

## Tree Species No. TTS15

*Hevea brasiliensis*, Family Euphorbiaceae

*Hevea brasiliensis* is a perennial, evergreen tree that periodically sheds its leaves. It has a well developed taproot that can reach 2.5m long at 3 years, and its bark has an outer corky layer. It is the source of 99% of the world's natural rubber production and is therefore an important economic plant.

**Common names:** Rubber.

**Distribution:** *Hevea brasiliensis* is native to tropical America and can be found in the tropical rainforests of the Amazon basin and grows wild to the south of the Amazon River. Because of its economic importance it has spread to most areas of the tropics. It occurs mostly in the tropical regions between 15°N and 10°S.

### Ecology

**Rainfall:** At least 1900mm spread evenly throughout the year with a short dry season. In Indonesia the best yields are achieved where rainfall is 2700-5000mm per year. The tree will tolerate a limited period of drought but if prolonged growth may be damaged.

**Temperature:** 23-32°C with a high atmospheric humidity.

**Altitude:** 0-610m. After 610m the trees take 2-3 years longer to produce fruit.

**Soil type:** It will tolerate most soil types but prefers alluvial soils that are rich in organic matter and nitrogen, and the ability to retain water well. It will grow on soils with a pH of 4-8.



### Botany

**Height:** 18-30m, but heights of up to 40m have been recorded.

**Flowers:** The flowers are unisexual with male and female reproductive parts found on separate flowers. There are more male flowers than female, for every one female flower there are 60-80 males. The flowers are commonly pollinated by moths, bees and flies, although artificial pollination may be necessary.

**Fruit:** These reach full size in approximately 3 months and ripen 5-6 months after the flowers are fertilised. The fruit are large once matured.

## Uses

Main: *Hevea brasiliensis* is grown for the production of natural rubber.

## Yield

It begins to produce seeds after 5-6 years and reaches full production within 5-10 years. The newer varieties may produce 3000kg per hectare or more. The tapping of latex can begin once the stem has reached a circumference of 45-50cm at a height of 1m above the ground.

## Cultural instructions

Seeds: The seeds are large and oval shaped weighing 2-4g each. They are recalcitrant and so lose viability easily if allowed to dry. Moist seeds can be stored for several months in an airtight container at 10-15°C. After storage seed viability will be approximately 40%.

Germination: This takes 3-25 days to occur.

Management: Plant seeds in shaded beds of friable soils, sand or coir dust. The plants can be spaced at 30x30cm allowing 40,000 plants per hectare. Then, weed regularly. Remove all diseased and weak trees. Fertilise the soil after 1 month of planting out and again in the 4 or 5 year when flowering begins. Planting in rows with leguminous crops will reduce the need for fertiliser application.

Planting out: Plant out 4-5 months after budding. If *H. brasiliensis* is to be established on hillsides it is recommended that it is planted along natural contours. This will help reduce soil erosion that may occur during the rains.

Spacing: 2.4x2.4 m, or 680 trees per hectare. Thin to 330 per hectare in the 6th year by removing the less healthy trees. Dense planting may reduce yield per tree.

## Other

Pest and diseases: The Tropical red spider mite, (*Tetranychus cinnabarinus*), is a major pest of rubber. It causes yellow patches to appear on the upper surface of the leaves, the infected area then spreads and the leaves redden, wither and finally are shed. This pest can be controlled with the use of natural enemies such as *Phytoseilus riegeli*, a predacious mite.

A major disease of rubber is South American leaf blight caused by the pathogen, *Microcyclus ulei*. This causes massive defoliation and eventually the death of the tree. This can be controlled to some extent by strict sanitary measures.

Produced by the Tropical Advisory Service, December 2002

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HDRA - the organic organisation, Ryton Organic Gardens Coventry, CV8 3LG, UK.  
Tel: +44(0)24 7630 3517 Fax: +44(0)24 7663 9229 Email: [ove-enquiry@hdra.org.uk](mailto:ove-enquiry@hdra.org.uk) www:  
<http://www.hdra.org.uk>

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