

Advisory Circular No.2014/08

# Budwood Nursery Management



Rubber Research Institute  
of Sri Lanka

## **Budwood Multiplication Nurseries**

Budwood or budsticks required for removal of buds for bud grafting are obtained from nurseries specially maintained for this purpose. Buds from young green shoots, about 9-10 weeks of growth, are used in the production of young buddings.

### **Location**

A budwood nursery may be located either on flat or sloping land. Well drained good soil is ideal for a nursery. An open area away from adjoining mature fields is suitable. Budwood nursery should be located close to the stock nursery, preferably in the same premises.

### **Spacing of plants in the nursery**

The spacing of plants recommended at present is for harvesting buds for young budding. A convenient width for nursery beds will be to allow 4 rows of plants spaced 120 cm (4 feet) within and between rows apart and a 60 cm margin on either side with a 30 cm drain where necessary. On sloping lands, beds are prepared on the contour.

Spacing plants at 1 m (3 feet) x 2 m (6 feet) in the nursery also gives enough room for the growth of new shoots after pruning. With this spacing one hectare accommodates about 5,000 plants, depending on the terrain and plant spacing.

### Establishment of budwood nurseries

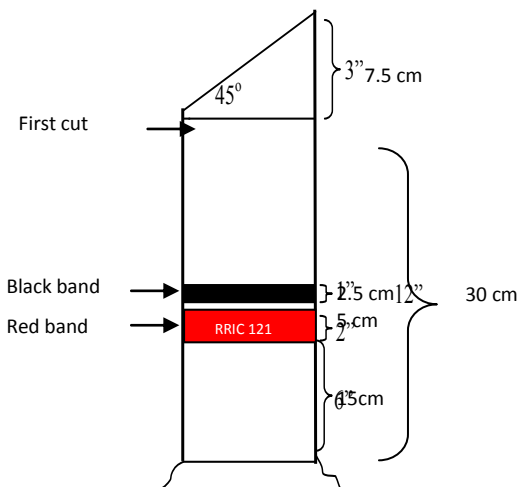
A budwood multiplication nursery should be established preferably with plants obtained from the Rubber Research Institute of Sri Lanka. Alternatively, bud wood can be obtained from RRISL and produce own plants. The size of a planting hole is 60 cm x 60 cm x 75 cm (2x2x2 ½ feet) and planting can be done with the onset of the monsoon rains in May/June or October/November.

### Care of budwood plants

The rules for care of plants in the field are equally applicable to plants in a budwood nursery too. Care should be taken to see that stock shoots are never developed on budded plants.

### Harvesting budwood

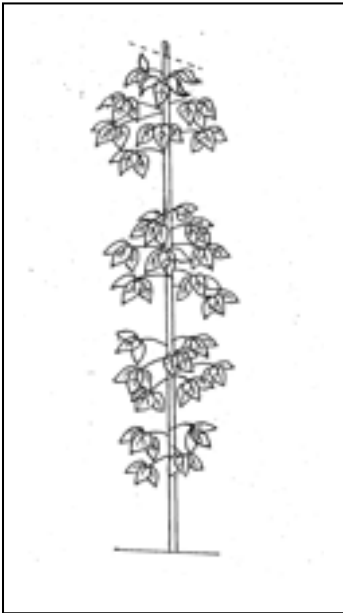
Prior to cutting of budwood, a colour band should be painted on every plant 15 cm above the graft union. No shoots should be allowed to appear below the colour band (Fig. 1).



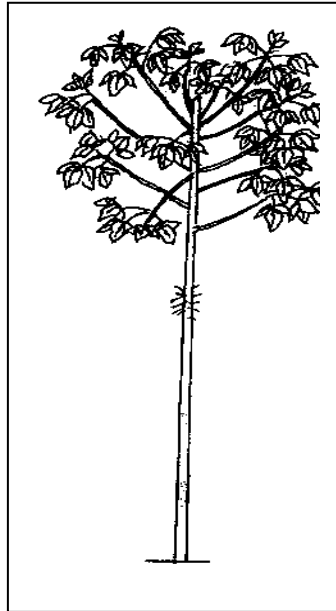
**Fig. 1.** Painting colour bands on budwood plant eg: RRIC 100 series Group 1 Clone RRIC 121 (Refer to the “Colour Code for Clone Identification”)

When the plants are about 8 months old they grow up to about 5-6 leaf whorl stage.

When these shoots are pruned just above a whorl of leaves (Fig. 2) lateral shoots will grow and these shoots are ready to be harvested as bud sticks for green budding in 9-10 weeks (Fig. 3).

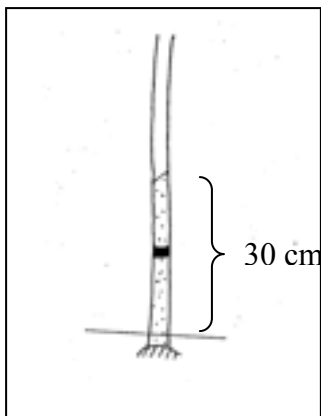


**Fig. 2.** Pruning just above a leaf whorl

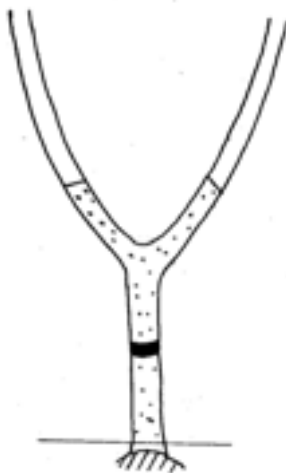


**Fig. 3.** Lateral shoots suitable to harvest buds

When these shoots are used to harvest buds, those on the main shoot can also be used.

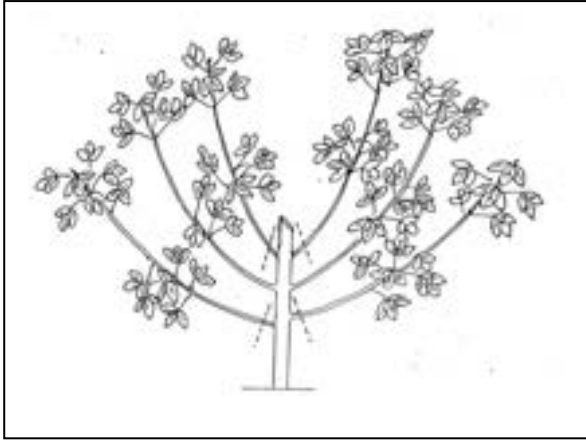


**Fig. 4.** Pruning the budwood plant for the first time



**Fig. 5.** Pruning for the second time

At the end of the bud grafting season, all the plants are cut back at 30 cm (Fig. 4) and two stems per plant are allowed to develop which may be subjected to pruning and harvesting in the following year (Fig. 5). The rest of the shoots can be used to take green buds to bud graft plants raised in second season (either August or January) (Fig. 6).



**Fig.6.** Harvesting budwood leaving two branches

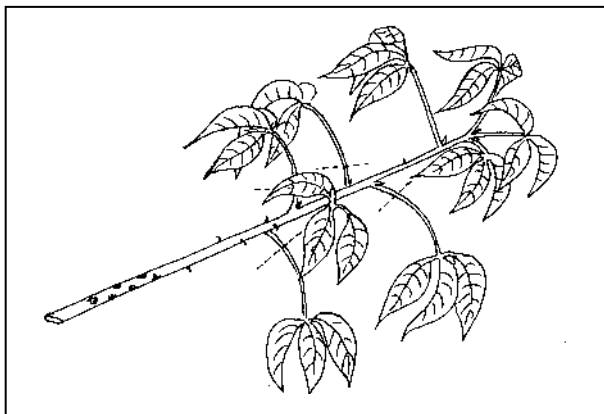
Depending on the budwood requirement, a nursery can be divided into several sections and each section can be pruned at weekly intervals, so that there is a regular supply of bud sticks after 9-10 weeks of growth.

Pruning the main shoot be practiced to form a frame having 6-8 shoots per plant.

After a period of 10 years the plants should be uprooted and the nurseries should be replanted.

### **Number of buds per stick**

Two or three scale buds may be present on a bud stick. If further buds are required from a bud stick, the buds in the axils of functional leaves can be obtained by pruning off the leaves (Fig. 7) at the base of petioles, 3-4 weeks prior to the date of harvesting. The bases of petioles dry up and fall off leaving leaf axillary buds which can be used in green budding (Fig. 8).



**Fig. 7.** Removing leaves leaving a part of the petioles

Bud sticks should be cut early in the morning, the leaves removed and if they are to be used on the same day, they can be kept in polythene bags in a cool place. If they are to be transported a long distance they have to be packed in moist saw dust.

### Application of fertilizer

Budwood nursery plants should be manured in the same manner as the plants in fields according to the following Table. From the 2<sup>nd</sup> year onwards, the recommended quantity for the year should be split into two and each portion should be applied soon after pollarding.

**Table 1.** Fertilizer recommendation for budwood nurseries

| Year                           | Frequency   | Quantity(g/tree)                                          |              |               |               |
|--------------------------------|-------------|-----------------------------------------------------------|--------------|---------------|---------------|
|                                |             | Urea based                                                |              | SA based      |               |
|                                |             | Group I & III                                             | Group II     | Group I & III | Group II      |
| 1 <sup>st</sup>                | 4 app./year | 275 R/U Mix.<br>+<br>75/50 <sup>a</sup> KIE               | 275 R/U Mix. | 450 R/SA Mix. | 375 R/SA Mix. |
| 2 <sup>nd</sup><br>on<br>wards | 2 app./year | 550 R/U Mix.<br>+<br>150/75 <sup>a</sup> DOL <sup>b</sup> | 550 R/U Mix. | 900 R/SA Mix. | 750 R/SA/Mix  |

a Higher Mg dose is for group III soils and lower dose is for Group I soils. Application of Mg is not required for Group II soils.

b Dolomite should not be mixed with urea based mixtures during application.

## **Precautions to be adopted in a budwood multiplication nursery**

- Clonal composition of the estate should first be known and clones to be added should be decided to improve the composition.
- Only the authentic material obtained from the Rubber Research Institute should be used in the establishment of a nursery.
- More than one clone should never be planted in a particular block.
- Each block, planted with a particular clone should be surrounded by two strands of galvanized wire or hardwood posts.
- A separate access should be provided for each clonal block.
- The correct nomenclature of the clone should be displayed including the year of planting and the number of plants using permanent lettering in each block.
- Over budding of existing clones with new clones should never be practiced.
- A plan of each nursery, with planting points of each clone correctly numbered, should be maintained.
- If possible, the cutting of budwood from various points should be recorded along with the date and number.
- Even if budwood is not used, manuring, weeding and annual pollarding should be practiced.
- The life span of a budwood nursery is 10 years and therefore 10% of the number of plants in the nursery should be replanted every year to maintain the nursery continuously.
- The number of plants in the nursery should be to cater to the annual replanting programme of the estate. Except for the first few year of establishing the nurseries, about 50 buds can be harvested per plant after the 4<sup>th</sup> year up to 10 years.
- In a commercial nursery, it is a must to have the required number of budwood plants, for the total number to be grafted.
- In such events nursery should be inspected by RRI officers prior to the first harvest of budwood.






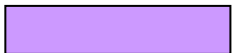





### Colour code for Clone identification

The colour band for the series should be 2” wide and placed 6” above grafted union.

As the colour represent only the series, the number of the clone should be written on the colour band.

Clones harvested at d3 frequency should be planted in separate blocks to avoid mixing with d2 clones.

| CLONE SERIES | COLOUR FOR THE SERIES                                                                         | CLONE NUMBER                                                                                |
|--------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| RRIC 100     | Red<br>      | 100*,102*, 121*<br>130*, 133                                                                |
| RRISL 200    | Yellow<br>   | 201, 203*, 205,<br>206, 208, 210, 211,<br>215, 217, 219, 220,<br>221, 222, 223, 225,<br>226 |
| RRISL 2000   | White<br>    | 2000, 2001, 2002,<br>2003, 2004, 2005,<br>2006                                              |
| PB           | Green<br>    | 217, 235, 255,<br>260*, 28/59                                                               |
| PR           | Blue<br>     | 255,305                                                                                     |
| GPS          | Purple<br> | 01, 02                                                                                      |
| BPM          | Orange<br> | 24                                                                                          |
| RRII         | Brown<br>  | 105                                                                                         |
| RRIM         | Pink<br>   | 712                                                                                         |

Note - Group 1 Clones are indicated with \*

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