

INGENIEURS SANS
FRONTIERES
CAMEROUN



ENGINEERS
WITHOUT BORDERS
CAMEROON

TECHNICAL GUIDE

NON TIMBER FOREST PRODUCT
(*NTFP*)

SPONDIAS CYTHEREA
Anacardiaceae

Anacardiaceae

Casse Mango

Name in local languages:

Bassa: Kassimanga

Bulu: Kasmango

Douala: Kasmango

Ewondo: Kasmango

Pidgin: Cass mango

Supervision :

Text :

Translation : Pascale Stephenson and Dan Sturby

Illustrations :

Layout and design :

Commonly called *Ambarella* or *cashe mango*, *Spondias Cytherea* is a large tree in the Anacardiaceae family. Its oblong shaped fruit, much like its pulp, when ripe, has a yellow-orange colour.. A large prickly pit is also found buried in its fibrous sweet flesh.

The Ambarella tree grows rapidly and can develop in a wide variety of soils. Despite its natural presence in the Central, Southern, South Western, Eastern and Coastal provinces, the tree has been easily cultivated for several years near settlements.

Usually eaten fresh, the Ambarella can also be made into fruit juices, jellies, jams and syrup. The harvest season of the tree, which grows in the thick, humid area of the rainforest at low altitudes in Cameroon, is between August and November.

Planting an Ambarella

The Ambarella is cultivated using seeds. However, cuttings or layering would be more practical, given the difficulty of extracting the seeds from the fruit. Cuttings can be taken from large mature branches. Cultivation from seeds includes the following steps:

Stage 1

Building a nursery

A nursery is made up of the following:

- Seed beds where the fruit pits are planted. They are 1m wide and of variable length. The pits are grown in a mixture of 3 parts black soil and 1 part sand. Germination trays (old buckets, pans, etc.) can also be used for the same purpose.
- A sunshade to protect the seedlings from direct sunlight and heavy rains. It is desirable to slope the sunshade so that it may facilitate drainage of rain. In its construction, use local materials like bamboo stakes cut in the forest or palm branches. Stakes can be replaced every six months, while branches need replacing every three months.
- A composter to provide fertile black earth.
- A potting area where pots are filled with soil and compost.
- An exposure area where the potted seedlings are kept.
- A nearby source of water for easy and regular watering.

The nursery must be built on land that is as flat as possible. Ideally the nursery should be located as close as possible to the field where the plants will be replanted later. This will avoid long trips when transporting plants.

Stage 2

Choosing the fruit

To ensure the quality of the fruit pits to be used for seeds, you must:

- avoid trees with parasites
- target trees that yield juicy fruit
- avoid diseased fruit

- choose the largest fruit.

Step 3

Preparation and planting of the pits

To speed up the germination process, you must first leave the ripe fruit to rot. Then remove the skin and flesh from the pits. Next, wash the pits and plant them in the seed beds. The pits are to be planted 5 cm apart.

To plant the pits, spread them throughout the seed bed at the recommended distance. Then bury them 10 cm deep, cover with soil and water lightly.

After sowing, the beds must be watered and weeded regularly, and you need to make sure that the pits are always covered with soil. Germination usually occurs after 4 weeks.

Step 4

Transplanting the seedlings to polythene bags

How to transplant

This is a very delicate operation because the roots of the seedling must not be damaged. When transplanting, take care not to damage the roots of seedlings as they are very fragile. First, polythene bags of 20 cm in diameter should be filled 2/3 with a mixture of black soil and compost.

Water the seed bed thoroughly, and then with the help of a machete or a tapered stick, carefully free the roots of the plant from the earth. Lastly, continue to fill up the bag with soil; press the plant gently into the container and water lightly.

In the nursery, the containers of replanted seedlings will be arranged in blocks with paths between each block. Each block should be four containers wide. This gives easy access to each seedling for weeding and watering.

How to care for the seedlings

Maintenance of the seedlings consists of regular weeding and watering. The nursery must also be kept clean, and the seedlings must be assured some shade. After 18 months, the seedlings can be planted in a field.

Step 5

Replanting the seedlings

Where should the Ambarella be planted?

The Ambarella can be planted around buildings. It is necessary however, to ensure that the plant receives enough light as it grows best in direct sunlight. The Ambarella thrives better when it is not planted beneath other large trees. It can also be introduced into cocoa or palm tree plantations, as long as the area is clear enough to receive plenty of light.

When should it be planted?

Planting should take place at the beginning of the rainy season, to allow the plants time to stabilize before the dry season.

How should it be planted?

Planting holes should be 20 cm in diameter, 30 cm deep and filled with fertile black soil or compost. Then remove the bag and put the plant gently with its soil in the hole and continue to fill it with more soil.

Maintaining the plants consists of weeding around them. You must ensure that the plants that die after replanting are immediately replaced.

When will the harvest take place?

The Ambarella is a tree with a straight trunk. It grows rapidly and bears its first fruit after only three years.

Processing the casse mango

The Ambarella is processed in a similar way to many tropical fruits, like guavas and mangos. Processing reduces post-harvest losses of this rapidly degrading fruit.

The casse mango is considered a good source of vitamin C. It can be processed alone or mixed with other tropical fruit juices to enhance flavour, aroma and taste.

Casse Mango processing involves 4 main steps:

Step 1

Preparation

- Wash the fruit to clean off all foreign substances like dirt. The fruit must be washed with drinking water.
- Sort the fruit. This is to remove rotten fruit and to separate suitable fresh market fruit from fruit that will be processed.

Step 2

How to Remove the pulp

- Peel the fruit to remove the skin.
- Carefully clean the pit to remove all the flesh. For this, use a knife or pan-scraper. The pit must be completely clean and all the casse mango flesh removed.
- As much as possible, remove the “thorns” from the pit
- The pulp can be then used according to taste and need.

Step 3

Processing the casse mango

How to make casse mango juice

- Squeeze the pulp using a strainer or juicer. According to taste, use the puree with the least acidic flavouring to make different types of juices.
- Add either powdered citric acid found in shops, or lemon juice, a natural acidifier.
- To prepare the juice, mix sugar syrup, water and casse mango puree to obtain a sufficient amount.
- The juice ferments within 6 hours. It is necessary to pasteurise it.

How to pasteurise casse mango juice

- Heat the bottles containing casse mango juice to about 85°C in a container of water.
- Leave the bottles to cool before storing them in a cold place.

This method of pasteurisation takes a lot of time and energy, so it is not viable for large-scale processing.

How to make casse mango syrup

- Mix half a litre of water and 800g of sugar making a sugary syrup
- Let boil.
- Add 1 litre of casse mango juice and boil again
- Package the pasteurised syrup.

How to make casse mango jam.

- Prepare a sugar water mixture.
- Bring the mixture to boil
- Add casse mango pulp cut into small pieces
- Mix the same amount of sugar syrup and casse mango syrup, then add lemon and bring to a boil
- Cook for at least 20 minutes, to reduce by 1/3
- When the jam is ready, flavour it with vanilla or lemon if possible.

Marketing casse mango

- ✓ The Ambarella has a season of around 4 months. Casse mango fruit is mostly sold fresh. The Ambarella is sold in small quantities due to small yields.
- ✓ The price of a fruit varies from 10 à 50 fcfa, depending on the market (urban or rural) and when it is sold (more expensive at the beginning and end of the season).
- ✓ However, casse mango juice is increasingly entering the market. A bottle of 33 cl costs on average 350 fcfa, or 1060 fcfa per litre. Other processed casse mango products are not yet known but they will have real potential, due to the fruit's widely appreciated flavour.