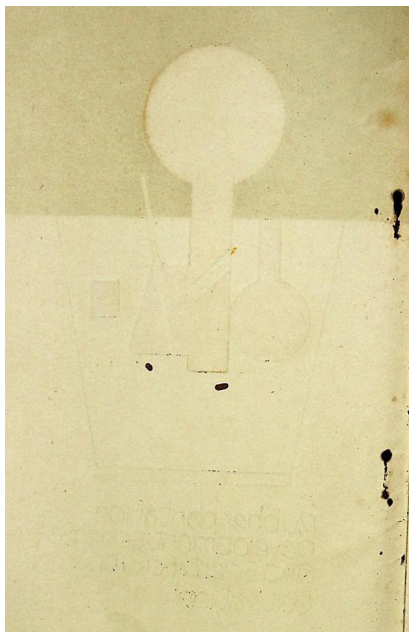


Rubber plantation
Development scheme
and scientific Rubber
cultivation

PH 40



Rubber Plantation Development Scheme and Tips for Planting Rubber

Against 1,96,000 Tonnes of natural rubber required in the Country in 1982-83, India produced only 1,66,000 Tonnes during that period. The demand for rubber in the country is increasing year after year thereby widening the existing gap between demand and supply. In order to meet the ever growing demand, rubber production in the country has to be stepped up by maximising output from existing holdings and introducing rubber to new areas.

The Rubber Board has drawn up an integrated scheme for encouraging both newplanting and replanting of rubber by extending financial aid adequate to cover almost the entire cost of cultivation, to those who come forward to new-plant or replant.





RUBBER PLANTATION DEVELOPMENT SCHEME

The Rubber Board is implementing an integrated scheme for large scale development of rubber plantations with the object of increasing natural rubber production in India. The targets set out under the scheme are for newplanting and replanting of 6000 hectares each per year for five years from 1980-81 to 1984-85. Under the scheme, newplanting and replanting will be treated with equal importance and a package of similar facilities and incentives given for both in an integrated manner.

The new scheme which is known as Rubber Plantation Development Scheme is applicable to both small holdings and estates, but the scale of assistance given varies for the two sectors. The minimum area to be newplanted under the scheme in any one year shall be 0.20 ha. of contiguous land and for replanting 0.10 ha. of contiguous land. Assistance will also be granted for a combination of newplanting and replanting, in which case the minimum area to be covered

will be 0.20 ha (The Replanting Subsidy Scheme of the Board had been integrated with the Plantation Development Scheme with effect from 1980-81).

The nature and extent of assistance given by the Board under the new scheme are the following:-

1. Cash subsidy from the Rubber Board

Cash subsidy at the rate of Rs. 5000/-per hectare to growers owning up to 20 hectares of rubber plantations including any area proposed for new planting under the scheme and at the rate of Rs. 3000/- per hectare to growers owning rubber plantations exceeding the above extent will be granted for newplanting/replanting. New entrepreneurs are also entitled for assistance at the above rates. The subsidy will be paid in seven annual instalments.

2. Input subsidies for Small holders

The scheme also provides for grant of input subsidies which may work out to nearly Rs. 2,000/-per hectare to the weaker sections of growers identified as those owning not more than 6 hectares of rubber including any area proposed for newplanting under the scheme. The input subsidies will include reimbursement of full cost of approved planting materials used at the rates fixed by the Board, half of the approved cost of fertilisers used during the immaturity period of the plantations and a subsidy for soil conservation work done.

3. Long term financial credit from Banks

The beneficiaries under the scheme may also avail of long term loans from Banks under the agricultural credit scheme of the National Bank for Agriculture and Rural Development (NABARD) in order to supplement the assistance granted by the Board. In the Scheme, the cost of cultivation of rubber has been taken as Rs. 15,000/- per hectare over a period of seven years. Accordingly, the maximum extent of credit that can be availed of from banks shall be limited to the following rates, taking into consideration the scale of subsidies payable from the Board to different categories of growers.

Category of growers	Rate of subsidy (Rs./ha.)	Maximum Bank Loan (Rs./ha.)	Total cost of development (Rs./ha.)
'A' (growers owning not more than 6 ha. of rubber)	6,980	8,020	15,000
'B' (growers owning above 6 ha. and upto 20 ha.)	5,000	10,000	15,000
'C' (growers owning above 20 ha. doing newplanting)	3,000	12,000	15,000

The loan is payable in seven annual instalments to growers identified by the Board. For the first year, the Bank will advance the full cost of planting and development charges. Thereafter, from the second year onwards Banks will advance the annual cost of maintenance minus the amount of subsidies released by the Board for the preceding year.

The loan is repayable in five annual instalments from the tenth year to the fourteenth year of planting. There will be a moratorium on the payment of interest till the 7th year of planting. Interest will be payable in 7 annual instalments commencing from the 8th year of planting.

The Board will render necessary technical support to the financing Banks for operation of the credit scheme in time with the subsidy scheme. NABARD has nominated selected Banks for each taluk for financing under the scheme in each state.

4. Interest subsidy on Bank loan.

The normal rate of interest for loans availed of through Banks under the credit scheme of NABARD is 12.5% per annum. Out of this, the Board will subsidise 3% from the 1st year of planting thereby bringing down the interest liability of the loanee to 9½%. Large growers undertaking replanting of rubber will not however be entitled to the benefit of interest subsidy.

5. Free technical support.

Free advisory and extension support at all stages of planting, maintenance, tapping and processing of crop will be extended by the Board to all participating growers.

TIPS FOR PLANTING RUBBER

- 1) Clearing the area:- Slash the existing vegetation partially dry them under the sun, heap the dried matter here and there and give a light burning (to be completed in March)
- 2) Spacing:- In flat even lands planting distance recommended for rubber is 4.6 m. x 4.6 m (15' x 15') while on slopy lands the spacing suggested is 6.4 m x 3 m (20' x 10'). Pegmark the area to suit the respective spacing.

In slopy areas contour terraces are to be formed to check soil erosion. It is desirable to have individual platforms in undulating areas.

- 3) Pits:- Pits of size 75 cm x 75 cm x 75 cm ($2\frac{1}{2}' \times 2\frac{1}{2}' \times 2\frac{1}{2}'$) are to be dug in the pegmarked points in April-May after receipt of a few showers. The pits so dug are allowed to weather for about two weeks. The pits are then filled using top soil gathered from around. While filling pits care should be taken to see that leaves, roots, stones etc are removed from the soil.

Pit manuring should be done on the top 25 cm. (10") of the soil, using 175 gm. of Rock Phosphate (Mussorie Phos) and 12 kg. (one Kerosine tin full) of well rotted cattle manure or compost.

While filling the pit the top surface of the pit should be about 5 cm (2") above the ground level, so that when the soil sets, the filled pits keep the level with the ground. The centre of the filled pit should be marked by a peg.

PLANTING MATERIALS AND PLANTING

Budded stumps of clones RR11-105, RR11-600 and GT-1 are the three important high yielding rubber planting materials recommended.

Rubber planting is normally done in June with the onset of rains. About 5 cm (2") of surface soil of the filled pit is first removed from an adequate area around the planting point to accommodate the whorl of lateral roots at the collar of the stump. A planting cavity is then made with a crowbar to a depth equal to the actual length of pruned tap root. After thrushing the crowbar to the required depth, its top end is moved around and the cavity widened sufficiently to allow easy insertion of the stump. The stump is then carefully inserted into the cavity sufficiently deep for the whole of the lateral roots to be in position in the area dug. It is important to see that the said roots are set neither too shallow nor too deep. Special attention should also be given to ensure that the tip of the tap root is in actual contact with the soil at the bottom of the cavity. An air gap should not be allowed in the planting cavity as it may lead to the failure of root development. Loose soil is put in the cavity around and pressed firmly. This is best done by pushing the crowbar into the edge of the planting hole as deep as the tap root or more in a slanting manner so that the top part of the crowbar





is away from the stump and then pulling it strongly towards the stump which is firmly held in position. This is repeated on all sides.

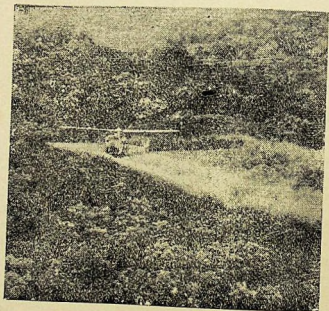
Planting Poly bagged Plants

In order to reduce immaturity of rubber trees, ensure uniformity and avoid vacancies. Budded rubber stumps are

advised to be at first raised in polythene bags and later planted to the field when the planting in the poly bags attain a height of 180-210 cms and 4-5 whorls of leaves.

COVER CROP

Pueraria or Mucuna could be gainfully raised as cover crop in rubber plantations. Pueraria seeds need soaking in lukewarm water for 4 to 6 hours before sowing is done on beds of size 129 cm x 91 cm (4'x3') made one each in the centre of 4 planting points. The cover crop seeds should be mixed with equal quantity of Rock Phosphate (Mussoorie Phos) at the time of sowing.



Cover crop should essentially be raised as it helps to smother weeds, prevent soil erosion, fix atmospheric nitrogen in its roots, reduce soil moisture loss, add litter to the soil and reduce immaturity of rubber.



The seed rate per hectare of *Pueraria* is $4 - 4\frac{1}{2}$ kg.

AFTER CARE

- 1) The grafted bud starts sprouting 2-3 weeks after planting. Sprouts appearing from any where outside the budpatch should be nipped off.
- 2) Shade basket of 75 cm. ($2\frac{1}{2}'$) length and 45 cm. ($1\frac{1}{2}'$) diametre may be fixed around the budded stumps as soon as they sprout, so that the tender shoots enjoy protection against hot sun, wild animals etc.
- 3) Pruning may be carried out appropriately to remove any side shoots developing upto $2\frac{1}{2}$ mts. (8 feet) from the ground level in the main shoot.
- 4) The young plants may be manured twice in an year using fertilizer mixture of NPK Mg 10:10:4:1.5 as shown below:-

Year of planting	Months after planting.	Time of application	Dose of Mixture per plant.	Quantity of the Mixture required per hectare with 440-450 planting points
1st year	3 months	Sept-Oct.	225 gm.	100 kg.
2nd year	9 months	April-May	450 gm.	200 kg.
do	15 months	Sept-Oct.	450 gm.	200 kg.
3rd year	21 months	April-May	550 gm.	250 kg.
do	27 months	Sept-Oct.	550 gm.	250 kg.
4th year	33 months	April-May	450 gm.	200 kg.
do	39 months	Sept-Oct.	450 gm.	200 kg.

During the first 4 years the fertilizer mixture is applied around the base of the plant in a circle and mixed up with the soil with a fork.

From fifth year onwards manuring should be done based on soil and leaf analysis. If this is not possible, the general recommendation to use NPK 12:12:12 or 15:10:6 may be followed as shown below.

N P K 12:12:12

(Areas planted with leguminous cover crop and mulched during the initial years)

<i>Year</i>	<i>Time of application</i>	<i>Qty. per hectare</i>
5th	April-May.	125 kg.
	Sept-Oct.	125 kg.
6th	April-May	125 kg.
"	Sept-Oct.	125 kg.
7th	April-May	125 kg.
"	Sept-Oct.	125 kg.

Instead of NPK 12:12:12-any of the complex fertilizer grades 15:15:15 or 17:17:17 & 19:19:19 NPK may be used. Quantities of these being 200 kg. 175 kg., 116 kg. respectively. 10:26:26 NPK complex 115 kg. mixed with urea (40 kg.) may also be used.

From the fifth year, fertilizer is applied and forked into the soil in square or rectangular patches in between rows, each patch serving 4 trees.

N P K 15:10:6

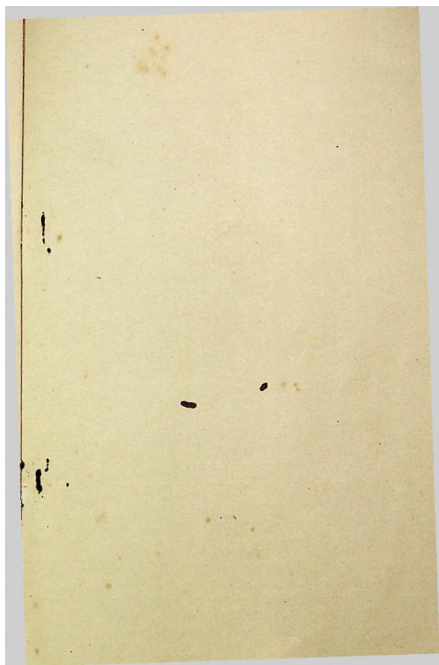
For areas not planted with leguminous covers and mulched during the initial years.

<i>Year</i>	<i>Time of application</i>	<i>Qty per hectre</i>
5th	April-May	200 kg.
	Sept-Oct.	200 "
6th	April-May	200 "
	Sept-Oct.	200 "
7th	April-May	200 "
	Sept-Oct.	200 "

For mature rubber under tapping NPK 10: 10: 10 grade mixture at the rate of 900 grams per tree (approximately 300 kg. per hectare) every year during March-April in single application is recommended.

Instead of this mixture 12: 12: 12 NPK mixture at the rate of 250 kg/hect. or any of the complex fertilisers of the grades 15:15:15 or 17:17:17 or 19:19:19 NPK may also be used. Quantities of these being 200 kg, 175 kg and 160 kg. respectively. 10:26:26 NPK complex (115 kg.) mixed with urea (40 kg.) may also be used.

- (5) Weeding should be done regularly in rubber plantations in earlier years till the cover crop spreads fully.
- (6) The plant bases should be mulched during summer (from October onwards) using dry leaves, grass or any other local materials to prevent sun scorch and loss of soil moisture.
- (7) Vacancies in the planted area should be filled up preferably with polybagged plants, two-year old budded stumps or stumped buddings.
- (8) Brown portion of the stem of young plants should be white washed during summer from second year onwards using quicklime to protect them against sun scorch. This should be continued every year till the canopy closes.
- (9) Suitable plant protection measures may be adopted against pest and diseases at the appropriate time as recommended by the Rubber Board.
- (10) The site proposed to be planted with rubber should be properly fenced with available local materials to prevent cattle menace.
- (11) If branches do not develop above a height of 2.5 meters (8') from the stem it should be induced by artificial methods like notching or suppressing the apical bud by closing it with the tender leaves around.
- (12) Take care to see that the cover crops does not twine round the trunk of the rubber plants as it will suppress growth.





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