

# Turning Over A New Leaf: Finding value in our local food plants

## Introduction

Zimbabwe boasts over 2000 food plants. God has richly blessed this nation with many plants that are highly nutritious, well adapted to the harsh climate and also delicious to eat. A great many of these plants have been eaten and enjoyed throughout the millennia. Sadly, however, the current generation consumes only a narrow range of the plants available.

This resource invites students and teachers to investigate and value the indigenous food plants of Zimbabwe. Moreover, it encourages students and teachers to actively experiment, experience and enjoy the rich diversity of nutritious plants that grow here. In doing so, we are convinced that students will find the benefits of improved understanding, skills, nutrition and health.

This resource has been designed to support the curriculum especially in the areas of agriculture, food and nutrition. It may be incorporated into a regular classroom program or may be used as an extra-curricular pursuit.



This resource has been written for a number of audiences. Firstly, it is designed for trainers to equip teachers. Each of the sessions can follow each other as a sequence or they may stand alone. The

total training time required for the course is approximately five hours. Some of the sessions assume that an interval of a week will fall between sessions but they can easily be adapted if the interval is different. Secondly, once teachers have participated in the workshops they, in turn, can use the same workshops to equip students to value and use local Zimbabwean food plants. With this “train the trainers” model we are aiming for a broad effect. It is our hope that students and teachers will incorporate the use of local Zimbabwean food plants into their daily lives and enjoy all of the benefits this brings.

## Messages

### 1. Out of Our Ground

Growing traditional food plants is economical, sustainable and nutritious.

### 2. Out of Our Gardens

Our Zimbabwean plants are highly valuable and knowing how to process them is an important skill.

### 3. Into Our Pots

Cooking traditional Zimbabwean dishes and experimenting with indigenous food plants can be delicious and excellent for our health.

### 4. Onto Our Plates

Eating a wide range of traditional food plants is a simple way to improve our nutrition.

# Introductory Session

**Aim:** To introduce participants to the workshop material and to each other.

**Objectives:**

- To welcome and introduce participants to each other
- To outline the content of 'Turning Over A New Leaf'
- To allow participants to articulate some of their hopes and reservations about the course

**Materials Required:**

- Mapfunde Maputi

**Time Taken:** 30 minutes

**Step 1 - Eat:** Provide some bowls of salted mapfunde maputi\* to be passed around and eaten during the introductory session.

**Step 2 – Introducing Each Other:** Welcome participants and introduce yourself. Invite the participants to form into partnerships for an introductory activity. Explain that each person will introduce their partner to the rest of the group. They will be given ten minutes to interview each other in pairs so that they can present their partner to the rest of the group. Participants might consider asking questions of their partner including:

- Name
- Where they are from
- Which school they work at
- Information about spouse/family
- Interests

In addition to this information ask participants to consider and share some of their expectations about the workshops. They might consider sharing:

- Two hopes
- Two fears

Give participants ten minutes to interview each other and then allow time for each pair to introduce their partner. As each participant is introduced make a personal welcome and address any serious or unrealistic hopes or fears they may have.

**Step 3 – Course Overview:** Briefly introduce the overall objectives of the course and invite participants to raise questions they may have.

## Overall Course Objectives

By the end of the course participants will:

Have a greater appreciation of the nutritional, environmental and economical value of traditional Zimbabwean food plants

Have the skills to raise the awareness, understanding and status of Zimbabwean food plants amongst the students in their classes

Gain practical skills and knowledge that will allow participants to better identify, process and use local Zimbabwean food plants

**Step 4 – Mutual Respect:** As a final step remind participants that everyone learns most effectively in an atmosphere of mutual respect and cooperation. If all participants can agree to demonstrate these values throughout the duration of the course everyone stands to benefit. If you gain their assent, close the workshop with thanks.

\*Recipe in Appendix 1

# Session 1: Out of Our Ground

**Aim:** To emphasise the great value of local Zimbabwean food plants amongst teachers and students.

## **Objectives:**

- To explain the benefits of local Zimbabwean food plants in regard to economics, sustainability and nutrition
- To build on teachers' and students' understanding of plant types and parts
- To enable participants to begin to grow local Zimbabwean food plants

## **Materials Required:**

- Plastic cups
- Soil
- Permanent marker
- Mhuu (Black Jack) Seeds
- Plant Part diagram,
- Plant cards
- Plant categories
- Small packet of dried nyii or mazhange.

**Time Taken:** 40 minutes

Many local food plants are overlooked in favour of a small number of exotic vegetables. Currently, indigenous foods are viewed as "food of the poor". Local plants are, however, often much better adapted to Zimbabwe's climate and contain much higher nutritional value than the exotic ones favoured by domestic and large-scale farmers. If students are given good information and the opportunity to grow some local plants then the status of these important food plants will be raised.

**Step 1 – Growing Up:** Welcome participants and explain that experience is often the most effective way to learn. With that in mind, announce to the participants that they will have an opportunity to grow a local Zimbabwean food plant for themselves. Distribute plastic cups and invite participants to fill their cups with soil, use the permanent marker to name their cup and to plant a Mhuu (Black Jack) seed into the soil. Allow participants to water their seeds and set the cups aside. Explain that as the plants germinate it will allow for real discussion about plants needs (light, water, good soil) and plant parts (stem, leaf, tap root). Remind students that the seeds will need watering daily.

**Step 2 – Plant Parts:** Show the unlabelled 'Plant Parts' diagram to the participants and challenge them to name as many parts as they can. Once all answers have been given, fill in any blanks and ask them to take down their own copy of the diagram.

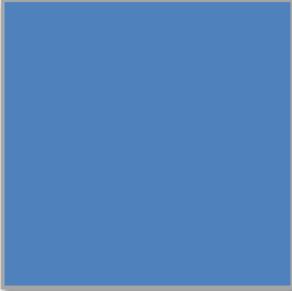
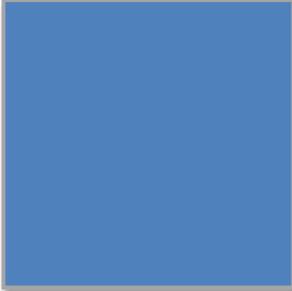
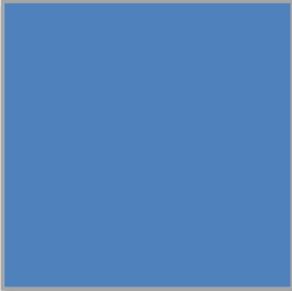
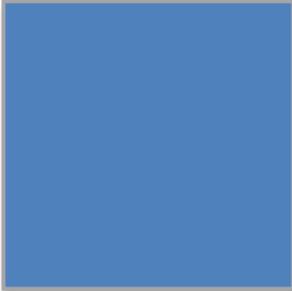
**Step 3 – Not In My Pot!:** Allow participants to form small teams ready for a game. Explain that the game will explore the value of different plants that grow in Zimbabwe. The game will feature familiar plants that are commonly eaten in Zimbabwe but also some plants that might surprise us. To play the game well the participants will need to have a clear understanding of what the following terms mean African and Exotic Plants as well as Edible and Inedible. For the purposes of the game we will use the following definitions:

- Edible: Can be eaten if prepared in the correct way (eg boiled, dried or ground).
- Inedible: Cannot be eaten by people.
- African: A plant species that is native to Africa.
- Exotic: A plant that has been introduced to Africa from somewhere else in the world.

Distribute the plants cards in order and face down. Ask the teams not to look at the cards until the game starts.

Explain that when the game starts, teams will be asked to turn over the top card. On the card they will find the name of a plant. As a team they must decide which category the plant belongs in from the selection below. On the signal of the instructor a team member can place the card on the correct category. The categories can be written on four large sheets of paper. Give the following example:

“If the first card says “Mowa” the team must decide whether it is Edible or Inedible, African or Exotic. If they decide that “Mowa” is Edible and African then when it is time, they can place it in the appropriate category.”

	<b>Edible</b>	<b>Inedible</b>
<b>African</b>		
<b>Exotic</b>		

Teams that correctly categorise their plant receive a point. At the end of the game the team with the most points are the winners and should be rewarded with a small packet of nyii or mazhange each.

Begin the game and give enough time for teams to discuss the best category for the plant before allowing teams to place their cards on the diagram. When each round is finished, share any listed facts about the listed plant. Try to encourage discussion during and after the game. It may be interesting to find out which plants are in unexpected categories.

## Not In My Pot!

Plant (Shona)	Plant (English)	Correct Answer	Fact
Mhuu	Black Jack	African Edible	Good source of iodine Leaves can make a tea or eaten as a vegetable. Seeds are also edible.
Chibage	Maize	Exotic Edible	Maize is a South American plant that replaced African small grains and root crops as a staple in many parts of Zimbabwe.
Mukonde	Cadelabra Tree	African Inedible	
Kabichi	Cabbage	Exotic Edible	Cabbage is very common but not very nutritious compared to some of our Zimbabwean food plants. Nyevehe, for example, contains 19 times more iron and 2 and half times more calcium than cabbage.
Mufarinya Leaves	Cassava Leaves	Exotic Edible	Contains vitamin A, E, B calcium and iron. One of the highest protein levels compared to other green leafy vegetables.
Bougainvillia	Bougainvillia	Exotic Inedible	
Munhundurwa		African Inedible	
Mubora	Pumpkin Leaves	Exotic Edible	High in vitamin A, ten times more than pale green leaves like cabbage
Mowa	Amaranthus, Pig Weed	African Edible	This often overlooked plant is very nutritious, containing twenty times more iron than lettuce (relisi) and three times more Vitamin C than spinach.
Beans	Sugar beans	Exotic Edible	Contains protein, energy, vitamins and minerals
Mutohwe	Snot apple	African Edible	Fruit is chewed like chewing gum
Mutepe		African Inedible	The gum is the edible part, not the fruit and seeds
Mbatatisi	Sweet Potato Leaves	Exotic Edible	Contains vitamin A, E, B. calcium and iron
Muuyu	Baobab	African Edible	High in vitamin C, over eight times more Vitamin C than mangos. Also high in iron and zinc
Mutamba	Monkey orange	African Edible	The fruit has a very hard shell but is delicious when ripe
Jacaranda	Jacaranda	Exotic Inedible	
Mupopo	Pawpaw	Exotic Edible	Contains vitamin A, E
Mususu		African Inedible	
Muhacha		African Edible	Vital in times of drought. The fruit can be dried and eaten as a soft cake
Musawu	<i>Ziziphus spp</i>	African Edible	High in vitamin C, almost twice that of an orange

## Session 2: Out of Our Gardens

**Aim:** To give participants an overview of processing some local Zimbabwean food plants.

**Objectives:**

- To discuss advantages and disadvantages of processing local Zimbabwean food plants.
- To provide a demonstration of some simple processing techniques

**Materials Required:**

- Scissors
- 'Processing Foods' table (one copy per five people)
- Envelopes

**Time Taken:** 40 minutes

Processing local vegetables is an economical way to ensure year-round nutritious food and reduce the risk of food-borne diseases. If students are given the opportunity to learn some skills of processing vegetables for their own use they will improve their family's food security and nutrition throughout the year.

**Step 1 – Part of the Process:** Welcome participants and inform them that this session will deal with processing foods. Tell them many foods can be eaten raw but there are often good reasons to process foods. Processing foods can increase food security, nutrition, taste and financial value.

Distribute a copy of the 'Processing Foods' (Fig.1) table to the participants in groups of five. The table should be cut up into separate cells so that the groups can attempt to put it back together like a jigsaw. Cutting up the table may need to be done before the session begins and it may be helpful to keep the pieces in an envelope. When cutting up the table, only the headings for the table should be left (Fig. 2) so that the participants can re-build the information.

The groups should be given time to arrange the various cells into the correct places. You can make a race out of this process. Once every team has the table successfully reconstructed, invite a spokesperson from each group to read one of the processes together with its advantages and disadvantages.

Figure 1.

<b>Processing Foods</b>			
<b>Process</b>	<b>Description</b>	<b>Advantages</b>	<b>Disadvantages</b>
<b>Drying</b>	Drying is the process of removing water from food. People dry foods such as cereals, roots, legumes and vegetables to make the food store for longer and to reduce the weight.	<ul style="list-style-type: none"> <li>Allows foods to be stored and used throughout the year.</li> <li>Reduces the weight of the food.</li> <li>Prevents the growth of harmful micro-organisms</li> </ul>	<ul style="list-style-type: none"> <li>Drying can reduce the amount of vitamins in some foods (such as vitamin A and C).</li> <li>Reconstituting dried foods can take energy and resources</li> </ul>
<b>Milling</b>	Milling is the process of removing the outer layers of dried foods like legumes or cereals by grinding. It is also the process of pounding cereals, roots and legumes into flour.	<ul style="list-style-type: none"> <li>Increases versatility of foods (eg Dovi)</li> <li>Makes food easier to prepare, eat and digest.</li> </ul>	<ul style="list-style-type: none"> <li>May reduce the amount of fibre, protein and fat.</li> <li>Can increase the amount of starch</li> </ul>
<b>Fermenting</b>	Fermenting is allowing either yeast or harmless bacteria to multiply in foods before consuming them.	<ul style="list-style-type: none"> <li>Can increase the absorption of some nutrients</li> <li>Harmful bacteria cannot multiply as easily in fermented food</li> </ul>	<ul style="list-style-type: none"> <li>Can become alcoholic</li> <li>Some people don't enjoy the sour taste of fermented foods</li> </ul>
<b>Germinating</b>	Germinating is allowing a cereal or legume grain to start to grow before eating it.	<ul style="list-style-type: none"> <li>Increases iron</li> <li>Breaks up starch in foods making them easier to digest and easier for children to eat.</li> </ul>	<ul style="list-style-type: none"> <li>Bacteria can grow in germinating foods if processing is not done well</li> </ul>
<b>Bottling</b>	Bottling is preserving food by heating it (usually) and then sealing it in bottles.	<ul style="list-style-type: none"> <li>Food can be stored for a very long time</li> <li>Nutritious foods can be enjoyed out of season</li> </ul>	<ul style="list-style-type: none"> <li>Requires jars or bottles and fuel to prepare</li> <li>If not sealed properly foods can spoil</li> </ul>
<b>Cooking</b>	Cooking is the process of preparing food by heating it.	<ul style="list-style-type: none"> <li>Food that is cooked well can destroy harmful bacteria</li> <li>Makes food taste better</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the amount of folate in foods</li> <li>Cooking consumes time and fuel</li> </ul>

and digest  
more easily

(Oniang'o in King and Burgess, Nutrition for Developing Countries (2<sup>nd</sup> Edition) Oxford University Press 1993)

Figure 2.

## Processing Foods

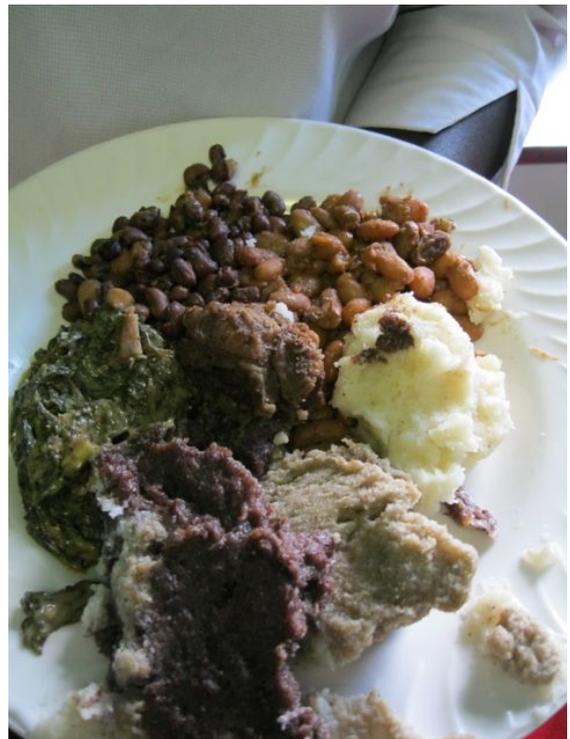
Process	Description	Advantages	Disadvantages
Drying			
Milling			
Fermenting			
Germinating			
Bottling			
Cooking			

**Step 2 - Try This At Home:** Encourage a discussion about the various processing techniques for food. Some discussion questions may include:

- What sort of processed foods have you tried?
- Which is your favourite processed food to eat? Why?
- Have you tried any food processing techniques? Did it work? How often do you do it?
- Which processing technique sounds the easiest? Why?
- Which processing technique sounds the hardest? Why?

**Step 3 - This Little Kiddy Went To Market:** If time and opportunity allows, take your group to a local market to identify and sample processed foods. At the market, try to find examples of a variety of processed foods. If there are sufficient funds some dried fruit may be purchased and shared.

If it is not possible to visit a market this activity may be set as a homework activity. Participants may be encouraged to visit a market with the express purpose of identifying different processed foods.



## Session 3: Into Our Pots

**Aim:** To enable participants to prepare, experiment and eat a variety of cooked food showcasing local Zimbabwean food plants.

### **Objectives:**

- To discuss the elements that comprise a “great meal”
- To demonstrate some simple cooking methods that include local Zimbabwean food plants.
- To enable participants to taste and experiment with a variety of cook food combinations that feature local Zimbabwean food plants.

### **Materials Required:**

- Plates and cups
- Serving spoons
- See Appendix 1 for ingredients

### **Time Taken:** 60 minutes

A common response to the idea of cooking indigenous food plants is: “Not in my pot!” It is important to address some of the negative stigma that surrounds local Zimbabwean food plants. Delicious dishes can be cooked using local Zimbabwean food plants and if students are given the opportunity to experiment and experience these foods they may well change their mindset about them. It is true that we eat with our minds and experience is perhaps the most powerful way to demonstrate the value of our local foods.

**Step 1 – A Great Meal:** Welcome participants and ask if there were any responses from the visit to the local market (from Session 2). After these responses have been shared, ask participants to think about what makes a really great meal. Ask participants to share with the person next to them what elements a “great meal” must contain. After a brief time for discussion invite pairs to share their answers with the group. Expect the following sorts of answers:

- Meat!
- Enough for everyone
- Nutritious
- Taste delicious
- Economical
- Easy to prepare

Discuss answers and encourage further thinking about some of responses given. After some discussion ask:

- “How could local Zimbabwean food plants contribute to a great meal?”

There is likely to be a range of opinions on this question. Allow some time to discuss these opinion but it is also important to point out that many local Zimbabwean food plants are much more nutritious than European vegetables; are most often cheaper (even free – for example Mowa and Mutsini); are easy to prepare and can be delicious.

**Step 2 – Cooking Demonstration:** Select three or four recipes from Appendix 1 to prepare before the session. Be careful to observe the highest standards of hygiene in preparing, storing and serving the dishes.

Choose an additional dish to demonstrate cooking for the participants.

**Step 3 – Mix and Match:** Once the food is prepared, briefly explain the name and main ingredients of each dish. Serve each participant a small sample of the dishes available. Invite participants to try each dish in turn and to discuss their opinion of the taste with a partner. After each tasting, invite the participants to quickly show what they think of the dish by holding up their fingers to show how they rate it (i.e. 1 finger for disgusting and 10 fingers for delicious!).

Next, invite participants to enjoy the foods by making different combinations. Encourage participants to combine two or three different dishes to discover new and delicious flavours. If they discover a winning combination encourage them to write it down and also to share their idea with others.

After the meal call on participants to share their new flavour discoveries. If time allows, participants could write, compile and share new recipes in a booklet.

**Step 4 – Now and Then:** Finally, encourage participants to talk to the oldest person they know before the next session. Invite participants to ask some questions about the garden and food crops they enjoyed as they were growing up. Some suggested questions may include:

- What did the garden in your kumusha look like when you were growing up? What plants grew there?
- What sort of meals did you eat as you were growing up? What sorts of foods were enjoyed every day? On special occasions? During drought? When money was scarce?

Encourage participants to take careful notes on the answers so that they can share their findings in the next session. Ask participants to take special note of the plants they mention.



# Session 4: Onto Our Plates

**Aim:** To enable participants to understand the importance of good nutrition.

**Objectives:**

- To explain the function and sources of nutrients.
- To explain the components of a balanced diet.
- To enable participants to appreciate the role that local Zimbabwean food plants can play in a healthy diet.

**Time Taken:** 40 minutes

One of the great benefits of encouraging the use of indigenous food plants is improved nutrition. If students are better informed about the composition of the food they eat they can make healthy eating decisions. Likewise, if students are able to see the link between good nutrition and good health then they can make informed choices. Local food plants, with superior nutrition to most exotic counterparts, have a prominent role to play here.

**Step 1 - Reporting Back:** Welcome participants and invite them to share what they found out by asking an older person to talk about the garden in their kumusha and the foods they enjoyed as children. If possible, point out which of these dishes use local Zimbabwean food plants. Identify any common trends in what is shared with the group.

**Step 2 - Why We Need A Healthy Diet:** Ask participants why they think we need to eat food. Explain that food is necessary for our body to function properly and for us to have good health. The important substances contained in food are called **nutrients**. Some nutrients enable our body to grow and repair itself after an illness. Some nutrients give us energy to think, move and do work. Some strengthen our body to help it protect us from diseases.

Explain that our bodies tell us that we need to eat when we are hungry but not **what** to eat. Food contains a mixture of nutrients so we must have a balanced and varied diet to get all of the nutrients which we need each day.

It is very important for children to have a healthy diet. If children do not get the right type of food from birth they can suffer from the effects of malnutrition for the rest of their lives. Malnutrition can affect growth, the immune system and brain development.

Women who are pregnant or breastfeeding must also make sure they have a healthy diet so that their bodies and those of their babies get all of the nutrients that are needed.

People who are sick must have a healthy diet. Some illnesses such as diarrhoea, malaria, TB and HIV and AIDs can affect the way our body takes in nutrients from food. These illnesses also make our bodies work hard so that we need to eat more nutritious food.

To have a balanced diet we must eat:

- Body building food – from animal products (such as meat, fish, eggs, milk and insects) or from legumes (such as beans, cow peas, groundnuts)
- Energy giving foods – from grains (such as maize, wheat, millet, sorghum and rice), tubers and roots (such as sweet potatoes, potatoes, madhumbe and cassava), fats and oils (from animal products and oil seeds such as sunflower, soya, maize or peanut butter)
- Protective food – from fruits and vegetables (these contain vitamins and minerals)

We must also eat food containing plenty of fibre. This helps our digestive system to work properly and helps our body get rid of waste products. Unrefined grains, fruit and vegetables contain a lot of fibre.

**Step 3 - Food For Different Families:** Divide participants into four groups. Ask each group to develop and present a short drama around the following situations:

- Children at school eating unhealthy junk food. How the teachers try to improve the children's diet.
- A family looking after someone who is HIV positive getting advice from a home-based care volunteer on how to keep the patient strong and healthy (Use the information in the box to help this group).
- Problems faced by a child-headed household discussing how to care for a two-year old, a five-year old and a ten-year old child.
- A poor family eating an unhealthy diet. Their neighbour explains how they can eat a healthy balanced diet using cheap traditional ingredients.

After participants present the dramas discuss what you have seen and make sure that you correct any incorrect information and add any omissions.

Conclude the session by explaining that including local Zimbabwean food plants in our daily diets can contribute to improving household food and nutrition security.

## Nutrition For People Living With HIV and AIDS

HIV positive people who are not experiencing symptoms need to increase the amount of energy foods they eat by 10%.

Adults experiencing symptoms need to increase their energy foods intake by 20-30%. HIV-infected children experiencing weight-loss need to increase their energy intake by 50-100%. HIV positive people do not need to increase their protein intake but should improve their intake of protective foods by eating a wide range of different-coloured fresh fruit and vegetables.

### TIPS:

- Eat plenty of fresh fruit and vegetables with every meal to boost your immune system.
- Avoid junk food, fizzy drinks, sweets and alcohol.
- Drink plenty of fluids (especially water) between meals but not before or during meals.
- Raise your head or sit up when eating.
- Get plenty of exercise if possible.



# Appendix 1: Recipes

## i) Mapfunde Maputi

Ingredients:

1 Cup Dry Millet

3 Tablespoons Oil

Salt

Method:

1. Heat oil in a large saucepan with a lid. When oil seems hot drop one grain of rapoko into the oil. If grain spins or pops the oil is the correct temperature.
2. Tip the cup of dry rapoko into the pot and place the lid on. Once popping starts pick up the pot and gently swirl the grains to spread the heat.
3. When popping slows remove from heat and serve in a bowl after seasoning with salt.

## ii) Mutakura

Ingredients: dried cowpeas, dried ground nuts, dried round nuts, maize grits, salt, water, peanut butter

- Remove dirt from maize grits and wash in cold water
- Soak the maize grits overnight
- Remove foreign particles from all the dry ingredients
- Put maize grits, cowpeas, ground nuts, round nuts and water in a pot and boil for 3-4 hours, or until tender
- Add salt and peanut butter and mix
- Reduce heat and simmer for 20 minutes

## iii) Mahewu

Ingredients: Maize porridge/sorghum porridge, rapoko malt, baobab, sugar

- Allow the porridge to cool
- Add water to make a required thickness
- Add malt and mix
- Leave the mixture to ferment naturally at room temperature
- Serve the drink after 1 1/2 – 2 days depending on the desired sourness
- Add sugar to taste

#### **iv) Porridge**

Ingredients: 3/4 cups of Pearl millet, soya and baobab mixture, water, salt, sugar, peanut butter, baobab powder

- Put 3 cups of cold clean water in a pot and bring to boil
- Mix pearl millet and soya meal, baobab powder with water to make a paste
- Add the paste in boiling water and stir continuously to avoid lumps
- Let the porridge boil for 15- 20 minutes
- Add a quarter teaspoon of salt and sugar to taste
- Add the desired amount of peanut butter
- Simmer for 5 minutes
- Serve warm

#### **v) Millet Sadza**

Ingredients: Pearl millet meal, water

- Put cold clean water in a pot and bring to boil
- Add small quantities of pearl millet meal and stir
- Continue stirring making sure there are no lumps until it becomes a thick porridge
- Let the porridge boil for 15 -20 minutes
- Add more millet meal in small quantities and stir. The stirring should be done until all the millet meal has mixed into the porridge
- Reduce heat and let the Sadza cook slowly
- Stir again a few minutes before serving
- Serve warm

## Appendix 2: Not In My Pot! Cards

Mhuu
Chibage
Mukonde
Kabichi
Mufarinya Leaves
Bougainvillia
Munhundurwa
Mubora
Mowa
Beans
Mutohwe
Mutepe
Mbatatisi
Muuyu
Mutamba
Jacaranda
Mupopo
Mususu
Muhacha
Musawu

