

**MANUAL FOR THE  
PROPAGATION AND  
CULTIVATION OF MEDICINAL  
PLANTS OF GHANA**

**2002**



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## Acknowledgements

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## Introduction

Medicinal plants have always been part of man's life on earth and there is a close relationship between plants and human beings. Man depends on plants for his existence and this relationship must be sustainable. Herbs have saved man's life on innumerable occasions and for this reason their over-use concerns everyone. It is important to note that medicinal plants in Ghana remain wild and undomesticated. In Ghana medicinal plants form the raw materials for new and emerging industries especially the manufacturers of 'bitters' or alcohol-based medicines. The plants required for these industries are mostly harvested from the wild. With this increasing harvesting pressure, the plant supplies will, in time, dwindle and eventually become extinct. To ensure that medicinal plants are always available we must learn to grow our own. Therefore this manual has been written to help the gardening man to propagate and grow these plants.

It is true that most plants can be propagated from seeds but the success of this is dependent on factors such as the type of soil, the rainfall and pests. This manual concentrates on seed propagation and stem and root cuttings. It looks at the collection of seedlings, vines, suckers, rhizomes and corms. We hope that this manual will be of some use to anyone who is considering cultivating his or her own medicinal plants. It provides helpful and practical advice on how to propagate and cultivate a wide range of plants and how to maximise success from those efforts.

*W. Ofusohene-Djan*  
February, 2002

### Things to consider when growing your medicinal plants:

1. Chose suitable sources for your plants
2. Plan the nursery well
3. Avoid unnecessary stress on the plants that you are propagating
4. Prepare the planting ground well
5. Look after newly planted plants until they are well established

## Setting up your nursery

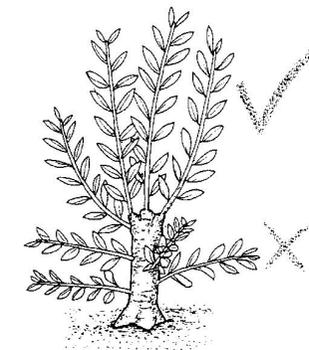
### Site selection for your nursery

The site should be flat and situated near a permanent source of water and must not be too far from the house. The area needs some natural shade but should not be overshadowed with dense trees. Ensure that you have rights to use the land for some time into the future.

### Establish Stock beds

The purpose of a stock bed is to provide material for you to propagate plants from. You may want to collect seed from these plants or use young new shoots to take cuttings. Your stock plants should be the kind of plants that you have selected as both useful and manageable within the compound or farm. Grow your stock plants in a place that is easy to get to but does not take up too much space on your land. Keep these plants well-pruned and free from pests and disease. Water them in the dry season to encourage the growth of new shoots and add mulch and manure at the beginning of the growing season. You may want to consider inter-planting with other plants to provide natural shading or with nitrogen fixing plants to enrich the soil.

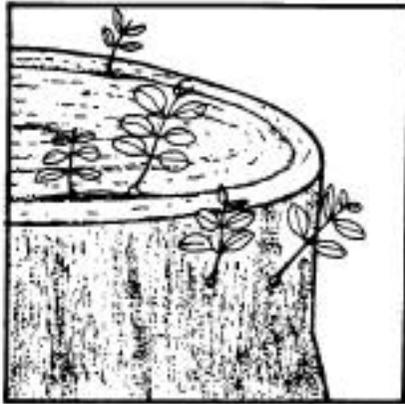
You may choose to keep your stock plants in pots if for example, you are likely to move from the land that you are currently on. The biggest danger with stock plants in pots is that they may dry out. To address this problem, water regularly and check the pots periodically to see if the roots are growing out of the base of the pot. A plant that dries out too often may need re-potting. Alternatively, you can cut the roots back when they start to grow through the base of the pot and keep the plant well-pruned.



*Stock plants provide fresh plant material*

### Stump coppicing

You may have the opportunity to make use of a tree that has been felled nearby. The young shoots that grow from the stump may provide you with useful cutting material for a number of years to come. It is important that you leave some of the shoot on the stump so that the remaining young leaves can keep the stump alive. Try to keep the stump partially shaded and prune it to ensure that no large shoots start to form.



*Young shoots from a tree stump*

### Seedling beds

Make a bed 120cm wide and as long as is convenient for your nursery. The bed should be raised 12cm high to ensure that heavy rain drains away at the sides of the beds but does not wash the seedlings away. It is important that the bed is no wider than twice the length of your arm, allowing you to sow and weed without standing on the soil. A path should also be left between the beds to allow easy access. The soil in the bed should be finely graded, without stones or debris that will make sowing and subsequent germination uneven. The beds should be level to avoid the seeds washing down into gullies and dips on the surface.

### Direct sticking beds

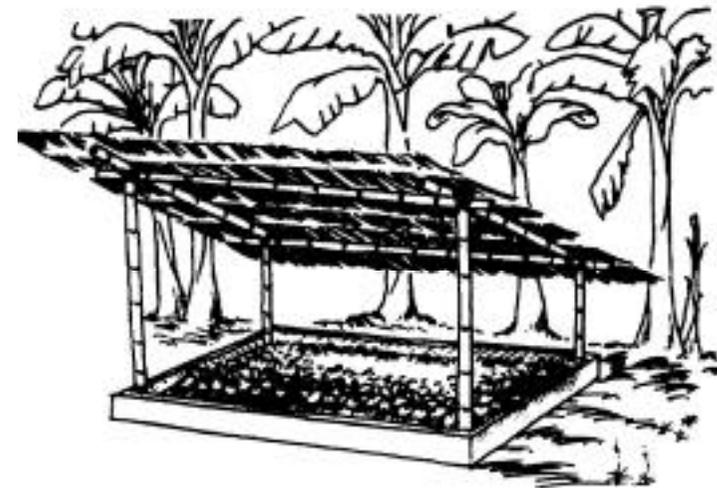
These are beds that are prepared for hardwood cuttings and leafy cuttings. Like the seedling beds, these need to be twice the length of your arm in width so that you can reach to the middle of the bed from both sides and can be as long as you need or have space for. The cuttings, once prepared are inserted directly into the beds, in rows and labelled.

### Standing down area

When the seeds have developed their first set of true leaves or the cuttings have grown roots and shows signs of leafy new growth, they are ready for potting-up or planting-out. The standing down area is an area of flat, shaded ground, where you place the newly potted-up plants or plant the new plants temporarily to encourage them to grow larger. This gives them the additional space they need to start growing. The plants stay in this area until they are ready to be planted in a permanent site.

### Shading

The intense heat of the sun may cause over-heating in your seedlings or cuttings. If there is not enough light the plant will not be able to manufacture food for new roots and the weakened plant will be vulnerable to disease and fungal attack. Young seedlings should be protected from direct sunlight using palm fronds. Palm fronds will also protect the tender young plants from heavy droplets of rain that may wash-away the seedlings or disturb the young roots of the cuttings.



*Protect young plants from rain and sun*

## Water

The best way to keep the cuttings from drying-out is to:

1. shade the propagating area
2. trim the leaves

The most vulnerable times for the young plants are at the time of seed germination, before the roots have developed in the new cuttings and immediately after you have transplanted them from the seed or direct sticking bed.

## Compost

You will achieve the best results if you provide a good rooting medium for the cuttings. Ordinary soil is not ideal because it does not have the properties required for cutting compost. These include high aeration, good moisture retention and drainage. You can also ensure that your own compost is free of pests by sterilising it. Heat the compost in tin drums over a fire for a few minutes. This will kill all insects and their eggs. The ingredients for a good compost mix are sharp sand, grit or gravel and old weathered sawdust or coconut palm husks. Ideally use one part of each in your mix.

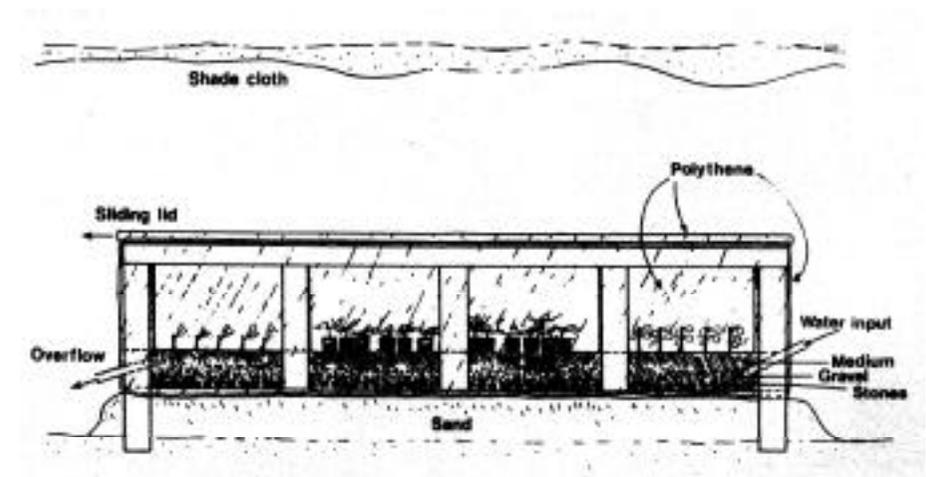


*Making your own compost*

## Propagation unit

The propagation unit is used to create an atmosphere of high humidity for leafy cuttings. This prevents wilting and promotes root growth. The unit can be any size suitable for the volume of plants that you hope to propagate. The basic materials required are timber, nails, timber preservative and polythene.

The unit is wrapped in transparent polythene allowing the light in but restricting the evaporation. Note that the propagation unit is well drained with a thick layer of sand beneath to allow the water to flow out.



*Propagation unit*

Beware of allowing the heat in the propagator to rise too high. The temperature should not rise above 28-33°C. There is a removable lid that allows adjustment for hot days when ventilation is needed to keep the unit cool.

When the roots have formed the new plant is transplanted to a fresh site on the nursery where it is grown on until it is strong enough to be planted in its final position where it can grow independently of the nursery.

## What causes stress and failure in your plants?

### Water stress:

- Too little water
- Too much water
- Too dry an atmosphere on young cuttings
- Too little root system to support the leaves

### Light levels:

- Too sudden removal of shade
- Keeping the plants in dim light for too long

### Temperature stress:

- Too hot or too cold

### Nutrient stress:

- Lack of main elements
- Lack of trace elements

### Others:

- Wind, torrential rain, pest and diseases

## Nursery management

### Arrangement of seedlings

Black polythene bags measuring 15cm to 18cm wide and 19.5-20cm high should be filled with nursery compost or topsoil enriched with well-decomposed manure at a ratio of 3:1. The bags should be arranged in rows of 5 wide, leaving lanes of about 45-60cm to allow for watering, weeding and chemical spraying.

For direct seed sowing or the direct sticking of cuttings, the beds should be raised and the soil should be sifted to remove large stones and other debris. Firm down the soil and rake the surface before sowing. Ensure that you sow the seeds in neat rows. This will help to distinguish between the emerging weeds and the plants you want when hand weeding. Water with a gentle spray of droplets after sowing.

### Watering

It is important that plants are watered regularly. Periods of dryness weaken the plant and make it susceptible to disease. Regular watering encourages strong root growth and vigorous shoot growth. The seed bed should be watered twice every other day until seedlings emerge. Leafy cuttings require high humidity, as they are unable to draw water up through the soil until their roots have begun to grow. When growing rows of plants be careful not to miss watering those growing on the ends or corners of beds. Potted plants require even moisture throughout the compost and inadequate watering will leave the base of the pot dry. The consequence of poor watering is that the roots will remain at the surface and not reach down to moisture stored lower down in the soil. Transplanting and potting-on will be less successful as a result of poor root formation and the plants will not be able to withstand periods of drought.

### Pest and diseases

Hygiene on the nursery is important. Sweep away any leaf debris that is on the ground as this will harbour pests. When the nursery is temporarily empty, introduce fowls to the nursery for a few hours. They will eat any small grubs and insect eggs that may infest your plants later on. Do not leave plants in standing water where the roots will become waterlogged. This will encourage rotting and weaken your plants making them more susceptible to fungal attack.

### Ventilation

Regularly prop open the lid of the propagation unit with a piece of wood to avoid a build-up of heat. This is particularly important in the daytime when, without a breeze, the sun's heat will be captured in the unit and kill the young cuttings.



*Ventilate your propagation unit*

## Propagation methods

### By seed

Seeds produce many plants at once and they can be collected and transported very easily. The main problems that you may encounter with seed propagation are failure to germinate and loss through transplanting. Both of these problems can be reduced with careful nursery stock management. Many tropical seeds are best sown fresh and do not survive if they are allowed to dry-out. Always check that your seed is free from pests and disease. Even if an infected seed does germinate it is unlikely to thrive.

Failure to germinate is often a result of a) a natural chemical inhibitor in the seed or b) the seed having a physical inhibitor i.e. a hard seed coat. These inhibitors are designed to protect the seed from germinating in an unsuitable environment. To succeed with these kinds of seeds you may need to experiment to find out what kind of inhibitor the seed has, sometimes they have both. The main method of breaking down the chemical inhibitor is by soaking the seeds in water. This can wash away a chemical inhibitor. A physical inhibitor requires scarifying. This is the use of abrasion to break through the hard outer coat of the seed without damaging the seed itself. Hard-coated seeds may also respond to overnight soaking in water.

The prepared seeds should be distributed uniformly over the seedbed. After sowing rake the soil over lightly to ensure good seed-soil contact. If the seeds are very large you may choose to plant them individually. The general rule is to plant a seed at a depth equal to the size of the seed itself. The seeded areas should be watered carefully. Avoid water-logging and the displacement of seeds with careless watering.

When planting seeds into polythene bags the soil in the bags should be moist. The seed should be planted at a depth of 2cm or so. If in doubt about which way up to plant the seed place the seed flat in the soil at a depth that is the same as the thickness of the seed. Alternatively, seeds can be planted by digging a hole and dropping two seeds in with the pointed ends upwards. The holes are then covered up with soil. At the four-leaf stage, remove one seedling, leaving the stronger seedling to grow.

### Vegetative propagation

This is when you take a vegetative part of the plant, stem or piece of root and grow new plants from it directly i.e. not seed. By rooting cuttings on your nursery you do not need to rely on the parent plant producing seed and you can overcome many of the problems that you may have with trying to get seeds to germinate successfully. Vegetative cuttings mean that you can select the exact plant that is best for your needs i.e. the individual plant that you know to be particularly potent and valuable for medicine rather than leaving this to chance with a random selection of seedlings.



*Rooted cutting*

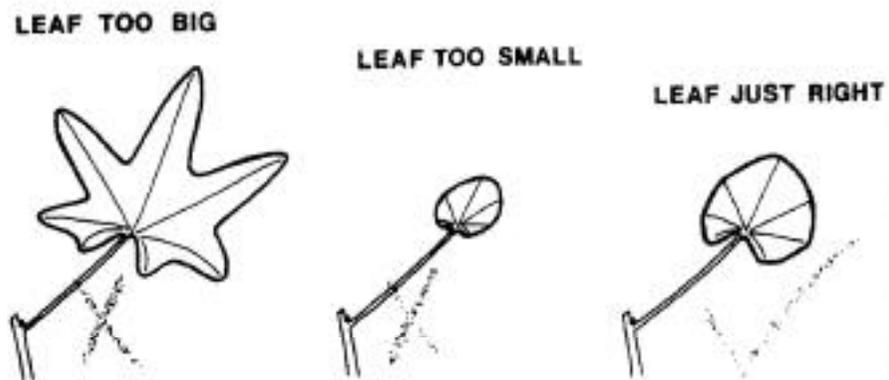
### Stem cuttings

Commonly, the vegetative part of the plant used for propagation is the stem. Collect small branches of vigorous growth, which shows no sign of pest or disease, and make every effort to prevent this from wilting. When you collect your cutting materials avoid the heat of the day as this is when the plant is losing a lot of its moisture. Do not keep the material in a polythene bag as it will overheat very easily.

Once in the nursery, find a shaded area and prepare your cuttings. You may like to have a bucket of cold water standing by to receive the trimmed cuttings. Take a moderately vigorous shoot and cut to a length of between 2.5-12cm long.

The length of stem you required depends on the length of internode (the space between the leaves). A node is the point at which the leaf meets the stem and a cutting is measured by the number of nodes it has. For example, a single node cutting is suitable from plants where the internode space is no less than 1.5cm. In this case you cut just above the node and insert that end into the compost. Two-node cuttings are taken from plants where there is a shorter distance between the nodes. Cut just under a node, as this is a good place for roots to be formed. Many noded cuttings are for species that have very short internodes and lots of small leaves. These are best taken at 5-15cm long.

If the stem is leafy this is usually known as a softwood cutting. Most tropical trees can be propagated from softwood cuttings. Using a clean knife, remove all but the top two leaves of the cutting. Trim each leaf down by half. It is preferable to dip the stem base into a hormone solution or powder to encourage rooting. However, this is not absolutely necessary. Insert two thirds of the stem into the prepared cuttings bed or a polythene bag of compost and gently press the compost down to firm it in. Water and keep shaded.



*Trimming cutting to size*

To avoid drying breezes make sure that the cuttings are sheltered by palm leaves or by some other kind of structure. It is important that the new cuttings are kept cool and do not dry out. The leaves of the cutting should never wilt. The best way to stop the leafy soft wood cuttings drying-out is to build a small propagator. This can be as simple as a frame covered in polythene. The propagator can be as large or as small as you require. The purpose of the propagator is to maintain high air humidity.

If you take a cutting from a stem of a plant that is leafless this is usually known as a hardwood cutting. If there are leaves still on the cutting these can be cut off using a sharp knife leaving a very few leaves at the tip. The wood is usually firmer and there is less danger of the cutting drying out. These cuttings are usually much larger than softwood cuttings (as much as 1-2 meters) and can usually be planted directly into the ground but will take longer to root. The cutting should have an inactive bud as it is better for the new shoot growth to begin after rooting.

#### **Root cuttings**

These can be cut from the main plant without destroying it. Cut a piece of stem as long and as thick as your index finger. Do not use any growth hormone, as this will stop the root growing. Place the root cutting horizontally in a polythene bag full of compost or directly into your nursery beds. Cover with a light layer of soil and firm down. Watering is done as and when necessary. Roots develop between 4-8 weeks after planting.

#### **Tubers**

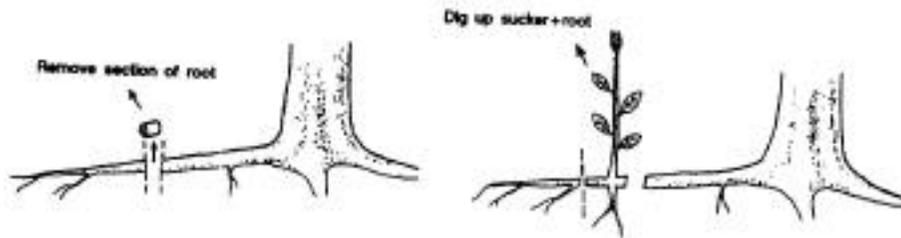
Take these cuttings when the plant is not actively growing i.e. when it is dormant. Cut a small piece of the tuber, which should include a bud. Do not use any growth hormone. To allow you to harvest some of the plants tubers later without destroying the whole plant, it will be beneficial to plant this cutting into a raised bed or individual mound, as for yam.

#### **Suckers**

Suckers are the shoots that are produced from the roots. Treat these as either unrooted cuttings or separate them from the main plant keeping a piece of root attached. Avoid these suckers drying out by preparing the planting ground in advance and water them as soon as you have planted them.

**Offsets**

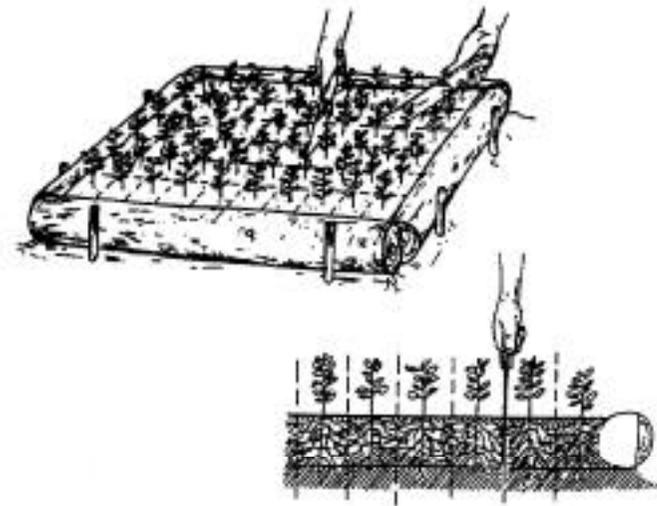
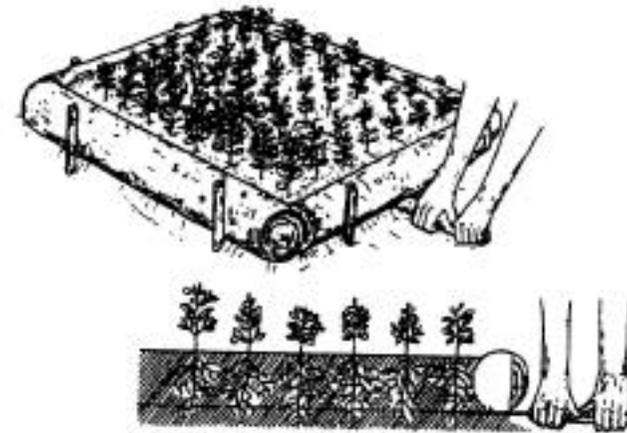
These are the little clumps of new shoots that form clumps or sets of buds at the base of some species e.g. banana and plantain. Separate these from the main plant and divide them into individual plants or small clumps. Do not allow these to dry out or be left in the sun. Plant these clumps into the nursery beds or into their final planting position and water them well.



*Offsets and suckers*

**Undercutting seed beds**

Drawing the blade of a machete at ground level, under a raised bed of young plants, is known as 'undercutting'. This is a useful technique when growing young plants in the nursery to help them to develop a very fibrous root system. This results in good plant establishment when they are transplanted to their final planting site. Undercutting promotes vigorous fibrous roots and prevents the roots from penetrating too far down into the nursery bed. Undercutting can only be done on a raised bed that is twice the width of a machete.



*Undercutting promotes good root growth*

## Planting and aftercare

### Transplanting seedlings or 'Potting on'

Potting-on is what you do when your seeds or cuttings have established an adequate rooting system to sustain them and you need to move them into a bigger pot or to a larger site where they can grow on for a little while longer. It is the point at which they have developed roots and are ready to start growing into young plants. The correct time for potting-on seedlings is when the first set of true leaves have grown. The correct time for cuttings is when the roots are visible through the holes in the bottom of the pot or, if they are directly planted into beds, when they show signs of independent growth in the form of a new flush of leaves.

Lifting these delicate young plants and potting them into new pots or a new piece of ground is a most stressful time for the young plant. Water the plants you intend to move the day before the operation. Handle the rooting ball gently, without disturbing the roots and ease the plants out of their compost rather than pulling them. Ensure that you loosen the soil around the plant using a stick or other small utensil before lifting it from the bed. Hold the young seedling by the first two seed leaves not by the stem or roots. If you bruise the neck of the soft stem, the plant is likely to rot.

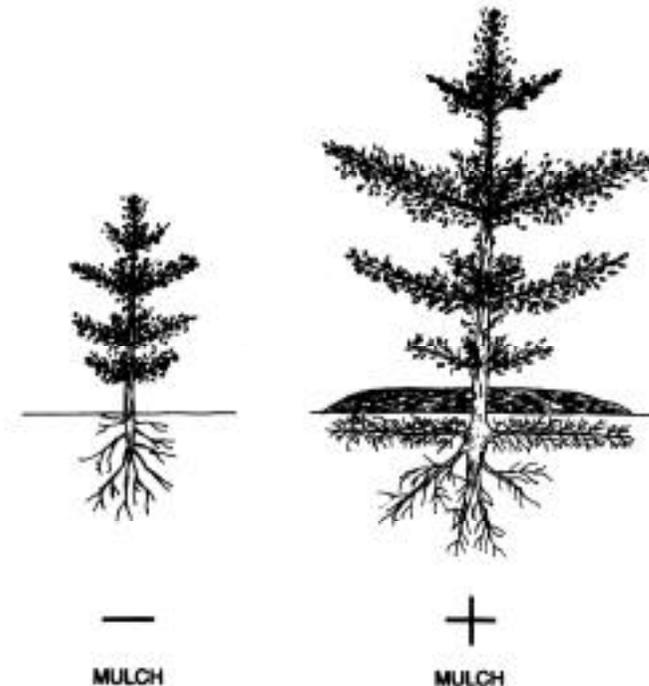
If in pots, gently loosen the root ball in the pot before tapping the whole root ball into your upturned hand. Always carry out this operation in the cool of the day and in the shade. Do not handle the plant too often and try to keep the roots cool throughout the operation. Prepare the new planting area before initiating the transplanting. Have the compost ready mixed or the bed already dug-over and raked level in expectation of the transplanting. Water the newly transplanted plants thoroughly to ensure that the roots are in close contact with the soil around them. The plants must not be allowed to dry out or the roots be unduly damaged or broken. All newly potted-on plants should be watered well and shaded for a few days after potting-on.

## When are young plants most easily damaged?

- When seeds are just germinating
- When leafy cuttings are being handled
- When plants have just been potted up
- If unsuitable potting compost has been used
- If conditions suddenly become stressful
- If watering is not done regularly or well
- If potted plants are allowed to let their roots grow into the ground (these are then broken when the plant is lifted up)
- During the first week after planting

### Mulch

Mulch is important for conserving water in the soil and for keeping roots cool and weed free. Mulch can be made from old coconut husks, chopped bark or other organic material to a depth of approximately 6cm. Always water the newly transplanted plants well before putting on mulch.



*Mulching promotes root growth*

## Propagation guide to selected medicinal plants

**Name:** **Okyem** (Twi) (*Adenia cissampeloides*)  
**Habitat:** Forest  
**Description:** Climber, leaves often marbled above, pale beneath, more or less rhomboid; flowers greenish-yellow on several-flowered flower head, fruits form an angled capsule.  
**Part used:** Stem-bark  
**Use:** The stem-bark is used to treat mild hypertension and numbness.  
**Propagation:** Stem cutting: Cut a piece of stem with 2-3 nodes and treat with growth hormone before planting in polythene bags. Water twice every other day until sprouting.

**Name:** **Fomwisa** (Twi) (*Afromomum melegueta*)  
**Habitat:** Forest  
**Distribution:** Common in all tropical Africa, often cultivated  
**Description:** Herbaceous plant growing in tufts, reaching 1m high, leaves narrow, 20cm long and 3cm wide. Flowers almost without a stalk, more or less solitary starting at the base of the stem; small blackish-brown seeds, aromatic and prickly.  
**Part used:** Fruit, roots, seeds and whole plant  
**Use:** The fruit is used for the treatment of boils, rheumatism, bone fractures. Roots are used for chest pains. Seeds are used to treat wounds, numbness and anaemia. The whole plant is used for coughs.  
**Propagation:** Rhizomes: Select and cut rhizomes with buds. Plant directly into beds.  
 Water regularly both morning and evening.

**Name:** **Gyedua** (Twi), Neem (English) (*Azadirachta indica*)  
**Habitat:** Cultivated  
**Distribution:** Native of India, widely spread in all tropical regions of the world.  
**Description:** Small tree up to 10m high, evergreen, leaves compound, uneven leaflets in pairs of 5-8. Flower heads in panicles of small flowers, white fruits, berry-like, yellow at maturity, fragrant.  
**Part used:** Leaves, root-bark, stem-bark, seed, bark

**Use:** The leaves are used to treat ringworm, boils, fever and hepatitis. The stem-bark is used to treat Malaria. Seeds and root-bark are used to treat intestinal helminthiasis and wounds. The bark is used to treat pharyngitis.  
**Propagation:** Seeds: Collect seeds between March and July. Sow in drills 20cm apart. These must be sown fresh or fewer will germinate. Thin to 15cm apart in the row.

**Name:** **Kabowoo** (Twi), Desert Date (English) (*Balanites aegyptica*)  
**Habitat:** Dry savannah regions  
**Description:** Tree 4-10m high, bark grey with vertical cracks in which the yellow of the new bark can be seen; slash pale yellow; smaller branches dark green. Leaves with two leaflets on a common stalk; leaflet slightly oval shaped; flowers in short clusters borne above the leaf joints; fruits broadly oblong, green and shortly velvety when young and smooth when ripe.  
**Part used:** Bark, root-bark, roots and fruit.  
**Use:** The bark is used to treat skin rashes and other ailments of the skin. Root-bark used to treat circumcision wounds and herpes zoster. Roots and fruits are used to treat abdominal pain. The fruits are also used to treat malaria.  
**Propagation:** Seeds

**Name:** **Egoro** (Twi), Resurrection plant (English) (*Bryophyllum calycinum*)  
**Habitat:** Often found in compounds but also along footpaths, in thickets and in secondary forests.  
**Distribution:** Native of Malaysia, widely distributed and naturalised in the tropics.  
**Description:** A perennial herb 60-120cm high, smooth leaves simple or divided into three, leaf margin toothed, and sometimes with young leaves produced in the notches. Flowers are in bunches, greenish-red and hanging down, petals brown.  
**Parts used:** Leaves, stems and roots.  
**Use:** The leaves are used to treat whooping cough and whitlow, heart palpitations, ear ache and sore throat. Juice from the root is used to treat epileptic fits and heart troubles.

**Propagation:** Stem cuttings: Cut stems 6cm long with 2-3 nodes on each. Insert into polythene bags and water. Individual leaves can be detached from the plant and the base inserted in soil. These will develop roots to produce a new young plant.

**Name:** **Nibima** (Twi) (*Cryptolepis sanguinolenta*)

**Habitat:** Forest and thickets

**Description:** Slender climber, up to 8m high with blood-red juice; leaves oval shaped, 2.5-7cm long and 1-3cm wide; flowers greenish-yellow.

**Part used:** Root

**Use:** The root of this plant is used to treat Malaria and insomnia.

**Propagation:** This plant can be propagated by either seed or by root cuttings. Seed can be collected semi-ripe when red/black. The seeds are small and flat and can be separated from the husk by shaking or washing. It is the root of this plant that is of medicinal value. It is best grown in mounds or raised ridges (like cassava) to enable you to harvest the roots easily without destroying the plant. If you remove only one third of the roots each time you harvest, then the plant will continue to grow and provide you with many crops to come. Harvesting can begin one year after the propagation of this plant. Alternatively you can broadcast the seeds evenly using a watering can. When you plant the seed or root cutting it is important that you provide sticks to support the twining growth (as with yam).

**Name:** **Sesadua** (Twi) (*Clausena anisata*)

**Habitat:** Found in the coastal thickets, forest undergrowth and in the savannah, to montane heights.

**Distribution:** Common in Sierra Leone, and widely dispersed over the rest of tropical Africa.

**Description:** A shrub or small tree up to 6 meters high, with strongly scented leaves. The fruit is a blue black with medium sized seed. The flower is small and whitish.

**Parts use:** Leaves, bark and roots.

**Use:** The bark is used to treat arthritis. Decoction of the leaf and root is used to treat toothache Leaf-sap taken internally is used to cure snakebite and stomach pains.

**Propagation:** Seeds: Matured seeds and fruits are harvested and sown directly into propagation boxes and watered until the seedlings emerge.

**Name:** **Boko** (Krobos) (*Croton membranaceus*)

There is no Twi name for this plant but it is known by the Krobos as Boko.

**Habitat:** Found in rocky slopes in dry forest.

**Description:** Herb or climbing shrub up to 1 meter high. Leaves simple, alternate, 1-7.5cm long and 5cm wide; flowers cream coloured; fruit in three parts. Bark tastes strongly of ginger.

**Parts used:** Bark, leaves and stem.

**Use:** The leaves and stems of this plant are commonly used for urinary retention. The roots are used for the treatment of measles.

**Propagation:** Seeds: This plant enjoys growing in cool areas rather than dry heat of the savannah areas. It will grow well in the climate of Aburi and the surrounding districts. This species is dependent on bees for pollination and without these there will be no viable seed.

**Name:** **Osená** (Twi) (*Dialium guinnensis*)

**Habitat:** Forest and forest outskirts in savannah country.

**Description:** Tree 20m high, or shrub with densely leafy crown bark smooth and grey, slash reddish, sapwood white with distinct ripple marks; leaves sometimes finely smooth, with an odd terminal leaflet, flowers usually whitish.

**Part used:** Root-bark, bark.

**Use:** The root-bark is also used for the treatment of coughs. Bark for treating stomatitis and also toothache. Note: This plant is most commonly used to provide the wood for the fufu pestle. Young trees are cut down and destroyed for this purpose. The tree is hardwood and grows very slowly so it is important that

care is taken when harvesting this from the wild. Always leave some to grow into mature trees to provide seed for the future.

**Propagation:** Seed.

**Name:** **Ntew** (Twi) (*Dioclea reflexa*)

**Distribution:** Widespread in the Tropics.

**Description:** Climbing woody, shrub, branches, leaves in threes, leaflets oval, round at the base and abruptly pointed at the tip, flowers red, scented; fruits oblong.

**Part used:** Seed.

**Use:** Seed used to treat asthma.

**Propagation:** Seeds: Mechanical scarification (i.e. scrapping the seed coat) is used to break the seeds dormancy. Remove from the seed coat and beat. Soak the seeds overnight before sowing directly into seedbeds. Water until seedlings emerge.

**Name:** **Anafranaku** (Twi) (*Hileria latifolia*)

**Habitat:** Common in forest stations, banana plantations, palm groves and outskirts of villages.

**Description:** Herb up to 1m high; leaves oval. Flower spikes up to 12cm long, fruit rounded, about 2mm in diameter and smooth.

**Part used:** Flowers and leaves.

**Use:** Flowers are used to treat asthma. Leaves for rheumatism.

**Propagation:** Stem cuttings: Take stem cuttings 5cm in length and dip in growth hormone. Then insert them into a polythene bag.

**Name:** **Opeabaa** (Twi) (*Hyptis suaveolens*, *H. pectinata*)

**Habitat:** Weed of roadside and cultivated land.

**Distribution:** Native to tropical America, now widespread in tropical Africa, Asia and Queensland, Australia.

**Description:** Herbaceous scented herb, 0.5-1.5m or more in height; leaves broadly oval and round at the base, 4-5cm long up to 4cm slightly hairy above, white hairs especially on the veins beneath. Fruit about 11mm long when mature. Flowers blue.

**Part used:** Leaves.

**Use:** The leaves are used to treat filaria.

**Propagation:** Vegetative cuttings.

**Name:** **Nufuten** (Twi), Sausage tree (English) (*Kigelia africana*)

**Habitat:** Species spread over all inter-tropical Africa from the thick forests in the Sahel.

**Description:** Tree up to 15 meters high, 50cm long leaflets in pairs of 3-6. Oblong toothed, smooth flower heads hanging down and up to 60cm in length. Individual flowers reddish purple and up to 5cm long and 15cm in diameter.

**Part used:** Fruit.

**Use:** The fruits of this plant are commonly used as a base ingredient for many different medicines.

**Propagation:** Seeds: Collect ripened fruits, remove the seeds and soak in water overnight. These can then be sown in drills on seedbeds. Water until seedlings emerge.

**Name:** **Abrototo** (Twi), Barbados nut (English) (*Jatropha curcas*)

**Habitat:** Frequently cultivated, traditionally used as fencing.

**Description:** Shrub 3-4m high with thick smooth small branches, bark greenish, peeling, leaves smooth, plain oval shaped or with 5 lobes; leaf stem long, flowers yellowish green, fruit ellipsoid.

**Part used:** Leaves, roots, whole plant and seed.

**Use:** The roots are used for jaundice and male sexual impotence. Leaves for wounds and convulsions and fever. Roots are used to treat male impotence. Seeds for the treatment of syphilis.

**Propagation:** Seeds: Seeds are black when ripe.

**Name:** **Odupon** (Twi), Mahogany (English), (*Khaya senegalensis*)

**Distribution:** Widespread from Senegal to Uganda

**Habitat:** Forest or plantation

**Description:** Trees up to 20m high, leaves unevenly sized, 3-7 pairs of leaflets, oblong 6-12cm long and 2-5cm broad rounded at the tip, smooth. Flowers blackish; fruit capsules, 4-6cm diameter; winged seeds.

**Part used:** Bark, stem-bark, leaves and whole plant  
**Use:** The bark is used for blood tonics for anaemia and arthritis and Malaria. Stem-bark used for convulsion. Leaves used for headache. Whole plant is used to treat loss of appetite.  
**Propagation:** Seeds: Collect and sow in 60cm wide drills at 20cm distance apart. Shade should be provided. Water twice every day until germination is completed. Then reduce watering to once a day. Thin seedlings to 15cm apart.

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**Name:** **Awerewa** (Twi), (*Monodora myristica*)  
**Habitat:** Forest  
**Description:** Tree with oval shaped leaves, rounded at base. Flowers on large spikes, petals yellow and red, the three inner spotted red outside and green inside; fruits round and green.  
**Part used:** Seeds and roots.  
**Use:** Seeds used against anaemia, haemorrhoids and sexual weakness, wounds and numbness. Roots used for treatment of arthritis.  
**Propagation:** Seeds: Soak hard coated seeds overnight before sowing directly into polythene bags or seedbeds.

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**Name:** **Nyiya** (Twi), (*Mormordica charantia*)  
**Habitat:** Commonly found in abandoned cultivation's.  
**Distribution:** Pantropic species.  
**Description:** Herbaceous, climber with tendrils; leaves alternate, with lobes roughly toothed. Flowers yellow, spindly, up to 8cm long; fruit oblong with longitudinal ridges.  
**Part used:** Leaves, stem and roots.  
**Use:** Leaves are used for hypertension, chicken pox, cut wounds. The stem is used for abnormal pains, dysentery and yaws. Fruits for wound treatment and diabetes.  
**Propagation:** Seeds: Extract from pods and sun-dry before sowing in drills or in propagation boxes. Water until seedlings emerge.

**Name:** **Onumum** (Twi), **Basil** (English), (*Ocinum gratissimum*)  
**Habitat:** Found commonly around villages.  
**Distribution:** Pantropical species, probably native of Asia.  
**Description:** Scented shrub. Leaves opposite, elliptical, with toothed margins about 10cm long. Flowers hang in a long raceme in small groups of 4-6. They are white and the flower base remains after the petals have dropped off.  
**Parts used:** Leaves, roots and the whole plant.  
**Use:** Leaves used in the treatment of bacterial infections and diarrhoea. Roots are used with guava and plantain to treat snakebite.  
**Propagation:** Seeds: Sow in drills or propagation boxes and water until seedlings emerge.

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**Name:** **Asratoa** (Twi), Snuff box tree (English), (*Oncoba spinosa*)  
**Habitat:** Understorey of forest.  
**Description:** Tree or bushy shrub; bark pale green-brown, slash grey-brown, granular and yellow beneath. Spines 2.5-5cm long or more; leaves elliptic, sharply pointed. Flowers short and stalked; fruits more or less round. Wood light brown and hard.  
**Part used:** Leaves  
**Use:** Leaves used to treat wounds, roots for coughs.  
**Propagation:** These seeds will only germinate with the help of a soil fungus that breaks down the chemical inhibitors that are present in the seed coat. For this reason it would not enough to collect the seed and clean it for it will reward you with very poor germination. You need to allow a process of chemical action to occur after the seed has matured. This can be achieved in one of two ways:  

1. Ideally, allow the fruit to rot on the ground and monitor this for a few weeks. In time you will notice that the seeds in the fruit begin to germinate. One fruit may contain as many as 2,000 seeds. Collect these newly germinated seedlings and transplant them into seed boxes. As the seedlings grow and form their first set of true leaves transplant them into individual poly-bags. You can expect a success rate of 80%.

2. If it is not possible to leave the seed on the ground you can collect the mature fruit from the parent plant or from the floor of the forest. Then place some of the forest soil into a seed box along with the fruit. This will provide the right fungus to help germinate these seeds.

**Note:** Do not throw the old fruit out until you are sure that all of the seeds have germinated. They will do this over a long period of time. Watch for new seed germination every week and gently remove them when you see the young shoots appear from the seed case.

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**Name:** Duawisa (Twi), (*Pachypodinathium staudtii*)  
**Habitat:** Forest.  
**Distribution:** Extends from Sierra Leone to Democratic Republic of Congo.  
**Description:** Large tree with a more or less flat crown and horizontal branches; leaves minutely stellate under-surface, 4-5 times as long as broad; flowers solitary or in small clusters.  
**Part used:** Stem, root-bark and bark.  
**Use:** Stem and root bark is used for head lice infestation, abnormal pains and coughs. Bark is used to treat lower abdominal pain.  
**Propagation:** Seed.

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**Name:** Abakamo (Twi), (*Parquetina nigrescens*)  
**Habitat:** Commonly found in secondary forest and around villages.  
**Distribution:** Guineo-Congolese species widespread from Senegal to Nigeria  
**Description:** Perennial plant with twining stems and a woody base, shortly tapering, 10-15cm long, 6-8cm broad, smooth, long stems on the leaves; Flowers grow from side branches; flowers whitish outside, red inside, fruits composed of 2 parts, woody 30cm long. Seed feather-like.  
**Part used:** Leaves and whole plant.  
**Use:** Leaves used for gonorrhoea, jaundice and rickets. Whole plant is used for the treatment of asthma and jaundice. Roots used to treat lumbago.  
**Propagation:** Same propagation as for *Cryptolepis sanguinolata*.

**Name:** Okramankote (Twi), (*Penianthus zenkeri*)  
**Habitat:** Found in forest undergrowth.  
**Description:** A shrub to small tree up to 6m high; leaves obovate, long cuneate to obtuse at base. Male flowers pale yellowish, female flowers greenish; fruit orange.  
**Part used:** Roots.  
**Use:** Roots are used to treat male sexual impotence, cough and wounds.  
**Propagation:** Seeds: The hard-coated seeds are harvested and the seed coats scrapped of before planting. Plant in polythene bags or sow directly into seedbeds.

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**Name:** Sorowusa (Twi), (*Piper guinnense*)  
**Habitat:** Humid, dense forest species.  
**Distribution:** From Guinea to Uganda.  
**Description:** Climber with main stems climbing up to 20m high on tree trunks, using tendril-roots. Internodes up to 30cm long; leaves oval, base of leaf rounded, 4-16cm long and 2-12cm broad. Flowers clustered and hanging, fruits in the form of berries, 3-6mm in diameter, red at maturity.  
**Part used:** Fruit, leaves, seeds and root stem bark.  
**Use:** The fruit is used to treat lumbago, bronchitis, catarrh and seeds for male sexual impotence and boils. Roots for chest pains and leaves for wounds. Stem bark used to treat dyspepsia.  
**Propagation:** Cuttings: Vines with 2-3 nodes are cut and nursed in polythene bags and watered regularly until sprouting.

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**Name:** Ansam-konakyi (Twi), (*Starchytarpheta angustifolia*)  
**Distribution:** Widespread  
**Description:** A herb, up to 1 meter. Often succulent. Leaves simple, opposite and narrow, 3-8cm long and 0.5-2cm wide, with 4-9 large teeth on each margin. Flowers pale blue in slender spikes.  
**Part used:** Leaves  
**Use:** Leaves used to treat asthma  
**Propagation:** Stem cutting: cut a piece of stem with 2-3 nodes and treat with growth hormone before planting in polythene bags. Water twice every other day until sprouting.

**Name:** **Prekese** (Twi), (*Tetrapleura tetraptera*)  
**Habitat:** Found growing in secondary forest.  
**Distribution:** Guinea-Congolese species and all inter tropical Africa.  
**Description:** Tree 15-20m high with dark green leaves consisting of 5-9 pairs of leaflets, each with 5-12 alternate leaflets of their own; leaflet oblong, 1-2cm long, 0.5-1cm wide. Flower spike, solitary or in twos; fruits form winged pods, 15cm long.  
**Part used:** Bark and fruit  
**Use:** Bark is used to treat gastric ulcer and dysentery, fruit is used to treat malaria.  
**Propagation:** Seeds can be sown in propagation boxes and they germinate in about one week. When they are five weeks old they can be transferred into polythene bags. Three weeks later these can then be planted out.

**Name:** **Ototim** (Twi), (*Treculia africana*)  
**Habitat:** Forest  
**Description:** A tree up to 40m, with fluted trunk and abundant latex; leaves simple and alternate; flowers form on the trunk and branches.  
**Part used:** Stem-bark and roots.  
**Use:** Stem-bark used to treat coughs, lower abdomen pain and constipation. Root used for fever and anaemia.  
**Propagation:** Same propagation as for *Oncoba spinosa*.

**Name:** **Otan-nuru, Opam** (Twi), (*Trichilia monadelpha*)  
**Habitat:** Understorey in the forest, especially in secondary forest in moist places. Sometimes found in gallery forest.  
**Description:** Tree with short trunk, brown bark, more or less smooth but with very fine, longitudinal fissures. Slash pale pink, darkening to orange-brown. Leaves with 4-6 pairs of leaflets. Flowers sweetly scented.  
**Part used:** Stem-bark.  
**Use:** Stem-bark used to treat dyspepsia, skin ulcers, coughs dysentery and yaws.  
**Propagation:** Same as for *Treculia africana*

**Name;** **Ahunanyankwa** (Twi), (*Turraea heterophylla*)  
**Habitat:** In thickets and forest outgrowths  
**Description:** Evergreen shrub, 1-2m high; leaves simple, oblong and rounded at the base, 2.5-9cm long, 1.3-5cm broad, flowers solitary and paired up to 0.3cm long, fruit in the form of a capsule.  
**Part used:** Leaves and roots  
**Use:** Leaves used to treat male sexual impotence, roots for whooping cough.  
**Propagation:** Harvest seeds and immediately sow in drills or in seed boxes. Water regularly until seedlings emerge.

**Name:** **Akakaduro** (Twi), Ginger (common name), (*Zingiber officinale*)  
**Habitat:** Cultivated  
**Distribution:** Originating in Asia, now widely cultivated in tropical zones.  
**Description:** This plant has rhizomes and two kinds of aerial erect stems; one non flowering which grows to 1-1.5m high with long pointed leaves, the others, has flowers and does not exceed 20cm high. Oval shaped flower petal with yellow-greenish centre.  
**Part used:** Rhizome and rhizome-bark  
**Use:** The rhizome is used for many things including the treatment of coughs, haemorrhoids, boils and against whooping cough.  
**Propagation:** Same as for *Afromomum melegueta*.

## References

*Traditional medicine and pharmacopoeia. Contribution to the revision of Ethnobotanical and Floristic Studies in Ghana*

Authors: Mshana; N. R.; Abbiw, D.K., Addaeh-Mensah, E.; Ahiyi, M.R.A.; Ekpera, J.A., Enow-Drock, E.G., Gbile, Z.O.; Noamesi, G.K.; Odei, M.A.; Odunlami, H; Oteng-Yeboah, A.A; Sarpong, K; Sofowora, A. and Tackie, A.N.  
Organisation of African Unity/ Scientific, technical and research committee  
2000

ISBN: 978-2453-66-2

*Herbs of Ghana*

Dokosi, O.B.

Council for Scientific and Industrial Research Ghana

Ghana Universities Press 1998

ISBN: 9964-3-0216-9

*Tropical trees: Propagation and planting manual. Volume 1.*

*Rooting cuttings of tropical trees*

Longman, K.A., Illustrated by Wilson, R.H.F.

Commonwealth Science Council February 1993

ISBN: 0 85092 535 5

*Tropical trees: Propagation and planting manual. Volume 3.*

*Growing good tropical trees for planting*

Longman, K.A., Illustrated by Wilson, R.H.F.

Commonwealth Science Council January 1998

ISBN: 0 85092 394 8

*Improving nutrition through Home gardening. A training package for preparing field workers in Africa.*

Food and Agricultural Organisation of United Nations. Rome, 2001.

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