

## Making the most of food

by Claire Hancock



A teenager in Nepal prepares Pumba, a local fried food.

We live in a world of extreme contrasts, where more than 840 million people do not have enough to eat and where 1.4 billion people are now dangerously overweight (United Nations report, 2012). It is a world where one person in every eight goes to bed hungry. But the amount of food needed to feed this same number of people is lost and wasted. This means that the energy, water, fertiliser and land that went into producing this food has also been wasted.

The world's population is expected to increase to 9 billion by 2050. Although global agricultural production has been increasing steadily over the last 50 years, the effects of climate change and the increasing demand on the limited resources available to produce food

(eg water, land and energy) will make it difficult to feed the new global population.

We need to get better at making the most of the food that we have, whether it is the food we grow ourselves or the food that we buy. We can do this by improving nutrition, by processing or preserving

### In this issue

- 4 Make your own weaning foods
- 5 Processing tomatoes
- 6 Toxins in the food chain
- 7 Letters
- 8 Making a zeer pot fridge
- 10 God wastes nothing
- 11 Bible study
- 12 Resources
- 13 Preventing pests
- 14 Combatting poverty with the orange-fleshed sweet potato
- 16 Fruit for every season

food to increase its value and by reducing food waste.

### Food that makes us stronger

Making the most of food also means making sure that the food we eat enables us to be healthy and lead an active life. This means making sure that food is of good quality with good nutritional value. Micronutrients, such as vitamins and minerals, are important for a healthy diet. A third of the global population does not have the right amount of micronutrients such as vitamin A, iodine, iron and zinc. For example, if you do not have enough vitamin A, you can suffer from preventable blindness. But eating certain foods can provide the vitamin A you need (fish, eggs, orange-fleshed sweet potato etc). [EDITOR – For more on combatting poverty using a food-based approach, turn to page 14.]

Good nutrition is especially important for children and those going through puberty as it affects their growth, development and chances of survival in the future. Other groups of people also have special food

*Footsteps* is a magazine linking health and development workers worldwide. Tearfund, publisher of *Footsteps*, hopes that it will provide a stimulus for new ideas and enthusiasm. It is a way of encouraging Christians of all nations as they work together towards creating wholeness in our communities.

*Footsteps* is free of charge to grassroots development workers and church leaders. Those who are able to pay can buy a subscription by contacting the Editor. This enables us to continue providing free copies to those most in need.

Readers are invited to contribute views, articles, letters and photos.

*Footsteps* is also available in French as *Pas à Pas*, in Portuguese as *Passo a Passo* and in Spanish as *Paso a Paso*.

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**Tearfund** is a Christian relief and development agency building a global network of local churches to help eradicate poverty.

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needs, both in terms of nutrition and the types of food they are able to eat. These groups include women (particularly during pregnancy), elderly people and people living with HIV and AIDS. Being aware of the food needs of these groups is important so we can make sure that everyone has the right balance of food for a healthy life.

## Turning food into income

As well as producing food for their own needs, many people in rural and urban places also sell a portion of their harvest to provide income for other household needs. One way to add value to the product is by processing a raw material into another product, for example by turning fruit into jam or juice. Other ways to add value to food include drying, fermenting, roasting or the combining of multiple products together to make a higher value product, for example baking bread or cooking dishes or snacks to sell as street food. Processed products are typically higher in value than unprocessed products.

A value chain looks at the different steps involved in changing raw material into a finished product ready for sale. At every stage in the chain the product typically gains value.

This is often known as 'moving a product along the value chain'. Thinking through a value chain for different products can help



In Peru, potatoes and corn are staple foods.

people to see if there are ways of increasing income by adding value to their products or by removing links in the chain. The game in the box on the opposite page is designed to introduce the idea of a value chain to a group.

## In season and out of season

Preserving or storing food means we can enjoy the benefits of the product throughout the year. Preserving fruit or vegetables can ensure that even during months when there is a lack of fresh fruit and vegetables, it is still possible to access important vitamins and minerals from the preserved product.



A woman sells fresh food and vegetables at a market in southern Zimbabwe.

Usually everyone in a community will be harvesting their produce at the same time, so market prices fall at harvest season, making it harder to get a good price. Storing a product enables it to be sold at another time of year when market prices are higher.

### Reducing food waste

As well as making the most of the food that we have, we also have a responsibility to reduce the amount of food that is lost or wasted. One third of all food produced each year is lost or wasted.

This loss of food takes place at many levels in the global food system. In many countries this loss usually takes place during the harvest or when the produce

is transported, stored or processed. For example, in China, nearly half of all rice produced is lost before it reaches people's bowls. Some food rots because of bad storage, particularly in warmer climates. Pests (such as locusts or elephants) attack crops whilst they are waiting to be harvested in the fields, or eat food that is being stored.

In countries with more developed economies, most food is lost during processing and at the household level. In Europe and the USA, between 30 and 50 per cent of all food bought by customers is thrown away before it is eaten (Institute of Mechanical Engineers' report, 2013).

There are many practical approaches which can help to stop food being wasted

but changing people's attitudes is also important. Throughout the world people are forming movements to raise awareness about food waste and to campaign on reducing global hunger.

Food is a gift which we need to treat with care and small changes in behaviour can make a difference. Whether you start preserving more of your tomatoes or start a campaign to reduce food waste in your local area, everyone can take part in making sure that as little food as possible is wasted.

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## Introducing value chains – a game for groups

Start by choosing a local product such as groundnuts, milk, mangoes or bananas. Identify all the people who are involved in processing this product from the beginning of its life in the field to the moment it is eaten.

Pick at least six people to represent the different actors in the value chain. Ask them to form a physical chain across the room. Either draw a picture of the raw

product or if you have a real example with you, use that instead! Then get the participants to pass the product along the chain. As you do so, get each person to describe what value they add to the product.

As the activity progresses, you may want to draw the value chain on a piece of paper. Remember that one type of raw product may end up in different

markets, so you may have a couple of different chains.

*This game has been adapted from Think Livelihoods! (Tearfund 2011), page 41–42. It is available to download on TILZ (<http://tilz.tearfund.org/thinklivelhoods>) or can be ordered by writing to the Editor.*

### Everyone in the chain adds value...

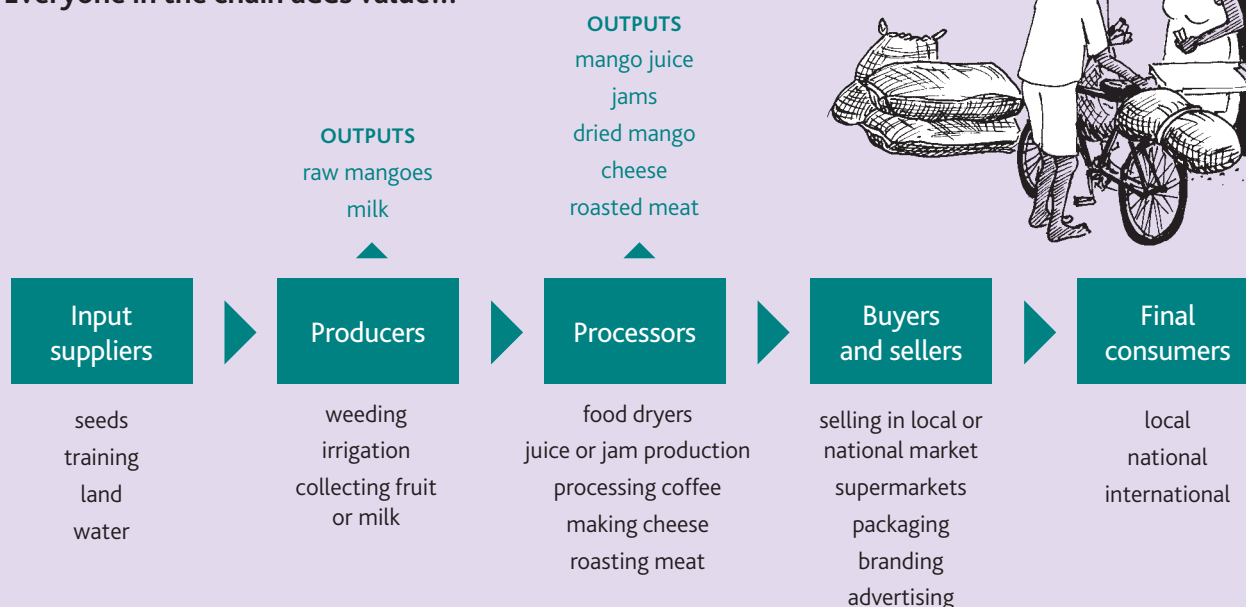


Illustration: Rod Mill

# Make your own weaning foods

Compiled by Alice Keen

A weaning food is a ready-made product consisting of a number of ingredients, which can easily be prepared into a porridge and fed to infants who are starting to need solid food alongside breast milk.

The World Health Organization advise that in most situations breastfeeding alone is the best choice for babies in the first six months of their lives. Weaning foods should then be gradually introduced. If circumstances make breastfeeding very difficult then weaning foods can be introduced earlier (eg at four months).

Before developing a recipe, you need to understand local eating habits. The most important questions to answer are:

- Which foods are easily available and affordable in the local area?
- Which foods are or are not acceptable because of tradition or religion?
- What kinds of weaning food do parents currently feed their infants?
- Do the recipes for these local foods need to be improved? If so, how?



Once you have answered these questions you can develop your own recipe for a weaning food. To make sure that it is nutritious for the infant, it should contain:

- A cereal (such as rice, wheat, maize or sorghum)
- A pulse for extra protein (such as beans or peas)
- Oil seeds for extra energy (such as peanuts or sesame seeds)

Energy, protein and small amounts of fibre are important for the infant to develop in a healthy way. Adding mashed fresh fruit to the weaning food will add useful vitamins and minerals into their diet. However do not add fruit or vegetables to the dry mix because it makes it impossible to store the weaning food safely.

*Adapted from Agrodoks series No.22: Small-scale production of weaning foods (ISBN 90-72746-76-7) with the kind permission of Agromisa. Website: [www.agromisa.org](http://www.agromisa.org) Email: [agromisa@wur.nl](mailto:agromisa@wur.nl) More information on ordering these resources is available on the Resources page (page 12).*

## Sample recipes

Makes 1 kilogram of dry mix. Add 3 cups of water for each cup of dry mix.

### Nutrimix (Ghana)

750 grams roasted maize  
150 grams roasted and peeled soya beans  
100 grams roasted peanuts

### AK-1000 (Haiti)

700 grams cereal (maize, rice or sorghum)  
300 grams of black, white or red beans, or peas

### Bitamin (Niger)

670 grams barley  
200 grams niebe beans (black-eyed beans)  
100 grams peanuts  
30 grams baobab fruit

### Totomix (Tanzania)

800 grams roasted maize  
100 grams roasted lentils  
100 grams roasted peanuts

**Fortimix (Tanzania)** – For severely malnourished children. Makes 100 grams of Fortimix.

56 grams of Totomix  
19 grams of sugar  
10 grams of oil  
15 grams of dried skimmed milk

*To make sure that infants are not allergic to any of the ingredients, introduce them to individual ingredients and check for a reaction before feeding them the weaning food.*

## EDITORIAL



Alice Keen Editor

Cooking a tasty meal and sharing it with others is one of my favourite things to do. I love the way it brings people together: families, friends, neighbours...

From the manna which fed the Israelites in the wilderness to Jesus cooking fish for his disciples after his resurrection, the Bible is full of stories where food plays an important role. The food-related Bible study on page 11 explores two different ways of drawing close to God: fasting and feasting.

In this issue of *Footsteps*, we are focussing on how to make the most of the food we have. We may have grown it ourselves, we may

have bought it or been given it, but we are all called to be good stewards. We know that producing food is hard work, especially with the effects of climate change, soil erosion and lack of access to land and water.

Yet food which has been harvested is often wasted because it is not stored well or preserved for later. We look at different practical ways of storing (pages 8–9 and 13) and preserving food (pages 5 and 16) that are safe and low cost. We have an interview with urban farmer Claudio Oliver (page 10) who challenges us to think about God's perspective on the way we consume food and produce waste. We hear how a local organisation in Mozambique is using orange-fleshed sweet potato in the fight against HIV and AIDS – this

includes some recipes for you to try as well (page 14–15)! On this page there is a guide to producing weaning food for infants.

Here at *Footsteps* we want to be good stewards not just of our food but also of the money that has been given to us. If you have received a readership questionnaire from us but haven't returned it, this will be your last edition of *Footsteps*! Please do write or email us if you would like to be put back on the mailing list. We would love to keep sending you the magazine but we need to be sure you are receiving the right number of copies at the correct address.

Blessings,

Alice

# Processing tomatoes

Tomatoes are grown all over the world. During the harvest, most farmers sell them at very low prices, because they spoil very quickly. Many tomatoes also go to waste because they cannot be sold in time.

To avoid this, farmers can process tomatoes into various products for storage and use at home or as value-added products for income generation.

Tomatoes are rich in:

- vitamins and minerals, which are important for health
- lycopene (the substance that makes tomatoes red), which has cancer-preventing properties.

## Making tomato pulp

### STEP 1: CHOOSING THE TOMATOES

Select tomatoes that are ripe, red, have a firm texture and are free of disease and mould.

### STEP 2: WASHING

Wash the freshly harvested tomatoes in clean water in a large bucket.

### STEP 3: BOILING

Place the tomatoes in a cooking pot. Cover with water and boil until they are soft and the skin peels off easily – but do not peel them.

### STEP 4: PULPING

- Remove the tomatoes from the pot using a large spoon with holes and place them in another container.
- Mash using a large wooden spoon.
- Use a large household sieve to separate the tomato pulp from the seeds and skin.
- Discard the seeds and skin or feed them to your chickens and keep the pulp.

*This article has been produced with the kind permission of CTA Publishing from their original CTA Practical Guide, No.12. More information on their guides is available on the Resources page.*



Will Boase/TeaFund

There are many varieties of tomato which have different colours, shapes, sizes and tastes.

## Tomato ketchup recipe

### INGREDIENTS

- 1 kilogram tomato pulp
- 150 grams sugar
- 45 grams of onions, finely chopped (one small onion)
- Spices (mace, cinnamon, cumin, cardamom, ground black pepper, ground white pepper, ground ginger) – add according to taste and availability. Chilli powder can be added to make a tomato chilli sauce.
- Salt (add according to taste)
- 80g vinegar

### INSTRUCTIONS

1. Add 50g sugar to 1 kg of tomato pulp, with the onions and the spices tied loosely in a muslin bag.
2. Heat slowly to below boiling point to dissolve the sugar, keep stirring to

prevent burning. Continue heating until the volume of the mixture has reduced by half.

3. Remove the spice bag.
4. Add the remaining 100g sugar, the salt and the vinegar. Continue stirring and heating for 5 to 10 minutes. Check that the sugar and salt have completely dissolved and that sauce has reached a thick consistency. Remove the sauce from the heat.
5. Cool to 80°C and pour the hot ketchup into sterilised bottles or jars. Close the lids tightly.
6. Cool to room temperature.
7. Store away from sunlight in a cool place. Ketchup can be stored at room temperature for six months if not opened.

## What could go wrong?

PROBLEM	CAUSES	SOLUTION
Mould growth on product, especially on surface of the ketchup	Not enough sugar added to mixture	Add correct amount of sugar
	Poor hygiene	Use clean utensils
	Mixture not boiled for long enough	Boil as recommended
	Jars not sterilised	Sterilise jars
Jars or bottles cracking	Use of contaminated caps or lids	Use clean caps and lids
	Hot products in jars cooled too quickly	Cool gradually

# Toxins in the food chain

Compiled by Claire Hancock

Food safety is often a forgotten aspect of food security. Globally much effort has been placed on increasing the quantity of food rather than the safety of food. But according to the Food and Agriculture Organization (FAO), 25 per cent of the world's crops are affected by the problem of aflatoxin contamination. This is caused by a group of fungi (*aspergillus* genus) which, if eaten, can cause liver cancer, slow growth in children under five years old and a weakening of the immune system. The Centre for Disease Control estimates that every day more than 4.5 billion people are in danger of being affected by aflatoxins through eating foods which have the fungus growing on them. These include maize, sorghum, paprika and groundnuts.

## Groundnuts in Malawi

Groundnuts (also known as peanuts) are a key crop among smallholder farmers in Malawi, who form about 85 per cent of the population. The nuts are a vital source of cash income and contain important vitamins and minerals that keep rural households healthy. However, groundnuts can suffer from aflatoxin contamination, either before or after harvest, especially when they are exposed to moisture and high temperatures. As well as being a risk to people's health,

aflatoxin contamination means farmers cannot sell their products abroad because they do not meet the standards needed for export.

Twin, a UK-based organisation, and the National Smallholder Farmers' Association of Malawi (NASFAM) are training smallholder farmers to improve their groundnut production. They raise awareness of the risks of eating groundnuts affected by aflatoxins and train farmers to prevent the *aspergillus* fungus from growing and to recognise and remove any affected groundnuts before they go to market.



Donald Manda Livingstonia Development Department

The *aspergillus* fungus often looks blue or grey.

## Preventing contamination

There are a number of ways to prevent aflatoxin contamination in groundnuts:

### WHEN HARVESTING:

- Harvest the groundnuts as soon as they are mature. Groundnuts are mature when the inside of the pod shells have dark markings. Immature groundnuts have a higher moisture content than mature nuts. If they are harvested when they are immature, the higher level of moisture makes them more likely to be affected by aflatoxin contamination. But if the groundnuts are left in the ground for too long the pods may split open, which also increases the risk of fungus contamination.
- To stop the fungus spreading further, sort the crop so that groundnut pods which are broken, or are already contaminated, are separated from the healthy groundnuts.

### WHEN DRYING:

- Groundnuts need to be dried steadily in their pods as soon as possible after harvest. They should not touch the soil when being dried. Instead use clean sheets, mats, cement floors or raised structures eg drying racks. If drying in the fields, the groundnuts should be dried in their pods in dry, ventilated stacks (where fresh air can reach them).



Clive Mear Tearfund

A farmer sells healthy groundnuts in Malawi.

## WHEN SHELLING AND STORING:

- It is best to store groundnuts in their shells. Never store them if the shells are still damp. The groundnuts should be kept in dry, well-aired conditions away from pests and animals. Groundnuts should not be placed directly on the floor, even if they are in bags.
- Farmers often soak the nuts to help remove the hard outside shells and reach the groundnut inside. However this process encourages the growth of the fungus. Where possible use a machine to shell the nuts instead of soaking.

## WHEN DISPOSING OF INFECTED GROUNDNUTS:

You can dispose of affected groundnuts as you would other crop waste but it is very important that you follow this advice:

- Do not use affected groundnuts to make food for people to eat (eg flour, paste).
- Do not feed the affected crop to animals as they will also be harmed by aflatoxins.
- Aflatoxins are very hard to destroy. You cannot remove them by boiling, burning or cooking.

*With thanks to Andrew Emmott, Senior Manager (Nuts), Twin and Twin Trading Limited for technical guidance.*

*For more information: Twin Trading [www.twin.org.uk](http://www.twin.org.uk) and NASFAM [www.nasfam.org](http://www.nasfam.org) Farm Radio International Package 97 on growing groundnuts ([www.farmradio.org/radio-resource-packs/package-97-growing-groundnuts](http://www.farmradio.org/radio-resource-packs/package-97-growing-groundnuts)) and Package 98 on post-harvest groundnuts (to be published in 2014)*

## Discussion questions

- What can you do if you see signs of the *aspergillus* fungus on your crops?
- Do people in your community know about this problem? If not, how could you raise awareness?
- What other foods in your community spoil and cause disease or sickness?
- How do you know when your food has spoiled or become dangerous to eat?
- In your own community, how do people stop food from spoiling? Do these methods need to improve?

Please write to: The Editor, Footsteps, 100 Church Road, Teddington, TW11 8QE, UK  
Email: [publications@tearfund.org](mailto:publications@tearfund.org)

## Footsteps in action!

This issue we feature two great photos sent to us by readers. Many thanks to Madeleine in Cameroon and Matthew in Tanzania.

**Top photo:** *Footsteps* live on the airwaves in Cameroon. Radio Salaaman uses our French version of *Footsteps* as content in its programmes. Merci!

PO Box 1010, Garoua, Cameroon  
Email: [radiosalaaman@yahoo.fr](mailto:radiosalaaman@yahoo.fr)

**Bottom photo:** This photo shows women being trained to dry fruit and vegetables. Content from *Footsteps* was used in preparing the training course. Thank you TAREA (Tanzania Renewable Energy Association)!

PO Box 32643, Dar es Salaam, Tanzania

Website: [www.tarea-tz.org](http://www.tarea-tz.org)



## Growing beans

Dear Friends,

We have started 'Projet Haricot' – a project growing beans. Our plants are growing well and bringing joy to our hearts. We'd like to make contact with other bean producers to exchange ideas and experiences.

Thank you and may God bless you,

Jacques Essoh,  
National President of NGO 'MEVAS',  
Coges Tiaha, BP 317 Dabou,  
Côte d'Ivoire (Ivory Coast)

Email: [essoh2014@gmail.com](mailto:essoh2014@gmail.com)

## Recognising diabetes

Thank you for the health information you featured in *Footsteps* 87. After reading it, I recognised the signs of diabetes in myself and decided to have a test. It turned out that I did indeed have Type 2 diabetes. It's opened my eyes to the problem and I have told many people, including our church Sunday school

leaders and the cotton producers' group which I lead and they have shared the information with others.

Sossoukpe Yaovi Senyo, Togo

**EDITOR'S NOTE:** *We received this letter as part of our readership survey. It has been moving to read your amazing stories of transformation and we have been so encouraged. If you haven't yet returned the questionnaire, please do so as soon as you can, so that we keep you on the Footsteps mailing list for the future.*

## Looking for information

Dear *Footsteps* readers,

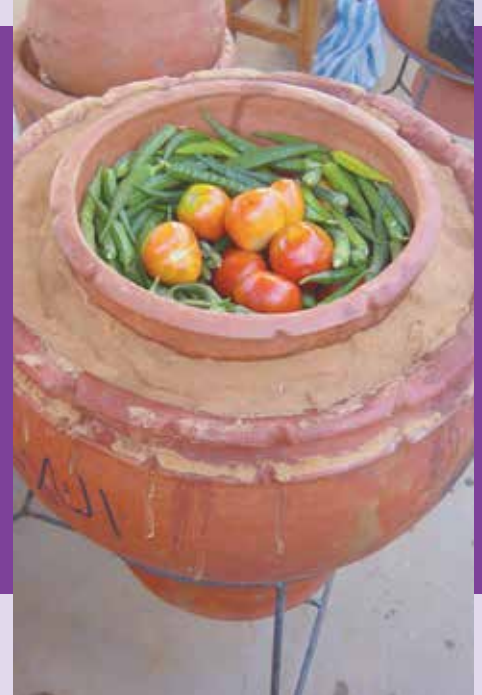
I am seeking information on the causes of weight loss, and the treatment of amoebas, constipation and tooth decay. And finally I want to know how to start a community radio project including how to find funding for it!

Evangelist Emmanuel Nsingi,  
Asbl ASDCI, PO BOX 13786, Kinshasa 1,  
Democratic Republic of Congo

Email: [info\\_asdci@yahoo.fr](mailto:info_asdci@yahoo.fr)

# Making a zeer pot fridge

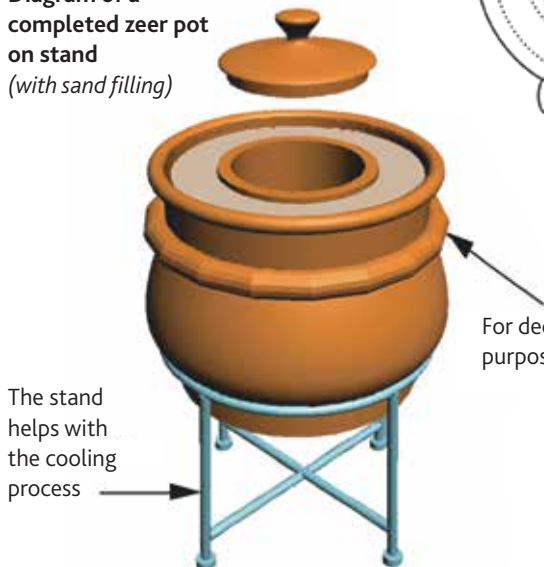
In Sudan, zeer pots are exactly what communities need to find a way out of poverty. Decades of fighting have displaced hundreds of thousands of families. Forced to abandon their land and their livelihoods, they are doing their best to start again. But food is scarce, and in temperatures of over 40 degrees centigrade, anything they are able to grow rots very quickly. One solution to this challenge is the zeer pot – a very clever fridge made using clay, water and sand. It consists of two earthenware pots of different sizes, placed one inside the other. The space between is filled with damp sand that is kept moist by adding water, and the smaller pot is filled with food. The top is covered with a damp cloth, then as the water in the sand evaporates towards the outer surface of the larger pot, there is a drop in temperature of several degrees. This keeps the contents of the smaller pot cool.



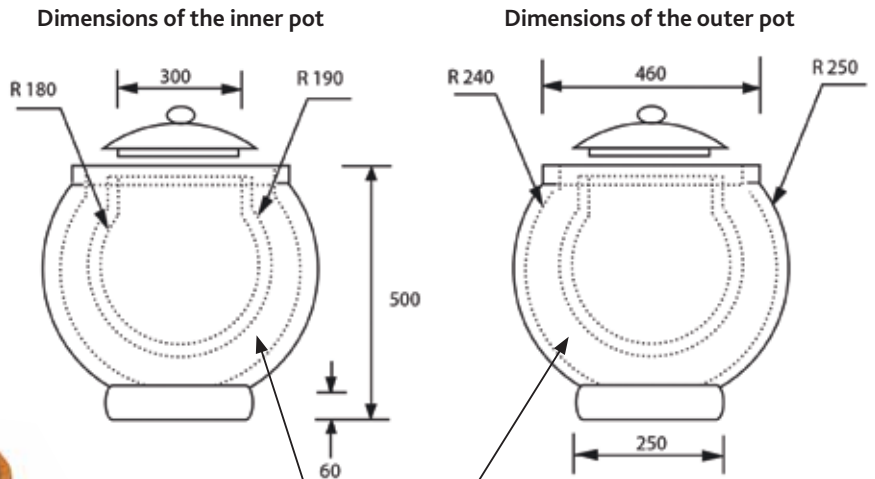
## 1.

First, create bowl-shaped moulds from mud and water – and leave to dry in the sun. Press the clay onto the moulds to form the size of pot wanted. Add clay rims and bases and remove the moulds.

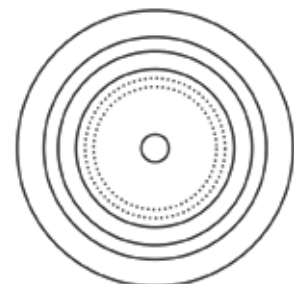
Diagram of a completed zeer pot on stand (with sand filling)



VIEW FROM THE SIDE



VIEW FROM ABOVE



For decoration purposes only

A zeer pot can keep 10 kilograms of food fresh for up to 20 days



2.

Once the pots have been fired in a pit of sticks, the zeer pot is ready to put together. Place the smaller pot inside the larger one, and fill the space in between them with sand.



With many thanks to Practical Action for their kind permission to reproduce this article.

[http://practicalaction.org/solutions/why\\_zeerpots.php](http://practicalaction.org/solutions/why_zeerpots.php)

For information on other practical solutions to poverty, visit: [www.practicalaction.org](http://www.practicalaction.org)

3.

Next place the whole structure on a large iron stand.

This allows the air to flow underneath and helps the cooling process.



4.

Twice a day, add water to the sand between the pots so that it remains moist. The zeer pot needs to be left in a dry place with fresh air.



5.

Put fruit, vegetables and sorghum in the smaller pot, which is covered with a damp cloth.



6.

In the heat, the water contained in the sand evaporates towards the outer surface of the larger pot. This evaporation makes the temperature drop by several degrees, cooling the inner pot and extending the life of the food inside.



# God wastes nothing: inspiration from Brazil

Meet Claudio Oliver, an environmentalist and pastor from Brazil who shared his experiences of urban farming in an interview with the Editor for *Footsteps*.

## What inspired you to become an urban farmer?

One day, after years of hoping and dreaming about having a piece of land, I went to my balcony and looked out over my 0.6 square metre plot, full of terrible soil. Then I went to my kitchen where I collected my food scraps. Seeing the connection between the two places, I was inspired to pray a prayer something like this... 'Lord, instead of complaining or dreaming about land, I will make a decision to honour you and your creation. I will not create rubbish which I cannot use again within my home and I will make the best of the soil you have given to me.'

I started my first worm bin [EDITOR – a way of *composting using worms*] and within six months the compost helped me to



The homestead is called 'Casa da videira' which means 'Vine's House'.

produce a very good harvest of tomatoes, lettuces and berries from the little 'farm' which had grown out of this wasted space with poor soil.

Having been faithful in using that small space, we soon started to transform the car park at our church into a garden.

After three years we had 300 different vegetables, trees, fruits and flowers growing there! Later, we rented our first house to start what we have called 'Vine's House' because we wanted to show that it is owned by the Vine (see John 15:1-8).

## Food takes a lot of effort to grow but so much is wasted. How do you minimise food waste in your life in the city?

I start with this principle: waste can pollute or waste can be put back into the cycle of life. Once you have understood this, you can take practical steps to do this by feeding food waste to animals or making compost. You always need to ask yourself the question: how can this waste bring new life? We have found that this kind of approach leads to abundance, and abundance leads to sharing, friendship and strong community. No-one leaves our house without something in their hands.

We believe that the best way to take care of your rubbish is not by recycling, but by what we call *precycling*. This means not buying things in the first place so that we do not have to dispose of them. We call the next step *overcycling*. Once waste already

## Five ways to use coffee grounds

Many people around the world enjoy drinking coffee but did you know that you only actually consume 2 per cent of the fresh coffee which you use to make a cup? 98 per cent of all the goodness from the coffee bean is not used!

1. Reduce bad smells in animal beds. For example, in rabbit hutches, cover the floor with coffee grounds and put an equal-sized layer of wood chips on top. Make sure you put enough wood chips so that you cannot see the coffee grounds any more. You can replace this every week, compost the waste (coffee grounds, wood chips and rabbit droppings) and then use it to make your plants grow!
2. For getting rid of foot odour, make little cloth bags and fill them with some coffee grounds. Put them inside your shoes for a few hours and the smell will improve.
3. Rub the ground coffee in your hands to get rid of the smell of garlic or onions. It goes away immediately!
4. Ants do not like coffee grounds! We scatter the grounds to keep them away from our plants. If you know where the ants are coming from, you can block their path with the coffee.
5. Make friends! We collect coffee grounds from the shopping malls and coffee shops in our city and the owners are very happy to have the coffee waste taken away free of charge. We get 40 kilograms of coffee per week from each shop. We take their waste and use it to bring life!

exists, we can find ways to extend its life by using it for as long as possible.

**You are involved in a movement called 'Do Meu Lixo Cuido Eu' which translates as 'I'll take care of my rubbish' – can you tell us more about it?**

It is very simple; waste does not exist in nature. The campaign's main message is that if you have produced waste, you can find a solution for it. Or if you cannot find a solution, you can give up using whatever is creating the waste. Anyone can join the campaign, or use our campaign name, because everyone can take care of their own waste.

**What you do could be quite challenging to others around you, how do people react to your way of life?**

For some we are a sign of hope. These people love and support us. For others we are symbols of all they hate, seeing us as underdeveloped and backward. When some people complained to the city authorities, they sent officials to check on what we were doing. But after coming and seeing the quality of our work, they decided not to punish us, but instead to support us.

They even changed a local law in our favour so we could keep doing what we do.

**How do you share your ideas with others?**

We love to say 'come and see' to everyone we can. Through living our normal life here we always have something to show. We also use Facebook, videos, reports and academic research and we arrange official visits from students, schools, universities and members of the local administration.

**If we want to make the most of the food we have, where can we start?**

You can begin by looking at how you use food in your own homes. When God created us, he put us in a garden and gave us all we needed for life. You can think about where the food waste goes and try to use it to bring life to new things. You can do this by feeding food waste to animals or letting worms turn it into soil. With other types of rubbish like plastic bottles or aluminium cans, wherever possible avoid using them and if you need to use them, you can keep on using them until the very end of their life. You can also help by sharing your experiences with me. I would love to learn from you!



Claudio Oliver

Claudio welcomes visitors. 'We love to say "come and see" to everyone we can,' he says.

*Claudio Oliver lives and works in Curitiba, Brazil. He has more than 25 years' experience as an environmentalist, urban farmer and pastor. He is passionate about seeing people live in positive relationships with one another and with creation.*

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*Website: [www.casadavideira.com.br](http://www.casadavideira.com.br)*

*Footsteps 41 has more information on using worms to make compost.*

## BIBLE STUDY

by Alice Keen

### Fasting and feasting

God wants everyone in the world to have enough to eat and to be able to choose to fast or feast as part of their worship of him.

**Fasting is choosing to go without food or drink for a specific period of time.** It is not the same as being hungry because of a lack of food, it is chosen freely. Throughout the Bible, God's people practise fasting to seek his face and become more dependent on him.

**Read Matthew 6:16-18**

- Who are the hypocrites trying to impress by fasting?
- According to the passage, what is the right attitude to fasting?
- Have you seen the benefits of fasting? Share your experiences with the group.

**Read Isaiah 58:1-12**

- In this passage, what is wrong with the way that the Israelites are fasting?
- What does God say 'true fasting' involves?
- What do you think it means to 'spend yourself on behalf of the hungry'? (verse 10)

**Feasting is celebrating with food.** It is a time when we enjoy the abundance of God's provision for us together with others. There are many examples of feasting in the Bible, from Abraham's feast to celebrate Isaac being weaned, to the wedding supper of the Lamb when Jesus returns.

**Read Luke 15:11-31 – The Parable of the Lost Son**

- How does the father celebrate his son's return? (verses 22-24)

- How does the older brother respond to the invitation to join the feast?
- Think about a time when you have felt angry or jealous at someone else's success. What does the passage show you about celebrating God's blessing in the lives of others?

**Read Isaiah 25:6-9**

In this passage prophet Isaiah is looking forward to a time when God's people from all nations will celebrate a feast with him.

- Who is preparing the feast, and for whom?
- What is the feast celebrating?
- What can you celebrate in your family, community or country today? Thank God for these things.

**TILZ website** [www.tearfund.org/tilz](http://www.tearfund.org/tilz) Tearfund's international publications can be downloaded **free of charge** from our website. Search for any topic to help in your work.



## PILLARS Guides

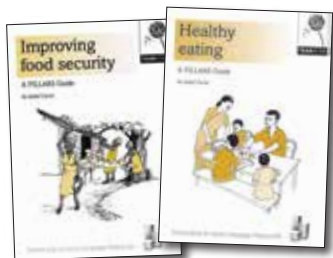
### ■ **Improving food security**

This guide provides practical information and discussion questions to help communities to improve their food security through better storage, use of grain banks, improved nutrition, preserving fruit and vegetables and crop selection.

### ■ **Healthy eating**

This guide includes information and discussion questions on food hygiene, improving a poor diet, preventing anaemia and understanding the food needs of children and babies.

Both guides are particularly appropriate for rural environments but will benefit anyone interested in making the most of food. They both contain Bible studies on the topics covered in each guide.



## CTA Guides and Agrodok Series

CTA Publications have a range of publications on food. The *Agrodok* series includes technical guides on granaries; preservation of fruit and vegetables; protection of stored grains and pulses; and storage of agricultural products. The CTA Practical Guides cover topics such as making sweet potato chips and flour, setting up and running a small fruit or vegetable processing enterprise, making high-quality cassava flour, making banana chips and flour and preserving green leafy vegetables and fruits. To view their full catalogue, visit: <http://publications.cta.int>

All CTA's publications are available in English, French and Portuguese.

If your organisation meets certain requirements, you can apply for an account through the CTA website.

You can order publications free of charge with this account. Follow the link on the homepage and click on 'Apply for a free subscription'.

Alternatively you can request an application form by emailing: [pdsorders@cta.int](mailto:pdsorders@cta.int)

Or by writing to:

CTA – Publications Distribution Service (PDS),  
PO Box 173,  
6700 AD Wageningen,  
The Netherlands

You can also download certain publications free of charge from their website or buy hard copies directly from the publishers.

## Previous Footsteps

- **Footsteps 65: Adding value to food** includes features on making jams and chutneys, how to use moringa, using ojon oil, processing shea butter as well as advice on storage and market research.
- **Footsteps 52: Nutrition** includes articles on how best to feed small children, gardening for better nutrition and how to improve porridges and soups.
- **Footsteps 32: Food security** contains useful information on community grain banks, grain storage, fermentation, and promoting and protecting traditional crop varieties.
- **Footsteps 21: Technology** has advice on food drying, cooking stoves and food coolers.

## Resources on the internet

<http://agrilinks.org>

A collection of resources on food security

[www.fsnnetwork.org](http://www.fsnnetwork.org)

The food security and nutrition network

<http://ccaafs.cgiar.org/bigfacts2014>

Big facts on climate change, agriculture and food

## AgriCultures Network Publications

The AgriCultures Network builds and shares knowledge on small-scale family farming and agro-ecology. It has members all over the world including in Brazil, China, India, Kenya, the Netherlands, Peru and Senegal. For more than 20 years, the Network has produced regional and global magazines on sustainable farming, reaching about half a million readers globally. You can subscribe to one of the six regional magazines. Alternatively you can access electronic copies on the AgriCultures website or as a smart phone app that includes all the back issues of the magazines.



For more information visit:  
[www.agriculturesnetwork.org](http://www.agriculturesnetwork.org)

Or write to:

Farming Matters,  
PO Box 90,  
6700 AB Wageningen,  
The Netherlands

Regional websites and contact details:

- **INDIA:** AME Foundation  
No. 204, 100 Feet Ring Road, 3rd Phase,  
Banashankari 2nd Block, 3rd Stage,  
Bangalore - 560 085, India.  
Website: [www.amefound.org](http://www.amefound.org)
- **KENYA:** ALIN AAYMCA Building  
Ground Floor, Along State House  
Crescent, Off State House Avenue,  
PO Box 10098 – 00100 GPO,  
Nairobi, Kenya.  
Email: [info@alin.net](mailto:info@alin.net)  
Website: [www.alin.net](http://www.alin.net)

The next issue of *Footsteps* will be on poultry-keeping (chickens, ducks, guinea-fowl etc). If you have advice, stories or questions on this topic, please write to the Editor as soon as possible.

# Preventing pests: ideas from around the world

We asked *Footsteps* readers and friends for their top food storage tips and here are some of their answers...

## Tea, coffee and pepper Stephen, Nigeria

To prevent pests from spoiling your beans you can sprinkle used tea leaves or coffee grounds around your plants to repel the pests. If you are trying to store your crop (eg beans) you can sprinkle ground pepper on them and put them in empty jerry cans. Close the cans firmly and the beans can be stored for a long time!

## Storing tubers for seed Petros, Mozambique

A basic process for storing tubers as seeds (eg potatoes, yams):

- Dig a hole 20 centimetres (8 inches) deep and 42 centimetres (17 inches) diameter
- Place newspaper into the hole and add a little dry soil on top
- Place clean tubers into the hole (tubers must be unscratched to avoid rotting). Twenty kilograms is an ideal amount for this size of hole.
- Place some newspaper above the tubers and cover the hole with soil.
- Make sure the storage hole is in the shade and protected from rain and flooding. You can create a canopy above it by using sticks as rafters and adding grass, plastic or leaves (eg banana) as a covering.
- This storage facility should be placed where children and animals will not disturb it. The tubers can last up to six months.

## Using neem Willem, northern Uganda

Farmers here often mix neem leaves with grain before storing it for several months. Neem leaves, oil or extract act as a repellent against insects such as weevils, flour beetles, bean-seed beetles and potato moths. Treating jute sacks with neem oil prevents the pest from entering your grain. Neem oil destroys bean-seed beetles at the egg stage.

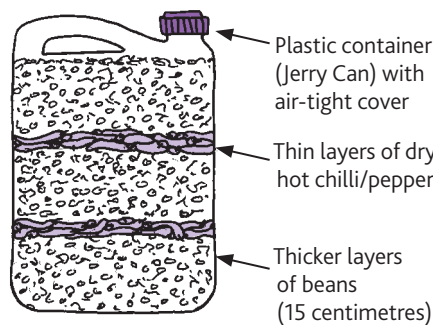
Also, if you mix neem leaves with clay and cow dung you can make storage containers for grain which are pest-resistant.

[EDITOR – *Bean-seed beetles are part of a family of small beetles called bruchids which mostly attack legumes.*]

## Storing cowpea grain Kene Onukwube, Nigeria

Storing cowpea grain (commonly referred to locally as beans):

- Allow the pods to dry on the field before you harvest them.
- Thresh the harvested pods, winnow and separate the clean grain. Spread out the clean grain in a cool, dry and airy place to dry it further.
- Confirm that the grain is dry by breaking a small sample with your teeth. You know it is dry when the grain is hard and gives a knotty sound when broken.
- Protect against insect and rodent pests by pouring the grain into 10 to 25 kilogram airtight plastic cans.
- As you pour in the grain, separate it into layers of 10 to 15 centimetres (depending on the size of the



plastic container used) with a thin layer (about 1 to 1.5 centimetres) of very dry pepper (ideally hot chillies). Cover the plastic container tightly and store until ready for use.

Many farmers testify that they have been able to save several kilograms of grain or seeds using this method, with less than 10 per cent being lost. This loss is usually caused by incorrect tightening of the plastic container or broken containers.

## More on storage

**Footsteps 32: Food security and PILLARS: Improving Food Security** feature useful advice on food storage.

**Farm Radio International** has produced a number of radio scripts that share information about storage. Visit [www.farmradio.org/radio-resource-packs](http://www.farmradio.org/radio-resource-packs) to find out more. **Package 66** on avoiding farm losses by improving storage methods, **Package 79** on post-harvest and **Package 90** on farmer innovation are particularly relevant.

# Combatting poverty with the orange-fleshed sweet potato

by Dr Petros Nyakunu



The Shingirirai team wear bright orange t-shirts to promote orange-fleshed sweet potato to the community.

**Vitamin A is a very important micro-nutrient which we all need to be healthy. Vitamin A deficiency is common in many parts of Sub-Saharan Africa and South Asia because of high rates of malnutrition.**

Pregnant and breastfeeding women require more vitamin A so that they can meet the needs of their own bodies as well as those of the unborn child or breastfed baby. If they do not get enough vitamin A they can suffer from night blindness, have miscarriages,

their babies can arrive early and they are more likely to die during pregnancy.

Children who do not have enough vitamin A do not develop and grow in a healthy way. They have a greater risk of infection and a lower ability to fight infection. They may also have eye problems. Severe vitamin A deficiency can even lead to death.

People living with HIV and AIDS also need to make sure they have enough vitamin A because their immune systems need to be at full strength to fight off infections. Proper nutrition is central to maintaining good health and quality of life for people living with HIV and AIDS.

## Where is vitamin A found?

Vitamin A is available from three sources:

- Animal foods: fish, liver, kidneys, red meat, eggs, butter, milk (including breast milk)
- Plant foods: orange-fleshed sweet potato, palm oil, yellow and orange fruits (papaya and mangoes), vegetables (pumpkins and carrots), and leafy green vegetables (spinach, kale)
- Artificially fortified foods: vitamin A is sometimes added into sugar, margarine, flour or vegetable oils

## Potatoes can change lives

Our project decided to focus on the promotion of the orange-fleshed sweet potato (OFSP) to help people in Mozambique to make sure that they have enough vitamin A in their diets. This kind of sweet potato is tasty, easy to cook and rich in vitamin A.

The first stage was to build our capacity to lead the OFSP project in Manica Province. Personnel from the two organisations involved in the project (Shingirirai and

PORENet) received training on OFSP production from the International Potato Center in the capital, Maputo.

## Telling others

The next phase was to demonstrate the production of OFSP to the public. We planted OFSP in plots where people could visit and see it for themselves. We also used the plots to train ourselves to grow the crop well, as well as to grow potato vines that we could give to others who wanted to start their own plots.

The next phase involved raising awareness and creating demand for OFSP through demonstrations and sharing information about the benefits of eating OFSP. We cooked different varieties for participants; they tasted each variety and chose their favourite. We kept the names of the varieties a secret so we could find out which variety would really be the most popular.

We also used other creative ways to engage people. We made and distributed orange t-shirts to people with the slogan 'Consume OFSP for better health and more vitamin A' printed on them. We even had a dance which we performed to tell people about OFSP!

## Change at a higher level

We lobbied for OFSP to be included in the 'Provincial Multi-sectoral Action Plan for the Reduction of Chronic Malnutrition' (PAMRDC 2013–2017) so that everyone in Mozambique could benefit from this vegetable. This meant meeting with many different people including representatives from all levels of the government (district and provincial), farmers' groups, churches, schools and the provincial governor. But it was worth the work because finally a draft was approved by the provincial governor for onward transmission to the central government and OFSP was included in the Plan.

## Making the most of OFSP

OFSP mixes very well as an ingredient in traditional recipes, as well as in more processed products. You can be creative and try it steamed, boiled, mashed, fried, roasted, baked or use it to make products for weaning or as preserves. OFSP products can provide those who buy them with a varied diet and at the same time generate income for the producers. Growing OFSP can also help empower women, enabling them to give their families food that will keep them healthy, and providing them with a new source of money for their other needs.

*Dr Petros Nyakunu is Founder & Executive Director – PORENet (Mozambique)  
Email: pnyakunu@yahoo.com*

*For more information on orange-fleshed sweet potato, visit <http://sweetpotatoknowledge.org>*

## Case study

Joana Luis is a 55-year-old widow. She lives in Manica Province and looks after five grandchildren of school-going age. She is blessed to have a fertile field that is suited to sweet potato production. She discovered OFSP in 2012 and decided to dedicate half a hectare to growing it.

When asked how OFSP has impacted her life, she laughed and said, 'I have harvested more than 1.5 tons so far. I sell fresh OFSP and the leaves of Delvia, Gloria and Lourdes varieties as a vegetable relish. I have used the money to build a house, connect water and electricity and buy furniture. I put some of the money into a savings scheme to enable me to borrow more easily. I am very satisfied with this crop and will continue to grow it for as long as I live.'

She shares her OFSP, giving some of her vines to others and encouraging them to grow the crop.



Sweet potato is rich in vitamin A.

## Orange-fleshed sweet potato recipes

### Sweet potato juice

#### INGREDIENTS

- Boiled and mashed sweet potato – 1.5 kilograms (3 plastic mugs)
- Sugar – 1 kilogram (2 plastic mugs)
- Lemon juice – 240 millilitres (24 tablespoons)
- Pineapple/passion fruit juice or both – 300 millilitres (30 tablespoons)
- Water – 6 litres (12 plastic mugs)

*The plastic mug in this recipe holds 500 millilitres.*

#### INSTRUCTIONS

1. Mix boiled and mashed sweet potato into 2 litres of water and filter using a muslin cloth to produce a clear juice.
2. Add the other juices (lemon and pineapple/passion fruit) to the juice.
3. Add sugar to the remaining water (4 litres) and boil the solution in aluminium pan until a syrup is formed.
4. Add the hot syrup into the juice mixture of sweet potato, lemon and pineapple/passion fruit juice.



Petros Nyakunu

5. Heat the new combined mixture to near boiling point (80–90°C) in a stainless steel pan.
6. Remove and leave to cool.
7. Sterilize your containers (bottles, plastic sachets, pots etc).
8. Pack the juice into containers. Wait until the juice is cool enough that it will not burst the containers, then pour the juice into them.
9. Continue to cool the juice in its containers until it reaches room temperature.

10. Now you can drink your sweet potato juice or dilute it with water (make sure your water is clean before mixing it).

### Sweet potato porridge

*Ideal for pregnant and breastfeeding women, children under 5 years of age and those who are ill – but tasty for everyone!*

#### INGREDIENTS

- Maize flour – 50% (half)
- Sweet potato flour – 25% (one quarter)
- Groundnut flour – 25% (one quarter)
- Water – 1 litre for every 6 tablespoons of flour
- Sugar and salt to taste

#### INSTRUCTIONS

1. Mix the three types of flour together.
2. Put 6 heaped tablespoons of mixed flour into a saucepan.
3. Add water and mix until a thick paste is formed.
4. Boil 1 litre of water separately.
5. Pour the paste into the boiling water.
6. Stir to avoid lumps until the porridge paste is formed (approximately 10 minutes).
7. Remove and serve when warm.
8. Add sugar/salt to taste.

# Fruit for every season

A local NGO in one of the Central Asian republics provided training for people wanting to learn how to dry fruit.



Central Asian NGO

After the workshop, participants put their knowledge into practice, drying fruit in the sun.

## The fruit dryer

**One training participant shares their experience:**

### *What inspired you to start drying fruit?*

We went on a training course run by a local NGO and we saw that drying your own fruit can produce a good result! After the training we began to dry apricots ourselves.

### *What have the challenges been?*

The fruit quickly soured before we were able to dry it. We are still learning how to dry fruit well!

### *What have been the benefits?*

After drying, the fruit can be stored for long periods, which is very useful for living through long winters.

Selling dried fruit in the market brings a good income for a family.

### *Who buys your fruit?*

Buyers in the local market and if there is a big harvest of good quality fruit, we can also sell some abroad.

### *What advice do you have for other people across the world who would like to follow your example?*

Start by receiving training on how to dry the fruit well. Keep working hard, use modern technology when you can and believe you will get a good result!

## The local NGO

**Advice from the trainers:**

Fruit drying has risks. Harvests, and therefore prices, can change from year to year. We had problems with pests (such as spiders and worms) and in one case, bad pesticide which poisoned the crop. Severe weather and changes in the climate can also make it hard to predict the availability of the fresh fruit to dry.

It is good to experiment on a small scale before you think about selling to others. You can try different varieties of the fruit you have chosen, to see which makes the best dried product. Not all apricots (or tomatoes or apples) are the same!

Use fruit that is available locally. It is often better to choose crops that are common in your region, which you already know grow well in the soil and climate. Sometimes there is a new type of fruit or vegetable that can be introduced, for example okra is rarely grown in our country but it can be grown very successfully. But while you might want to try this, remember it will take time and money to grow it and people will also need to learn how to prepare and eat it.

Bad quality fresh fruit does not produce good quality dried fruit! This may sound



obvious but you need to make sure that you choose good, fresh fruit.

There are many practical questions you need to think about after you have dried the fruit. It needs to be stored in a dark, cool place that must not be humid or the fruit will spoil. You must also protect it from pests.

If you are going to try to sell your fruit commercially, plan well! We went to many shops to ask them if they wanted to stock our apricots. For every 10 shops we visited, only one said yes! You need to think about how your products will get to customers. Ask the questions: 'Do people want this product?', 'What price are they willing to pay?' and 'How will I transport the produce to the customers?'