, fertility of the soil, climatic.

2.2.5.1 Taking Care of Trees

Taking care of the trees involves a tapper jointly working with the planter/authorities to maintain the plantation. The trees must be:

- **Disbudded:** Disbudding means to remove buds that have developed. After the scion develops, it grows a stem; on this stem shoots emerge. Eliminate all those shoots up to a height of 3 metres from the ground. Then what stays will be a fine trunk with branches only above 3 metres that will form the crown of the tree (The crown is all the branches that grow from the trunk.)
- **Replaced where missing:** Trees that have not developed during the first year after planting should be replaced.
- **Pruned:** A tree may develop without forming a crown of branches at a height of 3 metres. In that case, the stem has to be cut at this height, so as to form a crown of branches. If the crown is too thick, or if one part has additional branches than another, it is needed to be pruned 3 or 4 years subsequent to planting.

2.2.5.2 Making Clearings

Additional trees have to be planted as some trees will die and some will be ill. When tapping commences (5 years after planting), there must be 500 trees to the hectare and each tree must be 50 centimetres in circumference at a height of 1 metre from the ground. So generally from the second year after planting, some trees have to be uprooted. Approximately 30 trees may be removed yearly during the second, third, fourth and fifth years. The following factors may be considered in deciding what trees are to be removed:

- **Disease:** Firstly remove all diseased trees
- **Growth:** Remove all those that have grown badly
- **Close Neighbours:** Removal of trees should leave a regular plantation.

2.2.5.3 Looking After the Soil

The rubber trees are placed and planted in rows; between the rows of trees are ground cover plants. So one must take care of the rows, and look after the ground between the rows to maintain potency of the soil.

- **Looking after the rows of trees:** They must be cultivated manually by hand with the hoe, as follows:
 - » In the following year after planting, one cultivation every 3 weeks must be carried out
 - » In the second and third year, one cultivation per month
 - » In the fourth year, one cultivation per 6 weeks
 - » In the fifth year, one cultivation per 2 months
 - » In the sixth year, one cultivation per 3 months
 - » the number of cultivations can be reduced if the dry season is very dry
 - » Weed killers can also be used, making an application every 3 or 4 months
- Looking after the ground between the rows. The ground cover plant must be cut 3 or 4 times yearly to a height of 30 or 40 centimetres. A single cutting must be done prior to the dry season; these cut stems and leaves are used to cover the rows. Elimination of weeds such as Imperata (a herbaceous plant with hard, long, straight leaves and very long roots) must be done. If the plantation is well cared for before tapping, it will have fine quality trees when the time for tapping comes.