

# Training Manual

## Quality Protein Maize Based Ethiopian Traditional Food Preparation Manual



**Sasakawa Global 2000 in collaboration with CIMMYT-ETHIOPIA**

Prepared by Senayit Yetneberk (PhD, Food Science)



**Quality Protein  
Maize (QPM)**  
contains twice the  
amount of essential  
amino acids required for  
growth by human and  
monogastrics.

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## Forward

The Nutritious Maize for Ethiopia (NuME) project is a nutrition sensitive project implemented in 36 focal weredas of the Amhara, Oromia, SNNP and Tigray regions of Ethiopia through an innovative partnership that brings together institutions involved in agriculture, nutrition and health. The project aims to improve household food and nutritional security, especially among women and young children, and increasing food security for resource-poor smallholder farmers in Ethiopia through the widespread adoption, production and utilization of quality protein maize (QPM).

Providing knowledge and skills on the preparation of QPM based household food types has been one of the major pillars set by the NuME project to increase QPM utilization and improved household food and nutrition security. Sasakawa Global 2000 (SG2000)-Ethiopia and other partners involved in QPM dissemination activities have been demonstrating QPM based new and traditional foods. The food demonstration is targeted 1) to show to farmers that QPM can be prepared into different food products and tastes as good as or even better than the food prepared from conventional maize; and 2) to acquaint the farming communities with the different types of maize/QPM based foods consumed in different parts of the country and how they are prepared. Trainings on the preparation of QPM based traditional and new dishes have also been provided to farmers who hosted QPM demonstrations, health extension workers and other relevant experts drawn from offices linked with rural food and nutrition.

This training manual is prepared to aid the food demonstration and training effort being carried out on the ground by introducing the most commonly consumed maize/food types in the different community and providing the step-by-step instructions on how to prepare them. The manual also presents new recipes in which maize/QPM serve as a substitute in foods traditionally prepared from other cereals. As different cultures and food types exist in Ethiopia, this manual can also serve as a vehicle to introduce one or more of the traditional food types popular in one community to the other where they are not known previously. The manual is useful to prepare the foods that are known in a particular community following standard procedures to increase their nutritional quality and palatability. Ultimately the manual gives the major maize growing and consuming community longer list and wider options of serving maize based dishes. This will ultimately stimulate sustained utilization of maize, the dominant cereal crop of the country, to bring its nutritional benefit to the rural households. The manual will serve as a major guide to train members of the rural household in the NuME project weredas and beyond to complement the dissemination efforts that are being made to contribute to food and nutrition security in Ethiopia.

This manual is prepared as one of the deliverables of the NuME project funded by the Government of Canada through the Global Affairs Canada (GAC) for which CIMMYT extends its gratitude.

On behalf of the NuME Project and my own, I take this opportunity to thank and congratulate Dr Senayit Yetneberk for the preparation of this manual.

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## Preface

This training manual provides procedures for the preparation of traditional and new food dishes from maize including Quality Protein Maize (QPM). Approximately 88 % of maize produced in Ethiopia is consumed as food, both as green and dry grain (Abate *et al.*, 2015). Maize is traditionally prepared in limited types of foods because of (i) the relatively minor importance of maize in the diets of most Ethiopians, (ii) the minimal substitution of maize for other cereals used in food preparation (e.g. partial substitution of maize for tef in the preparation of *injera*) due to its low cost, and (iii) the lack of knowledge about the various dishes that can be prepared from maize. This manual is prepared as a reference material for health extension workers and home agents to fill the existing skill gap in the use of maize in food preparation. This will also encourage rural consumers to use QPM to address the potential protein deficiency in households where maize is the dominant caloric food source.

### The main objectives of the manual are:

1. To provide clear and easy procedures on traditional food preparations.
2. To promote the utilization of quality protein maize (QPM) to help alleviate protein malnutrition, and
3. To enable interested individuals who would like to prepare new maize-based food products.

The manual covers procedures on primary and secondary processing of maize. Secondary processing, which is the actual food preparation, is outlined with standardized recipes for eleven QPM food products. Each recipe contains the name of the product, its definition, list of ingredients, weight and volume of each ingredient, equipment and utensils to be used, and the preparation steps. Some of the preparation steps are supported by images to enhance the message.

### The training is expected to be conducted by:

- A health extension worker or a home agent.
- A trainer who has attended the training-of-trainers (ToT) workshop on QPM food preparations can easily manage and conduct the training.

Finally, the manual also offers guidance on the evaluation of food products prepared during the training. A sensory evaluation of the prepared dishes should be conducted to collect trainees' opinions. Their feedback will help to determine acceptability of the recipe and elicit objective information that can be used to further improve on the recipes depending on the local and cultural food preparation methods and practices.

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## Introduction

QPM grain is a bio-fortified, non-transgenic grain that provides improved protein quality to consumers. It looks and tastes like conventional maize but, in comparison with conventional maize, contains enhanced levels of the essential amino acids, lysine and tryptophan, necessary for protein synthesis in humans (CIMMYT, 2012). As a result, QPM has a biological nutritional value that is 90% that of milk compared to 40% in conventional maize (Prasanna *et.al.*, 2001).

People who rely on maize as a major source of energy may suffer from protein deficiencies due to the peculiar chemical constitution of its zein protein fraction. When an alternative sources of protein like pulses and animal products are not reachable to the community, QPM can potentially contribute to the food and nutritional security. This justifies the promotion of QPM foods to the rural community specifically to those who depend on maize for food security. It has to be noted that QPM is not promoted to substitute animal products or pulses for its protein quality.

The success of bio-fortified staple crops depends ultimately on their acceptance and consumption by target populations. Several formal studies in Ethiopia and an informal evaluation of traditional foods prepared from QPM during the field days have demonstrated that QPM-based foods are acceptable and often preferred for their taste and food making qualities.

## Training components

This training manual provides guidance towards the acquisition of skills in the use of quality protein maize for food preparation. The training comprises three components, i.e., theoretical aspects, practical work and sensory evaluation of prepared QPM food products.

- i. **Theoretical aspects:** covers the nutritional contribution of QPM, selection of raw materials, primary and secondary processing of QPM.
- ii. **Practical work:** focuses on guided practical work to develop the skills in maize-based food preparation, including detailed instruction on individual recipes. About 70% of the training time should be allocated to practical QPM food preparations.
- iii. **Sensory evaluation:** Sensory evaluations have been conducted in formal sessions by trainees and informally by field day participants. A sensory evaluation questionnaire and a score card-Hedonic Rating Scale are appended.

## Users of the manual

This manual targets primarily rural agriculture and health extension workers including development agents (DAs) working in farmer training centers (FTCs), health extension workers working at health posts, and home agents at woreda level. It is intended to be used as a reference guide in hands-on training sessions with farmers to support sustainability of capacity building in the area of food science. It is expected that these experts will introduce and promote QPM food preparations in their regular agriculture and health sectors practical extension activities.

The manual should be used in conjunction with more comprehensive guides and manuals pertaining to the basics of the QPM technology and its nutritional benefits, such as:

- i. Maize Food Products in Ethiopia: A Review of Traditional Practices and Research Outputs, CIMMYT-Ethiopia, 2017.
- ii. Quality Protein Maize (QPM): A Guide to the Technology and its Promotion in Ethiopia, CIMMYT, 2015.
- iii. Participatory variety evaluation: A manual for farmer and consumer evaluation of new crop varieties. CIMMYT, 2014. (A guide or reference to participatory evaluations/sensory evaluations).

Training may also be supplemented with the use of the various audio-visual training materials produced by the NuME project. These materials provide visual demonstrations of the food preparations process described in this manual.



## QPM food preparations

Traditional food preparation is an art based on local knowledge and skills. Mothers are the primary role models and teachers of cooking and food preparation skills across age and socio-economic groups. This manual is also based on local knowledge and skills of food preparations with standardized measurements and procedures. It is intended to promote QPM based foods and give opportunity to members of the rural community to confidently prepare the type of food they liked from the QPM they grow or buy from the local market to derive the nutritional benefit QPM can offer.

The manual is organized in logical, easy-to-follow steps, with the ingredients for each listed in the order of use. Ingredients included in the recipes are listed as purchased or harvested, i.e., before peeling or trimming, not on the basis of edible portion quantities. A list of raw materials and utensils required is appended as a checklist to help the trainer.

## Definition of terms

|                          |                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primary processing       | Primary processing includes cleaning, decortication, milling, soaking and sieving.                                                                                                                                                                                                                                                                            |
| Secondary processing     | Processes such as baking, cooking, blending, fermenting and roasting are referred to as secondary processing.                                                                                                                                                                                                                                                 |
| Dehulling/decortication  | Refers to removing the seed coat. Traditionally performed by hand using a wooden mortar and pestle usually by one or two people. Generally, the grains are pounded wet and the husk removed after drying by winnowing or floatation. This operation can be performed mechanically using a machine called dehuller which mechanically separates the seed coat. |
| Milling                  | Milling refers to grinding grains into grist or flour. The process can be performed by attrition or hammer mill operated by local milling service providers.                                                                                                                                                                                                  |
| Winnowing                | A traditional process aimed at physically removing the seed coat, husks and extraneous materials from the grain. Traditionally performed by women by dropping grain from one basket to another or tossing on a straw mat and allowing the wind to carry the light chaffs away.                                                                                |
| Grist                    | Grist is a grain that has been coarse milled and separated from its seed coat for further grinding or direct use.                                                                                                                                                                                                                                             |
| Equipment/utensils       | All cooking facilities, cutting boards, pots, pans, table and kitchen surfaces/counters, used in food processing and food service establishments or at a household level.                                                                                                                                                                                     |
| Perishable raw materials | Raw material that will spoil within a short period of time. In this context it includes vegetables (kale, green pepper, carrots, tomatoes etc).                                                                                                                                                                                                               |
| Food hygiene             | All conditions and measures of cleanliness necessary to ensure the safety and suitability of food at all stages of the food-chain or domestic food preparations.                                                                                                                                                                                              |
| <i>Sefed</i>             | Traditional straw mat used for winnowing.                                                                                                                                                                                                                                                                                                                     |
| <i>Mitad</i>             | Clay griddle used to bake <i>injera</i> .                                                                                                                                                                                                                                                                                                                     |
| <i>Absit</i>             | Gelatinized batter.                                                                                                                                                                                                                                                                                                                                           |
| <i>Ersho</i>             | Batter left from previous fermentation (starter culture).                                                                                                                                                                                                                                                                                                     |
| <i>Ayib</i>              | Cottage cheese.                                                                                                                                                                                                                                                                                                                                               |
| <i>Enset</i>             | False banana.                                                                                                                                                                                                                                                                                                                                                 |

## Session 1. Theoretical session

### 1.1. The nutritional benefits of QPM

Maize is one of the major food crops in Ethiopia and plays an important role in the livelihood of the farming community. However, sustained consumption of conventional maize without supplementing with other protein and micronutrient sources puts consumers at risk of malnutrition that manifests itself in weakened immune systems, stunting and mental retardation (Mduruma *et al.*, 2013). Thus, consumption of QPM alleviates the problem of malnutrition manifested in the maize growing and consuming communities.

QPM a product of conventional plant breeding and an example of bio-fortification of a maize genotype whose lysine and tryptophan levels in the endosperm of the kernels are about twice higher than in conventional maize varieties (Adefris, *et al.* 2015). These two amino acids allow the body to manufacture complete proteins (Mamatha *et al.*, 2017). It provides balanced nutrition for human consumption particularly for pregnant and lactating women infants & children.

QPM producers and consumers are interested to know how QPM can be prepared into traditional and new food products. The acquired knowledge and skill through training them will enhance promotion of QPM and enables consumption of diversified food products in the rural households.

### 1.2. Selection of raw materials

The following steps should be observed when conducting training on QPM food preparation:

1. Start with raw materials free from foreign materials, should be fresh and wholesome. Perishable raw materials should be purchased no more than one day before the practical food preparation is planned.
2. Avoid the use of kernels that are moldy (fungi infected).
3. Process QPM grain to primary products (grits, flour and beso flour) ready for subsequent QPM food preparations.

### 1.3. Storage

QPM grain like any other grain must be dry and clean before storage. Store QPM grain, grist, meal and flour separately in a clean plastic container with a lid and close it tightly or pack in plastic bags or PICS bags for subsequent uses. Make sure each primary product is labeled and identified by varietal and product name.

### 1.4. Personal and environmental cleanliness

#### Personal cleanliness

Good personal hygiene practices are essential part of preparing safe food for consumers, specifically to children. It is a prerequisite before handling food for human consumption. Trainees must be aware of what their hands are touching. If contaminated, they have to wash their hands not to pass contaminants on to the food they are preparing and serving. The following cleanliness rules should always be observed:

1. Wash hands before handling food as frequently as possible during food preparation.
2. Wash hands after using the toilet.
3. Cover mouth and nose and refrain from coughing, sneezing or talking over the food.
4. Avoid touching hair, face, ears or any part of your body while handling food.
5. Maintain the cleanliness of hair and cover it with scarf while preparing food.

## Cleanliness of food preparation area and utensils

1. Clean the food preparation area daily, before and after food preparation, to prevent infestation by cockroaches.
2. Close the kitchen door well to prevent entry of rodents.
3. Store all foodstuffs in closed containers to prevent infestation by insects (weevils, ants, cockroaches, etc.) and rodents.
4. Clean all cooking utensils, cutlery and sauce pans before and after cooking

The above concepts and procedures should be elaborated and emphasized to the trainees to ensure that hygienic food handling and food safety are observed during food preparation.

## 1.5. QPM varieties used for food preparation

It is advisable to use grain harvested from locally grown QPM varieties for preparing food for demonstration or to use during the practical training. It is often desirable to compare food products prepared from both conventional maize (CM) and QPM so that farmers compare food products prepared from the two types of maize. The QPM varieties released in Ethiopia are shown in the table below.

**Grain color and area of adaptation of QPM varieties and their conventional counter parts**

| <b>QPM Variety</b> | <b>Grain/flour</b> | <b>Adaptation zone characteristics</b>     | <b>Comparable conventional maize variety (ies)</b> |
|--------------------|--------------------|--------------------------------------------|----------------------------------------------------|
| Melkasa-1Q         | Yellow endosperm   | Semi-arid mid-altitude                     | Melkasa-1                                          |
| BHQPY545           | Yellow endosperm   | Moist mid-altitude                         | BH540                                              |
| MH138Q             | White endosperm    | Semi-arid and moist mid-altitude           | Melkasa-2, Melkasa-4                               |
| Melkasa-6Q         | White endosperm    | Semi-arid and mid-altitude                 | Melkasa-2, Melkasa-4                               |
| AMH760Q            | White endosperm    | Humid highland & transitional mid-altitude | BH660                                              |
| BHQP548            | White endosperm    | Moist mid-altitude                         | BH540                                              |
| AMH852Q            | White endosperm    | Humid highland                             | BH660                                              |

## 1.6. Other ingredients for use in food preparations

Vegetables to be used as ingredients in preparation of QPM-based dishes should be fresh, and of good quality. Depending on the season, some vegetables may be available at the farmers' backyard which should be encouraged and are advantageous in terms of nutrient intake for the farm family.

## 1.7. Important considerations

- To ensure the training is adequately budgeted, it should be mainstreamed into the woreda activity plan for official and sustained budget allocation.
- Trainings should be superimposed or held in conjunction with other nutrition related practical trainings with governmental or non-governmental organizations. QPM constitutes a major nutrition intervention in QPM-based systems with high potential impact.
- Trainees should include male participants (10% desirable target) to increase awareness among male household members on food preparation and nutrition issues.

Their participation also helps to support women and improve household gender equity and to fulfill the project requirement in addressing gender balance.

- The trainings should be participatory to ensure full acquisition of skills and eventual practical application at a household level.
- Primary processing should be completed before arranging the training date and venue so that the raw materials are ready for the practical training.
- Training venue should preferably be in FTCs (at kebele level). Trainings organized outside the kebele will have cost implication and need additional time for prior arrangements.
- The venue must have access to potable water and clean working space. The outdoor space should have shade to conduct the practical session comfortably.

## 1.8. Primary processing

### Cleaning

The QPM grain needs to be winnowed using a *sefed* to get rid of contaminants such as seeds of noxious weeds, damaged seeds and chaffs.

### Dehulling or decortication

Dehulling of QPM grain is performed to remove the seed coat and the germ. This primary process is performed by milling service providers. Grist is produced by dehulling and removal of the seed coat. The fines are removed by sieving. This process brings about changes in the chemical composition and nutritive value of the final product. Loss of fiber, minerals, germ and proteins occur during dehulling of cereals.

### Milling

Milling is grinding grain into grist or flour. It is performed by milling service providers.

#### Level of competency for cleaning maize grain

| Level of competency   | Training results                                                                                                                    | Allocated time |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Clean QPM grain       | <ul style="list-style-type: none"> <li>• Sort and winnow QPM grain to remove impurities/ foreign materials (about 25 kg)</li> </ul> | 1 hr           |
| Package cleaned grain | <ul style="list-style-type: none"> <li>• Pack cleaned grain in a clean bag</li> </ul>                                               | 10 min         |
|                       | <b>Total time required</b>                                                                                                          | <b>1:10</b>    |

#### Level of competency for milling

| Level of competency              | Training results                                                                                                                                                                                                                                                                                             | Allocated time |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Take QPM grain to a local miller | <ul style="list-style-type: none"> <li>• QPM grain milled to grist by a local miller</li> <li>• Sift the fines</li> <li>• Remove the seed coat from grist</li> <li>• Save about half of the clean grist</li> <li>• Pack the grist</li> <li>• Mill the remaining half grist and the fines to flour</li> </ul> | 2 hr           |
| Cool and pack the flour          | <ul style="list-style-type: none"> <li>• Allow the flour to cool before packing</li> <li>• Pack the flour in muslin or plastic bags</li> </ul>                                                                                                                                                               | 1 hr           |
|                                  | <b>Total time required</b>                                                                                                                                                                                                                                                                                   | <b>3 hr</b>    |

## Pictorial illustrations of primary processing



Figure 1. Winnowing QPM grist to remove the seed coat



Figure 2. Size grading QPM grits into coarse and fine fractions

The coarse and fine grist are milled into flour while the intermediate grist is collected for kinche preparation. The flour is used for preparation of *injera*, *dabo*, *anebabero*, *kitta*, *genfo*, *kurkufa*, and *firfir*.

For QPM *besso* preparation, the grits are lightly roasted on a heated clay griddle then milled to flour by millers as indicated below.

### Level of competency for *besso* flour preparation

| Level of competency  | Training results                                                                                                                                                     | Allocated time |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Roast QPM grist      | <ul style="list-style-type: none"> <li>Roast 3 kg QPM clean grist on a moderately heated clay griddle</li> <li>Cool the roasted grist</li> </ul>                     | 40 min         |
| Take to a local mill | <ul style="list-style-type: none"> <li>Take the grist to a miller to obtain <i>besso</i> flour</li> <li>Cool <i>besso</i> flour</li> </ul>                           | 1 hr           |
| Sift and pack        | <ul style="list-style-type: none"> <li>Sift <i>besso</i> flour</li> <li>Pack in a container with a lid or fill in a plastic or muslin bag and tie the bag</li> </ul> | 20 min         |
|                      | <b>Total time required</b>                                                                                                                                           | <b>2 hr</b>    |

## Session 2. Practical sessions

The practical session enables trainees to get hands-on experience of QPM based food preparations. Conceptually competency is the integration of knowledge, outlook and skill. The major responsibility of the trainer will be to assist the learners in achieving the required competency. The levels of competencies for the practical work are listed below.

### List of level of competencies:

1. Clean QPM grain
2. QPM grain milling
3. Prepare *besso* flour
4. Prepare *injera*
5. Prepare *anebabero*
6. Prepare *kitta*
7. Prepare *teresho*
8. Prepare *dabo*
9. Prepare *genfo*
10. Prepare *kinche*
11. Prepare *shorba*
12. Prepare *kurkufa*
13. Prepare *firfir*
14. Prepare *besso*
15. Wash dishes
16. Conduct sensory evaluation

### Learning outcomes

At the end of the practical training the trainees will be able to:

- Prepare traditional and new food products from QPM.
- Conduct similar trainings.



## 2.1. Injera

### Level of competency for *injera* preparation

| Level of competency                 | Training results                                                                                                                                                                                                                                                                                                                                                    | Allocated time   |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Prepare dough                       | <ul style="list-style-type: none"> <li>Sift QPM flour</li> <li>Mix the flour with water and knead well</li> <li>Put the dough into a container</li> <li>Add <i>ersho</i> on top of the dough</li> <li>Cover the dough</li> </ul>                                                                                                                                    | 20 min           |
| Ferment the dough                   | <ul style="list-style-type: none"> <li>Allow to ferment</li> </ul>                                                                                                                                                                                                                                                                                                  | 24 hrs           |
| Prepare <i>absit</i>                | <ul style="list-style-type: none"> <li>Clean a sauce pan</li> <li>Add water and bring to boiling</li> <li>Mix part of the fermented dough with water and bring it to a batter consistency</li> <li>Add the batter to the boiling water and cook</li> <li>Cool the <i>absit</i> (gelatinized dough)</li> <li>Add the <i>absit</i> to the fermenting dough</li> </ul> | 20 min           |
| Prepare batter and allow to ferment | <ul style="list-style-type: none"> <li>Add water to the fermenting dough to bring it to a batter consistency</li> <li>Allow to ferment at room temperature until bubbles are formed</li> </ul>                                                                                                                                                                      | 2 -3 hrs         |
| Heat and polish <i>mitad</i>        | <ul style="list-style-type: none"> <li>Heat <i>mitad</i></li> <li>Polish <i>mitad</i> with rape seed powder using a clean piece of cotton material</li> </ul>                                                                                                                                                                                                       | 15 min           |
| Bake the <i>injera</i>              | <ul style="list-style-type: none"> <li>Pour the batter in a circular manner on the heated <i>mitad</i> and bake it covered</li> <li>Remove the <i>injera</i> over a <i>sefed</i></li> </ul>                                                                                                                                                                         | 2 min            |
|                                     | <b>Total time required</b>                                                                                                                                                                                                                                                                                                                                          | <b>27-28 hrs</b> |

## Product description

*Injera* is a leavened flat bread. It is high in carbohydrate specifically starch which is a source of heat and energy. A good *injera* should be soft, glossy, fluffy & rollable with an even distribution of “eyes”(a honey comb like porous structure) on the top surface.

## Ingredients

|              |         |
|--------------|---------|
| QPM flour    | 500 g   |
| Water        | 1450 ml |
| <i>Ersho</i> | 25 ml   |

## Utensils

Bowl, sieve, *sefed*, sauce pan, ladle, *mitad*, and *mesob*

## Method

1. Sift QPM flour in a bowl.
2. Mix the flour with 450 ml water and knead well for about five minutes.
3. Put the dough in a container with a lid.
4. Add *ersho* on top of the dough and cover.
5. Allow the dough to ferment for 24 hrs.
6. Boil 500 ml water in a saucepan.
7. Mix part of the fermented dough (200 g) with 75 ml of cold water.
8. Prepare *absit* by add the mix in the boiling water and cook for about 2 min by constantly stirring
9. Cool *absit* to about 45°C and add to the fermenting dough.
10. Add 250 ml of water, mix and allow to ferment for 2-3 hrs at room temperature.
11. Heat *mitad* and polish with rapeseed powder using a piece of clean cotton material.
12. Pour about 500 ml of the batter in a circular manner on heated *mitad* and bake covered for about two minutes.
13. Remove the *injera* from the *mitad* by sliding over *sefed*.
14. Serve with sauces (vegetable or pulse or meat).

## Some pictorial illustration of *injera* preparation



Mixing the sifted flour with water to prepare dough



Pouring the batter in a circular manner on a heated *mitad*



Removing the *injera* by lifting it from *mitad* and sliding over a *sefed*



Rolled and sliced *injera* ready for serving

## 2.2. Anebabero

### Level of competency for *anebabero* preparation

| Level of competency                 | Training results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Allocated time   |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Ferment the dough                   | <ul style="list-style-type: none"> <li>Sift QPM flour in a bowl</li> <li>Mix the flour with water and knead well</li> <li>Put the dough in a container with a lid</li> <li>Add <i>ersho</i> on top of the dough</li> <li>Cover the dough</li> </ul>                                                                                                                                                                                                                                                                                         | 20 min           |
| Ferment the dough                   | <ul style="list-style-type: none"> <li>Allow the dough to ferment</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 24 hrs           |
| Prepare batter and allow to ferment | <ul style="list-style-type: none"> <li>Add hot water to the fermenting dough</li> <li>Allow to ferment until bubbles are formed</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                  | 2- 3 hrs         |
| Heat and polish <i>mitad</i>        | <ul style="list-style-type: none"> <li>Heat <i>mitad</i></li> <li>Polish the <i>mitad</i> with rape seed powder using a clean piece of cotton material</li> </ul>                                                                                                                                                                                                                                                                                                                                                                           | 15 min           |
| Bake <i>anebabero</i>               | <ul style="list-style-type: none"> <li>Pour the batter in a circular manner on a heated <i>mitad</i></li> <li>Bake covered for about two minutes</li> <li>Remove the <i>injera</i> over a straw mat and keep it aside</li> <li>Bake the second <i>injera</i> and immediately put the previous <i>injera</i> on top and bake covered to obtain a double layer</li> <li>Remove <i>anebabero</i> over <i>sefed</i></li> <li>Smear the top layer with a mixture of <i>berberie</i> with butter or oil</li> <li>Serve sliced portions</li> </ul> | 25 min           |
|                                     | <b>Total time required</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>27-28 hrs</b> |

## Product description

*Anebabero* is a double layered thick *injera* made from cereals flours. Smearing the top surface of *anebabero* with a mixture of butter or oil, spiced red pepper powder (*berberie*) and salt make it tasty and enhances its nutritional value. Good *anebabero* should have sweetish taste, and a soft and fluffy texture. It is served as breakfast and snack food.

## Ingredients

|                                  |        |
|----------------------------------|--------|
| QPM flour                        | 500 g  |
| Water                            | 650 ml |
| Starter culture ( <i>ersho</i> ) | 10 ml  |

## Utensils

Bowl, sieve, *sefed*, sauce pan, and *mitad*

## Method

1. Sift the flour in a bowl.
2. Mix it with water (450 ml) and knead for about five minutes.
3. Add *ersho* on top of the dough and cover.
4. Allow the dough to ferment for about 24 hrs.
5. Add hot water (200 ml) to bring the dough to a thick batter consistency.
6. Allow to ferment for about one hr until foam is formed.
7. Heat *mitad* and polish with rapeseed powder using a clean piece of cotton material.
8. Pour about 500 ml of the batter in a circular manner on a heated *mitad* and bake covered for about two minutes.
9. Remove the *injera* by lifting it from *mitad* and slide over a *sefed* and keep it aside.
10. Pour about 500 ml of the batter in a circular manner on a heated *mitad* and immediately put the baked *injera* on top and bake it covered.
11. Remove *anebabero* by lifting it from *mitad* and sliding it over a *sefed*.
12. Smear the top layer with a mixture of *berberie* with butter or oil.
13. Serve sliced portion.

## Some pictorial illustrations of *anebabero* preparation steps



Mixing the flour with water to prepare dough



Removing the first layer of *anebabero* from a heated *mitad*



Baked *anebabero* on *sefed*



Oil and *berberie* smeared and sliced *anebabero*

## 2.3. Dabo

### Level of competency of *dabo* preparation

| Level of competency            | Training results                                                                                                                                                                                                   | Allocated time |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Prepare dough                  | <ul style="list-style-type: none"> <li>Sift QPM and wheat flours in a bowl</li> <li>Mix the flour, salt, baker's yeast and oil</li> <li>Add water and knead the mix</li> <li>Cover the dough</li> </ul>            | 10 min         |
| Ferment the dough              | <ul style="list-style-type: none"> <li>Allow the dough to ferment at room temperature</li> </ul>                                                                                                                   | 12 hrs         |
| Knock back                     | <ul style="list-style-type: none"> <li>Knead dough gently</li> <li>Allow to stand and rise again</li> </ul>                                                                                                        | 20 min         |
| Knock back for the second time | <ul style="list-style-type: none"> <li>Knead dough gently</li> <li>Allow to stand and rise again</li> </ul>                                                                                                        | 20 min         |
| Wrap the dough                 | <ul style="list-style-type: none"> <li>Place <i>enset</i> leaf on a heated <i>mitad</i></li> <li>Place and shape the dough on top of <i>enset</i> leaf</li> <li>Cover the dough with <i>enset</i> leave</li> </ul> | 10 min         |
| Bake                           | <ul style="list-style-type: none"> <li>Bake the wrapped dough covered for 15 min</li> <li>Turn it over and bake covered for 15 min</li> </ul>                                                                      | 30 min         |
| Slice                          | <ul style="list-style-type: none"> <li>Allow to cool and slice</li> <li>Serve sliced portions</li> </ul>                                                                                                           | 30 min         |
|                                | <b>Total time required</b>                                                                                                                                                                                         | <b>14 hrs</b>  |

## Product description

*Dabo* is a traditional sour dough bread made from flour of wheat or composite flours of wheat and other cereals. In this case *dabo* is prepared from a composite flour of QPM and wheat in equal proportion (50% QPM flour and 50% wheat flour).

## Ingredients

|             |          |
|-------------|----------|
| QPM flour   | 500 g    |
| Wheat flour | 500 g    |
| Dry yeast   | 5 g      |
| Salt        | to taste |
| Water       | 500 ml   |
| Oil         | 100 ml   |

## Utensils

Bowl, sieve, *sefed*, *mitad*

## Method

1. Sift QPM and wheat flours in a bowl.
2. Mix the flour with salt, dry yeast and oil.
3. Add water (500 ml) and knead well for about 10 minutes.
4. Allow the dough to ferment at room temperature for about 12 hrs.
5. Knock back the dough gently for two minutes.
6. Allow to stand for about 20 minutes until it rises again.
7. Knock back the dough for the second time and allow to rise for about 20 minutes.
8. Heat *mitad*.
9. Place *enset* leaf on a heated *mitad*.
10. Place and shape the dough on top of the *enset* leaf.
11. Cover the shaped dough with *enset* leaf.
12. Bake the dough covered for about 15 minutes.
13. Turn it over and bake it covered for about 15 minutes.
14. Allow to cool and slice.
15. Serve sliced portions.



## Some pictorial illustrations of *dabo* preparation



Mixing and kneading QPM and wheat flours and added ingredients.



Wrapping the fermented dough with fresh *enset* leaf on *mitad*



Baked *dabo* on *mitad*



Sliced *dabo*

## 2.4. Kitta

### Level of competency for *kitta* preparation

| Level of competency          | Training results                                                                                                                                                                                                                                                                     | Allocated time |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Prepare dough                | <ul style="list-style-type: none"> <li>Sift QPM flour in a bowl</li> <li>Add salt and oil and mix with the flour</li> <li>Add water and knead well</li> </ul>                                                                                                                        | 10 min         |
| Heat <i>mitad</i> and polish | <ul style="list-style-type: none"> <li>Heat <i>mitad</i></li> <li>Polish <i>mitad</i> with rape seed powder using a clean piece of cotton material</li> </ul>                                                                                                                        | 15 min         |
| Bake <i>kitta</i>            | <ul style="list-style-type: none"> <li>Flatten the dough and pat it into a circular shape on the heated <i>mitad</i></li> <li>Bake covered until a light golden color is attained</li> <li>Turn upside down and bake covered</li> <li>Remove <i>kitta</i> on <i>sefed</i></li> </ul> | 10 min         |
| Slice <i>kitta</i>           | <ul style="list-style-type: none"> <li>Smear top surface of <i>kitta</i> with a mixture of oil and <i>berberie</i> (optional)</li> <li>Slice <i>kitta</i> and serve</li> </ul>                                                                                                       | 10 min         |
|                              | <b>Total time required</b>                                                                                                                                                                                                                                                           | <b>45 min</b>  |

## Product description

*Kitta* is unleavened flat bread made from QPM flour or flours of other cereals. It is served for breakfast or snack. A product called *chechebsa* can be prepared from *kitta* by cutting it into small pieces and mixing with spiced butter and *berberie*.

## Ingredients

|                 |                  |
|-----------------|------------------|
| QPM flour       | 500 g            |
| Water           | 250 ml           |
| Salt            | to taste         |
| Oil             | 20 ml (optional) |
| <i>Berberie</i> | 20 g (optional)  |

## Utensils

Bowl, sieve, *mitad*, *sefed* and serving tray

## Method

1. Sift QPM flour in a bowl.
2. Add salt and oil and mix with the flour.
3. Add water (250 ml) and knead well for about five minutes.
4. Heat *mitad*.
5. Polish *mitad* with rape seed powder using a clean piece of cotton material.
6. Flatten the dough and pat it into a circular shape on the heated *mitad*.
7. Bake covered until a light golden brown color is attained.
8. Turn upside down and bake covered.
9. Remove *kitta* on *sefed*.
10. Smear top surface with a mixture of oil and *berberie* (optional)
11. Slice and serve.

## Some pictorial illustrations of *kitta* preparation



Mixing QPM flour with water



Removing the baked *kitta* from *mitad*



Sliced *kitta*

## 2.5. Teresho

### Level of competency for *teresho* preparation

| Level of competency           | Training results                                                                                                                                                                                                                                                                                                                                                                                 | Allocated time |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Prepare dough                 | <ul style="list-style-type: none"><li>• Sift QPM flour in a bowl</li><li>• Add salt and mix</li><li>• Add water and knead well</li></ul>                                                                                                                                                                                                                                                         | 10 min         |
| Heat the <i>mitad</i>         | <ul style="list-style-type: none"><li>• Heat <i>mitad</i></li><li>• Polish the <i>mitad</i> with rape seed powder using a piece of clean cotton material</li></ul>                                                                                                                                                                                                                               | 15 min         |
| Shape and bake <i>teresho</i> | <ul style="list-style-type: none"><li>• Flatten dough and pat it into a small circular shape (about 6 cm diameter) on your palm</li><li>• Put a number of the patted dough on a heated <i>mitad</i></li><li>• Bake uncovered by turning each piece regularly</li><li>• Remove <i>teresho</i> and put on <i>sefed</i></li><li>• Serve with leaf cabbage sauce and <i>ayib</i> (optimal)</li></ul> | 35 min         |
|                               | <b>Total time required</b>                                                                                                                                                                                                                                                                                                                                                                       | <b>1 hr</b>    |

### Product description

*Teresho* is unleavened small flat bread made from QPM flour or flour of other cereals. Served with vegetable sauce specifically kale and cottage cheese (*ayib*) for main meal, breakfast or snack food. Except its size *teresho* is similar to *kitta*.

### Ingredients

|           |          |
|-----------|----------|
| QPM flour | 500 g    |
| Water     | 250 ml   |
| Salt      | to taste |

### Utensils

Bowl, sieve, *mitad*, *sefed* and serving tray

### Method

1. Sift QPM flour in a bowl.
2. Add salt and mix with flour.
3. Add water and knead well for about five minutes.
4. Heat *mitad* and polish with a rape seed powder using a piece of clean cotton material.
5. Flatten the dough and pat on your palm into a small circular shape (about 6 cm diameter).
6. Put a number of the patted dough on a heated *mitad*.
7. Bake uncovered by turning each piece regularly until a light brown color is attained.
8. Remove *teresho* and put on *sefed*.
9. Serve with leaf cabbage sauce and *ayib* (optional).

## Some pictorial illustrations of *teresho* preparation



Mixing QPM flour with water



Baking the patted dough uncovered on an open fire heated *mitad*



Baked *teresho* from two QPM varieties (yellow and white endosperm) on *sefed*



## 2.6. Genfo

### Level of competency for *genfo* preparation

| Level of competency              | Training results                                                                                                                                                                                                              | Allocated time |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Sift the flour                   | <ul style="list-style-type: none"> <li>Sift QPM flour on <i>sefed</i> or a serving tray</li> </ul>                                                                                                                            | 2 min          |
| Boil water                       | <ul style="list-style-type: none"> <li>Boil water in a saucepan</li> <li>Add salt and oil in the boiling water</li> </ul>                                                                                                     | 15 min         |
| Cook <i>genfo</i>                | <ul style="list-style-type: none"> <li>Add QPM flour in the boiling water</li> <li>Mix and cook well by stirring constantly</li> <li>Add water and cover the saucepan</li> <li>Mix and stir intimately</li> </ul>             | 10 min         |
| Put <i>genfo</i> in a bowl       | <ul style="list-style-type: none"> <li>Smear a bowl with oil or spiced butter</li> <li>Remove the sauce pan and transfer <i>genfo</i> into the bowl</li> <li>Roll <i>genfo</i> in the bowl to shape it into a ball</li> </ul> | 3 min          |
| Add spiced butter or oil or milk | <ul style="list-style-type: none"> <li>Open up a hole at the center of <i>genfo</i> using a spoon</li> <li>Add spiced butter or oil with <i>berberie</i> or add milk</li> <li>Serve hot</li> </ul>                            | 5 min          |
|                                  | <b>Total time required</b>                                                                                                                                                                                                    | <b>35 min</b>  |



## Product description

*Genfo* is a stiff porridge prepared from flour of a single cereal or composite flour of different cereals. A good *genfo* should have a soft and smooth texture. It is served hot and could be consumed with spiced butter or oil mixed with *berberie*, or with milk depending on consumers' preference and culture.

## Ingredients

|                 |          |
|-----------------|----------|
| QPM flour       | 500 g    |
| Water           | 1020 ml  |
| Salt            | to taste |
| Oil             | 50ml     |
| <i>Berberie</i> | 20 g     |

## Utensils

*Sefed*, sieve, sauce pan, wooden ladle, serving bowls and spoons

## Method

1. Sift QPM flour on *sefed* or a serving tray.
2. Boil 1000 ml water in a saucepan.
3. Add salt and oil in the boiling water.
4. Add QPM flour.
5. Mix and cook well by stirring constantly.
6. Add about 20 ml water and cover the sauce pan for about five minutes
7. Mix by stirring intimately.
8. Smear a bowl with oil or spiced butter.
9. Remove the sauce pan and transfer *genfo* into the bowl.
10. Roll *genfo* in the bowl to shape it into a ball.
11. Open up a hole at the center of *genfo* using a spoon.
12. Add spiced butter or oil mixed with *berberie* or add milk.
13. Serve hot.



## Some pictorial illustrations of *genfo* preparation



Mixing QPM flour in a saucepan containing boiling water



Cooking *genfo* with constant stirring



*Genfo* with spiced butter and *bererie*

## 2.7. Kinche

### Level of competency for *kinche* preparation

| Level of competency | Training results                                                                                                                                                                                                                       | Allocated time |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Wash grist          | <ul style="list-style-type: none"><li>• Pour grist in a bowl</li><li>• Add ample water and remove floating seed coats and tips</li><li>• Wash and decant water</li><li>• Repeat twice or trice</li><li>• Decant excess water</li></ul> | 10 min         |
| Boil water          | <ul style="list-style-type: none"><li>• Boil water in a sauce pan</li><li>• Add oil and salt</li></ul>                                                                                                                                 | 15 min         |
| Cook <i>kinche</i>  | <ul style="list-style-type: none"><li>• Add washed grist in the boiling water</li><li>• Stir to mix</li><li>• Cook without stirring until it gets soft</li></ul>                                                                       | 30 min         |
| Serve <i>kinche</i> | <ul style="list-style-type: none"><li>• Serve hot by adding spiced butter or oil or milk</li></ul>                                                                                                                                     | 5 min          |
|                     | <b>Total time required</b>                                                                                                                                                                                                             | <b>1 hr</b>    |

### Product description

*Kinche* is a cooked cereals grist. It is high in carbohydrate specifically starch which is a source of heat and energy. A good *kinche* should have uniform grist size and well cooked. It is served hot as a breakfast cereal.

### Ingredients

|           |          |
|-----------|----------|
| QPM grist | 500 g    |
| Water     | 1500 ml  |
| Oil       | 20 ml    |
| Salt      | to taste |

### Utensils

Bowl, sauce pan, wooden ladle, and spoon

### Method

1. Pour grist ( 500 g) in a bowl.
2. Add ample water and remove floating seed coats and tips.
3. Wash and decant water.
4. Repeat twice or trice.
5. Boil water (1500 ml) in a sauce pan.
6. Add oil (20 ml) and salt.
7. Add washed grist in the boiling water.
8. Stir to mix.
9. Cook without stirring for about 30 min until it gets soft.
10. Serve hot by adding spiced butter or oil or milk.

## Some pictorial illustrations of *kinche* preparation



Adding washed QPM grit in a boiling water



Checking the cooking *kinche* for softness



*Kinche* ready for serving

## 2.8. Shorba

### Level of competency for *shorba* (soup) preparation

| Level of competency                         | Training results                                                                                                                                                                                                                                                                                                                                                                                | Allocated time |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Soak grist                                  | <ul style="list-style-type: none"> <li>• Wash QPM grist</li> <li>• Soak QPM grist overnight in water</li> </ul>                                                                                                                                                                                                                                                                                 | 12 hrs         |
| Peel vegetables                             | <ul style="list-style-type: none"> <li>• Peel onion, garlic, carrot and potatoes</li> <li>• Wash peeled onion, garlic, carrot and potatoes</li> <li>• Keep potatoes in water after peeling to avoid browning</li> <li>• Cut green pepper longitudinally</li> </ul>                                                                                                                              | 30 min         |
| Chop vegetables                             | <ul style="list-style-type: none"> <li>• Chop onion, garlic, carrot, potatoes and tomatoes separately and keep aside</li> </ul>                                                                                                                                                                                                                                                                 | 30 min         |
| Fry and cook ingredients                    | <ul style="list-style-type: none"> <li>• Fry chopped onion in oil</li> <li>• Add garlic and continue frying stirring constantly</li> <li>• Add tomatoes and continue frying stirring constantly</li> <li>• Add carrot and continue frying stirring constantly</li> <li>• Add potatoes and continue frying stirring constantly</li> <li>• Add water cover the lid and allow to simmer</li> </ul> | 20 min         |
| Wash soaked grist                           | <ul style="list-style-type: none"> <li>• Decant water from soaked grist</li> <li>• Rinse and decant water</li> </ul>                                                                                                                                                                                                                                                                            | 5 min          |
| Cook grist                                  | <ul style="list-style-type: none"> <li>• Boil water in a separate saucepan</li> <li>• Add grist in the boiling water</li> <li>• Cook until soft</li> </ul>                                                                                                                                                                                                                                      | 20 min         |
| Mix and simmer cooked grist with vegetables | <ul style="list-style-type: none"> <li>• Mix cooked grist with the fried vegetables</li> <li>• Add water, cover the lid and allow to simmer</li> <li>• Add salt and green pepper</li> <li>• Serve hot in a soup bowl</li> </ul>                                                                                                                                                                 | 15 min         |
|                                             | <b>Total time required</b>                                                                                                                                                                                                                                                                                                                                                                      | <b>14 hr</b>   |

## Product description

*Shorba* or soup is primarily a seasoned liquid food served warm. It is prepared by boiling ingredients such as sweet corn, vegetables, meat, fish or chicken with water. It is not common in the rural Ethiopia. *Shorba* can be prepared from a mix of locally available raw materials depending on the choice of the consumer.

## Ingredients

|              |               |
|--------------|---------------|
| QPM grist    | 200 g         |
| Onion        | 4 heads       |
| Garlic       | 2 heads       |
| Tomato       | 4 medium size |
| Carrot       | 2 roots       |
| Potatoes     | 2 tubers      |
| Green pepper | 2 pods        |
| Oil          | 50 ml         |
| Salt         | to taste      |
| Water        | 3500 ml       |

## Utensils

Cutting board, knife, sauce pan, ladle, serving bowl, soup bowls and spoons

## Method

1. Soak QPM grist overnight in water.
2. Peel onion, garlic, carrot and potatoes.
3. Wash peeled onion, garlic, carrot and potatoes.
4. Keep potatoes in water after peeling to avoid browning.
5. Cut green pepper longitudinally and keep aside.
6. Chop onion, garlic, carrot, potatoes and tomatoes separately and keep them aside.
7. Fry chopped onion in oil for about 2 min stirring constantly.
8. Add garlic and continue frying for about 1 min stirring constantly.
9. Add tomatoes and continue frying for about 2 min stirring constantly.
10. Add carrot and continue frying for about 2 min stirring constantly.
11. Add potatoes and continue frying for about 2 min stirring constantly.
12. Add water (500 ml) and allow to simmer for about 10 min.
13. Decant water from soaked grist.
14. Rinse and decant excess water.
15. Boil water (2000 ml) in a separate saucepan.
16. Add grist in boiling water.
17. Cook grist until soft for about 20 min.
18. Mix cooked grist with the simmering vegetables.
19. Add water (1000 ml), cover the lid and allow to simmer for about 15 minutes.
20. Add salt and green pepper.
21. Serve hot in a soup bowl.

## Some pictorial illustrations of *shorba* preparation



Peeled, shredded and chopped vegetables required for *shorba* preparation



Frying chopped vegetables in oil



Mixing the content after adding cooked grist and water



*Shorba* ready for serving

## 2.9. Kurkufa

### Level of competency for *kurkufa* preparation

| Level of competency                                              | Training results                                                                                                                                                                                            | Allocated time  |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Peel and wash onion and garlic<br>Wash tomatoes and green pepper | <ul style="list-style-type: none"> <li>• Peel onion and garlic</li> <li>• Wash peeled onion and garlic</li> <li>• Wash tomatoes and green pepper</li> </ul>                                                 | 10 min          |
| Chop onion, garlic and tomatoes                                  | <ul style="list-style-type: none"> <li>• Chop onion and garlic separately and keep aside</li> <li>• Chop tomato and keep aside</li> <li>• Cut green pepper long tudinally and keep aside</li> </ul>         | 15 min          |
| Chop cabbage                                                     | <ul style="list-style-type: none"> <li>• Wash leaf cabbage and shred /chop/</li> </ul>                                                                                                                      | 10 min          |
| Fry ingredients                                                  | <ul style="list-style-type: none"> <li>• Add oil in a sauce pan and heat</li> <li>• Add onion and fry</li> <li>• Add garlic and continue frying</li> <li>• Add tomato and continue frying</li> </ul>        | 15 min          |
| Add water                                                        | <ul style="list-style-type: none"> <li>• Add water and bring to a boil</li> </ul>                                                                                                                           | 10 min          |
| Add leaf cabbage and salt                                        | <ul style="list-style-type: none"> <li>• Add leaf cabbage cook covered</li> <li>• Add salt</li> </ul>                                                                                                       | 20 min          |
| Sift and add water to wet QPM flour                              | <ul style="list-style-type: none"> <li>• Sift QPM flour in a bowl</li> <li>• Add water and mix well to wet it</li> </ul>                                                                                    | 10 min          |
| Add the wetted flour                                             | <ul style="list-style-type: none"> <li>• Add wetted flour on top of the cooking mix</li> <li>• Cook covered without stirring</li> <li>• Add green pepper</li> <li>• Mix and serve hot on a plate</li> </ul> | 15 min          |
|                                                                  | <b>Total time required</b>                                                                                                                                                                                  | <b>1:45 min</b> |



## Product description

*Kurkufa* is a type of food common in southern Ethiopia made from cooked kale and maize flour garnished with onion, garlic and other ingredients. Maize flour preferred for the best quality *kurkufa*. It is like a stiff porridge of maize whose nutritional content is improved by adding leaf vegetables.

## Ingredients

|                     |               |
|---------------------|---------------|
| QPM flour           | 500 g         |
| Onion               | 3 heads       |
| Garlic              | 1 heads       |
| Leaf cabbage (kale) | 250 g         |
| Tomatoes            | 2 medium size |
| Green pepper        | 2 pods        |
| Oil                 | 50 ml         |
| Salt                | to taste      |
| Water               | 700 ml        |

## Utensils

Sauce pan, knife, cutting board, wooden ladle, serving plate and spoon

## Method

1. Peel onion and garlic
2. Wash peeled onion and garlic
3. Chop onion and garlic separately and keep aside.
4. Chop tomatoes and keep aside.
5. Cut green Pepper longitudinally and keep aside
6. Wash and shred leaf cabbage and keep aside.
7. Add oil (50 ml) in a sauce pan and heat
8. Add onion and fry for about two minutes.
9. Add garlic and continue frying for about one minute.
10. Add tomatoes and continue frying for about three minutes.
11. Add water (500 ml) and bring to a boil.
12. Add leaf cabbage and cook covered.
13. Add salt to taste.
14. Sift QPM flour (500 g) in a bowl.
15. Add water (200 ml) and mix well to wet it.
16. Add wetted flour on top of the cooking mix.
17. Cook covered without mixing.
18. Add green pepper.
19. Mix and serve hot on a plate.

## Some pictorial illustrations of *kurkufa* preparation



Frying chopped onion, garlic and tomatoes in a sauce pan



Adding water to the fried mix



Adding shredded leaf cabbage in the cooking mix



Adding wetted QPM flour on top of the cooking mix



Cooked *kurkufa* ready for serving

## 2.10. Firfir

### Level of competency for *firfir* preparation

| Level of competency                               | Training results                                                                                                                                                                                                 | Allocated time |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Peel onion and garlic                             | <ul style="list-style-type: none"> <li>Peel onion and garlic</li> </ul>                                                                                                                                          | 15 min         |
| Chop onion, garlic, tomatoes and cut green pepper | <ul style="list-style-type: none"> <li>Chop onion, garlic and tomatoes separately and keep aside covered</li> <li>Cut green pepper longitudinally</li> </ul>                                                     | 20 min         |
| Fry onion, garlic and tomatoes                    | <ul style="list-style-type: none"> <li>Add oil in a sauce pan and heat</li> <li>Add onion and fry stirring constantly</li> <li>Add garlic and continue frying</li> <li>Add tomato and continue frying</li> </ul> | 15 min         |
| Add water and <i>berberie</i>                     | <ul style="list-style-type: none"> <li>Add water and stir</li> <li>Add <i>berberie</i> and continue stirring</li> </ul>                                                                                          | 5 min          |
| Add water                                         | <ul style="list-style-type: none"> <li>Add water and allow to simmer</li> <li>Add salt</li> </ul>                                                                                                                | 5 min          |
| Add QPM flour                                     | <ul style="list-style-type: none"> <li>Sift QPM flour</li> <li>Add flour in the sauce pan and cook by stirring constantly</li> </ul>                                                                             | 10 min         |
| Add green pepper                                  | <ul style="list-style-type: none"> <li>Add green pepper</li> <li>Serve on a plate</li> </ul>                                                                                                                     | 5 min          |
|                                                   | <b>Total time required</b>                                                                                                                                                                                       | <b>1:15 hr</b> |

## Product description

*Firfir* is normally prepared by mixing sauce with *injera* and served for breakfast or snack. Alternatively it can also be prepared from QPM flour.

## Ingredients

|                 |               |
|-----------------|---------------|
| QPM flour       | 500 g         |
| Onion           | 2 heads       |
| Garlic          | 1 heads       |
| Tomatoes        | 2 medium size |
| <i>Berberie</i> | 2 table spoon |
| Green pepper    | 2 pods        |
| Oil             | 100 ml        |
| Salt            | to taste      |
| Water           | 50 ml         |

## Utensils

Bowl, sieve, saucepan, wooden ladle, serving plate and spoon

## Method

1. Peel onion and garlic.
2. Chop onion, garlic and tomatoes separately and keep aside.
3. Split green pepper longitudinally.
4. Add oil in a sauce pan and heat
5. Add onion and fry for two minutes by stirring constantly.
6. Add garlic and continue frying for one minute.
7. Add tomatos and fry for about two minutes.
8. Add water (10 ml) and stir.
9. Add *berberie* and continue stirring.
10. Add water (40 ml) and allow to simmer.
11. Add salt.
12. Sift QPM flour.
13. Add flour and cook by stirring constantly
14. Add green pepper.
15. Serve hot on a plate.

## Some pictorial illustrations of *firfir* preparation



Frying the chopped onion, garlic tomato in oil



Adding QPM flour to the fried mix



Mixing QPM flour with the fried ingredients



QPM *firfir* ready for serving

## 2.11. Besso

### Level of competency for *besso* preparations

| Level of competency                   | Training results                                                                                                                                                                                                                                                   | Allocated time |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Prepare wet <i>besso</i>              | <ul style="list-style-type: none"> <li>• Mix salt, <i>berberie</i>, oil or spiced butter in a hot water in a bowl</li> <li>• Add QPM <i>besso</i> flour and mix well</li> <li>• Serve in a bowl with a spoon or</li> <li>• Press or squeeze in the palm</li> </ul> | 10 min         |
| Prepare <i>besso</i> drink with water | <ul style="list-style-type: none"> <li>• Mix sugar and salt in cold water</li> <li>• Add <i>besso</i> flour and stir or shake well</li> <li>• Serve the mix in a glass as a cold drink</li> </ul>                                                                  | 10 min         |
| Prepare <i>besso</i> drink with milk  | <ul style="list-style-type: none"> <li>• Boil milk and cool</li> <li>• Add sugar and <i>besso</i> flour in the milk and stir or shake well</li> <li>• Serve the mix in a glass as a cold drink</li> </ul>                                                          | 20 min         |
|                                       | <b>Total time required</b>                                                                                                                                                                                                                                         | <b>40 min</b>  |

## Product description

*Besso* is prepared from medium roast cereal flours; commonly it is made from barley. It is a ready to eat food consumed by wetting the flour with water or served as a drink after mixing the flour with water and sugar or milk and sugar.

### To prepare *besso* as wet solid product

#### Ingredients

|                        |          |
|------------------------|----------|
| QPM <i>besso</i> flour | 200 g    |
| Water                  | 50 ml    |
| <i>Berberie</i>        | 10 g     |
| Oil                    | 20 ml    |
| Salt                   | to taste |

#### Utensils

Bowl, spoon, plate,

#### Method

1. Mix salt, *berberie*, oil or spiced butter in hot water.
2. Add *besso* flour and mix well.
3. Serve in a bowl with a spoon.

#### Alternatively

Press or squeeze in a palm and serve on a plate.

### To prepare *besso* as a drink

#### Ingredients

|                        |        |
|------------------------|--------|
| QPM <i>besso</i> flour | 200 g  |
| Water                  | 200 ml |
| Sugar                  | 20 g   |

#### Utensils

Container with a lid, glass

#### Method

1. Dissolve *besso* and sugar in water.
2. Pour the mix in a glass.
3. Serve as a cold drink.

#### Alternatively

Dissolve *besso* flour in milk instead of water.



## Pictorial illustrations of the modes of consumption of *besso*



Wetted QPM *besso* flour



Wetted QPM *besso* flour shaped by pressing or squeezing in the palm.



QPM *besso* drink in a glass.

## 2.12. Dish washing

Proper dishwashing is an important part of a good sanitation. Dish washing involves five important steps as listed below.

1. Scraping food products adhering on plates or saucepans.
2. Washing the food residues with clean water.
3. Washing with detergent using a sponge.
4. Rinsing twice to ensure the removal of detergent, and
5. Draining excess water and air drying.

### Level of competency for dish washing

| Level of competency                          | Training results                                                                                                                                                                |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prepare bowls, water, detergent and a sponge | <ul style="list-style-type: none"><li>• Prepare three bowls and add water in each</li><li>• Prepare detergent and a sponge</li></ul>                                            |
| Scrap excess food                            | <ul style="list-style-type: none"><li>• Scrap excess food adhering to the dish</li><li>• Collect the scraped food in a container</li></ul>                                      |
| Wash the food residue                        | <ul style="list-style-type: none"><li>• Begin by washing the food residue in the first bowl with clean water</li><li>• Change water when residues accumulate</li></ul>          |
| Wash with detergent                          | <ul style="list-style-type: none"><li>• Add detergent in the second bowl and wash dishes with a sponge</li><li>• Change water when suds or froth accumulate</li></ul>           |
| Rinse once                                   | <ul style="list-style-type: none"><li>• Rinse the dishes in the third bowl</li></ul>                                                                                            |
| Rinse again                                  | <ul style="list-style-type: none"><li>• Rinse again to ensure the complete removal of detergent</li></ul>                                                                       |
| Dry and stack                                | <ul style="list-style-type: none"><li>• Drain to remove excess water and/or</li><li>• Remove excess water with clean cloth or</li><li>• Air dry and stack for packing</li></ul> |

#### Note:

Time required for washing dishes depend on the number of dishes and saucepans to be washed.

## Some pictorial illustrations of dish washing



Removing food products adhering on the plate



Washing a plate with detergent using a sponge



Rinsing plates



Draining excess water

### Note:

Soak burnt sauce pans with hot water. Scrap to remove the burnt-on marks and wash with detergent as normal.

### Session 3. Self-evaluation

|                   |              |
|-------------------|--------------|
| Self-assessment 1 | Written test |
|-------------------|--------------|

Please answer the following questions and show your answers to the trainer.

Name of the trainee\_\_\_\_\_ Date \_\_\_\_\_

1. Why do we need to start with a clean and sound raw materials?
2. Outline the personal cleanliness required during food preparation.
3. What are the steps involved in primary processing of QPM?

|                   |              |
|-------------------|--------------|
| Self-evaluation 2 | Written test |
|-------------------|--------------|

Please answer the following questions and show your answers to the trainer.

Name of the trainee\_\_\_\_\_ Date \_\_\_\_\_

1. Explain how *besso* flour is prepared from QPM grain.
2. How do you prepare *besso* drink as a supplementary food for infants?
3. Indicate the steps followed to prepare *firfir* from QPM flour.

|                   |              |
|-------------------|--------------|
| Self-assessment 3 | Written test |
|-------------------|--------------|

Please answer the following questions and show your answers to the trainer.

Name of the trainee\_\_\_\_\_ Date \_\_\_\_\_

1. Which new QPM food product do you prefer?
2. What are the steps involved to prepare *kurkufa*?
3. What are the ingredients required for preparing *shorba*?

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## Appendices

### Appendix 1. Sensory evaluation

#### Level of competency for QPM foods sensory evaluation (hedonic test)

| Level of competency              | Training results                                                                                                                                                    | Allocated time |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Present sample                   | <ul style="list-style-type: none"><li>• Present the food samples on a clean plate</li></ul>                                                                         | 20 min         |
| Provide water                    | <ul style="list-style-type: none"><li>• Provide water in a glass for each taster</li></ul>                                                                          | 5 min          |
| Provide sensory evaluation sheet | <ul style="list-style-type: none"><li>• Provide the sensory evolution sheet /score card/</li></ul>                                                                  | 5 min          |
| Instruct the taster              | <ul style="list-style-type: none"><li>• Ask the tasters to taste the products in a turn</li><li>• Advise the testers to rinse their mouth between samples</li></ul> | 5 min          |
| Conduct the test                 | <ul style="list-style-type: none"><li>• Give time for the tasters to evaluate the products</li></ul>                                                                | 30 min         |
|                                  | <ul style="list-style-type: none"><li>• Collect the evaluation sheet</li></ul>                                                                                      | 5 min          |
|                                  | <ul style="list-style-type: none"><li>• Collect plates and cups</li></ul>                                                                                           | 5 min          |
| Evaluate results                 | <ul style="list-style-type: none"><li>• Count the likes and dislikes to gauge responses for each product</li></ul>                                                  | 20 min         |
|                                  | <b>Total time required</b>                                                                                                                                          | <b>1:35 hr</b> |

#### Note:

The sensory evaluation method chosen is a 9 scale hedonic test. The test is conducted by presenting the samples on a clean plate and providing a glass of water to the tasters for rinsing the mouth between samples. The sensory attributes to be measured are appearance, taste and texture.

A score card of a hedonic rating scale is shown below to rate the samples in terms of the degree of liking. The scores given for each product is added up under each attribute and the average score is calculated. Each descriptor is assigned a score value as shown below.

Like extremely = 9, Like very much = 8, Like moderately = 7, Like slightly = 6, Neither like nor dislike = 5, dislike slightly = 4, dislike moderately = 3, dislike very much = 2, dislike extremely = 1.

Scorecard- Hedonic Rating Scale

Sample \_\_\_\_\_

Name \_\_\_\_\_

Please taste the sample and tick (√) how much you like or dislike it.

|                          | Appearance | Taste/Flavor | Texture/ mouth feel |
|--------------------------|------------|--------------|---------------------|
| Like extremely           |            |              |                     |
| Like very much           |            |              |                     |
| Like moderately          |            |              |                     |
| Like slightly            |            |              |                     |
| Neither like nor dislike |            |              |                     |
| Dislike slightly         |            |              |                     |
| Dislike moderately       |            |              |                     |
| Dislike very much        |            |              |                     |
| Dislike extremely        |            |              |                     |



## Appendix 2. List of required utensils and cleaning materials

### List of utensils

| No | Items                       | Quantity |
|----|-----------------------------|----------|
| 1  | Big size plastic bowl       | 3        |
| 2  | Medium size plastic bowl    | 4        |
| 3  | Small plastic pail          | 4        |
| 4  | Soup bowl                   | 25       |
| 5  | Sieve                       | 1        |
| 6  | <i>Sefed</i> (straw mat)    | 4        |
| 7  | Sauce pan                   | 4        |
| 8  | Plate                       | 25       |
| 9  | Wooden ladle                | 4        |
| 10 | <i>Mitad</i> (clay griddle) | 1        |
| 11 | Serving tray                | 6        |
| 12 | Spoon                       | 25       |
| 13 | Cutting board               | 2        |
| 14 | Knife                       | 5        |

### List of cleaning materials

| No | Items                              | Quantity    |
|----|------------------------------------|-------------|
| 1  | Dish washing bowl                  | 3           |
| 2  | Detergent                          | as required |
| 3  | Cleaning wire                      | as required |
| 4  | Sponge                             | as required |
| 5  | Cotton materials for drying plates | 2-3 meters  |
| 6  | Plastic Jerican (water container)  | 2           |
| 7  | Waste basket                       | 1           |

### Appendix 3. List of Ingredients

1. QPM grain
2. QPM grist
3. QPM flour
4. QPM *besso*
5. Onion
6. Garlic
7. Green pepper
8. Tomatoes
9. Carrot
10. Potatoes
11. Leaf cabbage (kale)
12. Wheat flour
13. Baker's yeast (dry yeast)
14. *Ersho* (a starter culture back slopped from previous fermentation)
15. Salt
16. *Berberie* (spiced red pepper)
17. Oil
18. Spiced butter (optional)







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