

MULTIPURPOSE TREES

This Action Sheet illustrates some of the amazing multipurpose trees used by agroforesters in Africa. You will find more by talking to knowledgeable people. Do a survey of the trees that grow in your area. Ask which trees grow well and find out what they do for people and soil. Action Sheets 35: Agroforestry and 49: Tree-planting, contain further tips about how to grow trees and where to get seeds.

ACACIA ALBIDA (FAIDHERBIA ALBIDA) – WHITETHORN

SWAHILI: *mgunga, mkababu*

Acacia albida is indigenous (occurs naturally) in 19 African countries.

Other acacias such as *Acacia scorpionides*, and *Acacia tortellis* are also useful multipurpose trees, indigenous to many African countries!

Goods

- Fodder (shoots, leaves, pods)
- Good for bees
- Timber
- Poles
- Tools
- Fuelwood
- Tannin
- Medicine

Services

- Shade
- Shelter
- Mulching
- Nitrogen fixing
- Windbreak
- Living fence – very thorny!

Growing Guide

WHERE WILL IT GROW

Altitude: -270-2700 m

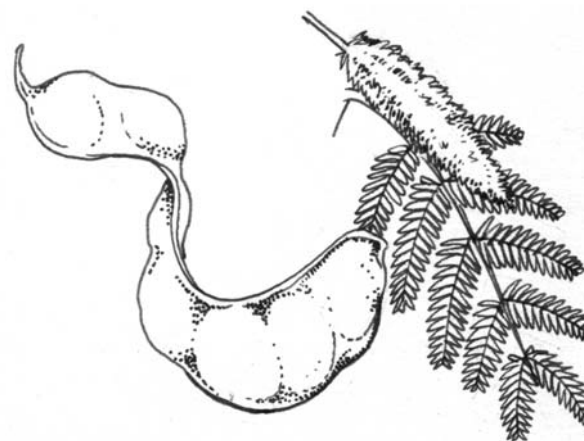
Mean annual temperature: 18-30°

Mean annual rainfall: 250-1200 mm

Soil: Coarse-textured well-drained alluvial soils; tolerates seasonal water-logging and salinity but cannot withstand heavy clayey soils.

PROPAGATION AND MANAGEMENT

See **ACTION SHEET 37: Planting fodder banks for livestock**



AZADIRACHTA INDICA – NEEM

SWAHILI: *mkilifi, mwarubaini, mwarubaini, kamili*

Neem is originally from India, where it is known as the 'village pharmacy'. It has been grown in Africa since the 19th century.



Goods

- Fodder
- Fuelwood
- Timber (termite resistant)
- Carving
- Glue
- Toothbrushes
- Fruits
- Oil (not edible)
- Medicine

Services

- Erosion control
- Shade
- Shelter
- Natural pesticide
- Soil improver
- Mulch
- Green manure
- Windbreak

Growing Guide

WHERE WILL IT GROW

Altitude: 0-1500m

Mean annual temperature: Up to 40°C

Mean annual rainfall: 400-1200mm

Soil: grows on a wide variety of neutral to alkaline soils but performs better than most species on shallow, stony, sandy soils, or in places where there is a hard calcareous or clay pan not far below the surface. It grows best on soils with a pH of 6.2-7.

PROPAGATION AND MANAGEMENT

See **ACTION SHEET 51 – NEEM**

ADANSONIA DIGITATA - BAOBAB

SWAHILI: *mbuyu*

ZULU: *isiMuhu, isiMuku, umShimulu*

TSWANA: *mowana*

Indigenous to 24 African countries.

Can live for more than a 1000 years!

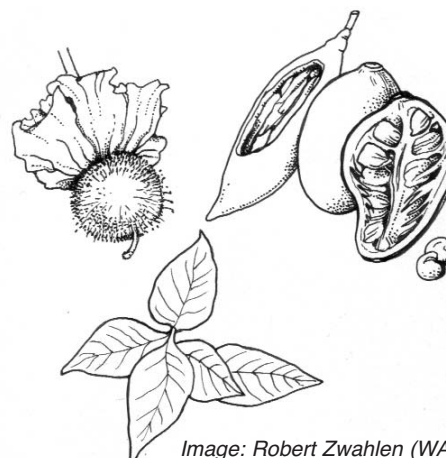


Image: Robert Zwahlen (WAC)

Goods

- Fodder (Young leaves, fruit, pods and seeds, sap in drought)
- Honey: Good for wild bees and bee-keeping
- Fuelwood
- Strong fibre
- Light timber
- Glue
- Tannin or
- Red dye (roots)
- Seed oil - edible
- Brewing beer
- Natural insecticide
- Fruit and young leaves – rich in vitamin C
- Seeds and young roots also edible
- Medicines

Services

- Soil improver – decaying wood of a tree that has died of old age or from lightning can be spread on fields as a fertilizer. Ashes from the fruit shells, bark and seed are useful as a fertilizer.
- Water storage in hollowed trunks

Growing Guide

WHERE WILL IT GROW

Altitude: 0-1500m,

Mean annual rainfall: 250-1000mm.

Temperature: arid and semi-arid, with not more than a day of frost per year

Soil: Prefers well-drained acidic soils (pH <6.5), preferably with sandy top soils overlaying loamy substrates; prefers a high watertable.

PROPAGATION AND MANAGEMENT

Sow directly into soil. Germinates more quickly if scarified or covered in boiling water and left to soak for 24 hours.

CAJANUS CAJUN – PIGEON PEA

SWAHILI: mbaazi

Originally from India, this tree was introduced to Africa at least 4000 years ago.



Goods

- Fodder: (not very rich in energy or protein)
- Chicken feed (grain)
- Honey: Good for bees
- Fuelwood: (fast-growing)
- Fibre: (baskets, paper)
- Timber
- Edible seeds
- Medicine

Services

- Erosion control
- Shade
- Shelter:
- Cover crop
- Windbreak
- Nitrogen fixing
- Leaves add nitrogen and organic matter to the soil
- Roots improve soil structure
- Intercropping

Growing Guide

WHERE WILL IT GROW

Altitude: 0-2000m

Mean annual temperature: 18-38°C

Mean annual rainfall: 400-2500mm

Soil: grows on a wide range of soils, except saline or waterlogged soils

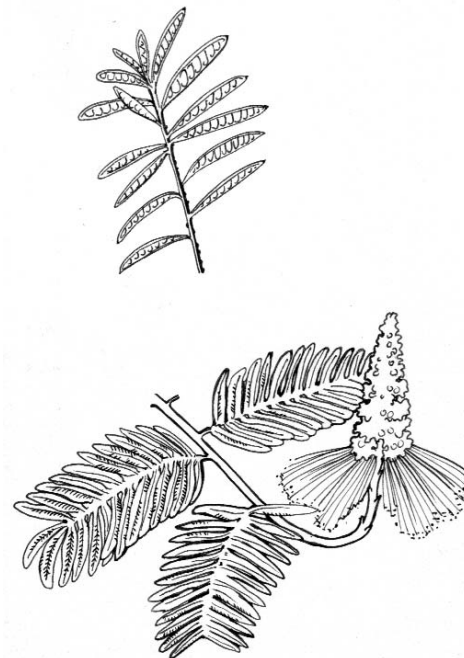
PROPAGATION AND MANAGEMENT

Pick pods when they lose bright colour. Seeds need no treatment. Sow directly in a well-prepared field. Weed to help growth.

CALLIANDRA CALOTHYRSUS – CALLIANDRA

SWAHILI: mkaliandra

Calliandra is a South American tree, now being tested for agroforestry in Africa. It now grows in Cameroon, Ethiopia, Kenya, Rwanda, Tanzania and Uganda



Goods

- Fodder (Protein rich leaves and pods)
- Honey: Good for bees
- Fuelwood, charcoal (fast-growing, good coppice)
- Fibre (Paper)

Services

- Erosion control
- Shade
- Shelter
- Nitrogen fixing
- Soil improver (Green manure, alley-cropping)
- Intercropping

Growing Guide

WHERE WILL IT GROW

Altitude: 250-1800m

Mean annual temperature: 20-28°C,

Mean annual rainfall: 700-4000mm

Soil: Grows well on a wide range of soil types; prefers light textured, slightly acidic soils; can tolerate infertile and compacted or poorly aerated soils but does not tolerate waterlogged and alkaline soils

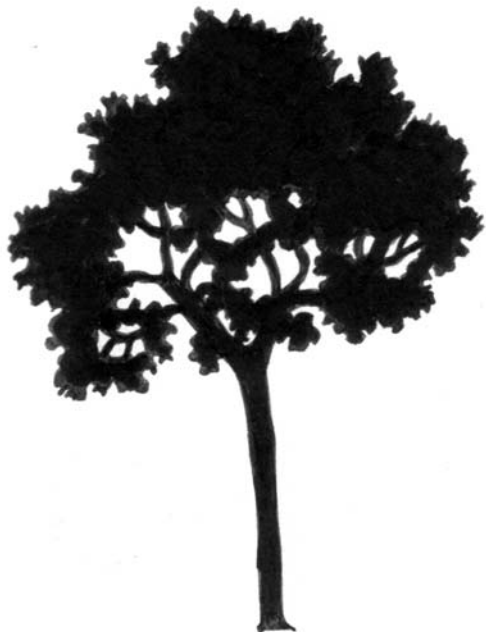
PROPAGATION AND MANAGEMENT

Cover seed with hot water, allow to cool and soak for 12-24 hours. Sow direct, grow from stem cuttings, or plant nursery seedlings out.. Prune roots to keep tap-root checked and encourage side roots. Weeding needed in first year. In alley-cropping systems, pruned in cycles to limit shade on associated crops. Coppicing – cut at one metre height for highest yields.

CASSIA ABBREVIATA - SJAMBOK POD

Indigenous to 12 African countries

The smell of crushed *C. abbreviata* leaves is said to drive snakes from their holes.



Goods

- Fodder: Good for birds and wildlife
- Fuelwood/charcoal
- Timber
- Dye
- Medicine

Services

- Erosion control (deep roots)
- Shade
- Soil improver: Mulch
- Intercropping: deeply rooting, therefore unlikely to compete with crops for mineral nutrients and water.

Growing Guide

WHERE WILL IT GROW

Altitude: 350-1000m

Mean annual temperature: 27°C

Mean annual rainfall: 1400mm

Soil: deep light/sandy and well drained soils

PROPAGATION AND MANAGEMENT

Grow from seed or collect wild seedlings. Sow seeds in a sand:compost mixture (1:1) and keep warm and moist. Soak in hot water to improve germination. Sow directly into polythene bags or into the ground. Plant out seedlings in 1-2 weeks. Trim roots because the plants develop a long taproot early.

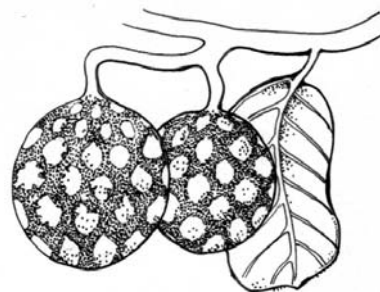
Pollard, coppice, trim and prune to manage. Over-watering results in poor flower display.

ANNONA SENEGALENSIS – CUSTARD APPLE

SWAHILI: mchekwa, mkonokono, mtomoko mtomoko-mwitu, mutopetope, mwitu

Indigenous to 19 African countries

Leaves picked on a Thursday morning and thrown over the right shoulder bring good luck!



Goods

- Fruit
- Leaves used as vegetable
- Timber: Poles, tool handles
- Fibre
- Medicines
- Poisons
- Dyes

Services

- Shade
- Shelter
- Windbreak

Growing Guide

WHERE WILL IT GROW

Altitude: 0-2400m

Mean annual temperature: 17-30°C

Mean annual rainfall: 700-2500mm

Soil: Grows on various soil types; does well on coral rocks dominated by sandy loam soils

PROPAGATION AND MANAGEMENT

Grows well from seed especially if scarified first. Coppices well and grows from root suckers. Weed planting site well and provide light shade. Protect from fire and browsing by livestock and wildlife.

**DIOSPYROS MESPILIFORMIS –
AFRICAN EBONY, JACKAL
BERRY**

SWAHILI: mgiriti, mjoho mpweke

**Indigenous to 15 African countries
from Ethiopia to Swaziland. A definite
asset to any farm!**



Goods

- Fodder (Leaves, shoots)
- Good for bees
- Fuelwood (coppices well)
- Strong timber
- Carvings
- Poles
- Cartbooms
- Yoke pins
- Pestles
- Beer
- Edible fruit
- Home to Mopane caterpillar Toothbrushes
- Medicines

Growing Guide

Leaves are eaten by elephant, giraffe, black rhino, eland and kudu. Fruits are eaten by kudu, klipspringer, warthog, baboons, vervet monkeys, yellow spotted rock dassies, pigeons, parrots, hornbills, louries and bulbuls!

Services

- Shade
- Shelter
- Mulching

WHERE WILL IT GROW

Altitude: 350-1250m

Mean annual temperature: 16-27°C

Mean annual rainfall: 500-1270mm.

Soil: prefers rocky soils along seasonal water courses and swamps. It grows well in moist, red loams, volcanic and loamy sands. Drought resistant.

PROPAGATION AND MANAGEMENT

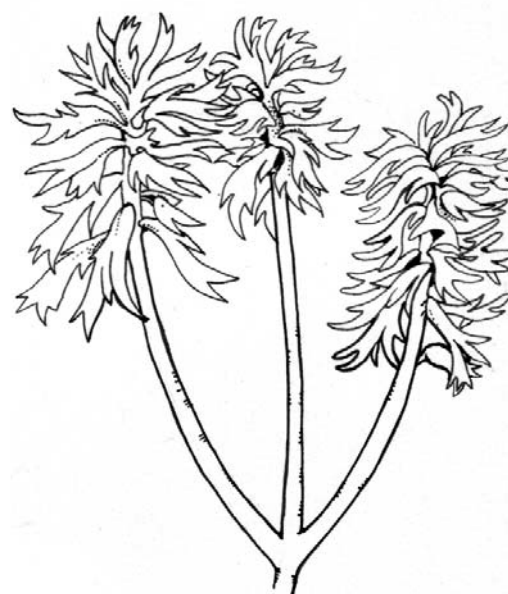
Grows from seed, coppice and root suckers. Soak seed overnight in hot water. Sow in flat seed trays filled with river sand. To avoid damage to tap-root, plant out when seedlings have 3 leaves. Slash and weed around young trees until the trees are well established. Can be coppiced.

Termite resistant. Often found growing wild on termite mounds.

**ERYTHRINA ABYSSINICA
LUCKY BEAN TREE, RED HOT
POKER TREE**

SWAHILI: mbamba ngoma, mjafari, muhuti, mwamba ngoma

Found in savannahs throughout eastern and southern Africa



Goods

- Fodder (leaves)
- Good for bees
- Fuelwood
- Carvings
- Drums
- Fishing float (bark)
- Jewellery (from poisonous seed!)
- Medicines
- Insecticides/Poison

Services

- Erosion control – contour planting and stream banks
- Shade
- Shelter
- Mulch
- Living fence (plant truncheons)
- Nitrogen Fixing
- Windbreaks
- Intercropping with coffee and cocoa

Growing Guide

WHERE WILL IT GROW

Altitude: 1250-2400m

Mean annual temperature: 10-26°C

Mean annual rainfall: 800-2000mm

Soil: Grows best in well-drained soils of pH 3.5-5.4

PROPAGATION AND MANAGEMENT

Grows from seeds or truncheons (large cuttings stripped of leaves).

See **ACTION SHEET 36:** Planting Nitrogen Fixing Trees for further details.

GLIRICIDIA SEPIUM – MOTHER OF COCOA

A South American tree, introduced throughout the tropics as a nitrogen fixing fodder plant.



Goods

- Fodder for goats and cows: Rich in protein
- Good for bees
- Fuelwood/charcoal
- Flowers – fried and eaten
- Timber: used for railway sleepers, farm implements, furniture, house construction and fence posts
- Poison: Rodenticide/pesticide
- Medicine

Services

- Shade for tea, coffee, cocoa
- Nitrogen fixing
- Green manure
- Alley-cropping
- Living fence
- Support for pepper, vanilla, yam

Growing Guide

WHERE WILL IT GROW

Altitude: 0-1200 (1600) m

Mean annual temperature: 15-30°C

Mean annual rainfall: 600-3500mm

Soil: From pure sand to deep alluvial lake-bed deposits. Can grow on slightly saline soil, but will not grow on very acidic soils

PROPAGATION AND MANAGEMENT

See **ACTION SHEET 54:** Gliricidia sepium

JATROPHA CURCUS – THE PHYSIC NUT TREE

SWAHILI: Mbono

Exotic to Africa – probably from Mexico, introduced to Africa centuries ago by portugese seafarers

Physic nut oil was used in engines in Segou, Mali, during the Second World II

Goods

- House lighting
- Fuelwood
- Oil (used to make candles, soap and varnish, can be sold commercially in some countries, could be substitute for diesel and kerosene)
- Dye – red, black and blue
- Poison: rodenticide/pesticide from poisonous seeds
Medicine

Services

- Living fence (from cuttings; leaves and stem are toxic to animals)
- Erosion control
- Nitrogen fixing
- Green manure
- Natural fertilizer (Use residue after crushing seed to take out oil)

Growing Guide

WHERE WILL IT GROW

Altitude: 0-500 m

Mean annual temperature: 20-28°C

Mean annual rainfall: 300-1000mm or more

Soil: Grows on well-drained soils with good aeration; well adapted to dry areas and poor soils with low nutrient content.

PROPAGATION AND MANAGEMENT

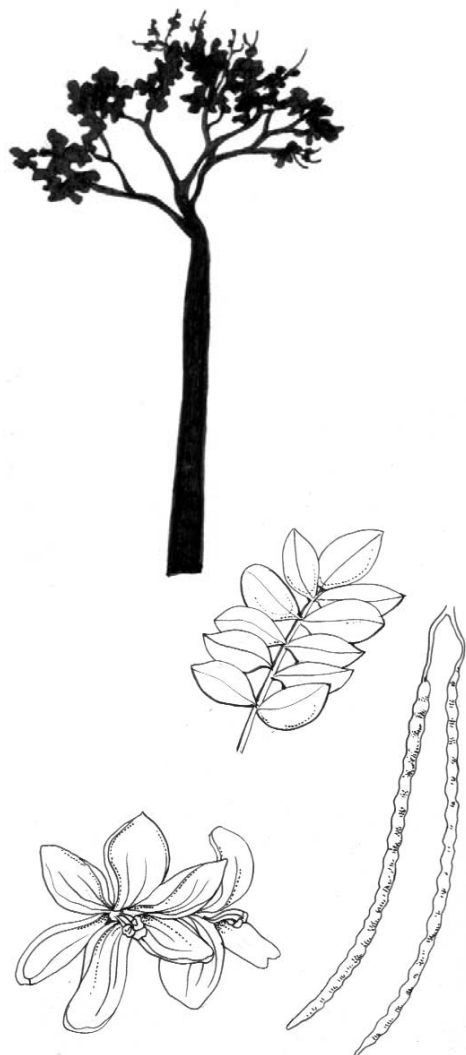
Easy to propagate from fresh seeds, wild and cultivated seedlings and branch cuttings. Collect the seeds when the capsules have split. Soak and dry repeatedly before planting. Weed around young trees. On plantations, plant between 2 and 3 metres apart. Nursery plants fruit after first rainy season. Direct seeded plants fruit after second rainy season.



MORINGA OLEIFERA - DRUMSTICK TREE

SWAHILI: mlonge, mronge, mrongo, mzunze

This Asian tree has been introduced to Africa for its healthy leaves and pods



Goods

- **Good food:** Vitamin-rich leaves, pods, young roots and oil.
- Good for bees: Flowers on and off year round if managed with cutting and coppicing
- Fuelwood
- Fibre: Beat the bark to make fibre for ropes and mats
- Timber for light construction work
- Dyes and tannin
- Water treatment for muddy water (See Action Sheet 23)

Services

- Erosion control: can be grown in dry areas with strong winds
- Soil improver: Use leaves as a mulch
- Natural fertilizer from the left-over residue seed cake from oil extraction
- Living fence
- Shade
- Shelter
- Windbreak
- Intercropping

Growing Guide

WHERE WILL IT GROW

Altitude: 0-1 000m

Mean annual temperature: 12.6 to 40°C

Mean annual rainfall: At least 500mm

Soil: Grows in a wide range of soil types; does well in well-drained clay or clay loam without long water-logging.

PROPAGATION AND MANAGEMENT

Grows well from cuttings.

See **ACTION SHEET 52:** Moringa oleifera

PARINARI CURATELLIFOLIA – MOBOLA PLUM

SWAHILI: mbura

SHONA: muchacha, muhacha

NDEBELE: umkhuna

Indigenous to Sub Saharan Africa



Goods

- Fodder: Leaves and fruit eaten by wildlife and cattle
- Good for bees: lots of nectar-rich flowers
- Fuelwood and charcoal
- Timber
- Edible fruit rich in vitamin C, makes a delicious drink
- Edible seeds
- Medicines
- Dyes
- Tannin
- Toothbrushes
- Medicines

Services

- Shade
- Shelter
- Improves soil

Growing Guide

WHERE WILL IT GROW

Altitude: 0-1900m

Mean annual temperature: 10-30°C

Mean annual rainfall: 0-2700mm

Soil: Light yellowish-brown to reddish-yellow, gritty, sandy clay loams and red to dark red clays

PROPAGATION AND MANAGEMENT

Germination difficult. Best grown from root cuttings. Root suckers, produced when the root is wounded, can be transplanted to a nursery and grown. After 2 years, transplant to the field or garden. Take care to avoid damage to tap-root when re-planting. Plant in groups of 10 or more, and water until trees become established. Can be coppiced.



PILIOSTIGMA THONNINGI - MONKEY BREAD

NDEBELE: ihabahaba

SHONA: mutukutu

SWAHILI: mchekeche, mchikichi

An indigenous tree which grows throughout tropical Africa, except Somalia.



Goods

- Fodder: leaves, pods, seeds, eaten by cattle, antelopes and elephants
- Fuelwood (coppices well)
- Tool handles
- Fibre from bark
- Food: Leaves, fruit, seeds. Mealie-meal substitute made from ground dried pods
- Soap-substitute: pods
- Dye
- Medicine

Services

- Shade
- Shelter
- Windbreak
- Erosion control: deep-rooted
- Nitrogen fixing
- Mulching with leaf litter

Growing Guide

WHERE WILL IT GROW

Altitude: 0-1850m

Mean annual temperature: 20°C

Mean annual rainfall: 700-1400mm

Soil type: Heavy clayey soils or medium loamy soils preferred.

PROPAGATION AND MANAGEMENT

Can be grown from root cuttings or direct seeding. To prevent insect attack, collect seeds immediately after pods turn brown. Seeds grow and germinate quickly. Soak or scarify the seeds before planting. Can be coppiced and pollarded.

SCLEROCARYA BIRREA - MARULA

SWAHILI: (mgongo, mng'ongo, mng'ong'o, morula)

A fruit tree indigenous to Africa. Elephants get drunk when the fruit ferments in their stomachs.

This is a protected species in South Africa!



Goods

- Fodder (Leaves, Fruit)
- Fuelwood (Coppices well)
- Carving stools
- Mortars
- Plates
- Poles
- Timber
- Fibre
- Fruits high in vitamin C (can be preserved)
- Nuts (high in Vitamin C - can be made into nut butter or oil)
- Medicine
- Dyes
- Ornamental tree
- Mopane caterpillar lives on the marula tree

Services

- Shade
- Shelter
- Windbreak
- Living fence (grow from truncheons)

Growing Guide

WHERE WILL IT GROW

Altitude: 0-1500m

Mean annual rainfall: 0-1370mm

Mean annual temperature: 19-35°C

Soil: Few specific requirements; grows on sandy or stony soils and on lateritic crusts

PROPAGATION AND MANAGEMENT

If growing from seed, soak seeds overnight before sowing. Seed germination is good but survival rate of seedlings is poor. Probably best grown from truncheons (cuttings with a diameter of 100-150mm, and a length of 2m).

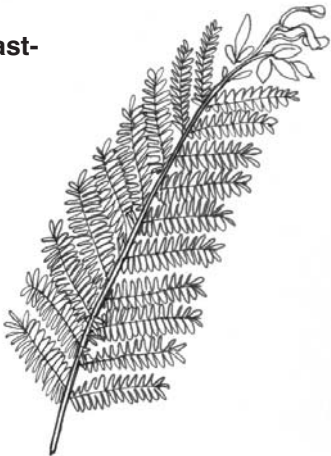
SESBANIA SESBAN – SESBANIA

ZULU: (umQambuqweqwe,umsokosoko)

Indigenous to Chad, Egypt, Kenya, Uganda; now grows widely throughout Africa



Famously fast-growing!



Goods

- Fuelwood/charcoal: (good coppice)
- Fodder: nutritious leaves, high quality fodder for livestock
- Fibre
- Medicines
- Flowers can be eaten

Services

- Shade
- Windbreak
- Nitrogen fixing
- Mulch
- Green manure
- Improved fallows – One year's S. sesban fallows can double maize yields without mineral fertilizer
- Live trellis support for pepper

Growing Guide

WHERE WILL IT GROW

Altitude: 100-2300m

Mean annual temperature: (10 min.) 18-23 (45 max.)°C

Mean annual rainfall: 500-2000mm

Soil: Tolerates seasonal or permanently waterlogged soils as well as saline, acidic and alkaline soils.

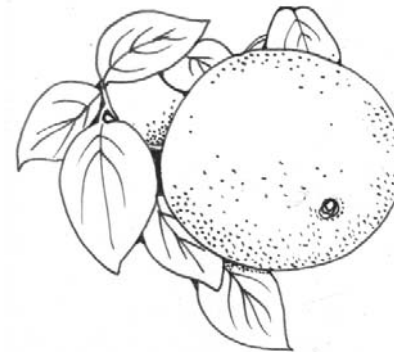
PROPAGATION AND MANAGEMENT

See ACTION SHEET 55: Sesbania sesban

STRYCHNOS COCCULOIDES - WILD ORANGE

SWAHILI: mpera-mwitu,mtonga

Indigenous to Botswana, Kenya, Namibia, South Africa, Tanzania, Uganda, Zambia, Zimbabwe



Goods

- Fuelwood (Coppices well)
- Building
- Poles
- Carving
- Edible fruit (can be dried and preserved, or used to make a refreshing drink)
- Medicine

Services

- Shade
- Shelter
- Living fence

Growing Guide

WHERE WILL IT GROW

Altitude: 400-2000m

Mean annual temperature: 14-25°C

Mean annual rainfall: 600-1200mm

Soil: Prefers deep sandy soil on rocky slopes, and grows on acidic dark-grey clays and red or yellow-red loams. Grows wild in woodlands, mixed forests, deciduous woodlands and lowlands.

PROPAGATION AND MANAGEMENT

Seeds germinate easily. Soak for 24-48 hours in hot water before planting. Can be grown through root cuttings, produced by wounding the root. Raise seedlings in the nursery, and then plant out on a cleared site. Weed well until trees are established.

SYZYGIUM GUINEENSE – WATER BERRY

SWAHILI: (msambaran, mzambarai, mzambarani, mzambarau, mzambarau mwitu, mzuari)

SHONA: (mukute)

NDEBELE: (umdoni)

Indigenous to Botswana, Eritrea, Ethiopia, Kenya, Lesotho, Mozambique, Namibia, Senegal, Somalia, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe



Goods

- Fodder (Leaves, Shoots)
- Good for bees
- Carving
- Implements
- Building
- Edible fruit

Services

- Good leaf humus (mulch)
- Shade
- Shelter

Growing Guide

WHERE WILL IT GROW

Altitude: 0-2100m

Mean annual temperature: 10-30°C, *Mean annual rainfall:* 1000-2300mm

Soil: prefers fresh, moist, well-drained soils with high water table. Grows wild in lowland rain forests, mountain rain forests, swampy forests and open woodland

PROPAGATION AND MANAGEMENT

Germinates easily from fresh fruit seed. Can be sown directly or raised in a nursery from seed or collection of wild seedlings. Plant out on cleared site. Needs a lot of light, so overhead shade may need to be cleared too. Can be coppiced and pollarded.

TEPHROSIA VOGELII – FISH POISON TREE

SWAHILI: kibaazi, kibazi, mibaazi, mtupa, utupa wa kibaazi, utupa wa kingindo, utupa wa mrima

Indigenous to tropical Africa



Goods

- Poisonous leaves: used to make natural pesticide to kill lice, fleas, ticks, snails and mites; used to make a fish poison (illegal in some countries) and arrow poison for hunting
- Medicine

Services

- Nitrogen fixing
- Green manure
- Living fence (makes a good barrier)
- Shade and shelter in plantations

Growing Guide

WHERE WILL IT GROW

Altitude: 2100m

Mean annual temperature: 12-27°C

Mean annual rainfall: 850-2650mm

Soil: can tolerate acidic soils. Grows well on volcanic ash soils that are not flooded, and also on well-drained loam with pH 5-6.5.

PROPAGATION AND MANAGEMENT

See **ACTION SHEET 53:** *Tephrosia vogelli*

ZIZIPHUS MUCRONATA – BUFFALO THORN

Ndebele: umphafa
Shona: muchecheni
Swahili: mkunazi
Tswana: mokgalo
Xhosa: umPhafa
Zulu: isiLahla, umKhobonga,
umLahlankosi, umPhafa

Indigenous to Sub Saharan Africa



Goods

- Fodder for wildlife and livestock (leaves)
- Good for bees
- Fuelwood
- Timber
- Boma/kraals
- Tools
- Edible fruit (high in Vitamin C and essential nutrients)
- Medicine

Leaves are eaten by giraffe, eland, kudu, sable, black wildebeest, nyala, impala, klipspringer, springbok, Sharpe's greysbok, steenbok, Damara dik-dik and warthog

Services

- Living fence – makes a very good barrier
- Shade

Growing Guide

WHERE WILL IT GROW

Altitude: Up to 2000m

Mean annual temperature: 12-30°C

Mean annual rainfall: 446-1200mm

Soil: Grows on a variety of fine texture soils. Can grow in shallow soils and cope with seasonal waterlogging, salt spray and soil salinity. A very hardy species, most common in dry areas.

PROPAGATION AND MANAGEMENT

Remove the flesh of the fruit and soak the seeds in cold water for 6 hours. Plant in a seedling tray with a thin layer of river sand and keep moist. Take care not to damage the long tap root when planting the seedlings out. Alternatively, sow seeds or root suckers directly where you want your plants to grow. Can be coppiced and pollarded. Young trees must be protected from browsing cattle.

*SOURCES: World Agroforestry Centre
Agroforestry Database, Action Environmental
Health Magazine. Illustrations by Alexi Francis*