

**LOCAL NAMES**

English (tree cassava); French (manioc de ceara, maniçoba, ceara, caouchouc de ceara); Portuguese (manicoba); Swahili (mpira); Yoruba (gbaguda)

**BOTANIC DESCRIPTION**

*Manihot glaziovii* is a glabrous shrub or tree to 6 m high, occasionally taller (10-20 m), often with several weak branches from near the base. Bark papery, peeling, dark reddish brown. Young shoots glaucous.

Leaves deeply palmipartite, 3-5 lobed, peltate. Cordate, membranous-chartaceous, lobes broadly ovate to obovate, (4-)7-12(-15) cm long, (2-)4-8(-10) wide, entire. Green above, glaucous beneath, petiole to 25 cm long, often tinged reddish. Stipules lanceolate 5 mm long, entire, deciduous.

Inflorescence paniculate, to 12 cm long, bracts resembling the stipules. Male flowers 7-9 mm long, female flowers 0.8-1.4 cm long extending to 2-3 cm in fruit.

Fruit globose 1.9-2 cm by 1.9-2.2 cm, smooth, muricate-tuberculate, endocarp woody.



*Manihot glaziovii* (Paul Latham)



Leaf at Kipahulu, Maui, Hawaii (Forest and Kim Starr)

**ECOLOGY**

*M. glaziovii* occurs throughout the semi-arid Caatinga region of northeastern Brazil on intermediate slopes and elevations, particularly near the base or on lower slopes of the sierras or buttes common to most of northeastern Brazil.

**BIOPHYSICAL LIMITS**

Altitude:

Mean annual temperature:

Mean annual rainfall: 600-700 mm

Soil type: The tree tolerates a wide range of soils including very poor and acidic soils.

**DOCUMENTED SPECIES DISTRIBUTION**

Native: Brazil, Colombia

Exotic: Gambia, Ghana, Kenya, Malaysia, Nigeria, Senegal, Sierra Leone, Singapore, Sri Lanka, Tanzania, Uganda



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

**PRODUCTS**

**Food:** The leaves yield a white plastic substance, which is not rubber. Hydrocyanic acid is also produced in them, but this is dissipated by heat and they are eaten cooked as a vegetable in Gabon and in East Africa. The root is rich in starch but it is hard and woody, and also produces hydrocyanic acid. It is eaten in times of food scarcity.

**Fodder:** In Senegal, young branches are fed to sheep and goats. Ceara leaves have a 25 % to 30 % dry matter protein content. However, cattle in Brazil suffer from hydrocyanic acid poisoning when they consume wilted leaves of the manicoba tree.

**Apiculture:** The flowers are freely visited by bees and the wax could be of importance.

**Latex or rubber:** *M. glaziovii* was planted mainly for rubber production. The rubber is said to be of good appearance, but resin content at 3-12% is too high, thus it is considered uneconomical when there are other sources. The Fula of Nigeria use the latex as glue for paper.

**Essential oil:** *M. glaziovii* produces many seeds which contain 90 % unsaturated oil which might possibly be used as a fuel for pre-combustion diesel engines.

**Medicine:** The stem and root enter into a Nigerian remedy for skin infections.

**SERVICES**

**Shade or shelter:** It is used for temporary shade for cocoa in West Africa.

**Soil improver:** Applied as green leaf manure.

**Ornamental:** The plant is still widely grown as an ornamental.

**Boundary or barrier or support:** In some areas the species is used as a hedge especially in areas of low rainfall.

**Other services:** Used in breeding programmes, to improve disease resistance especially of cassava. Drought tolerant thus suitable for planting in the Sahel, North Africa and Brazil.

**TREE MANAGEMENT**

M. glaziovii can be tapped at the age of 3 years.

**GERMPLASM MANAGEMENT**

Seed storage is orthodox: dry seeds (10 %) survive 24 hrs in liquid nitrogen. Seeds tolerate desiccation to 3.7 % mc when they do not lose viability in subsequent hermitic storage at -200 deg C.

**PESTS AND DISEASES**

Older leaves are attacked by *Cercospora henningsii* Allesch in India.

**FURTHER READNG**

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- Purseglove JW. 1968. Tropical crops. Dicotyledons. Longman Group Ltd, UK.
- Schery RW. 1949. Manicoba and Mangabeira rubbers. Economic Botany. 3(3): 240-264.

**SUGGESTED CITATION**

Orwa C, Mutua A , Kindt R , Jamnadass R, Simons A. 2009. Agroforestry Database:a tree reference and selection guide version 4.0 (<http://www.worldagroforestry.org/af/treedb/>)