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CAMEROON

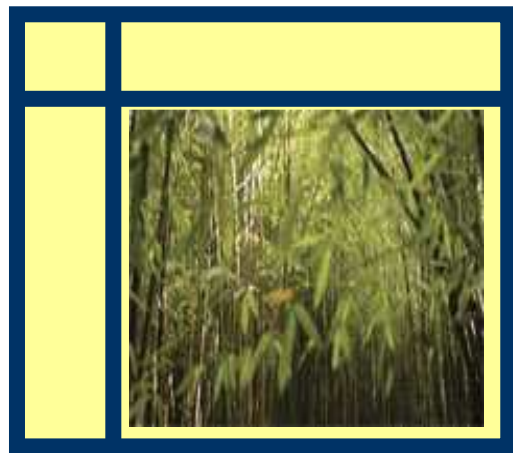
# PRACTICAL GUIDE

## **NON-TIMBER FOREST PRODUCTS** *(NTFP)*

**CULTIVATION, HARVESTING AND PROCESSING  
OF AFRICAN RATTAN**  
**Palmae calamoideae**

Palmae calamoideae

**Cultivation, harvesting and processing of African rattan**



Name in local languages

**Filet**

**Bassa :** mehong

**Bulu :** minlong

**Douala :** fala mulango

**Ewondo :** minlong

**Pidgin :** cane rope/ mulango

**Maraca**

**Bassa :** lika/ maka

**Bulu :** nkan

**Douala :** bwaba mulango

**Ewondo :** nkan

**Pidgin :** cane / mulango

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# Cultivation of rattan

Rattan is a liane of the palm family that requires trees for support. The flagellum at the tip of its leaves has hooks allowing it to climb trees.

Generally rattan grows in forested zones that are dense and humid. In Cameroon, they are found in the southern part of the country, covering the Centre, South, East, Littoral, Southwest, and certain grassfields of the Northwest provinces.

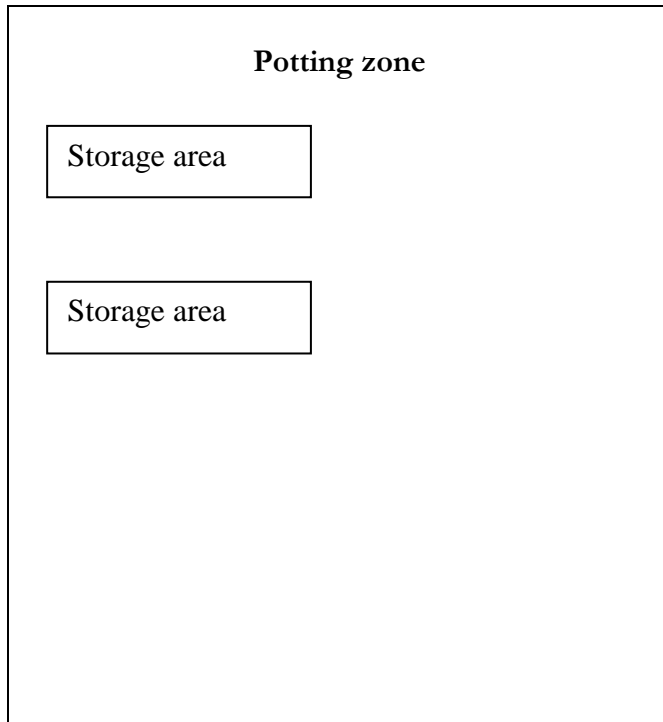
There are about 20 rattan species in Cameroon with the most used being the *Laccosperma robustum* called *Petit Maraca* and *Laccosperma secundiflorum* and *Laccosperma acutiflorum* called *Gros Maraca*, *Eremospatha macrocarpa* and *Eremospatha wendlandiana* called *Filet* and *Onococalamus tutleyi* called *Madam*.

The cultivation of rattan is done easily using seeds. There are many steps involved with the first being with the nursery.

## **Step 1**

### **Construct the nursery**

The nursery is designed with local materials such as bamboo, palm leaves, etc.



## **Step 2**

### **Collecting and safeguarding the seeds**

Ripe, freshly fallen and bright red or orange fruits are the best ones to collect because the seeds are mature and are capable of germinating. Rattan seeds are susceptible to dryness and must be kept moist by wrapping them with paper (preferably sanitary tissue) or with damp moss and a plastic bag. If required, they can be preserved for many weeks; but at the risk of progressively losing their germinating power. If the seeds need to be preserved for a long time, it is recommended that they are washed at the end of three to four days and the wrapping paper be changed.

## **Step 3**

### **Seed preparation and sowing**

To speed up the germination process, the seed must first be freed from the skin and pulp of the fruit and then washed and planted as soon as possible. The Maraca seeds can be planted 2.5 cm apart from each other whereas the Filet (Liane) seeds can be planted 5 cm apart from each other.

When it is time to plant, all the seeds are spread on the plant bed respecting the recommended distances. They are then buried 10 cm deep, covered with earth, and lightly watered.

After planting, the ground must be watered and weeded regularly and it must be ensured that the seeds remain covered by earth at all times. Germination generally takes place after 2-3 months when the leaves (that resemble needles) begin to appear. After two months, many leaves -are already open and the young plant can be transplanted into polyethylene pouches.

## **Step 4**

### **Transplanting the plantlets into polyethylene pouches**

When it is time to transplant, care must be taken not to damage the very fragile plantlet roots. The polyethylene pouches, which are 12.5 cm in diameter and 20 cm high, must first be filled two-thirds (2/3) with the same mix of black soil and sand used for the plant bed.

Water the plant bed abundantly and then with the help of a bush knife or a sharp stick, free the roots of the plant from the surrounding soil. Carefully remove the plant and place it into the pouch. Finally, add soil to the pouch until it is full and lightly press down to reinforce the plant in the pot. Water lightly.

In the nursery, the pots of young transplanted plants will be placed in blocks with passages in between the blocks. Each block will accommodate four plant pots. This allows for easy access to each plantlet when weeding and watering.

At this stage, caring for these plantlets consists of weeding and watering regularly. The nursery is to be kept in a constant state of tidiness and the young plants must be provided with shade. Sick or damaged plants should also be removed. The plantlets are ready for field planting in 5-6 months.

## **Step 5**

### **Transplanting into the fields**

For rattan to grow well, it requires a support on which it can climb. It also requires a lot of light. It is quite suitable to transplant rattan in old grassland. Planting should take place when the rainy season has already settled (between April and June), but before the end of the rainy season. This gives the plants enough time to settle before the dry season.

When it is time to transport the young plants, care must be taken not to dry them out and damage their leaves or roots. The plants can be placed in a row with 7 m between two neighbouring rows. Within the same row, plants can be set 3 m apart from each other.

The plant holes should be 20 cm wide and 30 cm deep. They are filled one-third (1/3) with fertile black soil or with compost. The pouch is then removed and the plant, with its surrounding soil clod, is placed gently in the hole. Fill the hole with more soil.

Every month for the first three to four years, the parcels of land are watered in the dry season and weeded regularly. At the beginning of the fourth year, the stems must be directed toward the trees which will serve as support for them to climb. In good conditions, Filet can reach maturity in 5 years whereas Maraca reaches maturity in 7-8 years.

#### **When must rattan be harvested?**

Harvesting a rattan's stem must be done when it meets all or most of the following criteria:

- Skin colour has become brown;
- Thorns on the stems and leaves have dried and fallen;
- Leaves and the superficial part of the skin have dried and fallen;
- Flowers or fruits have already appeared;
- Stem is more than 20-25 m in length

#### **Is it easy to harvest rattan?**

It is not very difficult to harvest rattan, but it requires strength, know-how, and endurance. Harvesters sometimes need to walk long distances, be fearless and cope with insect stings and bites (ants, bees, etc.). Above all, harvesters must work hard.

#### **What equipment is required to harvest rattan?**

- All that is needed to harvest rattan is a bush knife, a pair of gloves and a file.
- It is also recommended that pants, a long-sleeved shirt and plastic sandals or boots be worn.

#### **Is money needed to harvest rattan?**

Harvesting rattan does not require any financial resources other than those required to purchase the equipment mentioned above. This can be done with less than 10,000 FCFA.

#### **What conditions need to be met in order to harvest rattan in a community?**

- Master the harvesting technique
- Have the equipment
- Get permission from managers or residents of the forest. This permission is most often by way of payment.

### **Who can harvest rattan?**

- Unemployed persons, farmers, tradesmen, and artisans can harvest rattan.
- Both males and females.
- All those who have the physical ability. However, people aged between 15 and 45 tend to be the most suited for the job.
- Natives and foreigners authorized by the village community

### **When is it a good time to harvest rattan?**

Rattan can be harvested year-round. However, the dry season is the most appropriate time as the trails and routes are less slippery and more passable.

## **Techniques for sustainable harvesting of rattan**

### **Step 1**

Determine in advance the rattan species to be cut so as to avoid cutting the incorrect species.

### **Step 2**

In the forest, look for a tuft of the desired rattan species and identify the mature stems. Then cut the mature stems 10 cm from the ground while taking care to spare the surrounding young growth. Throughout the entire harvesting operation, avoid destroying other trees and shrubs around the tuft of rattan.

### **Step 3**

While holding the bottom of the cut stem, unhook it from the top of the shrubs by pulling toward the bottom. For greater effectiveness, it is recommended to pull with the help of one or two other people and if needed climb the trees to unravel the parts that are wound around the branch.

### **Step 4**

Once the large part of the selected stem has been taken down, it must be divided in pieces - 4 m in length for the Maraca and 8-10 m in length for the Filet. In the event that the entire stem has been taken down, remove the last 3 metres which are not suitable for use. This part is nevertheless useful for tying harvested rattan in bundles (Maraca) or in rolls and bundles (Filet). These can be transported outside of the forest.

**NOTE:** If there are fruits, they must be collected for possible cultivation.

# **Rattan conditioning**

The best use of natural resources integrates elements of profitability and sustainability in their development. Because of this, the conditioning of rattan is recommended. This includes all the processes, treatments and preparation techniques applied to raw rattan in preparation for its subsequent transformation into furniture and other rattan products. It improves the quality of the final product, increases the shelf-life of raw rattan and its derived products. It also contributes to the reduction of post-harvest losses by raw rattan having a longer storage life.

## **When must rattan be conditioned?**

It is preferred that the conditioning of rattan be done as soon as it is harvested.

## **What equipment is required to condition rattan?**

- *Modern way:* two chains, a tank for boiling, face masks, a tape measure, some brushes, a knife, a pair of gloves, and a file
- *Traditional way:* a tape measure, some brushes, a knife, and a file
- However, it is also recommended that pants, a long-sleeved shirt and plastic sandals or boots be worn.

## **What does it take to condition rattan?**

- Master the conditioning technique
- Have the equipment

## **Techniques of rattan conditioning**

Nowadays, there are two conditioning processes for rattan. The traditional process requires very little and can be done in all conditions whereas the modern process is more expensive, but ensures high quality products.

## **Traditional conditioning process**

### **Step 1**

This step consists of scraping off the rattan's skin upon arrival at the processing plant in order to facilitate the next step.

### **Step 2**

During this step, the rattan is dried over a 3-7 day period in order to reduce the moisture content. This prevents the rattan, which can be preserved for a month and a half, from rotting. After this step, Maraca (Maraca: rattan of a large diameter used notably for making frames) is already ready for use.

### **Step 3**

This step only concerns the Filet (still called Liane; it is rattan of small diameter often used for weaving or as ties) which is split in order to pull small strips. The small strips will be used later for ties and for weaving.

## **Modern conditioning process**

### **Step 1**

In this step, the rattan stems are separated according to their different species. This is often done by the harvester before selling the rattan to the artisans. However, after this first sorting, the artisan proceeds to select stems according to their size classes. This is a key pre-requisite for the following step.

### **Step 2**

During this step, rattan undergoes a fire-proofing treatment in boiling diesel oil. The advantages of this are the elimination of insects and their larvae, the reduction of fungal attacks and the increase of the storage period from one and a half months to at least six months. Furthermore, this treatment gives Maraca better color, helps in identifying the stem's internal flaws and eliminates the need to scrape the rattan before using it.

#### **Steps in the fireproofing process**

- Light the fire under the diesel oil tank, wait for the diesel oil to come to a boil, and then chain a bundle of rattan. The facial mask and gloves must be worn. The rattan is placed in the diesel oil and time is kept.
- The time required depends on the species, the size, the stems and the moisture content. Freshly collected Maraca needs between 15-30 minutes and if it is collected more than 3 days earlier, it needs 12-20 minutes. Similarly, freshly collected Filet needs 8-10 minutes and if it is collected more than 3 days prior, it needs 6-8 minutes.
- Take out the rattan and hold it on the edge of the tank for 30 seconds in order to salvage excess oil. At this time, the Maraca will have a gold colour and a waxy surface. Clean it with a cloth and some sawdust to remove excess oil before moving on to the following steps.

### **Step 3**

This step is the same as Step 2 of the traditional conditioning process. The rattan is placed vertically and dried for 10 to 14 days.

### **Step 4**

When the rattan has dried, the stems with faults are eliminated. The rest is grouped into categories according to the presence or absence of marks on the skin. At this stage, the Maraca can already be used in processing.

### **Step 5**

The Filet is scraped and then split in order to obtain small strips for ties and weaving. Maraca that is not matured is split during drying and at this stage can be prepared to serve in the production of chair seats or mats. Conditioned rattan can be stored for several months in a hot and dry place.

### **Step 6**

This phase often comes during or at the end of the transformation process when chemical treatments are applied to the rattan; this includes the application of Xylamon to furniture to protect it from insects and larvae. In addition, other chemical treatments include the staining of rattan and the application of varnish or oil paint which also protects it from fungal attacks.

#### **Safety measures in fireproofing treatment plants**

- Equipment quality must be impeccable so as to avoid oil leaks, burns and intoxication.
- There must be a permanent fire-extinguisher.
- Must always be well-ventilated.
- Inside and around the treatment plant must always be clean and free of obstacles that could cause accidents (falls, injuries, etc.).
- Follow the steps in the process as well as the hierarchy in the administration in order to avoid confusion or panic to spread
- Avoid all contact with oil and fire.
- Avoid overheating of diesel oil (the temperature of the diesel oil must not exceed 100°C)

#### **Where can conditioning of rattan take place?**

Traditionally rattan can be conditioned anywhere, but the modern process is only used in specialized plants such as the ARRP plants in Limbé or in the Buea Prison.

## **Transformation of rattan**

Transforming rattan includes all the techniques that are applied to raw rattan, treated or semi-treated, so to convert it into finished products (furniture, baskets, etc.) that are ready for use or commercialization.

To start transforming rattan, it is enough to simply take an interest in it, to get the training, and to raise the capital necessary. Training in basketry can be done informally (apprenticeship) for six months to a year. However, there currently is a specialized training centre at the Limbé Botanical Garden with an accelerated training program – 30 days for groups and 3 months for individuals.

#### **What is needed to start transforming rattan?**

Traditionally, basketry requires tools such as a knife, pencil, square, hacksaw, hammer, pliers, blowtorch, and brushes. Other equipment such as a stapler, perforating machine, electric saw, steam chamber, compressed air sprayer, and clamp have been added in order to make the work easier and of better quality.

However, the artisan must also have at their disposal needles, screws, adhesive, varnish, thinner, gas, Xylamon and stain.

#### **How much does this equipment cost?**

You can start up a traditional plant with less than 50,000 FCFA for the basic equipment.

**NOTE:** To open a processing plant, it is recommended that a site be found close to the sourcing location of the raw material (i.e. raw rattan). However, it should also be close to the market and labour.

### **What is the transformation process?**

The transformation process is summarized in the following steps:

- Determine the model to be made and select the appropriate stems for that particular model.
- Scrape the Filet and bring out the small strips. If necessary, scrape the Maraca as well.
- Pull the Maraca until it is straight. Then on each stem, mark the bending or cutting points with a pencil.
- Cut the stems to the required dimensions
- Heat the stem in a steam chamber and bend it on the work table with the help of jigs. If that does not work, use a blowtorch to help with the bending.
- Bolt the product in question with the help of needles, screws and staples.
- Soak the small strips of the Filet in water for 2-5 minutes then use them to attach the joints. See to it that the attachment is well presented and cover as many points as possible.
- Apply weaving and decorating techniques and then apply the Xylamon (for furniture only).
- Burn off the fibers and apply a preliminary coat of varnish. Let it air dry or in the sun for 4 to 24 hours and re-varnish.
- Proceed to quality control and modify if required. The products are then ready for sale.

## **Commercialization of rattan**

Rattan is commercialized at two levels: raw materials and finished products.

### **Commercialization of raw rattan**

The types of raw rattan sold are the big Maraca or Bilobi and Madam. Bilobi is yellowish in colour and is difficult to bend. The gros Maraca is reddish in colour and is easy to bend. Filet is a small and hard liane of yellowish or whitish colour inside and is used for all sorts of tying, weaving, and braiding. Madam is a thick liane that is very soft and of pinkish colour on the inside and is used mostly for close weaving and ties.

### **Commercialization of transformed rattan**

The rattan products that are sold are: kitchen utensils (trays, baskets, etc.), furniture (cupboards, chairs, beds, etc.), decorative objects (flower pots, statues, etc.), hair and culture models (mannequins, etc.).

The quality of the products depends on the following factors: the creativity and originality of the design, the uniformity between the products, the solidity, the presence or absence of burn marks, effective use, and the appearance of points, style and the quality of the weave.

## **SOURCE:**

With this practical guide, EWB values the work of Capacity Building Programme (cbp) and African Rattan Research Programme (ARRP)