Management of tree 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

Botanical name (Cupressus lusitanica Mill).
Family: Cupressaceae
Common names (English): cypress, Kenya cypress, (Swahili): msanduku, (Trade name): cypress

Botanic description, Ecology and distribution
C. 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.

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.

**Cost benefit analysis for Cypress enterprise**
- Area: 1 acre
- Escarpment: 2.5 by 2.5
- Rotation Age 28 years
- Temperatures 10-28 deg c
- Rainfall: >mm 800-1,500 mm,
- Altitude: 1,000 – 4,000 m a.s.l.
- Working cycle: saw Timber
- Species: Cupressus lusitanica

For additional information, please contact:
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2. Pines

*Pinus patula* - (Cham) Family Pinaceae Common names (English) patula pine, (Swahili): msindano

**Botanic description, Ecology and distribution**

*Pinus patula* grows to a height of 30 m or more and attains a diameter at breast height (dbh) of up to 1.2 m. Bole straight and cylindrical, sometimes forked, producing 2 or more stems. It grows in altitude of 1,000-3,000 m a.s.l with a mean annual temperature of 10-28° C and a mean annual rainfall of 1,000-2,000 mm. The common soil features include acidity and good moisture supply. In Kenya, it is found on young fertile volcanic soils and on mature leached infertile soils. The tree is a monoecious plant.

**Functional uses**

**Products**

- **Fuel:** *P. patula* produces excellent fuel wood.
- **Fibre:** The species is used in the commercial manufacture of pulp in the paper industry.
- **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 (a technique of wax-resist dyeing applied to whole cloth) industries. Medicine: Pine-leaf oil is sometimes used for medicinal baths, and the seeds may be consumed locally. Always seek advice from a professional before using a plant medicinally.

**Other uses**

A tan or green dye is obtained from the needles. The needles contain a substance called terpene, this is released when rain washes over the needles and it has a negative effect on the germination of some plants, including wheat. Oleo-resins are present in the tissues of all species of pines, but these are often not present in sufficient quantity to make their extraction economically worthwhile, the resins are obtained by tapping the trunk, or by destructive methods.

Cost benefit analysis for Pine enterprise

- **Area:** 1 acre
- **Escarpment:** 3.0 by 3.0
- **Rotation Age:** 28 years
- **Temperatures:** 10-28° C
- **Rainfall:** >1000mm
- **Altitude:** 1,000 – 3,000 m

<table>
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<th>No.</th>
<th>Process/Activity</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Price (KES)</th>
<th>Amount (KES)</th>
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<td>120</td>
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<td>120</td>
<td>12,000</td>
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<td>5</td>
<td>Planting 500 trees</td>
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<td>500</td>
<td>100</td>
<td>50,000</td>
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<td>13</td>
<td>Total cost</td>
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<td>88,500</td>
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</table>

| 14  | Transmission of plant debris      | No.  | 1      | 1000            | 1000         |
| 15  | Total cost                        |      |          |                 | 98,500       |

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 reserves
iv. Along rivers (reserve 30 meters as stipulated in the Survey Act Cap 299 of the Laws of Kenya. Check Agriculture 2014 and Water Act 2002. In addition allow for an extra 20 meters to ensure that the trees do not adversely interfere with the water source.)

v. Areas around la, ponds, swamps, estuary and any other body of standing water.
vi. Irrigated farm lands.

**Areas suitable for Eucalyptus planting are;**

i. Areas degraded through soil erosion and loss of soil fertility
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: 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.

**Cost benefit analysis for Eucalyptus Enterprise**

- **Transmission Poles**
  - **Area:** 1 Acre
  - **Escarpment:** 2.5 by 2.5m
  - **Rotation Age:** 10-15 Years
  - **Rainfall:** >1000mm
  - **Working Cycles:** 3
  - **Species:** Eucalyptus grandis/E. saligna/ E. Clones (G/C)