

# Footsteps

## Food and nutrition

- Hunger and health
- Nutritional groups
- Child nutrition
- Grain storage
- A balanced diet
- Food preservation



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## About Footsteps

Featuring practical solutions to development challenges, *Footsteps* magazine inspires and equips people to work with their local communities to bring positive change.

*Footsteps* is published by Tearfund, a Christian relief and development agency working with local partners and churches to meet basic needs and address injustice and poverty. *Footsteps* is free of charge.

📷 Cover photo: Virginia (left) in Guatemala gives cooking lessons and nutritional advice to a group of women in her home. Photo: Caroline Trutmann Marconi/Tearfund

## A note from the editor

To stay healthy and strong, we need nutritious food. And in every culture, growing, cooking, eating and sharing food are important parts of family and community life.

Hunger is not God's plan for humankind. But global inequalities, conflict, climate change and other factors mean that millions of people across the world are currently experiencing hunger and malnutrition.

This edition of *Footsteps* discusses different aspects of nutrition including types of food, breastfeeding and key principles for a balanced diet. It shares examples of community groups who are working together to overcome malnutrition, and tips for food storage and preservation.

■ **'Give us today  
our daily bread.'**

Matthew 6:11



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▣ Griselda (left) is a health promoter in Guatemala. She helps the women in her community to keep their children healthy and well fed. Photo: Caroline Trutmann Marconi/Tearfund

# Hunger and health

By Joy Wright

**Sharing a meal with others is an ordinary human experience that provides us with connection and belonging, as well as physical energy and nutrients. But how can community members help each other when there is not enough to eat?**

This is an urgent question in many countries today, and one I found myself asking on a recent visit to Ethiopia, where the worst drought in 40 years is causing a food crisis.

‘Almost one person in every ten does not have enough food.’

Globally, rates of hunger have rapidly increased in the last few years due to a combination of conflict, climate change, the economic effects of Covid-19 and rising food costs. According to the World Food Programme, almost one person in every ten does not have enough food to meet their nutritional needs. Children are particularly vulnerable, with Unicef estimating that about 200 million children are currently affected by malnutrition.

We can feel powerless in the face of such large-scale needs, and global intervention is necessary. But local, community-led action can significantly reduce the impact of hunger and malnutrition on individuals and households. ▶



Checking for malnutrition in Kenya. Photo: Will Swanson/Tearfund

## Community-led action

Community groups can help in a number of ways. The first step is to find out what the most significant local contributors to hunger and malnutrition are.

These may include:

- food insecurity, where food supply is unreliable or unaffordable, perhaps due to conflict, poor harvests or disasters
- lack of knowledge of nutritional principles, particularly in relation to feeding babies and children
- inadequate access to water, sanitation and healthcare, resulting in illness and a reduced ability to absorb essential nutrients.

Based on this analysis, community groups might decide to take the lead in one or more of the following areas.

- **Advocacy** Communities know what is needed in their context to address food insecurity and malnutrition. Based on this knowledge, community representatives can advocate for support from local and national government,

healthcare services, non-governmental organisations and others.

For more information on effective community-led advocacy, see *Footsteps 118*.

- **Providing information** Advice about health and nutrition is most effective when provided by fellow community members who understand what foods are available and the pressures their community is facing.

Key topics might include: good nutrition in pregnancy; what to feed children under two years old; breastfeeding support; hand hygiene; latrine use; kitchen gardening; and how best to store and preserve food to reduce waste.

- **Connecting people to services** Lives are saved when children with acute malnutrition are treated quickly. Community health workers and family members can learn how to check children for malnutrition. They can then refer them to the nearest clinic.

Reaching food distributions or health clinics can be difficult for people in rural areas or parents with several children, so organising transport or childcare can be vital.

- **Participatory action** Community groups can help people decide how to use available land, food and resources as effectively as possible.

Self-help groups provide opportunities for people to support each other and save small amounts of money. These savings can then be used to buy food during periods of drought or other emergencies.

## Malnutrition

Not having enough of the right foods at the right time leads to malnutrition and weakened resistance to infection. A malnourished child is more likely to get respiratory tract infections, diarrhoea and diseases such as malaria. And they are much more likely to die from these illnesses.

Child malnutrition can be prevented by increasing breastfeeding rates, ensuring young children receive enough nutritious food and improving access to safe water and sanitation.

Illness and intestinal worms decrease the body's ability to absorb nutrients. So vaccination against common childhood diseases and timely treatment for worms are also very important.

### Measuring malnutrition

A chart showing expected weight for age is commonly used to check that children are growing properly. However, scales and charts are not always available so, increasingly, a colour-coded measuring tape, known as a MUAC tape, is used.

The tape is wrapped around the upper arm of a child and it provides a quick and simple indication

**‘A malnourished child is more likely to get respiratory tract infections, diarrhoea and diseases such as malaria.’**

of malnutrition. This is something that community health workers, parents and older siblings can easily learn to do. The tape can also be used to check for malnutrition in adults.

Swelling may be a sign of severe acute malnutrition in children. One way to check for this is to apply normal pressure using thumbs on top of each of the child's feet for about three seconds. If the skin remains indented for a few seconds after the thumbs are removed, the child needs emergency medical attention.

### Treating malnutrition

Acute malnutrition needs to be assessed by a healthcare worker. For severe cases, treatment with a special high-energy nut paste is needed. In milder cases, high-energy foods such as porridge made from grains and legumes can be used.

If there are complications such as infection or swelling, people need care in a clinic or hospital where they will receive high-energy food, antibiotics and other treatments.

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*Joy Wright is a medical doctor and a health and nutrition advisor for Medical Teams International in Ethiopia, Tanzania and Sudan.*



❏ **Tape for measuring mid-upper arm circumference (MUAC).** When wrapped around the upper arm, green indicates healthy, yellow suggests a potential problem and red indicates malnourished. Photo: Paul Mbonankira/Tearfund

## Definitions

- **Nutrients** Essential substances found in food that the body needs to function properly and maintain good health.
- **Nutrition** The body's process of taking in food and absorbing energy and nutrients from it.
- **Malnutrition** When the body does not receive the right amount of the right nutrients. It particularly affects children under five and pregnant and breastfeeding women due to their high energy needs.
- **Acute malnutrition** Rapid weight loss due to a sudden lack of nutritious food. Children with acute malnutrition have a low body weight for their height. Acute malnutrition can be classed as moderate or severe.
- **Chronic malnutrition** Weight loss due to longer-term food shortages. Children with chronic malnutrition are often short for their age. Chronic malnutrition can have long-term effects including reducing children's ability to learn at school.
- **Mid-upper arm circumference (MUAC)** A simple, quick way of checking children aged six months to five years for malnutrition using a colour-coded tape to measure the circumference of their upper arm.



## High-energy porridge

Use this porridge to treat moderate acute malnutrition in children and adults, or to help someone recover from an illness. Offer it daily, for at least eight weeks. Vary the ingredients according to the types of grains and legumes available in your area.

📍 **Enjoying a cup of nutritious porridge in Burundi.**  
Photo: Tom Price/Tearfund



### Ingredients

- Two parts legumes, eg soybeans, peanuts, peas or lentils
- One part wholegrain cereal, eg maize or rice
- One part of a different wholegrain cereal, eg wheat, millet or buckwheat

### Method

1. Clean the legumes and grains.
2. Roast them separately, and then grind them into a fine flour (separately or together). The flour can be stored in an airtight container for up to three months.
3. Stir the combined flour into boiling water and cook. Vary the amount and texture of the porridge depending on the age and condition of the person.

Add mashed vegetables and fruits to the porridge to improve the nutritional value and vary the flavour. The flour can also be used for baking breads and biscuits. Do not add salt.

## Bible study

# Yellow mealie meal

By Barnabé Anzuruni Msabah

### Read Psalm 42

Condry Ziqubu's song *Yellow Mealie Meal* was written to remind people how God saved them from starvation and malnutrition when, in the 1980s, yellow maize flour became the staple food for many households across southern Africa. The flour was introduced by governments due to severe droughts and food shortages in the region.

In the song, Condry is heard lamenting, 'Children are crying, there is no rain,' then he concludes by calling everyone to pray together:

*Come on everybody let's get together...  
Let's be down on our knees  
We need you Lord, we need you right now  
Save the world, save your people!*

For nearly five years, yellow mealie meal was one of my staple foods when I lived in a refugee camp in Tanzania. Other foods were soy flour, split peas and sunflower cooking oil. Interestingly, together with a bar of soap we were given, they were all yellow!

We often lamented and cried out for deliverance from hunger and the monotony of these rations. Eventually, God answered our prayers and the situation improved.



### Reflect

- What does the writer of Psalm 42 mean by 'My tears have been my food day and night'?
- Have there been times when you have felt like this?
- How does your relationship with God help you when life is difficult?



Maize kernels and flour in Burundi. Photo: Tom Price/Tearfund

### Lament and praise

In the Bible, lament is a common language of praise during suffering.

In Psalm 42:3 the writer cries out, 'My tears have been my food day and night, while people say to me all day long, "Where is your God?"' Then, after an outpouring of grief, the psalmist concludes: 'I will yet praise him, my Saviour and my God' (Psalm 42:11).

In the refugee camp, in many ways tears were our 'daily bread', and people ridiculed us for holding on to our Christian faith. But lament became for us an act of worship in which we could offer to God our brokenness and our pain.

The Bible teaches us that it is never wrong to cry out to God. God hears us in our distress and welcomes us close: 'Come to me, all you who are weary and burdened, and I will give you rest' (Matthew 11:28).

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*Based in Kenya, Barnabé Anzuruni Msabah is Tearfund's Theology and Network Engagement Coordinator for East, Central and Southern Africa.*

# No more malnutrition

By Diane Igirimbabazi

At 12 years old, Chanelle is already a young lady. A little shy, she is very bright and knows what she wants to do when she grows up. 'I want to be a doctor,' she declares with a big smile.

'Yes she can!' affirms her mother, Diane. 'She is a survivor and I believe that God has great plans for her.'

Diane, her husband and their six children live in Matana, Burundi. They are farmers, but with the pressures of climate change and limited land they often struggle to grow enough food for their family. As a result, ten years ago Chanelle almost died.

'She was very weak and we did not know what was wrong,' explains Diane. 'At the hospital she was diagnosed with severe malnutrition.'

**'We decided to put our efforts together, work with the diocese and make sure our children will never be sick with malnutrition again.'**

At the time, around 200 children in the area were sick with malnutrition, so the Anglican Diocese of Matana put in place a support and feeding programme. Chanelle was treated for two months and she recovered completely.

'It was a scary time for us and for the whole community,' says Diane. 'We decided to put our efforts together, work with the diocese and make sure our children will never be sick with malnutrition again.'

📍 Chanelle and her mother, Diane, at home in Burundi. Photo: Diane Igirimbabazi/Tearfund







📍 Jean Bosco from the Diocese of Matana demonstrates how to prepare a nutritious porridge to help prevent malnutrition.  
Photo: Tom Price/Tearfund

## Porridge

The Diocese started a training programme where parents learnt how to prepare a special porridge to treat and prevent malnutrition. The porridge is made with local ingredients such as maize, soybean and peanuts, to make it easily accessible for everyone.

Parents were taught how to improve their farming methods, grow vegetables and make nutritionally balanced meals. At the same time they learnt that safe drinking water, improved sanitation, good hygiene practices and childhood vaccinations are also very important for preventing and treating malnutrition.

## Self-help groups

Parents who had sick children decided to form self-help groups so they could continue to support each other. Today, group members check for signs of malnutrition among their children, and they exchange tips, advice and cooking ideas. They also save money and work together to start small businesses.

‘We are 17 in our group,’ says Diane. ‘So far we have bought four cows, and our aim is to buy a cow for every member – cows produce milk for the family and manure for the crops.’

‘We grow vegetables in the swamps during the dry season, something we never used to do. We are also rearing chickens and rabbits.’

‘Who would have thought that the people who did not have enough food for their children a few years ago could be doing so well today? In the last few years we have not had any cases of malnutrition in our community.’

*Diane Igirimbabazi is Tearfund’s Regional Communication Officer for East and Central Africa.*

# A balanced diet

By Mary Jane Poynor

To be healthy, strong and energetic our bodies need a variety of foods from each of five nutritional groups.

These groups are:

- **Carbohydrates** These provide the energy we need to keep our bodies working. Foods rich in carbohydrates include grains, some fruits and root vegetables.
- **Proteins** These provide the building blocks our bodies are made from and are essential for growth, good function, healing and repair. Protein-rich foods include beans, pulses, fish, meat, eggs and insects.
- **Fibre** This is important for good digestion and helps to reduce many diseases. Vegetables and fruit are good sources of fibre.

- **Fats and oils** These are needed for many essential body functions. Foods such as oils, butter, cheese, nuts and seeds are high in fat.
- **Vitamins and minerals** Although we only need small amounts of these each day, they are very important for everything our bodies do. We become weak and sick if we do not have enough of them. Good sources of vitamins and minerals include fruits, vegetables and insects.

Eating too much or too little from these groups means our bodies do not receive the full balance of nutrients they need to work properly.

☑ Eating a variety of foods, such as these in Guatemala, helps to ensure a balanced, healthy diet. Photo: Lydia Powell/Tearfund





## Water

Your body cannot function without sufficient water and you will quickly feel weak and unwell if you do not drink enough. Pregnant and breastfeeding mothers need to drink extra.

Make sure drinking water is free from harmful germs. If in doubt, boil it for two minutes and then leave it to cool before drinking.

Avoid too many sugary drinks, such as fizzy soda, because they can damage teeth and contribute to the development of diabetes and other non-communicable diseases.



Hariri Ali in Ethiopia enjoys a drink of clean, safe drinking water. Photo: Chris Hoskins/Tearfund

### How to eat a balanced diet

1. Whenever possible, eat fresh, locally grown food rather than processed foods. Processed foods often contain too much salt, sugar and fat, and not enough protein, fibre, vitamins or minerals.
2. Try to eat foods from different nutritional groups in the same meal. This helps to ensure that food is properly digested, nutrients are absorbed and waste is removed.
3. Eat as many colours of vegetables and fruits as possible. Each colour has different vitamins and minerals.
4. Onions, garlic, ginger, herbs and spices are very good for your health and make food taste better.
5. Eating fermented or pickled foods each day will strengthen your digestive system.
6. Before cooking, soak legumes and pulses overnight, then rinse and boil in fresh water to make them easier to cook and digest.
7. If you only have a small amount of food available, try to eat some grains or root vegetables, some dark green and colourful vegetables, and some beans or pulses at each meal. These will fill you up and provide most of the nutrients you need. If you can find them, add insects, nuts, seeds, eggs, milk or fats in small amounts.
8. For children and young people, for women who are pregnant or breastfeeding, or if weight gain is needed, try to add more nuts, seeds, coconut meat and milk, avocados, oil, dairy products, meat, fish or insects to meals and snacks.
9. If weight loss is needed, or for those with long-term health problems such as diabetes and high blood pressure:
  - reduce the amount of butter and ghee, sugar, salt, grains, root vegetables and starchy fruits eaten in normal meals (plus meat and dairy products if you consume them frequently)
  - replace them with more vegetables and snack on whole fruits rather than drinking fruit juice or eating something sweet
  - exchange processed foods for nutritious local dishes
  - avoid eating fried foods, sweets and desserts, except on special occasions
  - instead of eating white rice, bread, pasta and porridge, look for unprocessed, wholegrain or brown versions.

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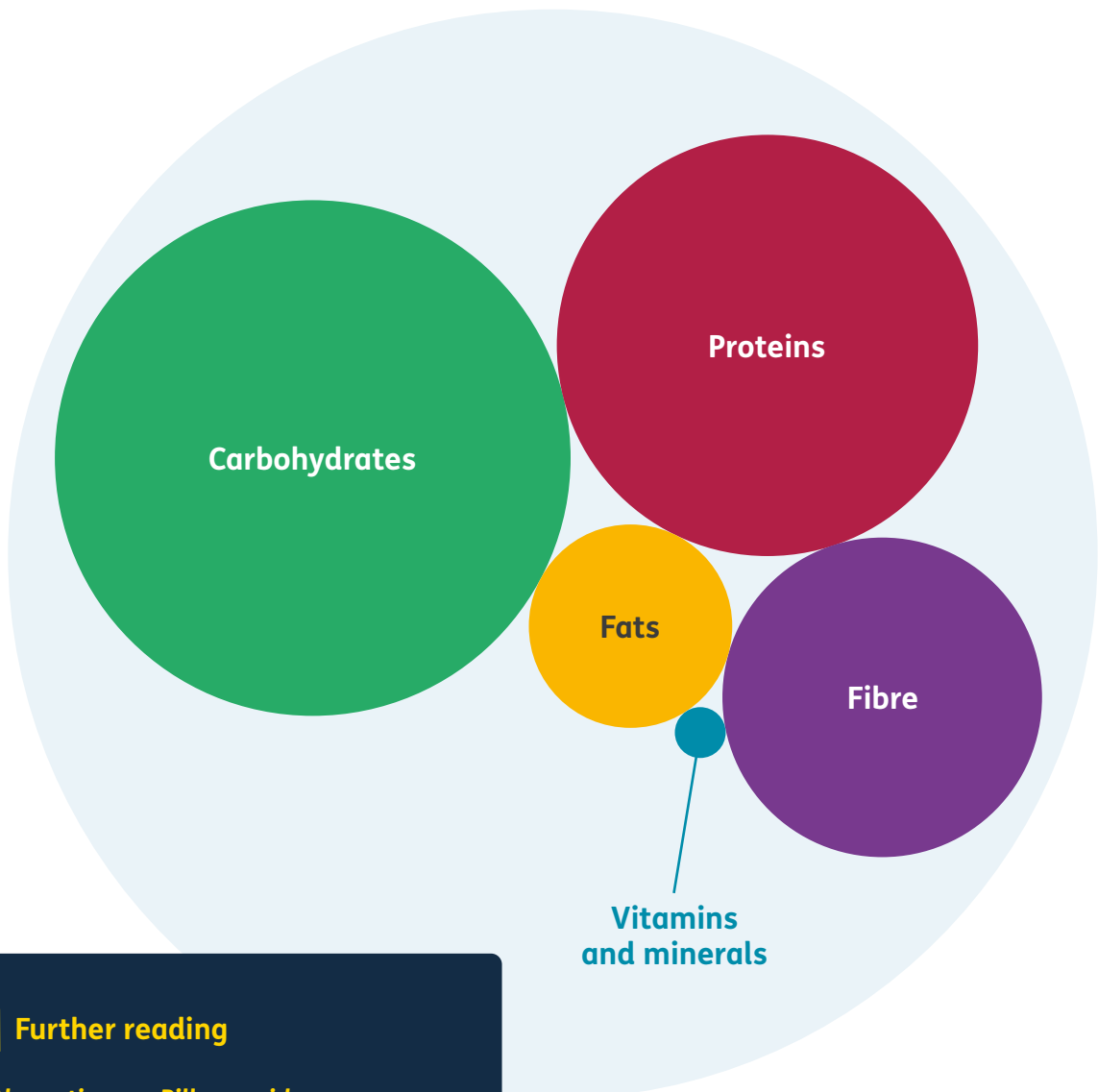
*Mary Jane Poynor is a health and self-care coach. She was based in the Middle East for many years and provided health and nutritional advice to local families.*

# Nutritional groups

Eating a variety of foods helps to ensure that we have all the nutrients we need to stay healthy and strong.

Each day, try to eat a mix of carbohydrates, proteins, fibre, fats, vitamins and minerals, as illustrated in the diagram below.

Approximate proportion of each nutritional group needed in a balanced diet




## Further reading

*Healthy eating – a Pillars guide*

By Isabel Carter

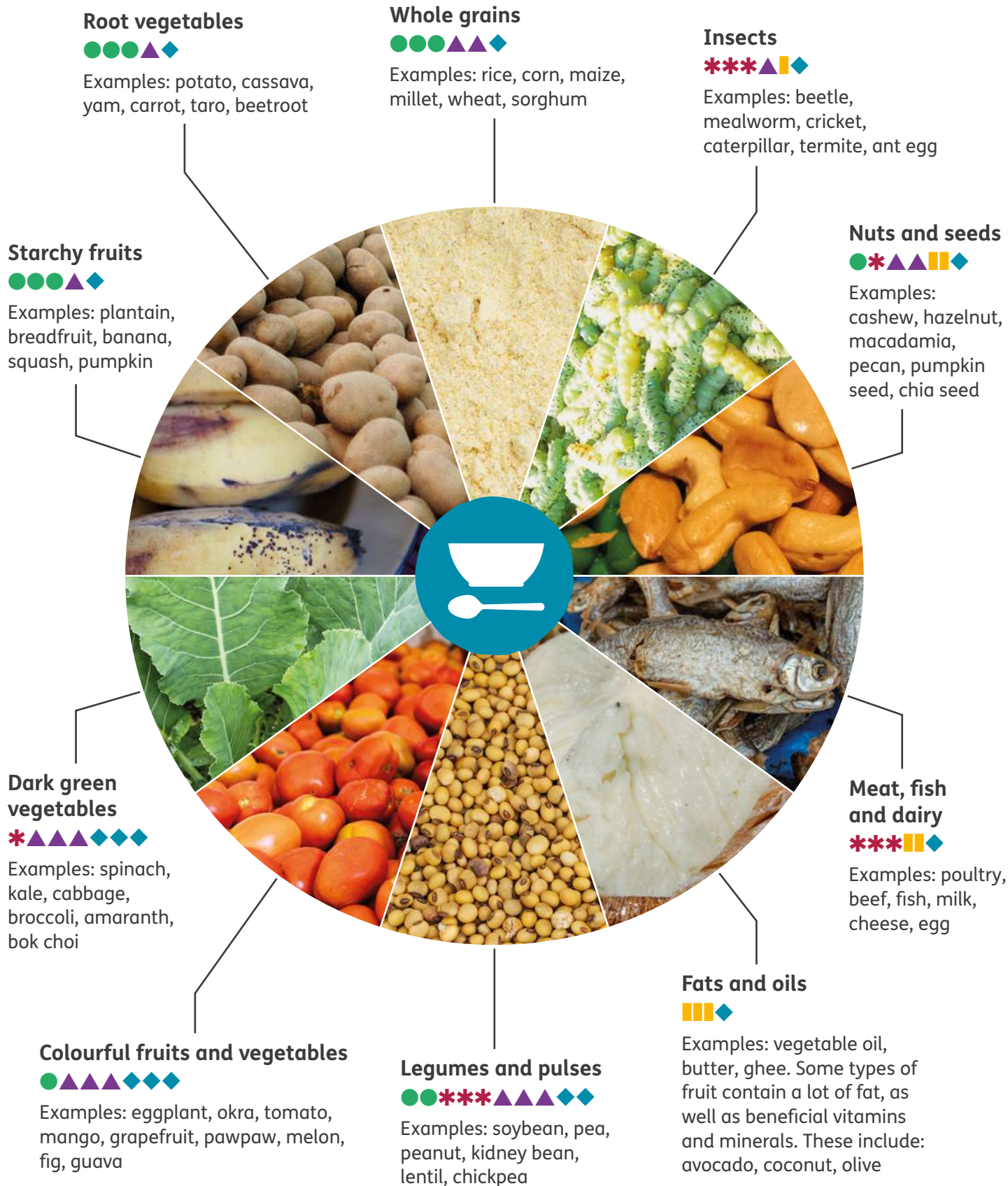
Ideas to help improve household nutrition at low cost. Visit [learn.tearfund.org](https://learn.tearfund.org) and search for 'healthy eating'. Available in English, French, Spanish and Portuguese

 **Page 13 photo credits:** Whole grains – Tom Price/Tearfund; Root vegetables – Andrew Philip/Tearfund; Starchy fruits – Alice Keen/Tearfund; Dark green vegetables – Caroline Trutmann Marconi/Tearfund; Colourful fruits and vegetables – Tom Price – Ecce Opus/Tearfund; Legumes and pulses – Tom Price/Tearfund; Meat, fish and dairy – Jonas Yameogo/Tearfund; Fats and oils – Aaron Koch – used with permission; Nuts and seeds – Marcus Perkins/Tearfund; Insects – The Salvation Army

# Nutrients in different types of food

Most foods contain a mixture of nutrients. The coloured shapes provide a rough indication of the proportion of each nutritional group in each type of food. The more shapes there are, the greater the quantity of that particular nutritional group.

● Carbohydrates \* Proteins ▲ Fibre ■ Fats ◆ Vitamins and minerals



# Child nutrition

By Astrid Klomp

**Good nutrition during the first few years of a child's life helps to protect against illness and is crucial for good growth and development.**

Communities have an important role to play in supporting the nutrition of mothers and their infants. This includes recognising the need for pregnant mothers to rest, eat a variety of nutritious food and drink plenty of safe water.

Once the baby is born, new mothers need to continue to rest and eat well, and they may need additional help as they learn how to breastfeed their baby. Support groups for new parents can be helpful, as well as peer-to-peer advice and home visits by local midwives or community health volunteers.

In emergency or conflict situations, providing safe, private spaces for mothers to breastfeed can help

them continue to feed their babies without worrying about what is happening around them. These can also be spaces where mothers can talk about their worries, helping to protect the health and wellbeing of both themselves and their children.

## Breastfeeding

Breastmilk is the best food for babies. It is safe and clean, and it provides all the energy and nutrients that a baby needs for the first few months of life.

Breastmilk helps babies to develop strong immune systems. As a baby comes into contact with different diseases, saliva from the baby causes the mother's body to produce very specific antibodies in her milk. These antibodies provide protection against disease and help the baby to recover when they become unwell.

📍 Alaya and her daughter, Emily, play together in Malawi. Photo: Alex Baker/Tearfund



Mothers often worry about whether they can make enough milk. However, the more their baby feeds, the more milk is produced, so babies should feed as often as they like – both day and night. This is especially important in the first few days after birth.

The World Health Organization recommends:

- skin-to-skin contact between mother and baby immediately after birth and initiation of breastfeeding within an hour of birth
- exclusive, on-demand breastfeeding for the first six months. This means letting the baby feed as often as they want and not giving them anything else to eat or drink, unless medically necessary
- introduction of nutritionally balanced, safe solid foods at six months, together with continued breastfeeding up to two years of age or beyond.

Antiretroviral drugs mean that mothers with HIV can breastfeed their babies until at least 12 months of age with very low risk of HIV transmission.

## Alternatives

If the mother is not able to breastfeed, or has passed away, a relative or friend can breastfeed the baby instead. Any woman of child-bearing age can start breastfeeding or increase current milk supply by taking a baby to her breast. In many communities there will be people who have experience of doing this who can provide advice.

If formula milk is the only option:

- wash hands with soap and water and ensure that all feeding items, such as cups, are very clean
- use formula that is in date and suitable for the age of the baby
- follow the instructions on the container very carefully
- use boiled, safe water and then allow the milk to cool to body temperature before feeding
- keep the container tightly closed to avoid contamination
- use a cup rather than a bottle: bottles and feeding nipples are very difficult to clean properly
- only prepare as much formula as you need for each feed and use it within one hour.



📍 **Angela in Guatemala breastfeeds her baby, Antonio.**  
Photo: Caroline Trutmann Marconi/Tearfund

## Complementary feeding

At about six months of age, a baby's need for energy and nutrients begins to exceed what is provided by breastmilk, and complementary foods are needed to meet those needs.

Key principles:

- Continue frequent, on-demand breastfeeding until two years of age or beyond.
- From six months, offer small amounts of soft, local food such as mashed fruits and vegetables, several times a day.
- Between six and nine months, gradually increase the quantity and variety of foods, avoiding salt, spice, or bones that can cause choking.
- Gently encourage the child to eat, but do not force them, and allow them to start feeding themselves when they want to.
- During illness increase fluid intake, including breastmilk, and offer soft, favourite foods.
- Offer plenty of safe water to drink.
- Wash hands frequently and make sure all feeding utensils are clean.
- When the baby is one year old they can start eating the same food as the rest of the household, alongside breastfeeding.

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*Astrid Klomp is a nurse-midwife and a lactation consultant, currently based in Lebanon. She has also worked in India, Bangladesh and South Sudan.*

# How to breastfeed

By Astrid Klomp

As well as nourishing your baby, breastfeeding is a time for bonding. This is important for both you and your baby.

Breastfeeding is almost always possible, but it has to be learnt and you may find it difficult at first.

It is important that your baby attaches correctly onto your breast so they can get plenty of milk. A good attachment triggers your body to produce as much milk as your baby needs, and reduces the risk of it being painful for you.

Key principles:

- Make sure you are comfortable: your arms and shoulders should be relaxed.
- Hold your baby close to you, facing your breast, tummy-to-tummy. Support their neck, shoulders and back but do not push their head; allow the baby to move and adjust their head themselves.



❗ Your baby needs to attach to the breast correctly in order to get enough milk. This baby is being held in the cradle hold position.

‘Breastfeeding should not be painful. If it is, ask for help.’

- Your baby will feel stable and will feed well when their head and body are in a straight line with the head slightly extended.
- Bring your baby to your breast and let them attach themselves; do not take your breast to the baby’s mouth.
- Make sure your baby’s nose (not their mouth) is level with your nipple, then allow their head to tip back slightly so that their top lip can brush against it (think of how we hold our head when we drink from a cup). This should encourage the baby to open their mouth wide. Their chin should be firmly touching your breast and they will then close their mouth around the nipple.
- As your baby is feeding, you should be able to see more of the darker nipple skin above your baby’s top lip than below their bottom lip. Your baby’s cheeks will look full and rounded as they feed.
- Drink plenty of water when you are breastfeeding.
- If you feel like you need to support the breast, hold the base of it between your thumb and the rest of your fingers. Be careful not to have your hand too close to the nipple because this might stop your baby from latching well. Do not hold the breast between two fingers because this can stop the flow of milk to the nipple.
- Breastfeeding should not be painful. If it is, ask for help from somebody who has experience of breastfeeding.

It is important that newborn babies are checked and weighed regularly to ensure that they are growing and developing well. In most countries this will be done routinely when the baby receives their vaccinations.

If you are concerned about any aspect of your baby’s health, ask for advice from your local clinic.



## Breastfeeding positions

There are many different positions you can use to feed your baby. As long as the principles for good attachment are in place there is no 'wrong' position.

### Laid-back

When you are learning to breastfeed, or experiencing problems, the laid-back position can help to ensure a good attachment.

Lie on your back with pillows for support – at an angle of no more than 45 degrees – and lay your baby on your chest. This way the baby will be stable without you needing to hold them. Allow your baby to follow their natural instincts and crawl to the breast where they will attach themselves well. Make sure your baby can feel your skin touching theirs. Hold an arm across your baby as they find their own position at your breast.



The laid-back breastfeeding position helps the key principles for good attachment to fall naturally into place.

### Cradle hold

This is the most common position after the initial learning stage. Lay your baby across your lap, facing your stomach and with their head resting on your lower arm. If the baby is in the crook of your arm they are too high. With your forearm and hand, support their back and bring them close. You might want to support your breast with your other hand.



Underarm hold can be a good breastfeeding position to use if you are feeding twins.

### Side-lying

This is a good position at night. Lie on your side with your baby facing you and hold them close to your body. Support the baby's back with a hand or a rolled up blanket or towel so they do not roll onto their back. If you are lying on a bed, make sure the baby does not fall off. Your baby's head needs to be free to move and extend slightly backwards towards the breast.

### Underarm hold

This is a good position to use if you have had a caesarean section, if you have large breasts or if you are feeding more than one baby at a time (eg twins). As illustrated in the diagram to the left, using a cushion for support, place your baby on your forearm facing you, with their legs towards your back, under your arm. Bring the baby towards you and support their back and neck with your cradling arm. Use your other hand to support your breast if needed.

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*Astrid Klomp is a nurse-midwife and a lactation consultant, currently based in Lebanon. She has also worked in India, Bangladesh and South Sudan.*

# Grain storage

By Suraj Sonar

In the Nepalese mountains of Putha Uttarganga, most people are subsistence farmers. Maize is the main crop, followed by potato, wheat and beans. However, very few people have enough food to eat all year round, with almost a fifth struggling to find enough food for more than six months a year.

Because maize production is seasonal, farmers need to be able to store their maize safely and effectively to make sure it lasts as long as possible.



Chhimi stores maize kernels in copper pots to protect them from insects and rodents. Photo: United Mission to Nepal

## Dry

It is crucial that, before storage, any type of grain is properly dried. This reduces the risk of damage from insects and contamination by aflatoxins – poisons produced by fungi that can cause serious health problems in humans and livestock.

Crops should be dried either directly in the sun, or in a well-ventilated place that is protected from damp and flooding. To avoid contamination the grains should not touch the soil. For example, they might be dried on bamboo mats or raised structures such as drying racks, or hung from a roof.

In Putha Uttarganga, freshly harvested maize is hung on wooden racks or placed on roofs to dry in the sun and wind for several days before storing.

## Protect

As much as possible, stored grain needs to be protected from the rain, insects and other pests. Natural airflow helps to prevent it from absorbing moisture.

In Putha Uttarganga, dried maize is traditionally dehusked and stored in a *dhokro*. This is a large bamboo basket with a straw roof. Each *dhokro* can store up to 200kg of maize. However, between 10 and 20 per cent of the maize is usually spoiled by insects and mice.

Another option is to scrape the maize kernels off the cob and store them in large copper pots. This provides better protection for the grain, but many people cannot afford to buy the pots.

If grain is stored in sacks, these should be lifted off the floor on wooden structures and kept away from walls, so the air can circulate freely around them. Every few weeks, the sacks should be turned over.

Grain of different ages should never be mixed, because pests and mould will spread into the newer grain. Grain stores must be thoroughly cleaned once they are empty, leaving no grain behind from the previous crop.

‘Mixing grain with equal quantities of wood ash helps to prevent pests from reproducing.’

Stored grain should be inspected every few weeks for signs of rodents, insect pests or mould. If damage is seen, action must be taken immediately to protect the grain from further damage.

### Natural insecticides

Many local plants can be used to effectively protect stored grain from insect pests. For example, neem leaves (*Azadirachta*), ginger roots and chillies can be dried and mixed with the grain before putting it in a storage container.

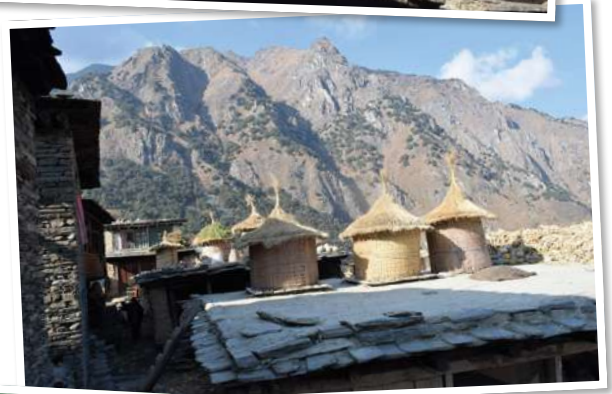
Szechuan pepper (*Zanthoxylum*) or Mugwort (*Artemisia*) can be used to treat storage sacks, and neem leaves can be mixed with traditional plaster to coat the inside of a basket or other store.

Mixing grain with equal quantities of wood ash helps to prevent pests from reproducing. Small quantities of hydraulic lime can also be used. The grain must be thoroughly washed before cooking and eating.

### Community grain banks

When managed well, grain banks can help communities to have a year-round supply of food. The banks, run by local committees, can buy grain when prices are low, usually around harvest time, and then sell it at a fair price when grain is in short supply later in the year.

For more information about grain and cereal banks, visit [learn.tearfund.org](http://learn.tearfund.org) and search for ‘cereal banks’.



📍 In Putha Uttarganga, dried and dehusked maize is stored inside *dhokros*. Photos: United Mission to Nepal

Suraj Sonar is a Project Manager with United Mission to Nepal.

[umn.org.np](http://umn.org.np)

# Food preservation

When fruit and vegetables are in season, prices are low and there may be too much produce for a household to eat before it over-ripens and spoils. Fresh fish and meat are also quick to spoil if they are not kept cool enough.

Preserving fresh food reduces waste and means that it can be kept for longer.

## Pickles and chutneys

Pickles and chutneys made out of fruit and vegetables can add flavour and nutrition when eaten with staple foods. Chutneys are usually sweeter than pickles, and less spicy.

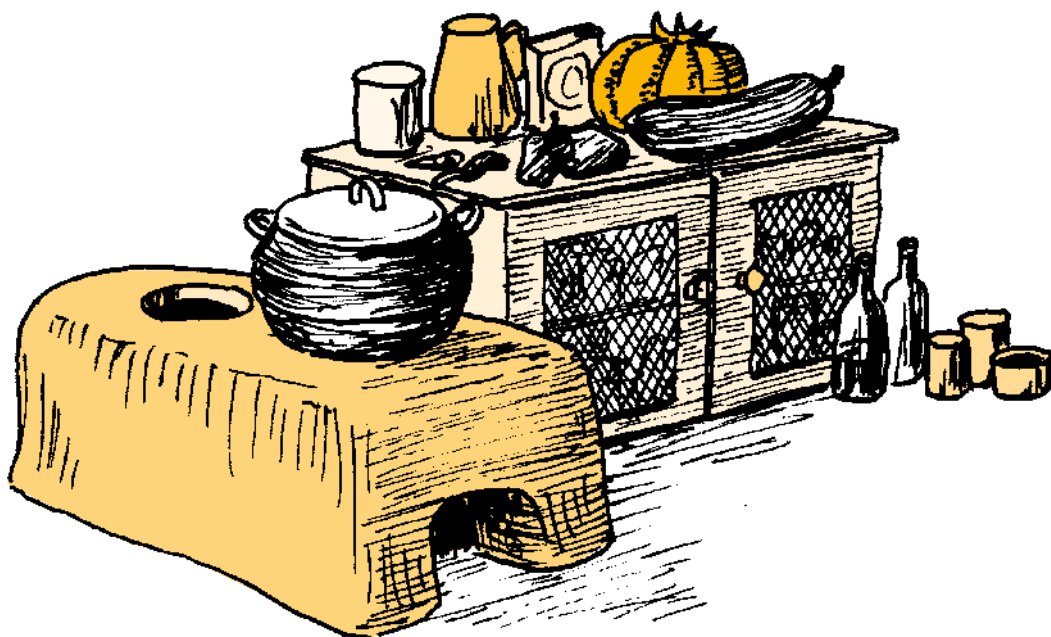
Foods such as tomatoes (red or green), onions, carrots, green mangoes, papaya, green beans and pumpkins all make good chutneys and pickles.

### Chutney recipe

- Ten cups of washed, chopped fruits and vegetables cut into small pieces (use a mixture of several types)
- One to two cups of chopped onion
- Three cups of vinegar
- Three cups of sugar
- Three teaspoons each of ground ginger, mustard seeds, cinnamon or other similar spices
- Salt and pepper

1. Sterilise some jars. Wash them in hot, soapy water, rinse clean and put them to dry in a warm oven (120 degrees Celsius) or in hot sunshine. Protect them from flies and dust. Put the lids and any rubber seals in a pan of boiling water for two minutes.
2. Boil the ingredients in a large pan for 30–50 minutes, stirring regularly. Add a small amount of water if needed.
3. Cool a little and pour into the sterilised jars, first wrapping each jar in a damp cloth to prevent it from cracking. Use undamaged lids.

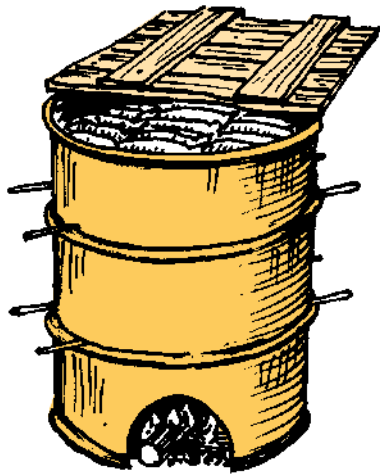
For pickles add the same amount of vinegar (three cups) but just one to two cups of sugar and plenty of chilli, mustard seeds and other available spices.



## Smoked fish

Smoking cooks and dries the fish at the same time. Smokers have different designs but all require a source of smoke and somewhere for the fish to be hung or placed in trays.

Simple kilns can be made out of oil drums or built using brick or mud walls. To ensure a good flow of air through the smoker there needs to be an entrance for air at the bottom, and an exit at the top.

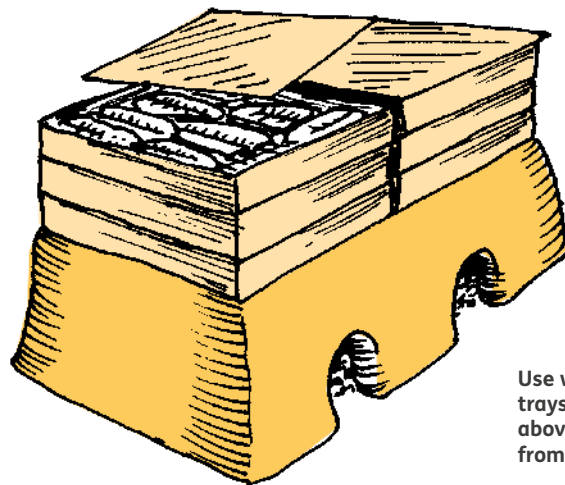


Fish can be smoked in an oil drum cut into three sections, with handles to lift each section

Before smoking, split large fish to remove the guts and large bones, and then wash them in clean water.

Move the trays around regularly inside the smoker so all the fish are smoked evenly. Smoking usually takes between 14 and 24 hours.

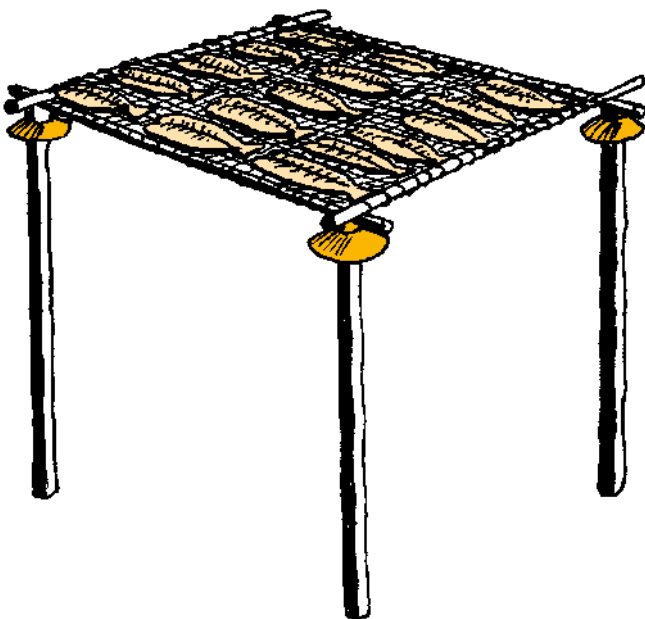
Different types of wood give different flavours to the fish, so try out a variety to decide which type you prefer. Meat can be smoked in the same way after cutting it into thin strips.



Use wooden or metal trays to smoke fish above a kiln made from brick or mud

## Dried fish

Drying is a good way to preserve fish that cannot be eaten or sold while it is still fresh. Drying usually takes two to three days. Oily fish do not dry well.



Dry fish on a platform more than one metre above the ground to prevent mice and rats jumping onto it. Add rings made from tin cans to stop rodents climbing up.

Remove the guts and bones of large fish by splitting them open, and then clean the fish by washing them carefully in clean water.

Lay or hang the fish on bamboo, grass, wooden or wire racks above the ground to dry in the sun. Protect them from insects, birds and animals (eg by covering them with a net).

If the sun is very hot, it is important not to let the fish get too hard on the first day. It may help to begin drying the fish in the shade. Cover the fish overnight.

When the fish are thoroughly dried, store them in clean plastic or cloth bags. Check them regularly for signs of mould.

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*Adapted from* Improving food security – a Pillars guide by Isabel Carter, and Food and livelihoods – Reveal toolkit.

# Children's zone: Rainbow food



Have you ever noticed how fruits and vegetables have many different colours? All the colours of the rainbow in fact!

They also contain different things that our bodies need to stay healthy. For example, green foods help to keep our bones strong, and red foods are good for our hearts.


By eating lots of fruit and vegetables of different colours, we can make sure that we are getting all that we need to help our bodies stay healthy and strong.

In the space below, draw pictures of different types of fruit and vegetables available in your local area, sorting them into the different colours. How many different colours of fruit and vegetables can you eat in a week?

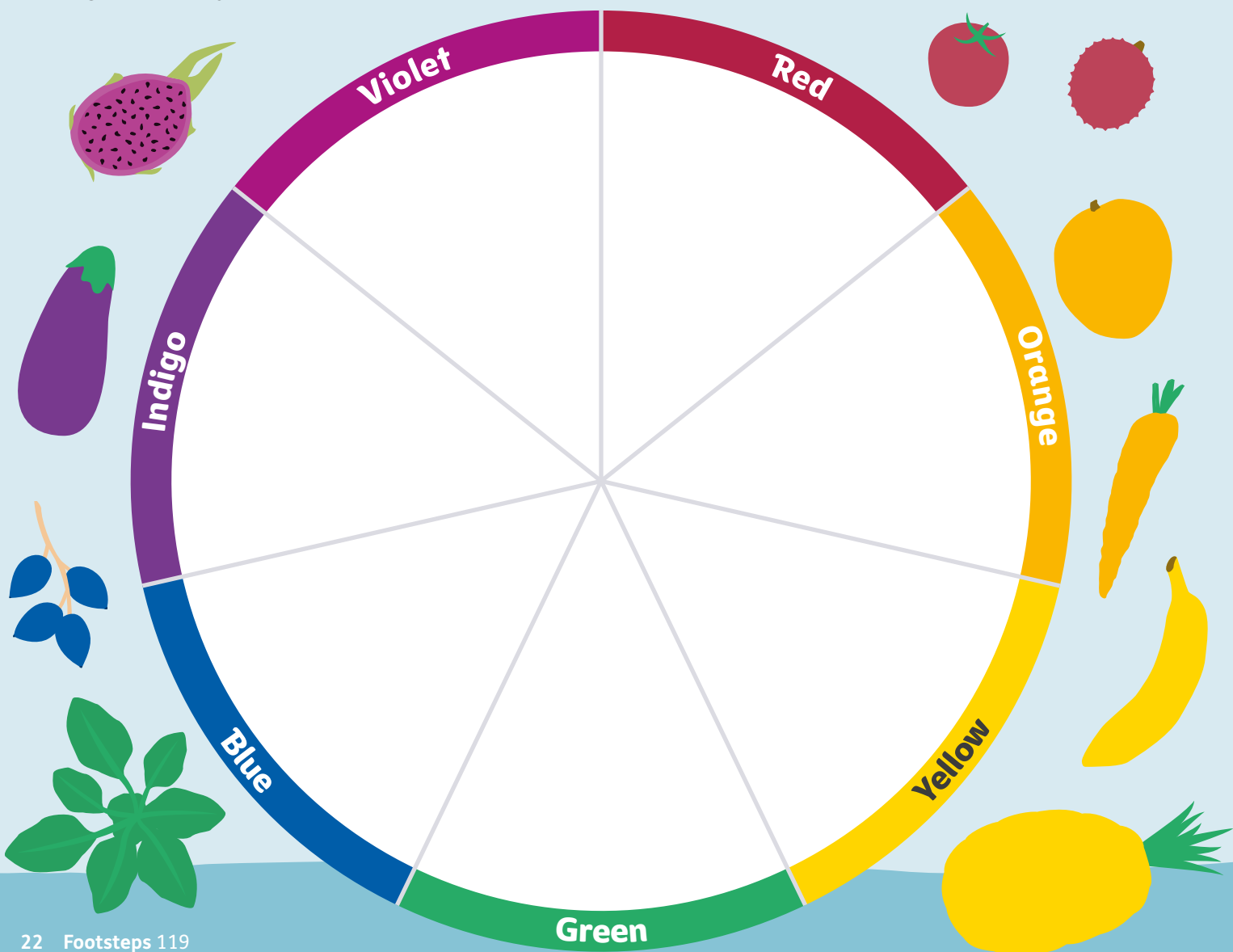
## Bible verse memory challenge!

Spend some time thanking God for providing us with different types of food to eat.

Can you learn this Bible verse?

 'Then God said, "I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food."'

Genesis 1:29



# Resources

Unless otherwise stated, all these resources are available in English, French, Spanish and Portuguese and can be downloaded, free of charge, from [learn.tearfund.org](http://learn.tearfund.org) (access the website and then use the search function to find the resource you want).

## **Improving food security – a Pillars guide** By Isabel Carter

Learn about grain banks, natural pest control, food preservation and other topics (not available in Spanish).

## **Food and livelihoods – Reveal toolkit**

How to preserve and prepare food, eat healthily, grow fruit and vegetables and form self-help groups.

## **Footsteps**

- Insects – *Footsteps* 115
- Farming for the future – *Footsteps* 110
- Poultry-keeping – *Footsteps* 95
- Food security – *Footsteps* 77
- Sanitation – *Footsteps* 73
- Adding value to food – *Footsteps* 65
- Nutrition – *Footsteps* 52
- Water – *Footsteps* 51
- Fish farming – *Footsteps* 25
- Community-led advocacy – *Footsteps* 118

## **Podcast: How to build community** Listen to all episodes of our podcast at [tearfund.org/podcast](http://tearfund.org/podcast) (English only).

## **Useful multilingual websites**

**who.int**  
Extensive health and nutrition information.

**educationsaveslives.org**  
Video lessons on healthy eating, breastfeeding and other topics. The lessons are available free of charge on DVD or online.

**globalhealthmedia.org**  
Videos covering many child health and nutrition topics.

**enonline.net** (search for 'counselling cards') Practical information on feeding children and other themes.

**answers.practicalaction.org**  
Resources and factsheets on food storage and preservation techniques.

## **Setting up community health and development programmes in low- and middle-income settings**

Edited by Ted Lankester and Nathan J Grills (fourth edition)

Advice on all aspects of community healthcare programmes, including a chapter on childhood malnutrition. Visit [oup.com/academic](http://oup.com/academic) to buy or download the book free of charge (search for the title and then click on the 'open access' icon). Available in English.

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# Interview

# Urban vegetables

**Yolanda Caceres leads a support group for women who have moved from rural Bolivia to the city of Cochabamba. She is part of Tearfund's Inspired Individuals programme.**

Here Yolanda explains why she is passionate about helping the women to grow their own food.

## Why are people moving from rural to urban areas?

'As the climate changes and rainfall patterns become more unpredictable, farmers in some parts of Bolivia are finding it increasingly difficult to grow crops, feed their families and make a living.

'This, coupled with other social and economic pressures, is causing thousands of rural Bolivians to move to the cities in search of new opportunities.'

## Why do you work with older women?

'When older women arrive in the city they often feel isolated, lonely and unproductive. This is particularly the case if they are widows, or if their children have grown up and left home.

'I show the women how to grow fruit and vegetables, even if they only have small yards or balconies. The act of looking after the plants often gives them a sense of purpose and helps them to feel more settled and fulfilled in their new homes.

'One lady, Ezequiela, told me, "I'm very glad because I have been able to grow lettuce, onions, coriander, parsley and celery. I can harvest and eat with confidence and I can save on some purchases I used to make in the market. I do not feel sad missing my land because now I have my little garden that keeps me active, and I am happy to see it grow every day."



📷 Ezequiela grows lettuce and other vegetables in recycled plastic bottles. Photo: Yolanda Caceres

'The gardens also provide the women with important opportunities to teach gardening skills to their grandchildren.'

## What skills do they need?

'I teach the group how to make containers out of waste items such as tyres, pieces of wood and plastic bottles. They also learn how to make a nutrient-rich compost out of weeds, dead plants and kitchen scraps, and how to use waste water from the kitchen for irrigation.

'The group is always glad to welcome new people, and they are quick to share seedlings and ideas with them to help them start their own gardens.'

**learn.tearfund.org**

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