Rubber Plantation Information Guide

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The following information is all about **Rubber Plantation**.

Rubber Plantation.

Introduction of Rubber:- Basically rubber is an elastic solid material retrieved from latex of many tropical trees. However, "Hevea brasiliensis" is the most commercially cultivated rubber plant. Rubber is used for many purposes which may include erasers to tyres, tubes & industrial products. Rubber tree basically grows up to 30 meter height and begins yielding latex @ 6 to 7 years age. India is the third largest producer of rubber in the world followed by Thailand and Indonesia. In India, Kerala is largest state of rubber producer.

Varieties of Rubber in India:- PB 86, Tjir 1, PR 17, BD 5, BD 10, GT 1, PB 28/59, PB 217, PB 235, PB 260, RRII 5, RRII 105, RRII 414, RRII 430, RRIM 600, RRIM 703 and PCK-1, 2.

Climate Required for Rubber Plantation:- The rubber plantation requires heavy and well distributed rainfall of 200 cm to 300 cm having humidity about 75%. The best growing temperatures for rubber plant is from 20°C to 35°C. Freezing temperatures will halt the growth of rubber plants and strong wind areas are not suitable for rubber farming. This plantation requires at least 5 to 6 hours of sunlight.

Soil Requirement in Rubber Plantation:- Rubber Plants require highly deep weathered soils which consist of laterite and lateritic soils. They grow best in well drained porous soils with moderate acidic in nature. However, rubber plant also thrives in red alluvial soils, if there is a good organic matter in the soil. The soil pH of 5.0 to 6.0 is best for rubber cultivation. For good aeration and root growth, water table should be below at least 1 meter depth in the soil.

Land Preparation in Rubber Plantation:- The main field should be cleared of wild growth and pits with dimensions of 120 cm x 45 cm x 60 cm should be dug along the contour @ suitable intervals. Usually it takes 200 to 250 pits per 1 hectare land. The rubber planting depends on the type of land, if it is levelled one, square planting is suitable where as slope lands are best for rectangular plantation. In hilly areas, row planting is recommended across the slope along the contour lines. Make sure to form 2m width of terrace. The rubber plant density for 1 hectare land is about 450. Pits of 75 cm x 75 cm x 75 cm should be dug and filled with top soil having 10 kg organic matter and 150 grams of rock phosphate. Make sure to plant in the middle of the pit providing mulch and shade.

Planting Season in Rubber Plantation: – In rubber cultivation, June to July is the best season for its plantation.

Propagation in Rubber Plantation:- Normally in rubber cultivation, propagation is done through green budding, crown budding and brown budding.

Planting Method and Spacing in Rubber Plantation:-

Manures and Fertilizers in Rubber Plantation:- Normally rubber plants responds very well to organic matter and fertilizers.

10 to 12 kg of well rotten organic manure and 225 grams of rock phosphate should be applied to each plant pit while preparing the pit as basal application. This dosage is recommended up to 4th year of planting.

In case of soils having magnesium deficiency a fertilizer mixture of 10:10:4:1.5 of N: P2O5:K2O: MgO @ 100, 400, 500 & 400 kg per hectare should be applied during the 1st, 2nd, 3rd & 4th year of rubber planting

From 5th years onwards, NPK mixture of 10:10:10 @ 300kg per hectare or 900 grams per tree is recommended.

In the case of polybag planting, double dose of fertilizers should be applied during the first year.

Intercultural Operations and Weed control in Rubber Plantation:-

- **Intercropping: –** In rubber plantation is intercropping will generate good revenue during first two years of cultivation. The suitable intercrops in rubber plantation are like ginger, turmeric, tuber crops, vegetables, pineapple, banana and medicinal or herbal plants.
- **Cover cropping:-** Cover cropping is helpful in sloppy regions to prevent soil erosion. This also helps in enhancing the soil fertility and controls the weed growth along with soil temperature. Intercropping like Leguminous crops will help in nitrogen fixation in the soil. Calopagonium muconoides, centrosema pubescens, pueraria phaseoloides and desmodium evalifolium are common cover crops in rubber plantation.
- **Weed Control:** In rubber plantation, weeding is usually carried out manually or chemically or through a combination of both. The main weeds commonly found in rubber plantation are Axonopus, Paspalum, Digitaria, Mikania, Sida, Pennisetum, Eupatorium, Chromolaena, Borreria, Lantana, Mimosa, Clerodendron. As a pre-emergence application, chemical herbicides like Alachor, Diuron & Simazina should be applied to control the weeds. Herbicides like Paraquat and Glyphosate can be applied in the post emergent stage.

Pests and Diseases in Rubber Plantation:- Scale insect, Termite (White ant), Mealy bug, Cockchafer grub and Mites are the main pests in rubber plantation.

The following are the control measures of these pests:

- **Scale Insect:** Spray malathion @ 50 EC 2 ml/liter of water.
- **Melay bug:** Spray fish oil rosin-soap 25 grams/liter.
- **Termite:** Drench the soil @ plant base with chlorpyriphos 20 EC 2 ml/litre of water.
- **Cockchafer grub:** Drench the soil @ plant base in the affected area with chlorpyriphos 20 EC 2 ml/litre of water.
- **Mites:** Spray Sulphur @ 50 WP at 2 grams/liter of water.

Rubber tree is subjected to many diseases like abnormal leaf fall, secondary leaf fall, Bird's eye spot, Leaf spot, Powdery mildew, pink disease, patch canker or bark cankers, dry rot, stump rot, collar rot or charcoal rot and brown root disease are the main disease found in rubber farming.

The following are the control measures of these diseases.

- **Abnormal leaf fall:** This can be controlled by single round of spray with about 30 – 35 liters of fungicide oil mixture per hectare (1:5 proportions).
- **Secondary leaf fall:** Abnormal leaf fall control measure will prevent this disease as well.
- **Powdery mildew:** Spraying wettable sulphur of 1 kg in 4000 liters of water should be enough to control this disease.
- **Bird's eye spot: To control this, spray repeatedly with Bordeaux mixture (1%).**
- **Leaf spot:** Spraying 1% Bordeaux mixture will control leaf spot disease @ fortnightly (2 week) intervals.
- **Pink Disease:** During the months of July and September, a thorough inspection of trees should be done to determine the infected rubber plants/trees. Bordeaux paste in the initial stages up to 30 cm above & below the affected region should be applied.
- **Patch canker or Bark cankers:** The affected area of the tree should be scraped to remove all the rooting bark & the coagulated rubber. The wound should be washed with Dithane M 45 at the rate of 0.75 %. After the fungicide dries up, wound dressing compound should be applied.
- **Dry rot, Stump rot, Collar rot or Charcoal rot:** In affected area of tree bark and wood shows black lines, affected regions should be cleaned with carbendazim solution (0.1%).Wound should be washed again with fungicide solution and apply dressing compound once it's dried up.
- **Brown root disease:** Dried or killed roots should be found and pruned. Partially effected root system should be washed with fungicide solution of Carbendazim (0.1%). Once, fungicide dries up, a thin wound dressing compound should be applied. Soil should be refilled and drench the base with the solution of fungicide.

Plant growth and Tapping in Rubber Plantation:-

- **Plant growth**: Usually, tree girth plays major role in tapping. The tree girth increases every year. The tree girth grows about 5 cm, 10 cm and 15 cm in 1st, 2nd and 3 rd year of plantation respectively. The girth rate would be faster after 3rd year and reaches about 30 cm at the end of 4th year and thereafter, can expect up to 37 to 40 cm of girth. Seventh year is the end of gestation period and trunk girth can be expected about 50 cm & becomes ready for tapping. In the rubber cultivation, latex production increases every year up to 11th year. In the 1st year of tapping, about 65 to 70% of trees become matured for operation.

- **Tapping:** Tapping operation of trees begin when the rubber tree attains a girth of 50 cm at height about 125 to 130 cm. usually, the number of tapping days in a year is about 200 to 325. Tapping wages are major component of the cost of production and which greatly influence the returns. Adopting low frequency tapping systems are recommended. Tapping at the rate of once in 3, 4 and 6 days are most desirable to reduce the cost. To increase the yield of latex, Ethrel is recommended at 5% a.i. concentration with a brush below the tapping cut @ a width of 5 cm after light scraping of the outer bark. Preferably, the first application of Ethrel should be done after a drought period.

Collecting Latex from Rubber Tree.

Yield of Rubber:- In rubber plantation yield depends on the method of propagation. In any method, usually yield increases year by year. The yield reaches peak after 14 to 15 years of planting. An annual average yield of rubber is about 375 to 400 kg/hectare from seedlings trees. In budded plants, an average yield of 800 – 1000 kg per hectare can be obtained.

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