

# TECHNICAL SHEET

## Maize couscous (yêkè-yêkè) enriched either at niébè, soja, or voandzou

### Description of the couscous (IFDC, 2020)

The corn couscous (*Zea mays* L.) consumed in South Benin is a granulated product obtained by pre-cooking the unfermented maize dough called mawè (Hounhouigan et al., 1993; Houssou 1996) in the form of granules. After this pre-cooking, the couscous can be either cooked and consumed directly with a meat or fish sauce; or it can be dried and packaged appropriately to be preserved for at least one year. The consumption of couscous is very popular in Benin especially among the Mina, Popo and Adja ethnic groups.

However, the long preparation time (at least 24 hours) means that consumers do not have access to couscous at the desired time. Thus, in order to make couscous available at all times, the Agricultural and Food Technology Program (PTAA) of the Agricultural Research Center of Agonkanmey (CRA-Agonkanmey) of the National Institute of Agricultural Research of Benin (INRAB) has developed the appropriate technology for the production of stabilized couscous of good quality that can be appreciated by consumers. This stabilized couscous or corn couscous can be packaged suitably to be marketed both on the local markets and those of the sub-region. This sheet has been validated by all the national components of the agricultural world.

### Maize Couscous Preparation Equipment (IFDC, 2020)

For the production of corn couscous, several pieces of equipment are needed (Houssou et al. 2014). These are essentially: grinding mill, vegetable sieve or roller-calibrator, couscous maker, dryer and stainless steel sieve.

- The grinding mill is used for the partial dehulling of corn to obtain grits. This same mill is also used afterwards to grind these grits to obtain the wet flour (called mawè in Benin).
- The vegetable sieve or roller-calibrator is used to roll and calibrate the mawè to obtain the mawè in the form of homogeneous granules. The couscous maker is used to cook the mawè granules.
- The gas dryer is used to dry the pre-cooked granules. - The stainless steel sieves are used for the sieving of dried couscous in order to have the couscous whose size of grains is included between 1 and 2 mm.

Other materials and small equipment needed: Basin, bowls, scales etc.

## **Process of preparing yêkè-yêkè couscous (IFDC, 2020)**

**1- Washing of the corn:** the corn is cleaned of its impurities (rotten grains, broken pieces, foreign matter) by sorting, winnowing and washing with water.

**2- Crushing/partial husking:** the washed corn is reduced to fragments (grits) by partial grinding using a husking machine.

**3- Washing - sieving:** the product obtained after the crushing is washed and sieved with a vegetable sieve of very fine mesh. This sifting allows to have three products: fine flour, grits and bran.

**4- Soaking of the grits:** the grits are soaked in water for 6 hours in order to facilitate their grinding and to obtain a fine white unfermented flour.

**5- Draining the grits and mixing them with the fine flour:** the soaked corn grits are put in a sieve for 10 to 15 minutes in order to let the soaking water out. After draining, the grits are mixed with the fine flour obtained by sieving.

**6- Grinding of the mixture of gritz + fine flour:** this grinding is done with the help of a millstone to obtain the dough called in Benin mawê non fermented.

**7- Kneading:** Kneading is done manually. For a quantity of six kilograms (6 kg) of mawê, 0.25 liters of water is added, then after mixing, it is kneaded well for 8 to 10 minutes.

**8- Rolling-calibration:** this operation allows to put the mawê in the form of granules of homogeneous size. It can be done with a Beninese vegetable sieve or with a rolling-caliber machine.

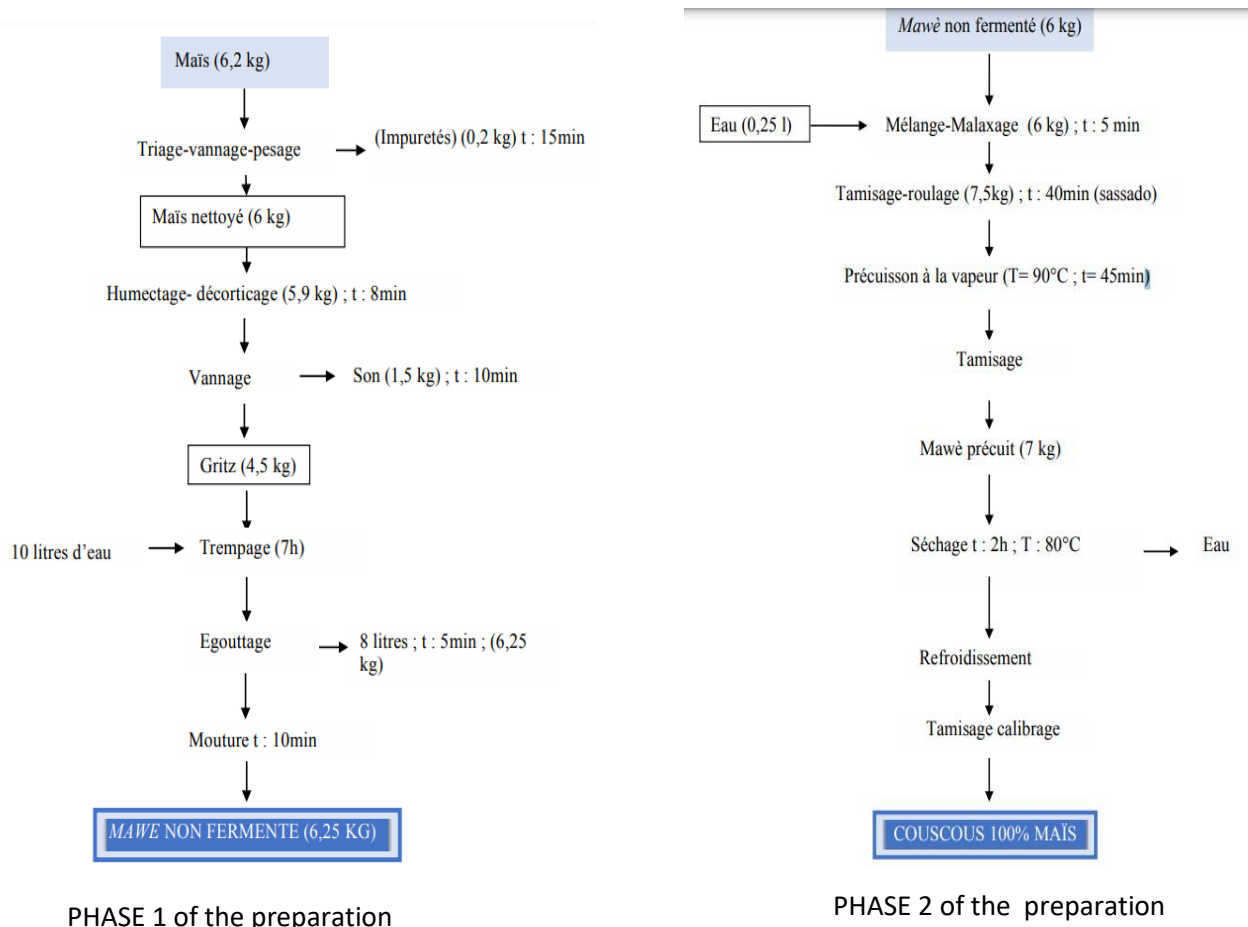
**9- Steaming:** after rolling, the granules obtained are steamed using a couscousier for about 15 to 20 minutes where all the granules have a golden color.

**10- Drying:** after cooking, the granules are spread out in a thin layer on racks of a gas dryer or solar dryer (in Sahelian areas) to be dried at a temperature of about 80°C.

**11- Sieving:** the dried granules are sieved using two sieves of 2 mm and 1 mm mesh in order to have granules of almost the same size as the wheat couscous sold on the markets. The granules of size superior to 2 mm are crushed in the mill to have grains of size included between 2 and 1 mm. The granules of size lower than 1mm are used for the couscous of fine class.

**12- Packaging:** after sifting the types of couscous are weighed then packed first in a polyethylene bag of low density (weak thickness) and then put in a cardboard packing appropriate for the storage and the marketing.

## Technical diagram for the preparation of yêkè-yêkè couscous



**Figure 1** : processus de préparation du couscous de maïs yêkè-yêkè (source : IFDC, 2020)

### Characteristics of the technology (IFDC, 2020)

The couscous obtained immediately after steaming the granules can be seasoned and eaten with a sauce as a main course.

However, to use dried couscous, it must be moistened with warm water (2 kg of couscous for 1 liter of water), left to absorb this water and then cooked in fat with seasonings. This dish is eaten hot. 5.

Corn couscous is a granulated product obtained by pre-steaming unfermented corn dough. The appropriate technology for the production of stabilized corn couscous of good quality appreciated by the consumers requires particular conditions.

This stabilized couscous or corn couscous must be packaged suitably to be marketed on the local markets as well as those of the sub-region.

### **Bibliographics references**

IFDC (2020) : FICHE TECHNIQUE : TRANSFORMATION DU MAÏS EN YEKE-YEKE (COUSCOUS DE MAÏS) ; ACMA2 ; 12p.

### **Web sites consulted**

<https://ifdc.org/wp-content/uploads/2019/07/FICHE-2-TRANSFORMATION-DU-MAI%CC%88S-EN-COUSCOUS-PROCESSING-OF-MAIZE-INTO-COUSCOUS.pdf> ; 01/04/2022 at 11h39

### **Other references**

Regional Maize Specialization Center; HEADQUARTERS INSTITUTION: CENTRE NATIONAL DE RECHERCHE AGRONOMIQUE (INRAB); NSC MEMBER INSTITUTIONS: At present, the Maize NSC is led by CRA Sud, CRA Centre, CRA Nord, CRA Agonkanmey, FSA/UAC, FAST/UAC, REDAD, OPA (Producers and Processors), DICAF, IITA. Host country: Benin; Coordinator: Dr. Marcellin ALLAGBE; Email: [allamarcel@hotmail.com](mailto:allamarcel@hotmail.com) ; Telephone: +229 95 40 62 38 / +229 67 15 26 25