

Nutritious food for stronger child growth in Papua New Guinea

A simple guide

Dr Russ Stephenson



A 'nutritious' food is nutrient-rich, especially beneficial to health and well-being.



FOOD PLANT SOLUTIONS
ROTARY ACTION GROUP
Solutions to Malnutrition and Food Security



Nutritious foods for a good, balanced diet

You (and your babies older than six months) should eat food from all these food groups every day.

(Including those on the inside of the back cover)

Best Babies Food

Mother's breast milk

Mother's breast milk is the best food for babies and young children up to 2 years of age (and older). It contains all the good things the baby needs. Babies should not be given other food or drink until they are over 6 months old.



Porridge

Porridge, made from corn, is a good food for babies older than 6 months old (and for everyone). It is a nutritious supplement to breast milk.



Energy Foods (contain carbohydrates, sugar and high-energy oil)

High energy foods

Corn is a high energy food. It can be made into a nutritious porridge for babies.



Coconut is a high energy superfood which also contains protein and oil.



Peanut is a high energy food and a growth food.



Winged bean seeds (dry) are high in energy as well as in protein.



Nuts like Okari nut are high in energy as well as high in protein.



Pumpkin seeds are very high in energy and protein. Collect and eat pumpkin seed kernels.



Traditional staple energy foods

Cooking banana does not contain enough energy alone. Eat other higher energy foods as well every day.



Sweet potato does not contain enough energy alone. Eat other higher energy foods as well every day.



Taro does not contain enough energy alone. Eat other higher energy foods as well every day.



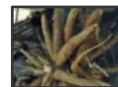
Yam does not contain enough energy alone. Eat other higher energy foods as well every day.



Sago does not contain enough energy alone. Eat other higher energy foods as well every day.



Cassava does not contain enough energy alone. Eat other higher energy foods as well every day.



A simple guide for healthier, stronger and smarter babies in Papua New Guinea

Nutritious foods, good health and personal hygiene

A *nutritious food* is nutrient-rich, especially beneficial to health and well-being. A nutrient is something the body needs (good things or ‘medicines’) for good growth and development and good health.

The aim of this book is to show how a nutritious diet of many different foods can help mothers produce strong, healthy and smart babies that will grow into strong, healthy and smart children. If mothers, babies and children do not eat a balanced diet of many different nutritious foods, they may be malnourished. This will stop their physical and mental development.

Breast milk is the best of all the nutritious foods for babies up to two years of age. Dry seeds, legume seeds and nuts are also nutritious foods. More of these nutritious foods should be eaten by mothers and children to make them strong, smart and healthy. Meat from animals and fish are also nutritious foods that should be eaten as much as possible by pregnant women, breastfeeding mothers and children.

Good nutrition also depends on young children being protected against disease, for example, by getting immunised at the Health Centre. It also depends on drinking plenty of clean, safe water, and keeping hands, and food, clean. Dirty hands can cause disease which can make mothers, babies and children sick and malnourished. If this happens, the physical and mental development of babies and young children may be permanently disabled. It is important to wash hands thoroughly before handling, preparing, cooking and eating food.

Good health also depends on good sanitation to dispose of faeces (*pek pek*) safely, so they do not spread diseases. It is important to wash hands every time after going to the toilet, so they do not spread disease. Mothers must keep their babies clean and dispose of baby’s *pek pek* safely in the toilet.

Once the nutritional, health, hygiene and sanitation needs of babies and young children have been met, the most important thing mothers and fathers can do to produce strong, healthy and smart children is to love and nurture them and to stimulate the early learning of their brain.

Acknowledgements

I wish to acknowledge the many valuable sources of information, both internationally and from within Papua New Guinea (PNG), from which this booklet has been developed. Many individuals and aid agencies such as the Food and Agriculture Organisation (FAO), the World Health Organisation (WHO), World Vision, the United Nations Children's Fund (UNICEF), the United States Agency for International Development (USAid), and the World Bank have provided free access to their excellent materials, all of which are designed to help make this world a better place, particularly for those disadvantaged in so many ways, and in particular, the malnourished people of PNG.

The initial inspiration for the project to alleviate malnutrition came from Bruce French and from the Food Plant Solutions Rotary Action Group that is promoting and implementing Bruce's goal of helping the hungry and malnourished to feed themselves using their own traditional, nutritious foods. I am particularly grateful for assistance from Karalyn Hingston, the Executive Officer of Food Plant Solutions, for editing and layout of this booklet as well as support and encouragement for many aspects of this project.

I am particularly grateful for the encouragement and mentoring of people like Dr Mike Bourke, Sally Lloyd and Sabet (Elizabeth) Cox and many others, all of whom have contributed to the development of this booklet, and the project to alleviate malnutrition. I am grateful for the generous access to many of Sabet's illustrations provided at no cost by HELP Resources Inc.

This booklet is widely distributed, free, to village people through the support of a Rotary Foundation Global Grant. It is freely available to anyone who might benefit from the information it contains. I hope that it helps families to transform their lives, initially by improving the nutrition of their women, babies and young children, and ultimately of all family members.

In this revised edition, more detail is included on the preparation of simple, nutritious baby foods and on making a productive home garden.

Dr Russ Stephenson

Rotary Club of Nambour

June 2021

Contents

Acknowledgements	4
The meaning of some new words	6
Plenty of nutritious food	8
Making babies	9
The brain	9
Nurture and learning	10
Breast feeding	12
Health clinic	12
A good, nutritious diet	13
Nutritious foods	16
Eat more nutritious foods	18
Food preparation and making nutritious meals	18
Processing food	19
Nutritious baby food	21
Making nutritious baby food	21
Growing more nutritious foods in your garden	23
Village home garden	24
Mulch	25
Crop rotation	25
Planting crops every month	26
Soil conservation	26
Nutritious crops for your home garden	27
Ideas for improving your garden	32
Storing food	34
Other things you can do for the healthy growth of babies and young children	35

The meaning of some new words

Diet: All the kinds of foods we eat, and the amounts we eat every day. The best diet has many different types of foods. Different foods contain many different good things (nutrients) our body needs. Foods that contain a lot of nutrients are good for us. We should eat lots of these foods in our diet.

Energy: Our body needs energy it gets from food. We need energy to do many things like work, breathe, and walk. Energy makes our body work properly. We get a lot of our energy from starch and sugars in cooking banana, sago, sweet potato, yam, taro, tapioc and many other foods. We also get a lot of energy from plant oils like coconut and peanut (and animal fats).

Flour: Flour is powdered starch which provides energy for our bodies. Flour is made by grinding seeds like corn, (and other starchy foods like cooking banana and sweet potato). You can grind corn and other seeds into small pieces to make porridge, a food rich in energy.

Legumes: Legumes contain a lot of protein (growth nutrient). We need to eat a lot these foods to get enough protein to grow strong and healthy. Legumes include winged bean, snake bean, cowpea, soybean and many other different kinds of beans.

Minerals: The body needs many different kinds of minerals for good health. We need to eat many different kinds of food to get enough of all the different kinds of minerals our body needs. Food plants also need minerals to grow properly.

Our body needs a lot of **iron**, a mineral important for healthy blood. Malaria attacks the blood so people with malaria need more iron from the food they eat. Amaranth leaves and many other leaves contain a lot of iron. Animal meat also contains a lot of iron. You should eat as much animal meat as you can.

Iodine is another mineral our body needs. Mothers must have enough iodine for healthy mental development of the baby in her belly. You can get iodine from shellfish or from iodised salt.

Nutrients: Nutrients are essential good things that help our body grow strong and healthy with plenty of energy. We need many different kinds of nutrients from many different foods to keep our body strong and healthy, and so we have plenty of energy to work and live. Different foods contain different nutrients. No single food contains all the nutrients our body needs so we

must eat many different kinds of food from all the food groups to get all the nutrients our body needs.

Nutrition: Nutrition provides all the good, important nutrients our body needs for healthy growth and energy. We need to eat a large variety of many different foods, so we get enough of all the good nutrients our body needs. If the body does not get all the nutrients it needs, it will break down and will not work properly.

Nutritious: A nutritious food is a good food containing a lot of essential, good things (nutrients) our body needs for energy, growth and good health.

Nurture: Provide care for babies so they are loved, provided with all the nutrients they need for energy, growth and good health, and so they are given a lot of attention, stimulation and new experiences to help their young brain develop to its potential.

Oil: Eat fat and oil for more energy and to keep our body healthy. Cooking oil comes from plants like coconut, soybean and even corn. Fish also contain a lot of oil. Our body gets the oil it needs from plants and fish that contain oil. Coconut milk contains oil you can use in cooking. If you leave coconut milk to settle in a container, the oil/fat will rise to the top and can be skimmed off the top so you can use it to fry some food. Oils contain fatty acids which are special nutrients our body needs.

Protein: Proteins are essential nutrients our body needs to build muscle that makes us strong. Proteins also supply many good things our body needs so it can grow and be healthy. Seeds like beans, coconut and nuts contain protein. Eat a lot of these foods to get enough protein. Babies need a lot of protein.

Starch: Starch provides energy for our body. Many foods contain starch: sago, cooking banana, yam, taro, tapioc, sweet potato and grains like corn.

Vitamins: Vitamins are special good things (nutrients) our body needs for healthy growth. There are many different vitamins the body needs, and many different foods contain different amounts of vitamins. We need to eat a large variety of many different foods to get enough of all the vitamins our body needs.

Plenty of nutritious food

Many nutritious foods grow in your garden.

Eating food to stop hunger is **NOT ENOUGH!** We all must eat plenty of different foods to supply our bodies with all the good things (nutrients) they need.

You (and your baby when they start eating solid food) should eat all these foods as often as possible:

- Energy foods (kaukau, sago, banana)
- Green vegetables (aibika, amaranth, bean leaves, green beans, etc.)
- Other vegetables (pumpkin, cucumber)
- Dry seeds of legumes, other seeds, nuts, corn
- Oil foods like coconut and peanut
- Fruit (eating banana, pineapple, passionfruit, orange)

It is important to eat many different foods every day. Different foods have many different nutrients to feed mother and baby. It is also good to eat foods of many different colours because each of them contains different nutrients our body needs.

Not enough nutritious food

Mothers and children in PNG need to eat more healthy food. They need more good things (nutrients) from their food so they can grow strong and healthy.

If the mother does not get enough of the nutrients her body needs, her baby may be small and may die.



If the baby or child does not get enough of all the nutrients it needs, it will stop growing. The child may be physically or mentally spoiled. The child might die.

If the child does not get enough of all the nutrients it needs, it will be hard for the child to learn new things. The child will not be smart.

Both boys are 5-year-olds, one is stunted from malnutrition (sitting), the other is a normal size through good nutrition.

If children do not have enough protein in their diet, their belly, ankles and feet can swell. These symptoms of malnutrition are common in PNG.

This condition can be treated by adding small amounts of protein (beans and peanuts) to the diet. Gradually increase the amounts of these foods so that the child's body can adjust to the change in diet.

Protein (growth foods) should make up one fifth of a child's diet.

Making babies

Men and women make babies through sexual intercourse. The baby grows in the belly of the woman. Over 9 months, the baby grows from a little seed into a baby. The baby grows a head, arms and legs during this time. It also grows a brain.



The brain

The brain grows in the head of the baby. It is important because the brain controls everything. It teaches us to smile, eat, crawl, walk, talk, and do many things. The brain also allows us to think and solve problems.

- To learn
- To make friends
- To remember things
- To make a garden
- To build a house
- To make a business

A lot of the brain grows rapidly in the belly (womb) of the pregnant woman.



1 month (4 weeks)



4 months

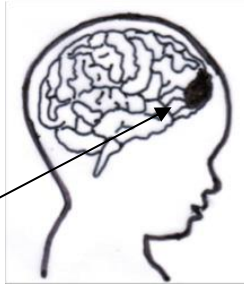


6 months



9 months (newborn)

A 5-year old's brain is nearly as big as an adult's brain Only this small additional amount of brain grows from 5 to 25 years old when brain development is complete



Most brain growth occurs in the first 5 years.

It is important that nothing slows down brain growth during the first 5 years.

A lot of many different types of nutritious food for both the mother and the baby will help the brain to grow normally.

A lot of many different types of nutritious food will help the baby to be healthy, strong and smart.

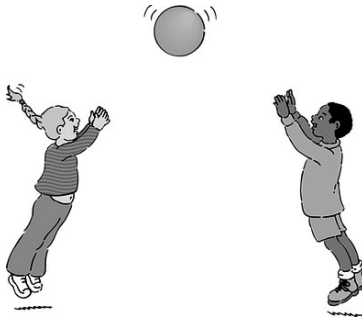
The baby will be weak if it does not eat enough of many different kinds of nutritious food it needs.

Nurture and learning

The brain loves to learn. Learning is a game of fun and discovery. Learning continues throughout life. Every word spoken, and every experience, shapes brain development. At the same time, the brain stores information from these experiences, so we develop new skills and memories.

The brain of a child is impressionable. This means it is more open to learning and to new experiences. Mother and father are very important in giving their child good learning experiences. They do this by:

- Talking to them, praising them and telling them how beautiful they are, how clever they are and how much they are loved.
- Singing to them.
- Touching them tenderly, giving them lots of hugs and cuddles.
- Stimulating all their senses: sight – colour and movement, sound – mothers heart beating when they are cuddled, sound - talking, singing and telling stories, touch, smell, taste – different foods
- Social and emotional contact, including with other children, as well as stimulation from the mother and other adults.
- Encouragement – you can do it! You are clever and smart.
- Reassurance – nurture, build up their self-confidence.
- Visual experiences - lots of smiles, different bright colours, movement.



Children learn from playing and having fun. They develop hand-eye coordination and build self-confidence.

The baby's brain is stimulated by all the senses. The brain actually controls all our senses: the sense of sight or the things we see, the sense of smell through our nose, the sense of sound through our ears and the sense of touch over all parts of our body, including our hands, and the sense of taste through our mouths. The senses of touch, sound and smell develop while the baby is still in the mother's womb. It is important that the pregnant woman is not under any stress and is well nourished, so the baby's senses, brain and body all develop well.



Children learn many things and develop many skills from playing

For a child's brain to develop to its full potential, it is essential that mothers spend a lot of time with their babies from birth to at least age 5.

It is important to talk and sing to them. It is important to play with them. It is important to touch them. It is important to give them all the nutrition they need from many different foods - especially breast milk. It is also important to give them plenty of safe, clean water to drink (only after the baby is 6 months old), to keep them clean and for mothers and fathers to wash their own hands before touching the baby.

The child's brain is also vulnerable to bad experiences (impoverished and un-nurturing). It is important that mother and father protect the child from these bad experiences.

The baby and child must be kept clean and protected from sickness and diseases.

Breast feeding

The best food for babies is breast milk from the mother. The mother must eat a lot of many different types of nutritious food so she can produce plenty of good milk. The mother must drink a lot of clean water each day so she can produce enough milk for her baby.



Mother breast feeding her baby.

If the mother eats a lot of many different types of nutritious food while the baby is growing in her belly, the baby will grow strong, healthy and smart.

If the mother eats a lot of many different types of nutritious food while the baby is growing in her belly, her body will be strong. She will be able to produce plenty of good quality breast milk when the baby is born.

If the baby drinks plenty of good breast milk, it will grow strong, healthy and smart.

If the child drinks plenty of breast milk and eats different kinds of nutritious food from 6 months to 2 years, it will grow strong, and its brain will grow strong.

Start feeding your baby solid food at about 6 months of age, **but not before**. Keep breast feeding until 2 years.

Children must eat plenty of many different kinds of nutritious food up to 5 years old. They should continue to eat a lot of many different kinds of nutritious foods after they are 5 years old.

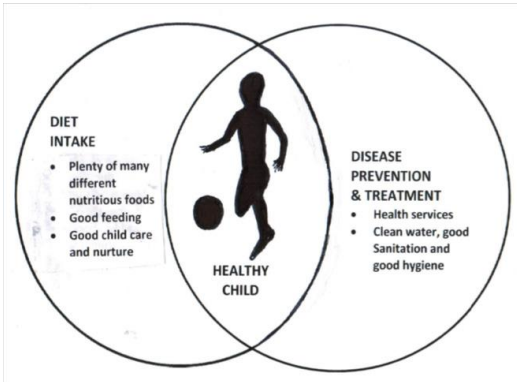
It is important for mother and child to eat a lot of many different kinds of nutritious food and to drink a lot of clean water and to keep their bodies, especially their hands, clean at all times.

Eating nutritious foods can help mother and child get all the nutrients they need to grow properly so the child can reach his/ her potential as an adult.

Health clinic

Visit a health clinic 4 times during pregnancy to monitor the baby's growth. Community Health Workers measure the baby to check that it is growing properly (not malnourished).

It is good for Village Birth Attendants to organise networks to support young mothers with advice and help in raising healthy babies



A good diet plus effective disease prevention and treatment are the secret for raising a healthy child. WASH (water, sanitation and hygiene) is important for preventing disease.

A good, nutritious diet

Mothers and babies should eat plenty of many different kinds of nutritious food every day to feed the mother, and to feed the baby, and to feed the baby's brain.

There are many nutritious foods in your garden, but no food contains all the essential nutrients our bodies need. We must all eat many different kinds of food every day so our bodies can get all the essential nutrients they need for energy, growth and good health.

Chew all food thoroughly to break it down so the nutrients it contains can be easily digested in the stomach. If you do not chew corn seeds properly, the nutrients inside the corn seeds will stay locked inside the seed and the seed will come out in *pek pek*. Your body does not get any nutrients out of hard foods like seeds that pass through your body and come out in *pek pek*.



All people, and especially children, should eat many different food plants to stay healthy. This should include some plants from each of the food groups:

- Energy foods
- Health foods
- Growth foods

Eating these kinds of foods each day will give our bodies all the nutrients they need.

We should eat the right amounts of food from all these food groups.

Energy foods:

We need energy foods so we can work in our garden, cook our food, walk long distances, breathe, digest food, keep warm, and enjoy ourselves.

Half the food we eat should be energy food.

Energy foods include:

- **Starchy staples** like sweet potato, taro, yam, cassava, sago and cooking banana.
- **Fats and oils** are high energy foods. Get oil from coconut, peanut, okari nut and other nuts, and marita pandanus.

We must eat more of these oil foods.

Fats from animal meat, fish (fish oil) and sago grubs are good to eat. They make the body strong.

- **Grains** like corn are high energy foods.
- **Sugar** foods like sugarcane and some fruits give us energy. It is good to eat some of these sweet foods, but not too much.



Energy foods are good, but they do not have all the nutrients we need for strong growth and good health. This is why we need to eat many different foods.

Health foods:

We need plenty of these health foods: fresh fruit and vegetables including leafy greens, legume pods, pumpkin and fresh coconut milk.



One third of the food we eat each day should be health foods. Health foods are:

- **Green vegetables** like pumpkin tips, green leaves of aibika, sweet potato, amaranth, bean leaves, green beans, flowers, etc.
- **Other vegetables** like pumpkin, cucumber, pit pit.
- **Fruits** like eating banana, pineapple, pawpaw, passionfruit, muli, and guava.



Health foods give us many nutrients (minerals and vitamins) we need to stay healthy. They are like natural medicines.



You get iron (a very important mineral) from amaranth leaves, black pepper seeds, winged bean seeds and pumpkin seeds.

Pregnant women should add some iodised salt to their food, so they get enough iodine for their baby's brain to develop well.



Growth foods

Protein is a nutrient we need to make our bodies grow. We need growth foods to make our bodies strong. Growth foods are important for babies and young children.

About one fifth of our diet should be growth foods.

Growth foods include:

- **Legumes, seeds and nuts** – Protein comes from all kinds of beans (winged bean, snake bean, jack bean, soybean, etc) and many dry (mature) seeds like amaranth seed, corn, pumpkin, squash, marrow, bottle gourd and watermelon seeds, and from nuts like okari, talis, and peanut.



- **Animal meat, fish and eggs** - Proteins in animal meats, fish, eggs and sago grubs are good to eat to make the body strong.

An important nutrient that we need for good health, Vitamin B12, can only come from animal foods. Plant foods cannot supply Vitamin B12 for our bodies. All of us need Vitamin B12 in our diet. It is important for pregnant women and breast-feeding mothers particularly, and young children, to eat meat because developing bodies need Vitamin B12.

All these growth foods make our body strong. ***We must eat more of these protein foods.***

These foods help your blood to be strong (malaria makes your blood weak!).

Eating nutritious food makes us feel good.

We need plenty of the many different nutrients in different foods. Mothers should eat these nutritious foods every day. When babies are 6 months old, they should eat these nutritious foods every day.

Nutritious foods

Eat more of your nutritious foods, do not sell them. Do not sell peanuts for cash. Keep peanuts to feed mothers and children every day. If you have nutritious food left over after mothers and babies are all well-nourished, you can start selling the excess food.

Many nutritious foods grow in your garden. Mothers need to eat enough nutritious foods to stay strong so the baby will grow strong.

Solid baby food (after the baby is 6 months old), should be nutritious food that helps the baby grow strong. It helps the brain grow strong.

Nutritious foods 1. - Breast milk

This is the best nutritious food for babies and children up to 2 years old.

Nutritious foods 2. - Dry beans, seeds and nuts

Dry seeds and nuts are nutritious foods full of important nutrients to give mother and baby lots of energy and strong growth. ***See table on inside the front cover.***

As seeds mature, they accumulate energy, protein and minerals so they can grow into a new (pikinini)



plant. Just like the development of a baby, seeds need energy and protein stored in the seed for growth.

You should eat 100g (2 handfuls) of ground, cooked dry seeds, bean seeds and nuts each day **in addition to your normal diet**.

When your baby starts eating solid food, they should eat these 'nutritious foods' each day.

Nutritious foods 3. - Pumpkin seeds

Pumpkin seeds (and watermelon seeds) have important nutrients to give mother and baby plenty of energy and strong growth. These seeds are good for you.

Eat 20g (1 handful) of dry pumpkin seeds each day **in addition to your normal food**. They can be eaten as a snack between your main meals.

Roast pumpkin seed and eat the crunchy skin as well as the nutritious kernel inside the tough skin.

Nutritious foods 4. - Oil

Fats from animals and fish, and oil from plants are good, nutritious foods to eat because they have a lot of energy and many nutrients to make you and your children grow strong and healthy.

If you can get cooking oil, it is good to cook some food in a small amount (1-2 teaspoons) of cooking oil. Many plants contain oil. You should eat plenty of these oily foods. ***See table on inside the back cover.***

Some plants have a lot of oil inside:

- Coconut
- Peanut
- Some beans (soybean, cowpea, winged bean)
- Marita pandanus
- Pili, okari and galip nuts. These trees produce nutritious foods to help during droughts. Fat from animals and fish are good for you. These fats are good for your child.

Nutritious foods 5. - Fish, meat and eggs

Fish, meat and eggs are nutritious foods. They have important protein and fat for mother and baby to grow strong.

Eat meat from animals like pigs, chickens, and cows. Tinned fish is also a nutritious food. Eat fish or meat 3 times a week **in addition to your normal diet**.

One essential nutrient (Vitamin B12) can only come from animal foods so everyone should eat some animal foods regularly.

Eat more nutritious foods

Mothers should eat more nutritious foods to feed themselves and their growing baby. Young children up to 5 years old need to eat more nutritious foods to be strong and healthy.

Meals and snacks



Eat a lot more nutritious food to make you, your babies, and your children strong and healthy. Increase the amount you eat slowly until you get used to eating more food.

Eat food more often. Have 3 big meals each day: in the morning, at mid-day and in the evening.



Eat 2 snacks each day, between the main mealtimes. Nutritious snacks include a handful of peanuts or pumpkin seeds or a piece of fruit.

See chart on back cover for suggested amounts of food to eat each day for women.

Food preparation and making nutritious meals



It is a good idea to wash food from the garden before preparing meals. You should also wash your hands.



Processing food

In PNG, some foods are processed to make more nutritious meals, so this is not a new idea. For example, coconut cream and Marita paste are both nutritious foods that can be added to other foods to make them taste good and to make them more nutritious.



Ground corn

Corn is a nutritious food, but it is too hard for babies to eat. Finely cut soft corn seeds (before they get too hard) from the cob with a grater, vegetable peeler, or a sharp knife. Boil this finely grated corn in water until it is thick paste for baby to eat.

Pumpkin seed

Scrape the seeds and soft pulp from inside boiled pumpkin and spread the seed thinly to dry in the sun. When the seeds are hard and dry, they can be stored for a long time. Store them near the kitchen fire to keep them dry.

Roast pumpkin seed in the skin in a cooking pot until the tough skin turns brown and is brittle and crunchy. Remove the seeds from the fire as soon as they start to turn brown. If you leave the seeds on the fire too long, they will burn and turn black. Burnt seeds do not taste good. The tough skin can be broken by the teeth and eaten by adults, but not by babies.

For babies, remove the tough skin and grind the kernel into flour. Add the flour to soft porridge.

Peanut butter

Peanut butter (also called peanut paste) is a good way of giving babies, 6 months old or older, a lot of protein and energy that they need for growth. It is easy to make.

First, remove the peanuts from the shell and remove the red/brown skin from the seed. Lightly roast the peanuts in a pan over the fire until the nuts are dry and a light brown colour. Do not leave them on the fire too long or they will turn dark brown and burn. Peanuts are not nice to eat if they are black and burnt.

When the nuts have cooled down, smash them into small pieces and grind them finely in a pestle and mortar until the paste is smooth. Add small amount

(a pinch) of salt if you have some. If you have some, add a teaspoon of coconut oil to the bowl of peanut butter and mix it in.

Peanut butter is a delicious, nutritious food for babies (after they are 6 months old) and children.

Sun-dried chips

Dried chips made from banana, sweet potato, taro, yam and tapioca are a nutritious snack food. They are good for you. You can eat these chips any time as a snack.

Cut any of these foods into thin slices (about 1mm thick) and spread out to dry in the sun. Put them under cover at night. If you have a sheet of clear plastic, dry the chips under this.

The chips should be dry after 1-3 days in the sun. Check they are dry enough by trying to bend the chip. If it bends without breaking, it is not dry enough. Dry chips will snap in half.

When they are dry, chips can be stored for a long time. Dried chips will not spoil if they are kept dry. You can store them near the kitchen fire to keep them dry.



Sun-dried grated coconut

Grate mature coconut the same as you do to make coconut cream. Put the grated coconut in a shallow pan and place in the sun to dry. This might take a few days. Store the dried, shredded coconut in a sealed container or near the kitchen fire to keep it dry. Grated coconut can be added to other foods like porridge. This is a valuable, high-energy, nutritious food.



Nutritious baby food

Babies have tiny stomachs so they can only eat a little bit at a time. They should be breast fed many times during the day and night whenever they are hungry. They need to feed often so their body gets all the nutrients it needs to grow strong and healthy.

Up to 6 months old

The only food and liquid a baby should get is breast milk. Feed when the baby is hungry. Do not give the baby water to drink, only breast milk.

6-9 months

At 6 months, the baby needs other foods in addition to breast milk. Continue breast feeding both day and night before giving other foods. The baby gets half the energy it needs, at this age, from breast milk.

The baby food must be soft but thick, so it does not spill out of a spoon. Give baby 2-3 tablespoons of these other baby foods 3 times a day. Increase the amount of food gradually as the baby grows older.

Your hands should be washed and clean before you feed these foods to the baby to stop the baby getting sick. Keep the baby's plate and spoon clean.

The baby might take time to get used to these new foods. Be patient. Do not force baby to eat.

9-12 months

Continue breast feeding day and night. Give baby food 4 times a day after breast feeding. Gradually change the soft, mashed up baby food to soft, finely chopped or sliced family foods. Gradually increase the amount of food you give to your baby.

12-24 months

Continue breast feeding day and night. Breast milk will give baby one third of its energy at this age. Baby needs to eat different foods 5 times a day to get all the energy and nutrients its body needs to grow strong and healthy. Give family foods cut into small pieces.

Making nutritious baby food

The baby food must be soft and smooth with no lumps in it. It must be thick (semi solid, not liquid) so it does not spill out of a spoon.

Baby should eat many different kinds of baby food to get all the energy and nutrients its body needs to grow strong and healthy.

Mothers and baby should always be clean to stop baby from getting sick. Sick babies do not grow properly. Equipment for preparing baby food must always be kept clean to stop baby getting sick.

Soft fresh foods

Soft foods like ripe sweet banana and papaw are easy to prepare for baby. Mash up these foods with a spoon or fork to make them soft and smooth with no lumps.

Boiled pumpkin

Scrape the soft pumpkin from the skin and mash with a spoon or fork to make it soft and smooth with no lumps. Blow on the mashed pumpkin so it is not too hot before feeding it to baby.

Boiled cooking banana, sweet potato, yam, taro, tapioc

Boil these foods until they are soft. These foods are too dry for baby to eat so they must be mashed up with coconut cream or water until they are soft enough for baby to eat. These foods do not have a lot of nutrients so mixing them with coconut cream or marita paste makes them more nutritious.

Corn porridge

Finely cut soft corn seeds from the cob with a grater, vegetable peeler, or a sharp knife. Boil this finely grated corn in water until it is a thick paste for baby to eat. You can also mix ground beans or peanuts to the ground corn before cooking.

Add a cup of ground corn to a cooking pot and mix in 2 cups of cold water and place on the fire. Stir this mixture until it gets thick. If it is too thick, it will be hard for the baby to eat it. Just add a bit more water and stir it in. Allow the porridge to cool before feeding to baby.

Mashed beans

Mashed beans make a 'porridge.' Boil beans in water until they are soft. Remove all the skins when the beans are cool enough. Mash the beans into a smooth, soft paste. Make sure all beans are mashed up properly so there are no lumps in the 'porridge.' Add water if needed to make the bean "porridge" soft enough for baby to eat.

Make all these baby foods to give baby all the energy and nutrients it needs to grow strong and healthy.

Growing more nutritious foods in your garden

Grow many of the nutritious foods recommended in this book in your village gardens: corn, peanut, beans, fruit and nut trees and marita pandanus.

You should plant more of these nutritious foods in your garden so you will have enough food to eat. You should plant some seed every month, so you have a continuous supply of good, healthy food to eat every day.

The extra food you need to eat each month is:

- Nutritious foods 2. - Dry beans, seeds and nuts 2kg (about 100g per day)
- Nutritious foods 3. - Pumpkin seeds 0.5kg (20 g/day)

For two adults and 2 children, you will need to grow an extra 8kg of these nutritious foods each month.

It is a good idea to grow fruit and nut trees around village buildings and around the village boundary. It is easy to collect food from coconut, okari, marita pandanus, breadfruit, tulip, pawpaw, sweet banana, and muli growing in the village.

Fruit and nut trees are good crops to grow in the village because they continue to provide nutritious food each year. They are also more likely to survive dry periods because their roots can use water stored deep below the soil.

To provide the family with a good supply of nutritious food for a longer time, a useful guide is for each family to have 3 coconut palms, 2 okari nut trees, 5 different marita pandanus plants, 2 breadfruit trees, a tulip tree, 3 pawpaw plants, 6 sweet banana plants (as long as they are healthy and disease-free), and 2 muli trees. You can also grow other long-lasting plants and trees.

In addition to trees, it would be good to grow highly nutritious crops like beans, corn, peanuts and green leafy vegetables in a village home garden. These crops can be managed more intensively to produce more food.

If these crops are grown more intensively in home gardens in the village, it might be a good idea to carry water for the garden to keep these crops growing during dry times. This would be a lot of work, but it is also a lot of work searching for bush foods during *taim hangre*.



Village home garden

Traditional gardens are planted in new soil every year. The new soil is fertile, and the crops grow well. You can also grow nutritious, high value food near home. Keep the soil fertile so every crop produces a lot of food.



You can grow many green leafy vegetables, corn, beans and peanuts in the village garden by composting the soil or by adding organic matter (plant and/or animal waste) to the soil.

Add ash to the soil

Ash left after a fire is rich in plant nutrients (minerals). Spread ash over your home garden to keep the soil fertile.

Add organic matter to the soil

Mixing plant and animal waste materials (organic matter) in garden soil helps maintain soil fertility. Organic matter is food for the soil.

Add organic matter to moist soil when one crop is finished. Plant the next crop when the organic matter is starting to rot (about 2-4 weeks later).



Any organic matter such as green or even dead leaves, kunai grass, weeds, kitchen wastes, or animal manure, can be mixed in the soil to make the soil

fertile. Organic matter in the soil rots and helps crops to grow well and produce a lot of food.

Mounds of soil can be made over heaps of organic matter and the roots of food plants growing on the mounds get a lot of nutrients from the rotted 'compost' below the mound.

An easy way of adding enough organic matter is to dig a trench and fill it with bundles of fresh kunai and cover the kunai with soil. Wait about 2-4 weeks before planting seeds in the soil above the kunai. The kunai will rot in the soil and release a lot of good things (plant nutrients) so the crop will grow strongly and produce a lot of food.



Mulch

Mulch is made from organic matter. It is spread out on top of the soil around the crop plants. Adding a layer of mulch to the soil helps crops grow better in many ways:

- It stops weeds growing (because they have no sun).
- It keeps water in the soil during dry weather.
- It keeps the soil cool during hot weather.
- It protects the soil from heavy rain, so the soil is not washed away.
- It rots and gives food back to the soil to keep it healthy and fertile.

Kunai is good organic matter for mulching. Any plant material can be used, as long as it does not have seeds in it because these will become weeds in the garden.



Crop rotation

Every time you grow food, change the type of crop grown in the same block of land to protect it from insects and diseases. Different crops take different

nutrients from the soil, so rotated crops grow better. Some crops like beans and peanuts actually add an important plant nutrient (nitrogen) to the soil.

A good rotation in the same block of land is:

1st crop	2nd crop	3rd crop	4th crop
Corn	Beans	Greens	Peanuts

When the corn (1st crop) is harvested, plant beans between the dried corn plants (2nd crop). When the beans are harvested, grow greens like aibika (the 3rd crop). When the greens are harvested, grow peanuts (the 4th crop). Plant corn again after the peanuts are harvested. Organise your village home garden into separate areas to rotate crops.

Planting crops every month

Women and children need to eat a lot of nutritious food every day, so it is important to plant enough seed of corn, beans, greens, and peanuts every month in a different area of soil to get a lot of nutritious food over a long time.

When the first crop stops producing food, the second crop will start producing other food. When the second crop stops producing food, the third crop will start producing more food. Continue like this so you have plenty of corn, beans, peanuts and greens to eat over a long time.

All crops are rotated between blocks and in each block.

Soil conservation

Protect and conserve your soil so it keeps growing good food for your family. Heavy rain and running water on steep slopes can wash soil away. Cover the soil with grass or closely planted crops to protect it so it will not be washed away. You can also cover the soil with mulch (like kunai grass) to help protect it.



On steep slopes, plant your crop across the slope to stop water running down the slope and washing the soil away. More water goes into the soil for crop plants to use.

Plant trees and shrubs on steep slopes and grow grass or closely planted crops like peanuts under the trees. This will stop the soil being washed away and the deep tree roots will help hold the soil together, so it does not slip down the slope.

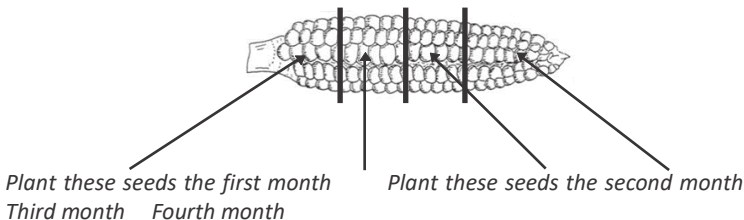
Nutritious crops for your home garden

Corn

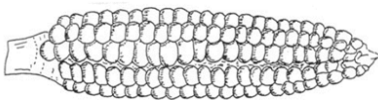
Collecting corn seed:

You need good seed to grow good corn. Mix seed for planting from at least 15-20 cobs to ensure you get high yields. If you plant seeds from only a couple of cobs, plants will not grow well. They will not produce much food. It is better to remove the seeds from about a quarter of each cob from 15-20 cobs and plant seed mixed from many cobs.

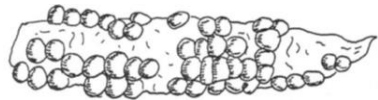
Plant about one quarter of the seeds from 15-20 cobs each month so you produce a lot of corn over a longer time.



You must plant corn plants close together in a large corn garden so the seeds on the cob get pollinated. Seed will not grow if they do not get plenty of pollen.



A good, pollinated corn cob



*A poorly pollinated corn cob
(not enough pollen)*

Planting corn seed

Plant 1-2 seeds per hole spaced 20 cm (nearly the size of your foot) by 90 cm (about 4 footprints apart). Plant 200 seeds in one block.

You **must** plant corn together in a large block to get good pollination for a good, full, healthy cob.

Plant a new lot of corn (and beans and peanuts) every 2-4 weeks in rows about 90 cm apart (4 times the size of your foot). Along the mounds, plant seeds one footprint apart.

When the corn starts growing, you can plant beans between the rows. The beans can climb on the corn plants for support. You do not need stakes.

You can eat some of the cobs of sweet corn when the seeds are still a bit soft but leave some cobs on the plant until it dries. Mature, dry corn seeds contain a lot more nutrients (energy and protein) than soft, young corn. Mature, dry corn seeds are healthy for you. You can store the dry, mature seeds for food the same way you store cobs for seed.

To ensure you have plenty of the nutritious corn to eat at all times of the year, it is a good idea to plant patches of corn every 2-4 weeks. After you have finished eating all the corn from the first patch you planted, the next lot of corn from the second patch will be ready to eat.

Food safety: A poisonous fungus can grow on corn that that is moist. The poison is called aflatoxin. If eaten, this poison can cause a big sickness. Never eat or store corn with any grey or green fungus growing on it. Burn it in the fire. Cooking corn does not destroy the poison.

To ensure you have plenty of the nutritious corn to eat at all times of the year, it is a good idea to plant patches of corn every 2-4 weeks. After you have finished eating all the corn from the first patch you planted, the next lot of corn from the second patch will be ready to eat.

Beans:

Beans are a growth food. Most people do not have enough growth foods (that contain protein) in their diet. Growth foods are important for babies and children, but they are important for everyone to grow strong muscles for us to do all the work we need to do.

One way of giving our body all the growth nutrients our body needs is to grow lots of beans. There are many different kinds of beans in Papua New Guinea, and it is a good idea to grow as many different types as you can.



One of the most nutritious beans is winged bean (or *as bin*). It is a good idea to grow a lot of winged beans, and other beans, at different times throughout the year so you have plenty of beans to eat every day.

You can eat some green bean pods, but it is a good idea to leave some of the pods on the plant, so they mature. Mature, dry seeds contain a lot more nutrients than green pods, so they are healthier for you.

To ensure you have plenty of the nutritious beans to eat at all times of the year, it is a good idea to plant patches of beans every 2-4 weeks. After you have finished eating all the beans from the first patch you planted, the next lot of beans from the second patch will be ready to eat.

Peanuts:

Peanuts are a good growth food. They have a lot of growth nutrient (protein), which babies and children need for their bodies to grow strong. Peanuts help us all grow strong muscles for us to work. Most people in PNG do not have enough protein in their diet. We should eat a lot more peanuts.

Many people grow good crops of peanuts to sell them. A better idea is to keep peanuts for family food. Mothers and infants should eat peanuts every day for their body to grow strong.

Often, peanuts are pulled from the soil too early. The seeds inside the shell are small and are covered by white skin. This shows that the peanuts are immature. Immature peanuts do not contain a lot of nutrients.



Peanuts should be left in the ground until the seeds are large and plump, covered by a red or brown skin. Mature peanuts contain much more nutritious protein for infant bodies to grow properly – and to help muscles grow strong!

Food safety: A poisonous fungus grows on peanuts that are damaged or moist. The poison is called aflatoxin. If eaten, it poisons the liver and can cause a big sickness. To avoid poisoning:

1. Never eat or store peanut pods or seeds with grey or green fungus growing on them. Burn them in the fire.
2. Cooking or roasting peanuts infected by the fungus does not destroy the poison. Burn diseased peanuts

3. Do not harvest peanuts early. Wait until they are ready, when their colour turns from white to red or brown.
4. Straight after pulling peanuts from the soil, spread them out in the sun to dry for 2 to 3 days.
5. Small, cracked or damaged seeds or pods should be thrown away because they are more likely to grow fungus.
6. Peanuts and other seeds must be kept dry and safe from insects and rats attack. A good way to do this is to hang them in a bilum over the fireplace.
7. Peanuts growing in the soil are more likely to be infected by fungus when grown under stressful conditions like drought or high temperatures. Avoid growing peanuts when conditions are stressful.

Planting beans and peanuts

Plant seeds 10 cm apart (as wide as your hand or half a footprint) and in rows 40 cm (2 footprints) apart for bush beans and peanuts. Beans that grow on small bushes can be grown closer together and do not need stakes to support them.

Climbing beans need a bit more space so plant seeds 1 footprint apart in rows 4 footprints apart



Stakes to support climbing beans Plant climbing beans between mature corn stalks for support.

Coconut:

Coconut is grown in coastal areas of PNG. Some are grown in Western Province, but this is a new crop for many people. Coconut is a very nutritious, high-energy food. It would be useful to plant coconuts near the village because coconut palms last a very long time and provide nutritious food over a long time. Plant the germinated seeds about 8m apart.

Coconut meat from mature nuts is dried to make copra. This is also an excellent, nutritious, high-energy food for women and children (and for everyone!).

Immature nuts can be used for food and drink, but the most nutritious food is from mature coconuts.



Fruit and nut trees:

Fruit and nut trees do not need a lot of work once they start bearing. Because the roots grow deep into the soil, these trees often survive harsh conditions such as drought (*taim hange*). During the drought, they might stop growing and they may stop producing fruit or nuts but when it rains, they will often start growing and producing food again.

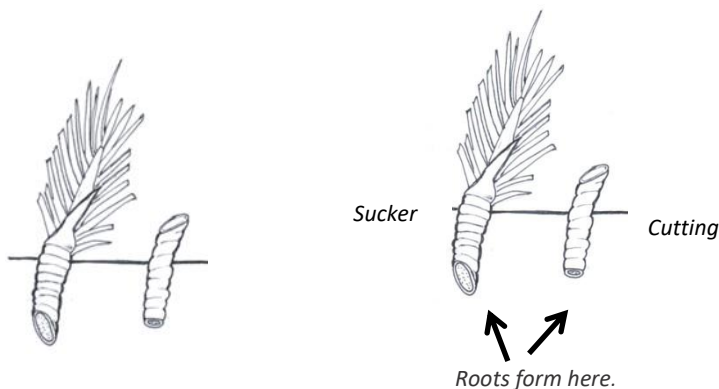
Trees grow and produce food for many years. It is good to have lots of many different trees to produce additional food without a lot of extra work. Some of the trees you can grow are okari nut, breadfruit, muli.

Marita pandanus:

Marita pandanus is a long-living plant which grows for many years, like trees. It can survive dry times. It is good to have a lot of marita pandanus 'trees'. Different plants produce fruit at different times so, if you have a lot of different types, they might give you nutritious, high-energy fruit for most of the year. Each family should plant 5 or more marita pandanus plants. The marita fruit is cut from the branch when the colour starts to change to bright red or yellow

Marita pandanus can be planted from suckers or cuttings. It is best to use suckers. These are short shoots growing from the plant down near the ground. The sucker is cut from the parent plant then planted in a new place. Suckers grow quickly and can bear fruit after 18 months to 2 years.

Cuttings (cut from the end of a branch) may take up to 4 or 5 years before they produce fruit. Both suckers and cuttings soon develop roots after they are planted in the soil.



Some ideas for improving your garden

Water your home garden

Most of the time your garden gets plenty of water from rain. When it does not rain for a while (say for 7 days in a row), it might be useful to carry buckets of water to your home garden for high value crops like corn, peanuts and beans. This will help keep these crops growing to provide food for you and your family. Plants will not die if they have enough water.



You will need to wet the soil every 4-7 days. If the leaves start to wilt (start to dry out), you must add water quickly to keep the plant alive. Just half a coconut shell of water should be enough to keep your plants growing and producing food.

Protecting your bananas from disease

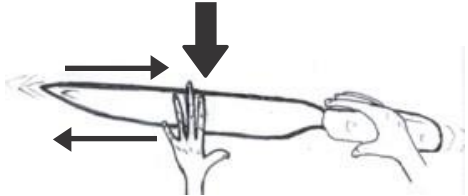
It is important to stop diseases and insects spreading through your main food crops like banana, taro, yams, and sweet potato, etc. Many serious diseases and insect pests infect food crops and make them sick, so they do not produce much food. Some insects and diseases can even kill your food plants.

- Keep gardening tools, particularly your bush knife, clean to stop the spread of disease. You should at least rub the knife in the soil to remove

all sap and make the metal shiny. Rinse the cleaned bush knife in clean water.

- Heat kills germs. Put the knife blade in boiling water or in a fire for 5 minutes.
- As soon as the purple bell appears when the banana bunch comes out of the top of the banana plant, cut it off because it attracts many insects that carry and spread disease.

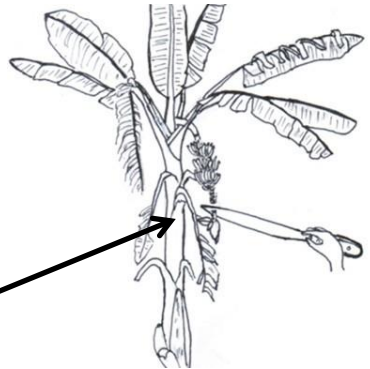
Press down firmly on knife blade to clean off sap by rubbing in the dirt



Rub the knife blade back and forth to clean each side

- Remove seriously diseased leaves from banana plants and burn or bury these.
- Make sure only clean, healthy, disease-free and insect-free planting material is used to plant new gardens. Do not take planting materials from sick plants or even from near sick plants.

By planting new gardens each year, and by using clean, healthy planting material, diseases are less likely to spread and destroy your bananas and other food crops.



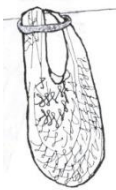
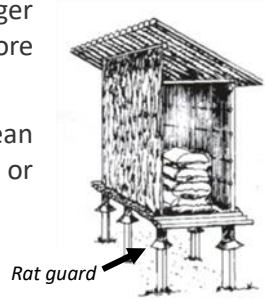
Cut the purple bell from the bunch.

Storing food

You will have more different foods to eat over a longer time if you store some food. It helps provide a more varied, nutritious, balanced diet.

Store nutritious, dry food like corn, mature seeds, bean seed, nuts and rice. Even dried foods like banana, taro or sweet potato chips can be stored and used for snacks.

If stored foods get wet, they will rot and cannot be eaten because they will make you sick. They must be kept dry.



Dried seeds, beans, nuts, peanuts and corn can also be stored in a bilum tied in the middle of a wire so the rats cannot eat them. If this is hung above the kitchen fire, the heat from the fire will keep food dry.

Large amounts of these seeds can be stored in corn sacks, but the storage areas must have rat guards to stop rats eating the food.



Insects and small animals like rats can spoil and destroy stored food, so these foods are best kept in a sealed container. A plastic bucket with a sealed lid is a good storage container.

Never mix new dried foods to old, dried foods in containers as this will make it easier for insects to get into the container and ruin the food.

Check stored food regularly to make sure it is not infected with insects or by fungus.

It is difficult to store fats and oils because they go rotten (rancid) in hot air. It is best to extract coconut and marita pandanus oil regularly, so it does not go stinky!

Fresh food like green beans, green leaves, sweet potato, taro, pumpkin, and cucumber must be kept cool. They rot in hot air. It is best to collect these foods regularly from the garden, so they are always fresh.

Meat can be stored for a long time by cutting into thin strips and drying in the sun, or by smoking it over the fire.

Fresh meat can only be stored for a few days before it goes rotten. It should be kept cool. It must be kept in an insect proof container.

Other things you can do for healthy growth of babies and young children



FAMILY PLANNING



BREASTFEEDING



IMMUNISATION



HEALTHY DIET

Four important things needed for healthy growth of babies and young children are breastfeeding, family planning, immunisation against disease and a good, nutritious, healthy diet.

Strong mothers:

Mothers should keep themselves strong

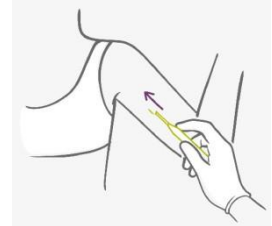
- Do less hard work while breast feeding.
- Waiting longer before getting pregnant after each baby is born. You can get an implant from the Health Clinic to stop you having more babies for a while. You can still enjoy sex, but you will not get pregnant until you want to.
- Eating more nutritious food to keep both your body strong and healthy as well as keeping the developing baby strong and healthy.



It is hard for a pregnant mother to feed 4 bodies, (her own, her unborn foetus, her baby and her two-year-old infant) all at the same time. These all take energy and nutrients from her body and her body will become weak. When this happens, her children will also become weak.

Family Planning

A birth control implant stops the woman getting pregnant. She and her partner can still enjoy sex without the worry of her getting pregnant. This allows the woman to build up her strength after birth and while she is breastfeeding her infants.



When the woman wants to get pregnant again and have another baby, community health workers can remove the birth control implant.

Immunisation of babies and infants



If babies and infants are immunised against diseases, they will be healthier. With good nutrition, this gives them a better chance to grow healthier, stronger and smarter.

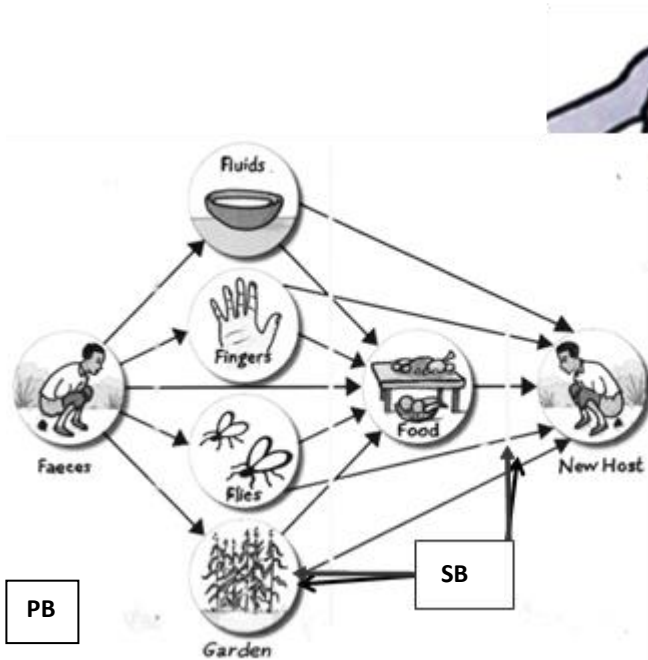
Prevent Malaria

Sleep under mosquito nets to stop mosquitoes spreading malaria.



Good Hygiene

Have good personal hygiene – keep your body clean and keep your baby's body clean.



Spreading disease and protective barriers to stop spreading disease (like dysentery and diarrhoea).

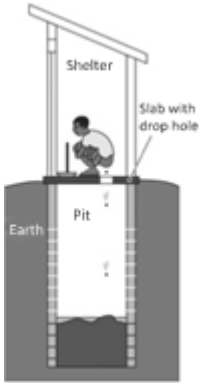
PB = Primary Barrier, SB = Secondary Barriers to the spread of disease

The primary barrier (PB) is having a clean pit toilet deep and dark enough to stop flies breeding there and to wash hands thoroughly after defecating.

Never defecate in the open!

The secondary barrier (SB) is personal hygiene.

Pit toilet



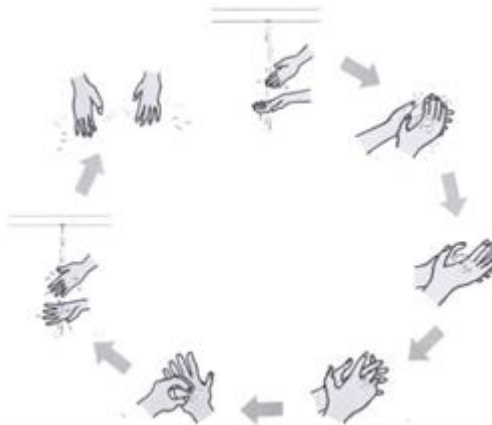
A pit toilet is hygienic, cheap and easy to make. It stops flies spreading disease from *pek pek*.

The pit must be wide so the *pek pek* drops in the middle and does not touch the side. The squat hole in the squatting platform should be about 15cm wide so *pek pek* does not touch the sides as it drops through. If the hole is too big, a child might fall in.

The pit toilet should be at least 6m away from the house and in a position downhill from drinking water, at least 30m away from the water source.

The pit should be at least 2-4m deep. Flies do not like going into deep, dark places so they cannot breed in a deep toilet. Cover the squat hole to discourage flies. The pit should not have water in the bottom. It should be at least 2m above the water table.

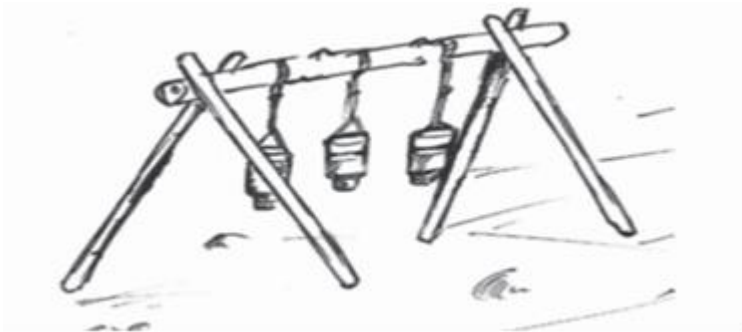
You can stop the toilet being too smelly by adding a ventilation pipe.



Make your hands wet. Thoroughly apply soap to every part of your hand. Wash off the soap with water. Flick water from your hands so they will dry quickly.

If you do not have soap, use cool, fine ash from your cooking fire to thoroughly wash every part of your hand.

- Everyone should wash their hands every time they touch the baby to stop the baby getting germs and sickness from dirty hands. *We touch many things and many people with our hands, so we need to wash hands regularly, so we do not spread germs and sickness!*
- Wash hands every time after using the toilet. Germs live in *pek pek* so washing hands after using the toilet is important.
- Wash hands before you prepare, cook and eat your food. Keep food clean.
- Wash your hands every time before handling your drinking water.



Make a hand-washing station by suspending bottles of clean water from a frame and always have soap available there.

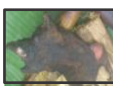
It is important to grow a lot of nutritious food in your village garden, so mothers and children eat many different nutritious foods every day. Many different foods supply children's bodies with all the nutrients they need to grow strong, to keep healthy and to become smart when they go to school, and when they grow up to be adults - the leaders of tomorrow.

Growth Foods (rich in protein)

Winged bean seeds (dry) are high in protein as well as in energy. Grind hard seeds or cook until they are soft.



Meat is an excellent growth food. Mothers and young children should be fed this valuable protein food.



Okari nuts are high in protein and in energy. Eat nuts every day if possible.



Karuka is a nutritious Highlands growth food good for mothers and children.



Sago grubs are rich in protein.



Pumpkin seed kernels are high in protein (the growth nutrient) as well as in energy. Eat this superfood often.



All bean seeds are good growth foods and contain high levels of protein and a lot of energy.



Peanut is a high protein food, high in energy. Eat lots of peanuts.



Amaranth leaves are high in protein, a growth food. The seeds are very nutritious also.



Fish are rich in protein. Mothers and infants should eat fish if possible.



Health (Protection) Foods (rich in vitamins and minerals, most vegetables and fruits)

Leafy green vegetables

All leafy greens like Aibika are good protection foods.



Pumpkin tips are a good protection food



Sweet Fern leaf - All green leaves are good protection foods



Fruits

Pineapple – An excellent source of vitamins and minerals and other good things.



Pawpaw – An excellent source of vitamins and minerals and other good things.



Other vegetables

Pumpkin contains many vitamins and minerals for protection.



Cucumber contains many vitamins and minerals – protection.



Pit Pit contains some protein, vitamins and minerals.



Banana – An excellent source of vitamins and minerals and other good things.



Watermelon – An excellent source of vitamins and other good things.



Foods rich in oil (provide a lot of energy and essential good things needed by your body)

Coconut is a high in oil (energy) superfood which also contains protein for growth.



Peanut is high in protein and in oil (energy). Eat lots of peanuts.



Marita Pandanus contains a lot of oil. It is high in energy. Eat plenty of this rich food.



Karuka is an oily growth food – good for mothers and children



EAT ALL THESE FOOD TYPES EVERY DAY

So your body gets all the good things (nutrients) it needs.

Adults need to eat the amount of food shown in photographs daily, infants eat up to half this.

1. ENERGY FOODS - for work (and for your body to work properly)

Cooking banana

Sago, taro, sweet potato, yam, cassava



Eat your favorite energy food but eat more of all your other types of food too. You need more energy.

2. HIGH ENERGY FOODS - So you get all daily requirements

Corn, coconut



Eat high energy foods to get all your daily energy needs. Small children need high energy foods.

3. HEALTH FOODS - for good health and protection from sickness

Leaves and green beans:

Beans, aibika

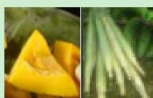
Pumpkin tips, tulip



Eat a lot of many different kinds of leafy greens and young green beans. Your body needs those foods.

Other vegetables: Pumpkin

Cucumber, pitpit



Eat a lot of different vegetables for good health.

Fruits: Pineapple

Pawpaw, eating bananas, passion fruit, muli, watermelon



Eat at least 2 pieces of fruit a day. Fruits add many good things to your body needs.

4. GROWTH FOODS - protein for body building and muscle growth

Dry seeds: Beans, peanuts, okari nut, pumpkin seeds, other nuts



These can be added to corn porridge. These are also ideal snack foods.

5. OIL FOODS - for extra energy and many other good things

Coconut, peanut, marata pandanus



Coconut and other nuts are ideal snack foods.