

Sustainable Livelihoods for Rural Youth Project











Pig Farming

Breeding and keeping pigs for income and food in the Solomon Islands



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This handbook has been made possible by the generosity of the many people who have shared information.

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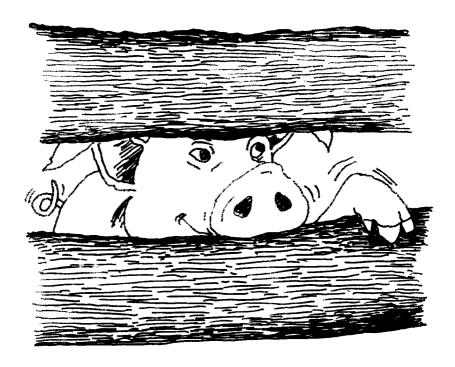
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PREFACE

Pig Farming is a handbook for trainees in the Kastom Gaden Association Sustainable Livelihoods for Rural Youth Project.

The project was funded by AusAID between 2002 and 2004 to assist rural youth in the Solomon Islands establish income-earning projects as part of post-conflict reconstruction.

Pig Farming is a training module in the project. Other modules include Agroforestry and chicken keeping.



Introduction...

FARMING PIGS IN THE VILLAGE

Pigs are a traditional part of Melanesian life. For many years they were kept for food and cultural uses. They are still kept for these reasons but now they are also sold for income.

Things to think about

To raise pigs for food, ceremonial use and to sell, it is important to provide the things pigs need to quickly grow big and healthy.

Keeping pigs

Choose a pig keeping system that suits you.

Breeding pigs

Pigs must be selected carefully for breeding. Select types that suit the hot tropical climate of the Solomon Islands. The Solomon Island bush pig can be bred with imported varieties to produce a strong, productive animal.

Pig houses

Pigs need shelter from the hot sun, rain and cold wind. A house with a slatted or a concrete floor is best. Pigs kept in pens where the soil gets muddy will get worms.

Feeding pigs

Like people, pigs need a balanced diet with the right amount of body building (protein), energy (carbohydrate) and protective (vitamins and minerals) food. Giving them plenty of food and water will make them put on weight quickly and will get them ready for market.

We can grow much of their food in a pig food garden near the pig house.

Managing your pigs

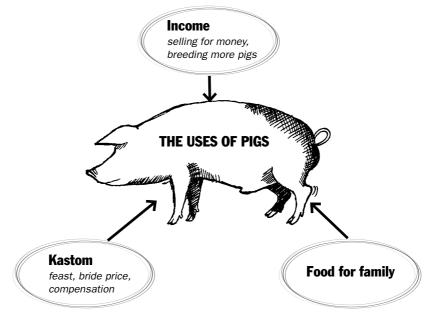
You must take care of your pigs. Check them regularly for diseases and to make sure they have enough water to drink. Pigs need a lot of water.

Make sure they get enough of the different food groups each day. We want our pigs to put on weight fast so they are ready to sell.

The uses of pigs

Pigs can be kept in the village to provide food for the family and to sell. If raised carefully, pigs can earn money for the family. Raising pigs is like having a bank savings account.

Pigs raised by farmers in the village can be used for customary purposes such as feasts and bride price. Pigs are a good source of protein (body building) food for families.



Glossary

This glossary was produced by John Faleka, Department of Agriculture adviser.

breeding: the process of mating a male and female pig to produce piglets

piglet: baby pigs of both sexes

gilt: a female pig that has not mated

boar: a male pig capable of mating

litter: a set of young pigs born at the same time

manure: waste from the pig's body

castration: removal of the scrotum of the young male pig

farrow: a sow giving birth to piglets

gestation: the period a female pig is pregnant (three to four

months)

lactation: the period after farrow when the sow produces milk for

its piglets

heat period: the time during which a female pig will accept a male

pig

grower: a person who grows pigs of both sexes

confinement feeding: pigs kept and fed in a pen without being let

outside

weaner: a piglet removed from its mother at eight weeks

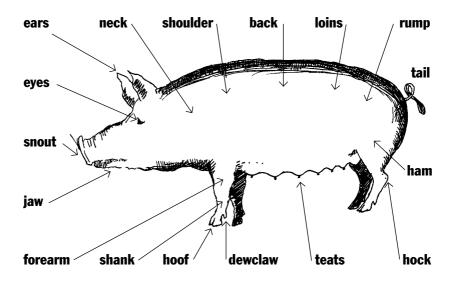
sow: a mother pig after having its first litter

feed: pig food

Parts of a pig

Different breeds of pigs grow to different sizes and have different colours and hair.

All pigs are covered in hair and use their snout for digging in the soil for roots and worms.



Provide for the needs of pigs

We must provide all the things that pigs need if we are to raise pigs successfully.

Before we decide to start a pig raising farming business we should think about how we will provide the needs of the pigs.

If we provide all the needs of the pigs they will grow strong and healthy and we will get more money when we sell them.

The needs of pigs

Pig needs	Notes	
Food	Pigs need a balanced, mixed diet made up of the three food groups: • energy foods (carbohydrate) • body building foods (protein) • protective foods (vitamins and minerals). Bought food is expensive. We save money if we grow food for our pigs. Food can be grown in a pig food garden near our pig house.	
Water	Pigs need plenty of fresh water every day.	
Shelter	Pigs need shelter that is: dry, that keeps out the rain comfortable keeps them warm at night protects them from strong winds. Each pig will need a room in the pig house.	
A clean house and pen	The pig house must be cleaned regularly. This stops the pigs becoming sick.	
Space	Pigs need enough space in their house and pen to make them comfortable.	
Health care	We check our pigs regularly for disease. When pigs become sick we look first for custom medicine. Special imported medicine is expensive.	

HOW TO KEEP PIGS

Pigs in the Solomon Islands are kept in a number of ways:

- extensive
- semi-extensive
- semi-intensive
- intensive.

Extensive pig keeping

Pigs in a low-maintenance extensive system:

- are kept outside the village and may roam free in the bush
- · may not be provided with shelter
- · may be kept in unfenced areas
- are given little management
- find food by foraging or are fed food from the garden or sprouted coconut
- are more likely to suffer from worms than pigs kept in a house
- are more difficult to check for diseases than pigs kept in a pig house
- can destroy gardens and crops, causing disputes.

Semi-extensive pig keeping

Pigs in a semi-extensive system:

- are kept on land that may be fenced
- · may be provided with shelter, especially at farrowing time
- are fed on surplus garden vegetables and leaves; enough feed must be grown for the number of pigs
- require some labour from the pig farmer to keep safe, healthy and well fed

- are more likely to be under-fed than pigs kept in a pig house
- are more likely to be less productive
- are more likely to suffer from worms than pigs kept in a house
- are more difficult to check for diseases than pigs kept in a pig house
- are best kept in a rotational paddock system pig food is grown in paddocks and pigs are released into the paddocks when the feed is ready; the pigs move from one paddock to the next when feed is ready for them.

Semi-intensive pig keeping

Pigs in a semi-intensive system:

- are kept in a yard and have a house for shelter
- may suffer from worms because the yard becomes muddy
- require more management than pigs kept in an extensive or semi-extensive system
- will require enough food to be grown to keep them healthy.

Intensive pig keeping

Pigs kept in an intensive system:

- are kept all the time in a pig house
- are easy to feed, manage and keep healthy
- more pigs can be kept than in extensive, semi-extensive or semiintensive systems
- are easier to check for diseases
- need daily feeding, water and monitoring.

TYPES OF PIGS

Two types of pig are found in the Solomon Islands:

- local breeds
- introduced breeds.

These have been cross-bred to produce pigs with the best qualities of both.



Common breeds

The most common breeds found in the Solomon Islands include:

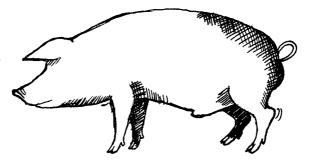
- Duroc round, brown body with floppy ears
- Land Race long, white body with floppy ears
- Large White long, white body with erect ears
- $\bullet \hspace{0.4cm}$ Large Black long, black body with erect ears
- Bush pig smaller, grey/ patchy coloured body with long head and snout
- local cross-breeds bush pig cross-bred with imported pig.

Duroc round, brown body with floppy ears

Common breeds of pig

Landrace

long, white body with floppy ears



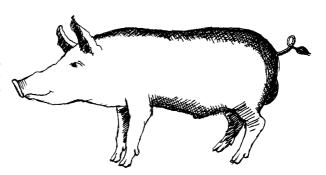
Large white/ Large black

long, white or black body with erect ears



Bush pig

smaller, grey/ patchy coloured body with long snout, thick hair coat



BREEDING PIGS

Select breeds that are suitable for the hot, tropical climate of the Solomon Islands. This includes local breeds.

Introduced breed lines that have been cross-bred with local breeds should be adapted to the climate. They combine the hardiness of local breeds with the productivity of imported breeds.

Breeds that are established in the Solomon Islands and that have adapted to local conditions include:

- Land Race
- Duroc
- Large Black
- Large White
- local breeds.

Selecting pigs for breeding

Select breeding stock that:

- comes from a healthy mother that has produced healthy, strong piglets
- · eat plenty of feed
- · comes from sows with a good temper
- is suited to the climate of the Solomon Islands
- comes from sows that produce large litters.

When the sow produces a litter of piglets, keep them separate to other pigs. Place them in a house that is dry and protected from cold wind.

Provide a farrowing rail to keep the newly born piglets in a separate area so that the sow does not lay on top of them.

PIG HOUSES

The pig house provides shelter for your pigs and piglets.

There are different ways that pigs can be kept:

- pigs may be kept in a house all the time
- pigs may be kept in a yard (called a 'pen') a shelter in the pen
 will be necessary to protect pigs from rain, sun and cold wind;
 the shelter will have to be big enough to house all the pigs in the
 pen.

Keeping pigs in a house all the time makes management easier. The pigs can easily be fed, checked for disease and the house cleaned.

Pigs of the same size should be kept together so the bigger pigs do not get all their food.

Choosing the type and placement of pig house

The pig house should:

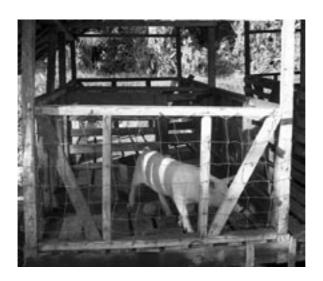
- be built on dry land
- have good access, close to food and water supplies
- have good drainage around it
- have good ventilation
- provide shade
- provide shelter from rain
- provide shelter to keep the pigs warm at night
- protect the pigs from strong winds to keep them healthy
- have extra pens for sick pigs.

Size of pig house

Each pig will need about three cubic metres (three long paces by three long paces) of space.

The house will have to be big enough for all your pigs.

An extra pen or two can be made for sick pigs if they have to be separated from the other pigs.



Pig pens should be made about three metres by three metres square. The sides should be made strong. This pig pen is made of strong steel mesh attached to a strong timber frame.

Materials

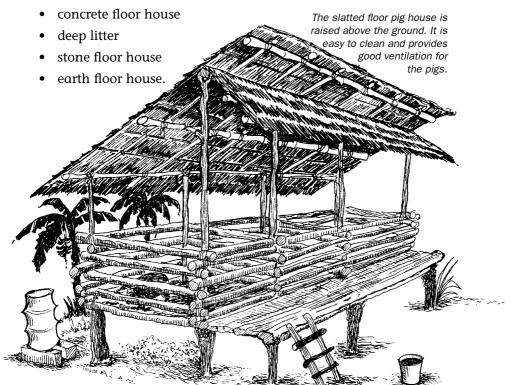
Use bush materials, especially sago palm for the roof, to build your pig house. This saves money. Make sure the floors and walls are strong.

The roof of the pig house can be made of galvanised iron or leaf. Leaf roofs cost less.

Types of pig houses

There are three types of pig house:

slatted floor house



Slated floor pig house

- usually 2.5m long by 2m wide, depending on the number of pigs
- the house is raised above the ground
- it is easy to make
- it costs less to make
- is easy to clean; gaps between the floor planks allow waste to be washed away
- provides good ventilation
- keeps out dogs
- stops the pigs getting worms
- is easy to make from bush poles or from sawn timber.

It will be necessary to clean under the slatted floor to remove waste.



Local bush pig in house with slatted floor. Small spaces between planks helps with cleaning. John Faleka, agriculture Field Officer, recommends slatted floor pig houses be built from sawn timber of 10 to 12×2.4 cm in size. These are laid with a gap between them of 2.5cm. The sides of the pig house can be made with the same or similar-sized timber.

Materials:

- posts: 8 pieces (4 x 4) 10 ft long
- bearers: 4 pieces (4 x 2) 10 ft long or bush sticks
- floor joists: 8 pieces (4 x 2) 12 ft long or bush sticks
- floor joists: 8 pieces (4 x 2) 12 ft long or bush sticks
- rafters: sticks or bamboo 12 pieces (2 x 2) 12 ft long
- flooring: 18 pieces (6 x 2) 10 ft long
- leaf panels: 20 pieces 2m long
- nails: 4" 2kg; 3" 2kg; 2" 1kg
- bush rope 1 bundle.



This pig house at Silolo, North Malaita, is built over a swamp. The house has been raised above the water so that it does not flood. Bush poles and cut timber have been used to construct the house. The house provides shelter for two piglets.

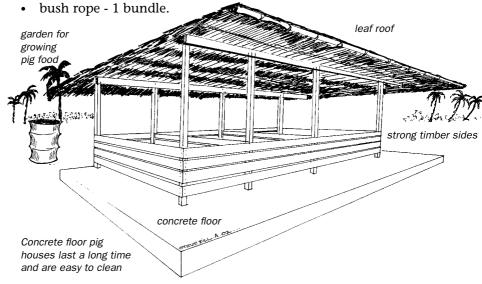
Concrete floor pig house

The concrete floor pig house:

- usually 2.5m long by 1.5m wide for each pig
- is easy to keep clean
- stops the pigs getting worms
- lasts a long time
- the floor should slope away from the area where the pig eats and sleeps
- costs more money to make.

Materials:

- floor: 3 bags of cement
- posts: 8 pieces (4 x 4) 10ft long
- rafters: 12 pieces (2 x 2) 10 ft long
- walling: 12 pieces (6 x 1) 10ft long
- leaf panels: 20 pieces 2m long
- nails: 3" 1kg





A pig house with a leaf roof and strong walls made of wooden planks. Photo: T. Jansen

Deep litter floor house

- usually 2.5m long by 1.5m wide for each pig
- less smell
- floor is dug and filled with stones and sawdust
- waste is mixed with the sawdust and used as a mulch in the garden.

Materials:

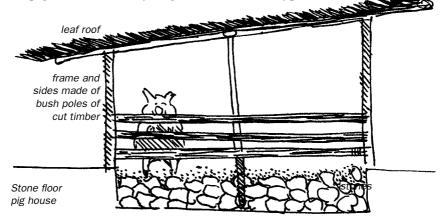
- posts: 8 pieces (4 x 4) 10 ft long
- walling: 12 pieces (6 x 1) 10 ft long
- rafters: 12 pieces (2 x 2) 10 ft long
- flooring: 5 x 40kg sawdust
- leaf panels: 20 pieces 2m long
- some stones.

Stone floor pig house

The stone floor pig house:

- provides good drainage
- is durable





Earth floor pig house

The earth floor house is not recommended:

- pigs will dig out the earth floor
- pigs will get worms from the earth
- earth floors are difficult to clean.



Pig pen with earth floor and fence to keep pigs inside. Photo: T. Jansen



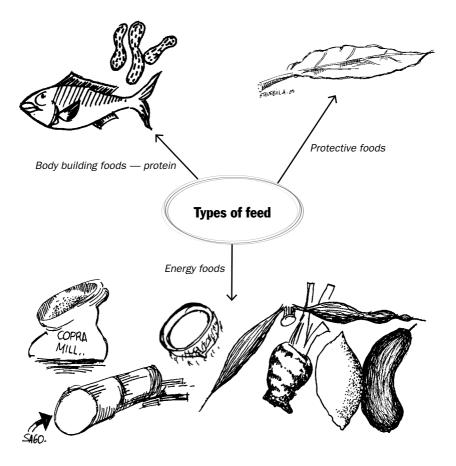
FEEDING PIGS

Pigs need a balanced diet to stay healthy. A balanced diet is made up of:

- energy food (carbohydrates)
- body building food (protein)
- protective food (vitamins, minerals)
- water.

1, 1, 1, 5	tective foods p pigs stay althy.	Pigs need plenty of fresh, clean
active and give them the energy they need each day. Cook the following foods for your pigs: sweet potato cassava coconut copra cake taro rice corn cooking bananas kakake sago palm beans cow pea wital meat peanut pigsa heal They vital ment fish peanut	ey provide amins and herals. bush leaves and vines grass legume leaves sweet potato tops banana pawpaw. iculture partment ld Officer John eka says that tective foods best given to s a few hours er the energy d body building	water. Fill their water container every day.

Food for a balanced diet:



feeding pigs of different ages:

- newly weaned pigs need more body building food (protein)
- a sow (female pig) suckling piglets needs more body building food
- mature, fully-grown pigs need less body building food than young pigs or sows feeding piglets.

Guide for feeding pigs — amount per pig per day

All pigs need a mixed diet that includes protective feed such as green leaf and bush vines. In general each pig should get 0.5kg of greens per day.

Give the correct types and amounts of feed to the different types of pig so that they grow healthy and fast.

Do not give feed that is not needed as this is wasteful.

Here is a guide for feeding pigs using energy food such as cooked sweet potato or some other root crop with a body building food such as fish meal.

Feed quantities every day

Type of pig	Weight of pig	Age	Cooked sweet potato	Fish meal
Weaner	12kg+	8 weeks	2kg	0.5-1kg
Grower	23-50kg	3-4 months	3.5kg	1-1.5kg
Lactating sow	80kg+	2yrs +	8kg	2kg
Sow and boars	80kg +	2yrs +	5kg	1.5kg

Source: John Faleka

Growing food for pigs

Imported pig food is expensive and is difficult to transport to your village. Pig food can be grown in a special pig food garden:

- make the pig food garden close to the pig house
- sweet potato, cassava, pawpaw, beans and leaves can be grown in the pig food garden
- keep the soil fertile to grow as much pig food as you can
- grow enough food for all your pigs.



Leaf from bush vine can be used as protective food





Feeding containers — a large plastic bowl and a clam shell

Containers for feed and water

Feeders and water containers can be large plastic bowls, large clam shells or can be made from large tins.

Feed containers can be made from a hollowed log. Make the corners round for ease of cleaning. Raise it off the ground so the pig cannot put its feet into it.

A water container can be made from a large tin. Make sure it has no sharp edges that could cut the pig's mouth.

TOA.

Feed should be given to pigs in strong containers.

MANAGING YOUR PIGS

Managing your pigs is important to their health and to getting a good price for them.

Feeding

- pigs of the same size should be fed in a group; this prevents the larger pigs eating the food of the smaller pigs
- pigs should be fed at the same time each day;
 - feed in the morning (energy, body building foods)
 - give green leaves at midday
 - feed in the late-afternoon (energy, body building foods)
- pigs should be given fresh, clean water each day.

Housing

- make sure young pigs are sheltered from cold winds
- the pig house should provide shelter from hot sun and rain
- sweep or wash the pig house floor every day to prevent lice, ticks and other diseases
- keep smaller pigs in a separate house to larger pigs
- sows should be kept in a separate pen that is dry and protected from cold wind; a farrowing rail will keep the newly born piglets in a separate area so that the pig does not lay on them.

(heck pigs

- check the pigs for signs of disease when you feed them each day
- check that they have plenty of clean water and food; the pig's skins will start to crack after two days without water and they may develop sores.

CASE STUDIES:

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MALU'U FARMER

Farmer:

John Faleka.

location:

Malu'u, North Malaita.

Type of system:

Intensive; pigs kept in houses.

The pig house is divided into rooms.

Each room is 2 x 2.5m.

The size of the garden where food for the pigs is grown is $15\ x$ 20m.

Breeds:

John keeps imported breeds.

Products:

- pigs for sale every three months
- family and customary use
- pig manure used on vegetable garden to make soil fertile
- sells pigs at Christmas.



Reason for keeping pigs:

- John gets a good price for them
- he is an agricultural advisor and needs pigs as an example
- customary value, such as bride price.

Number of pigs:

- up to 10
- at present: 5 adults 3 sows, 1 boar, 1 gilt kept in a separate pen.

Piglets are weaned at eight weeks, removed from the mother and put into a separate room.

John says a farmer can start with three to five pigs and increase the number to 10 when enough food is grown in the garden to feed them.

Feeding:

Feed from garden and manufactured food from PNG. Imported feed adds to cost of keeping the pigs.

Water is given every day.

The food garden is 15 to 20 metres from the pig houses. The pigs are given left-over food grown in the garden.

Categories of food:

- body building feed fish meal, Leucaena
- energy feed banana, cassava, grain, meal run, sweet potato, kang kong taro
- protective feed green leaf tips, grass, banana leaf, sago palm insides.

Housing:

The pig house:

- is made of timber
- is a long building divided into rooms
- there is a room for each pig and a room for sows with a litter
- has a slatted floor.

Management

Daily activities

Morning	Midday	Evening
Pigs given all categories of feed – body building,	Pigs given green leaves.	Feed of all categories given.
energy, protective. Water given.		Pigs washed – sprayed with water every day
Pig rooms cleaned - waste is sprayed away		to avoid the disease scabies.
with a hose.		Rooms washed.

Caring for piglets:

- when newly born, bags are put around the pen to keep out cold wind at night
- a fire is sometimes lit below the pen to keep the piglets warm
- at two to three weeks, piglets are fed separately with a high-protein crib feed (body building food)
- at eight weeks they are sold or the males are castrated to make them easier to manage.



John Faleka with his pig house. John has made his pig house with a slatted floor and iron roof. John uses his pig wastes to fertilise a food garden.

Diseases:

Pigs are sprayed with water every day to avoid the skin disease scabies.

Wastes:

The slatted-floor pen is raised off the ground and is above a stand of bananas. Wastes trickle down to provide manure to the bananas.

The area below the pens is cleaned and the manure put on a vegetable garden to provide nutrients. The manure becomes compost and nutrients for the crops.

KWAILABU VILLAGE FARMER

farmer:

Rose Adewane.

Rose started as a trainee with the Sustainable Livelihoods for Rural Youth Project in September 2003.

location:

Kwailabu village, North Malaita. The village is situated on a small island off the coast of North Malaita



Type of system:

Intensive; pigs kept in houses.

Rose has two pig houses. One is $5 \times 2.5m$ and has three rooms. The other $4 \times 2.5m$ and has two rooms.

Breeds:

Rose keeps imported breeds and a local pig used for cross breeding.

Products:

Pigs are bred, reared then sold. The pigs are sold for Solomon dollars or for shell money.

Rose says that people travel to find pigs. They come to the village.

The pigs earn money and are of benefit to the family because they can be used for feasts. They are important for the village community because they are used for bride price and as compensation.

Number of pigs:

Rose started with nine pigs. She first bought a pig from her uncle. She mated it and produced eight piglets.

In December 2003 she sold five. Rose has four left.

Rose says that three to four pigs are all that can be kept because there is not enough food for more.

Feeding:

Rose has made a pig food garden next to the pig houses. It measures $30 \times 20m$.

The garden soil is not very fertile. This limits the amount of food she can grow and the number of pigs she can keep. Water is given every day.

Types of food:

- body building food fish
- protective food cassava leaf, the large leaf of a local vine known as 'salu halu' that climbs coconut palms
- energy food sweet potato, taro.

A large plastic bowl is used to serve food. A large clam shell serves water.

Housing:

The pig house:



Rose Adewane with one of her pig houses. The houses have slatted floors, the frame and sides are made of cut timber and a leaf roof shelters the pigs from sun and rain.

- is made of local timber with a leaf roof
- is divided into rooms
- has a slatted floor.

Management:

Daily activities



Rose has two pig houses sheltered in the forest. The trees provide shade and help keep the pigs cool. Next to the pig houses Rose has a garden where she grows food for the pigs.

Morning	Midday	Evening	
Water given.	More food given.	Fish, sweet potato,	
Feed given including	No feeding if Rose is	cassava given.	
mixed green coconut and	busy.	The food is sometimes	
sweet potato.		served raw, sometimes	
		cooked.	

The pig houses are cleaned when Rose has time.

Diseases:

FERASUBUA VILLAGE

Farmer:

James Iroga.

James is the son of the village chief, Chief Kabina.

He started his pig system in September 2003.

He started with three youths to build a concrete floor, deep litter pen.

location:

Farasubua village, North Malaita. Ferasubua is a village on an artificial island off the east coast of North Malaita.

Type of system:

James has managed the system for two years.

Mixed rotational pig/ cropping/ kokorako (chicken) system:

- the pen is approximately 60×100 metres in size and is divided into three paddocks
- cassava, sweet potato and alu (a leaf) is grown in one paddock
- bean, sorghum and soy bean is grown in another; this paddock also houses kokorako in a kokorako house with a laying box where eggs are laid
- the kokorako also forage in the pig area; they are let out to forage every afternoon
- the pig house is situated on the fence where two paddocks meet
- the pigs are released into the adjoining paddock every afternoon.

Breeds:

Cross-breeds of Landrace and local pigs.

Products:

Fattened pigs and young weaners are sold.

Pig manure is used as fertiliser in the garden.

Housing:

The pigs are kept in a deep litter, concrete floor housing and pen.

Management:

Daily activities

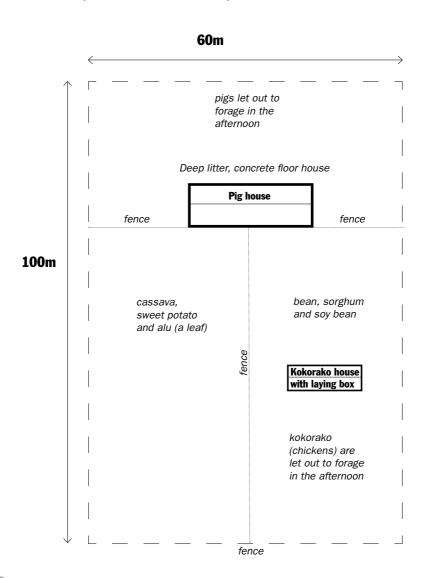
Morning	Midday	Evening
Water given.	Pigs released to forage.	Fish meal and meal run.
Fed fish meal and meal		Gate closed.
run.		

Diseases:

None reported.

Information supplied by Charles Bole, Sustainable Livelihoods for Rural Youth Project.

Pig and kokorako system made by James Iroga, Ferusubua village, North Malaita





A stone wall has been built across the land. The pigs live in the forest behind he wall.

Stone wall

SUVA'A BAY FREE RANGE SYSTEM

A community living on the shores of Suva'a Bay, North Malaita, has built a stone wall about one metre high across their land. The village is on one side and forest on the other.

Pigs live in the forest. The villagers throw food over the wall for the pigs. The pigs also find food by foraging.

When a pig is needed it is hunted with dogs.





