



Frequently Asked Questions

In Rubber Agronomy



Compiled by Dr. Priyani Seneviratne

A Centennial Publication

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Dr.(Mrs.) P.Seneviratne



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Preface

“Frequently asked questions” is a unique booklet. The layout is specially designed to be reader friendly and it is the only question and answer type publication that RRISL has published so far in the field of rubber agronomy. Also it is published as an activity to celebrate 100 years of Rubber Research and Development in Sri Lanka.

Each question and the answer for it is written by an eminent scientist attached to the RRISL. Similar questions may have been answered by them many times during their career which made them to categorize them as “Frequently asked questions”.

The book will serve not only as a reference guide but also as a very good source of information about cultivation of rubber. Theoretical background for most of the RRISL recommendations are given which reflect the thorough knowledge and the experience of the contributors.

A deep debt of gratitude goes to each of the contributors whose names are listed in the end of the book. Tireless efforts of Mrs. G. A. S. Wijesekara, Mrs. D. E. Jayawardane and Mrs. A. de Almeida in the compilation of this booklet are acknowledged. The contribution and the guidance extended by the Director, Dr. A. Nugawela and the Deputy Director Dr. C. K. Jayasinghe are greatly appreciated.

Dr. (Mrs.) P. Seneviratne
Head, Plant Science Department.
Actg. Head, Genetics and Plant Science Department.
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1. What is the scientific name of the rubber plant?

Hevea brasiliensis (Willd ex A.Juss.) Muell Arg.

2. What is the correct classification of rubber?

Kingdom	-	Plantae
Phylum	-	Tracheophyta
Class	-	Angiospermae
Sub Class	-	Dicotyledon
Group	-	Arachichlamydea
Order	-	Geraniales
Family	-	Euphorbiaceae
Genus	-	<i>Hevea</i>
Species	-	<i>brasiliensis</i>

Source: Sinnott & Wilson (1955) Botany
Principles and Problems (325 – 473)

3. What are the other species in the genus *Hevea*?

In the genus *Hevea* there are 11 species, some of which are *H. nitida*, *H. guianensis*, *H. benthamiana*, *H. pauciflora*, *H. camporum*, *H. spruciana*, *H. rigidifolia* and *H. microphylla*.

4. What is the native country of rubber?

Brazil in South America.

5. When was the rubber plant introduced to Sri Lanka?

In 1876.

6. Where is the world first Rubber Research Institute situated?

In Sri Lanka.



7. Where is the Rubber Research Institute situated in Sri Lanka?

In Dartonfield Estate in Agalawatta of Kalutara District.

8. What is the favorable temperature for the growth of rubber tree?

Between $23^{\circ} - 28^{\circ} \text{C}$ and temperature should not fall below 20°C for a continues period of more than a few weeks.

9. What are the other climatic conditions needed for optimum growth of the rubber tree?

High relative humidity favors crop growth. The duration and intensity of sunshine also have a significant influence on the growth of rubber tree.

10. What are the soil types suitable for rubber plantations?

Many soils of different origin as well as morphological characteristics with desirable physical properties can support rubber plantations.

11. What are the desirable physical properties of soil for growth of rubber?

Soil depth up to 100 cm, well drained, aerated, good soil structure, good water holding capacity, soil texture with 35% clay and 30-50% sand.

12. What are the major rubber growing districts in Sri Lanka?

Kegalle, Kalutara, Ratnapura, Galle and Moneragala.

13. When did the research activities on natural rubber first started in Sri Lanka?

In 1909.

14. What is the required physiography for rubber plantations?

Within 10° of the equator and at altitudes of less than 500 m from mean sea level.



15. What is the ideal annual rainfall for rubber?

Within 1650 – 3000 mm, uniformly distributed.

16. Define the term “Clone”

Any organism whose genetic information is identical to that of the mother organism from which it was created.

17. What are the activities that take place during hand pollination?

Artificially inoculating the pollen collected from selected trees to female flowers of selected trees, label the pods and collect the seeds at maturity.

18. What are the advantages of planting with genetically improved planting material?

- Characteristics are known hence return on investments could be predicted.
- High yield.
- Fast growth rate.
- Resistant to foliar diseases,
- High timber volume.
- Resistance to tapping panel dryness (brown bast) and wind resistance etc., are incorporated in these material.

19. List the factors that should be considered in choosing clones from the recommended list for your estate.

It is difficult to produce an ideal rubber clone possessing all the favorable characters. Therefore what can be done is to select clones to suit the following conditions.

- Elevation,
- Rainfall,
- Current clonal composition.

20. Briefly discuss the objectives in the Rubber breeding and selection programme.

To produce clones with increased productivity which have other desirable secondary characters such as disease resistance, good latex properties and high timber volume etc.

21. When was budgrafting for rubber invented?

In 1917 by Van Helten, a dutch horticulturist in Java.

22. How should the vigorous seedlings be selected?

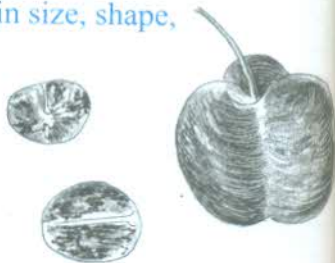
After sowing the seeds on a germination bed, harvesting only early germinators (less than 50% of the seeds sown).

23. Are the rubber seeds of different clones different morphologically?

Rubber seeds of different clones differ in size, shape, weight and colour.

24. What is the viable period of rubber seeds?

Up to 14-21 days from seed fall.



25. How is a germination bed made for rubber seeds?

It is about 5 cm thick and 1m wide layer of pure river sand. About 1,000 seeds can be sown in 1 m² of germination bed.

26. What are the important conditions in a germination bed?

Shady place, pure sand, well moist and free from insects and rodents.

27. Why is it important to select rubber seeds by using a germination bed?

It is the only available method to select vigorous growing seedlings. Early germinates give rise to vigorous plants.

28. How long does a seedling take to become buddable?

For seedlings grown in poly bags for young budding, it takes about 3-4 months to bud graft.

29. What is the minimum diameter of a seedling required to be grafted in young budding technique?

6 mm (pencil thickness) measured at 1cm above the base of the plant.

30. What should be the age of bud sticks to be used for young budding?

About 6-8 weeks after pollarding.

31. What is the correct way to remove bud patches?

With the use of a very sharp knife or a NT cutter, the bud should be removed with a piece of wood. Then the piece of wood should be removed without bending the bud patch.

32. What type of polythene should be used for young budding?

Transparent, gauge 150 polythene, 1" width strips cut lengthwise.



33. How long should the polythene wrapping be kept for the grafted bud to heal?

About 3 weeks.

34. What criterion can be used to determine the graft success?

If the colour of the bud remains green the graft is a success.

35. What is the procedure to prune the stock plant after bud grafting?

Three weeks after grafting, the polythene is removed and the grafted bud is examined after another 10 days. If the bud patch is live stock plant can be pruned.

36. What is the correct method of pruning the stock plant?

Stock plant is pruned 6" above the upper end of the grafted bud to an angle of 45° sloping to the opposite side of bud patch.



37. Can the failures of the first graft be grafted again on the reverse side?

Yes, while making sure that the plant does not get ring barked.

38. What is the ideal weather condition for bud grafting?

When it is not too dry or wet. The best time during the day is morning and after noon, avoiding hot noon hours.

39. What is the reason to limit the life span of budwood nursery plants to 10 years?

The plants in the budwood nursery gradually gain mature characteristic and therefore plants more than 10 years of age provide inferior quality bud patches.

40. Why is it important to pollard budwood nurseries every year?

The trees reverse the aging process every time they are pollarded close to the base. Therefore, in order to retain the juvenile characteristics the trees are pollarded close to the base every year.

41. What can be done to increase the number of bud patches in a bud stick?

By cutting leaf blades of a few lower leaves of the stick about 2-3 weeks prior to harvesting the buds.

42. Can budwood be transported?

Green bud sticks cannot be transported successfully.

