Techniques for planting and management of immature rubber plantations

Land can be cleared either by hand or by machine. Land preparation should be completed one or two months before the rubber planting season. In Vietnam, this is June to August in the southeast region and Central Highlands, and September to October in the central coastal region.

If the land has a slope of more than 8°, an A-frame can be used to lay out planting rows along the contour lines (Fig. 1).

- Rubber should always be planted along the contour lines on sloping ground.
- Digging the planting hole and giving a basal application of manure and phosphorous fertilizer should be done 10 - 15 days before the planting date. The hole should be 60 x 60 cm, and 60 cm deep (Fig. 2).

**Planting density**

Popular planting densities in Vietnam are 555 trees/hectare, and 512 trees/hectare (Fig. 3).

**Different planting materials**

Several different kinds of planting material can be used. They can be grafted budwood, or plantlets grown from seed. The most commonly used materials are:

- Ten-month-old grafted budwood;
- Grafted budwood in plastic bags, with pruned trunk and dormant buds;
- Rubber plantlets in plastic bags with a single leaf;
- Rubber plantlet in bags with 2 - 3 leaves.

**Planting technique**

The trees are planted at a spacing of 6 x 3 meters.

**Planting budwood**

Hold the plantlet erect, and place the bottom of the trunk into the middle of the planting hole. Make sure that the grafted bud is turned in the direction of the prevailing wind. The hole is then filled with fine soil. Soil around the trunk should be pressed down firmly.

**Planting seedings in plastic bags**

The bottom of the bag should be cut off and thrown away. Trim off any rootlets which are coiling around the bottom of the bag. Place the plantlet in the middle of the hole, with the grafted bud turned in the direction of the prevailing wind. Cut away, the rest of the bag, from the bottom upward. Fill the hole with soil, and firmly but gently press the soil down around the plantlet. Make sure that the surface of the soil is about 1 cm below the grafted bud.

Put a small piece of bamboo into the ground beside the tree, so as to protect the bud. Put a bamboo stake beside a plantlet with leaves, and fasten it to the plant, to prevent any damage from strong winds.

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**Fig. 1.** Layout of new rubber plantation, following the contours

**Fig. 2.** Checking the hole size (60 cm x 60 cm x 60 cm)

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Food and Fertilizer Technology Center (FFTC)
14 Wenchow St., Taipei, Taiwan ROC
Tel.: (886 2) 2362 6239 Fax: (886 2) 2362 0478
E-mail: fftc@agnet.org Website: www.fftc.agnet.org
FFTC: An international information center for small-scale farmers in Asia

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Cooperating agency for this topic:
Jinnajar Hansethsuk
Rayong Field Crops Research Center
Dept. of Agriculture, Thailand
Tel.: 663-868-1514 Fax: 663-868-1515
E-mail: jinnajar@yahoo.com
The growth of the rubber trees is defined by the perimeter of the trunk, measured at 1 m above the soil surface. When the trunk measures 46 cm around, it is time to start harvesting the rubber. In better soils this is generally the seventh year after planting. In poorer soils, the trees may not be ready for harvesting until the eighth year.

Weeding

*Weeding between the trees*

This should be done 4 - 6 times a year, especially when the trees are small. Weeds should be cleared in a diameter 1.5 meters around the tree.

*Weeding between the plantation sections*

This can be done by hand, by machines or by applying herbicide. Within the plantation, weeding can also be done by machine when the trees are 2 - 3 years old. Make sure that the machines are only allowed to operate at least 1.5 m away from the foot of each tree.

Fertilization

Mineral fertilizers should be applied every year. Two applications should be made during the rainy season each year. The application rates are shown in Table 1. The fertilizers should be broadcast beneath the canopy of the rubber trees. Fertilizer can also be applied by digging holes in the spaces between the trees, and manure placed in the holes. This practice helps to maintain the humus content in the topsoil.

Mulching and pruning

Mulching should be done at the end of the rainy season, using rice straw or dried weeds. The mulch layer should cover the soil under the tree canopy and should begin 10 cm from the tree foot. A thin layer of soil should be used to cover the mulching material. To help aerate the roots, turn over the soil surrounding the foot of the tree.

Prune the shoots regularly and selectively, making sure to maintain 1 - 2 leaf layers under the main shoot to create favorable conditions for photosynthesis and nutrition of the trees.

Preventing fires

At the beginning of the dry season, it is necessary to clear the vegetation and debris from a broad band six meters wide all around the plantation. This ring of bare earth will act as a firebreak, and protect the plantation from fire.

Cover crops

While the rubber trees are immature, it is recommended to grow selected legume cover crops over the whole rubber plantation.

Intercropping

Intercropping can be carried out with coconut trees and banana plants within the rubber plantation. Sometimes banana alone is used as an intercrop. Intercropping can also be carried out with coffee trees and hot pepper. Intercropping while the rubber trees are immature can generate extra income, and make farming on the rubber plantation more intensive.

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**Table 1. Fertilizer application rates for rubber**

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<th>Density (trees/ha)</th>
<th>Type of fertilizer</th>
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<th>2nd year</th>
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</table>

Note: N: Urea; P: Phosphate plus Mg; K: Potassium chloride (KCl)

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**Fig. 3. Mature rubber plantation**