

5. CASUARINA

Casuarina equisetifolia is an evergreen, dioecious or monoecious tree 6-35 (60) m tall, with a finely branched crown. Crown shape initially conical but tends to flatten with age. Trunk is straight, cylindrical and usually branchless for up to 10m, up to 100 (max. 150) cm in diameter, occasionally with buttresses. It grows at an altitude of 0-1400m with a mean annual temperature of 10-35 deg. C, and a mean annual rainfall of 200- 3500mm. The soil type is well-drained and rather coarse textured sands and sandy loams. The species tolerates both calcareous and slightly alkaline soils but is intolerant of prolonged water logging and may fail on poor sands where the subsoil moisture conditions are unsatisfactory.

Functional uses

Products

Fuel: The highly regarded wood ignites readily even when green, and ashes retain heat for long periods. It has been called 'the best firewood in the world' and also produces high-quality charcoal. Calorific value of the wood is 5000 kcal/kg and that of the charcoal exceeds 7000 kcal/kg.

Fiber: The wood is used to produce paper pulp using neutral sulphate and semi-chemical processes, and as raw material for rayon fibers.

Timber: C. equisetifolia yields a heavy hardwood with an air-density of 900-1000kg /cubic m. Heartwood is pale red, pale brown to dark red-brown, moderately to sharply differentiated from the sapwood, which is yellowish or pale yellow-brown with a pink tinge. Uses include house posts, rafters, and electric poles, tool handles, oars, wagon wheels and mine props.

Tannin or dyestuff: The bark contains 6-18% tannin and has been used extensively in Madagascar for tanning purposes. It penetrates the hide quickly and furnishes swollen, pliant, soft leather of pale reddish-brown color.

Medicine: Root extracts are used for medical treatment of dysentery, diarrhea and stomach-ache.

Services

Erosion control: Since it is salt tolerant and grows in sand, C. equisetifolia is used to control erosion

along coastlines, estuaries, riverbanks and waterways.

Shade or shelter: Its general tolerance to strong winds has encouraged its use in protective planting. The abundance of highly branched twigs absorbs wind energy amazingly well. In areas with hot, dry winds the tree protects crops and animals' herds.



POPULAR COMMERCIAL TREE SPECIES IN KENYA

MANAGEMENT OF THE SPECIES

The increasing demand for timber and wood products in the domestic and international markets can be tapped through involvement of the private sector in commercial tree growing. At the same time, fast growing tree species today provide value for investment with considerable value increase over time. The following information provides management approaches and uses for on-farm tree species.

1. CYPRESS

Cypress (C. lusitanica Mill)

Family: Cupressaceae

Common names (English): cypress, Kenya cypress, **(Swahili):** msanduku,

(Trade name): cypress

Botanic description, Ecology and distribution

Cupressus lusitanica is an evergreen tree, 35 m high, with a dense, conical crown and about 70 cm in diameter. Bark on trunk is reddish-brown, exfoliating in long, narrow strips, eventually becoming roughened by the development of many short cracks. Seeds are brown, with resin glands, up to 4 mm long, with a narrow wing. C. lusitanica was introduced to Kenya in 1910 and has since become an important industrial and plantation crop. It is found in seasonally moist to permanently moist climates, with annual precipitation typically between 1000 and 1500 mm and a dry season lasting not more than 2-3 months. It also occurs in very moist climates with annual precipitation up to 4000 mm. It is not generally damaged by occasional snow or brief periods of frost, but there are significant differences in this among provenances.

Functional uses

Products

Fuel: C. lusitanica is a good source of firewood.

Timber: The white wood saws cleanly and has straight fine grain; it is a source of construction wood and pulp wood and is used for furniture, poles and posts.

Services

Shade or shelter: Trees are suitable as windbreaks.

Ornamental: The beautiful tree can be planted in amenity areas. Boundary or barrier or support: It is grown as a live fence.



The production of this fact sheet on popular farm forestry tree species is sponsored by the **National Tree Planting Campaign (NTPC) Programme**. The NTPC is a Government of Kenya funded programme to accelerate tree growing towards attainment of 10% tree cover by the year 2022.

2. PINUS PATULA

Pinus patula - (Cham)

Family: Pinaceae

Common names (English): patula pine, **(Swahili)** : msindanos

Botanic description, Ecology and distribution

Cupressus lusitanica is an evergreen tree, 35 m high, with a dense, conical crown and about 70 cm in diameter. Bark on trunk is reddish-brown, exfoliating in long, narrow strips, eventually becoming roughened by the development of many short cracks. Seeds are brown, with resin glands, up to 4 mm long, with a narrow wing. *C. lusitanica* was introduced to Kenya in 1910 and has since become an important industrial and plantation crop. It is found in seasonally moist to permanently moist climates, with annual precipitation typically between 1000 and 1500 mm and a dry season lasting not more than 2-3 months. It also occurs in very moist climates with annual precipitation up to 4000 mm. It is not generally damaged by occasional snow or brief periods of frost, but there are significant differences in this among provenances.

Functional uses

Products

Fuel: *P. patula* produces excellent fuel wood.

Fibre: The species is used in the commercial manufacture of pulp

Timber: The wood is suitable for particle board manufacture and gives a board of good strength, does not appreciably retard the setting of cement and can be used satisfactorily for making wood-wool slabs and boards.

Gum or resin: When tapped, *P. patula* yields an oleoresin, which is distilled to give turpentine, and rosin which is used in, for example, paint and batik industries.

Medicine: Pine-leaf oil is sometimes used for medicinal baths, and the seeds may be consumed locally.



- ii. As shelter belts and wind breaks on large scale farms
- iii. On areas with saline soils
- iv. Water logged areas for purposes of draining the area.
- v. Farm lands as plantations or woodlots

NOTE:

While planting *Eucalyptus* on farm, ensure that the trees are planted at least six (6) meters from the boundary of your neighbors' farms. In view of this requirement, planting of *Eucalyptus* in land sizes of less than quarter (1/4) of an Acre is not recommended. Planting, near buildings and along road reserves is not recommended as branches/stems of some species break off easily).



3. EUCALYPTUS

Management of Eucalyptus

The yield of *Eucalyptus* trees and its environmental impact is greatly influenced by the types of management that are put in place. The management objective determines the processes of propagation, species planted and silvicultural regimes.

Areas where *Eucalyptus* should **NOT** be planted:

- i. Hard pans
- ii. Wetlands and marshy areas
- iii. Riparian areas
- iv. Along rivers (reserve 30 meters as stipulated in the Survey Act Cap 299 of the Laws of Kenya. Check Agriculture and Water Act. In addition allow for an extra 20 meters to ensure that the trees do not adversely interfere with the water source.)
- v. Areas around lakes, ponds, swamps, estuary and any other body of standing water.
- vi. Irrigated farm lands.

- vii. Areas with less than 400mm of rainfall

NOTE:

In farms next to water sources, planting should be minimized by inter-planting with indigenous tree species or in mosaic plantations between indigenous trees with the latter occupying a greater percentage or strip planting of *Eucalyptus* with natural vegetation.

Areas suitable for *Eucalyptus* planting are;

- i. Degraded areas through soil erosion and loss of soil fertility

4. MELIA VOLKENSII

Botanic Description

Melia Volkensii is a deciduous, open crowned and laxly branched. Mature trees range between 6 and 20m tall. The bark is grey, fairly smooth, furrowing with age. Leaves are light, bright green, bipinnate with (sub)opposite leaflets, 3-7 per pinna, up to 35cm long, and are densely hairy when young. The leaflets are oval to lanceolate, tapering to the apex. The margins are entire or serrated, becoming almost glabrous when mature.

Biology

M. volkensisii has been reported to start flowering as early as 2-3 years. It sheds its leaves twice a year, flushing new leaves towards the end of the dry season. Flowers and fruits are also produced twice a year, with fruits becoming ripe at the end of the dry season as leaves emerge.

Ecology

M. volkensisii is common in association with acacia-commiphora vegetation. It is emergent in acacia-commiphora deciduous bushland, sometimes fringing seasonal watercourses or appearing on rock outcrops.

Biophysical limits

Altitude: 350-1680 m, mean annual rainfall: 300-800mm

Services

Soil improver: A few farmers have suggested that the heavy leaf fall of *M. volkensisii* during the later stages of crop development may increase crop yields.

Intercropping

Most farmers in Kenya believe that *M. volkensisii* is

compatible with all crops grown. This, however, is dependent upon good silvicultural practice in reducing the shade effect of canopies, which would otherwise adversely affect light-demanding crops such as sorghum and millet. Due to its deep rooting nature, its interference with ox-plough cultivation is minimal.

