

# CASSAVA FLOUR





# Roots and Tubers Processing Toolkit



## CASSAVA FLOUR

### 1.-Production of cassava flour (gari)

Gari is a creamy-white granular flour with a slightly fermented flavour and sour taste. It is produced from cassava tubers and eaten as a main meal with soup or a stew.

When stored properly, gari has a shelf life of six months or more.

It is necessary to detoxify the cassava by breaking down the compounds that contain cyanide and then removing the cyanide gas.

Fermentation of the tubers breaks down the cyanide containing compounds and also gives the gari the distinctive sour flavour.

After fermentation the gari is roasted to drive off the cyanide gas and to dry out the product before storage.

Preservation is achieved by heat during the roasting period. The low moisture content inhibits recontamination by bacteria.

Packaging is needed, especially in humid areas, to prevent uptake of moisture by the flour.

### 2.- Processing details for cassava flour production



## 2.1.-Washing

### Preparation of raw material

Fresh cassava is a moist, low acid food that is susceptible to bacterial and fungal growth. Hygienic practice should be followed to prevent cross contamination and spoilage. All waste materials should be removed from the site to avoid cross contamination.

Fresh cassava should be free from microbial and insect damage. Bruised, damaged or mouldy roots should be discarded as they will reduce the quality of the gari.

Fresh roots should be processed within two days of harvest to prevent deterioration and loss of quality. Tubers should be thoroughly washed to remove sand and dirt.

## 2.2.-Peeling

Tubers are peeled by hand. Woody pieces should be removed.

Mechanical peelers are available.

After peeling, the tubers are washed in clean water to remove any pieces of peel and dirt.



## 2.3.-Grating

Washed tubers are grated, using either a manual or motorised cassava grater or rasper.

## 2.4.-Fermentation

Pack the grated cassava into baskets made from cane, bark or palm branches. Leave for 24-48 hours at room temperature.

It is important to control the fermentation period. If the period is too short, the cassava will not be fully detoxified and will have a bland taste.

If the cassava is fermented for too long, the product will have a strong sour taste. Both over and under fermentation affect the texture of the final gari.

## 2.5.-De-watering

Fill the fermented paste into hessian or polypropylene sacks. Place the sacks in a manual screw press or weigh them down with rocks. If the cassava is pressed with rocks, the fermentation and pressing can be carried out at the same time. If too much liquid is removed from the grated cassava, the gelatinisation of starch during roasting is affected. The gari product will be whiter in colour.

If too little water is pressed out, the formation of granules during roasting is affected and the dough is more likely to form into lumps during roasting. The ideal moisture content is 47-50%. This is assessed visually by experienced gari producers. The pressed cassava is sieved with a wooden sieve to separate out fibrous materials and to control the size of particles. Sieving is important to obtain a high quality product that is free from fibrous contaminants and has similar sized granules.

## **2.6.-Roasting**

Roast in a large shallow cast iron pan over a fire, with constant stirring for about 20-30 minutes. The granules must be roasted to about 80°C to achieve partial gelatinisation of the starch.

If lower temperatures are used, the product dries out and produces a dry white powder. If the temperature is too high, the gari will stick to the bottom of the pan and burn.

## **2.7.-Cooling**

The roasted gari is cooled to room temperature.

## **2.8.-Milling**

Sieve the gari to obtain granules of a uniform size. Larger particles that do not pass through the sieve can either be sold as a lower grade gari or can be milled to make a flour.

## **2.9.-Pack/Seal**

Gari is a hygroscopic product (it easily absorbs moisture from the air) and should be packed in airtight and moisture proof bags.

When properly packaged and stored in a dry environment, gari will store for up to 6 months.