

Manual for Pig Rearing In Uganda



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Daktari Animal Health**



Smallholder – Pigs

The wean to finish period

This short manual provides for a start in pig production in Uganda

This first booklet indicates how to succeed in finishing pigs.

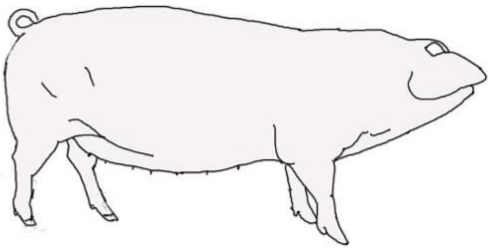
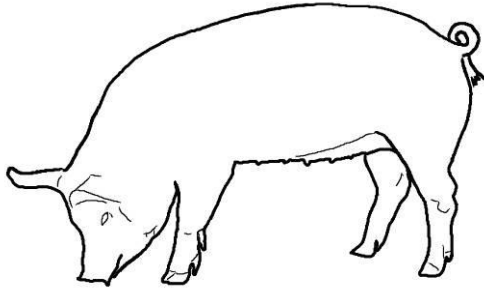
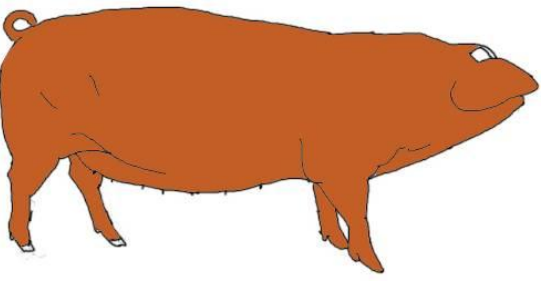
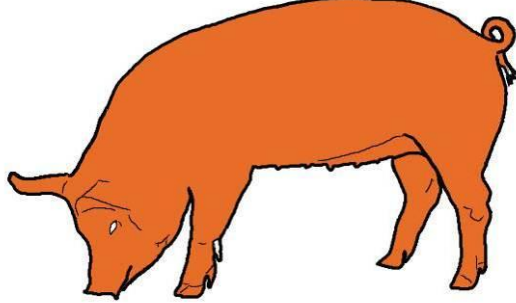
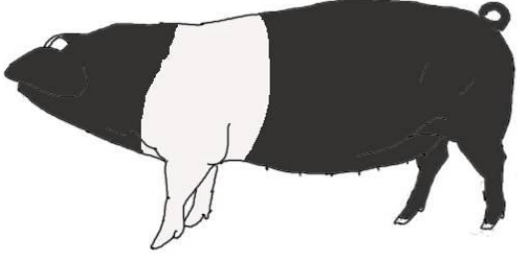
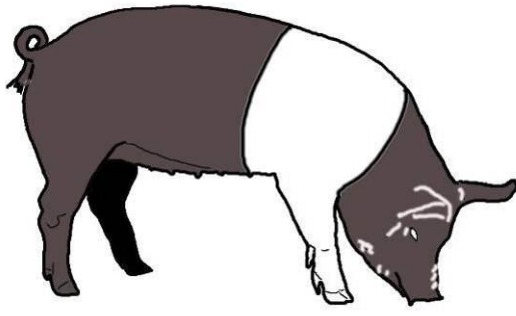
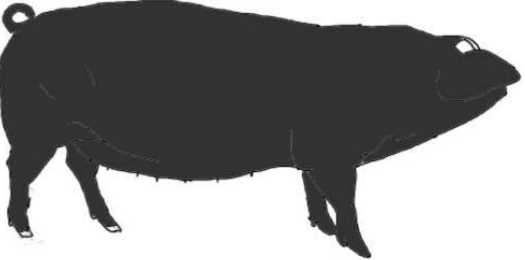
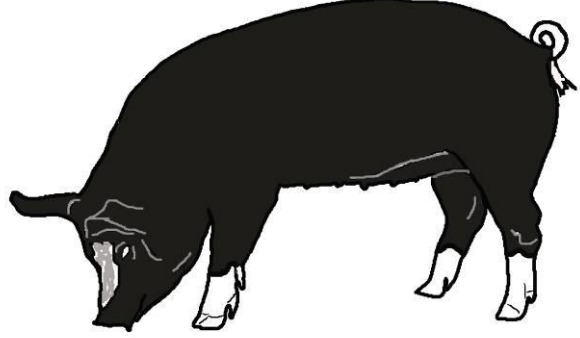
Once your stockmanship skills have encompassed the wean to finish pig, the stockperson can move towards keeping adult breeding stock.

When read on the computer each page is hyperlinked

The pig – weaning to finish	Page
Introduction to Pigs	
Basic pig breeds	5
Basic terms in pig farming	6
The surface landmarks	8
The pig's life cycle	9
Products from pig production	10
Handling and moving pigs	11
Sustainability 3 year plan	14
Basic Housing	
Smallholder finishing house plan	15
What if I decide I do not like pigs?	19
Areas and volumes	20
Measurements the basics	21
The basic tools – builder and adviser	22
Composting manure	26
Security Fencing	28
Feed and water for the growing pig	29
Feed ingredients	30
Feed dietary requirements for pigs	32
Swill feeding – collection and distribution	33
Building a pig feeder	35
Feed – balancing the diet and the pig's requirements	37
Mixing dry feed for the pig	39
Which of these food stuffs can be used to feed pigs?	40
Obtaining pigs	
Selecting the pig	44
Introducing the pig to the farm	46
Introduction to medication and vaccinations	48
Keeping pigs healthy	
Biosecurity handwashing	49
<i>Normal pig behavior:</i>	
Lying patterns	50
Defecation patterns	51
Play behaviour	52
Daily routines	53
Weekly routines	56
<i>Recognising health:</i>	
Stockmanship	57
Stockmanship the basics	58

Medicine and needles – the basics	59
Clinical signs of health and ill health	60
Disorders of the pig by age – an introduction	61
Monitoring the pigs	
Weight estimation of pigs	63
Growth rates	64
Moving the pigs to market	65
Cleaning the building after the pigs go	
Cleaning the house	66
Lime washing	67
Budget examples	
Building costs	68
Wean to finish budget	69
Adopt a pig concept	70
Notes	71
Index	72

Basic Breeds of Pigs

Flopped ears. Roman nose	Pointed ears. Dished face
White body	
	
Landrace	Large White/Yorkshire
Red colour	
	
Duroc	Tamworth
Belted colour	
	
Saddleback	Hampshire
Other	
	
Large Black	Berkshire (6 white points)

Remember that most commercial pigs will be a cross breed of Landrace/Large White and Duroc

Swine, Pigs and Hogs – The basics

Animal terms:

Boar – entire male pig

Castrate/ Barrow – male pig castrated

Gilt – female from birth to having her first piglets

Sow – a female who has had piglets

Piglet – young pig which has not been weaned

Weaning – Removing the piglets from the lactating sow

Weaner – a pig after weaning – generally 18-24 days of age until 30 kg (66 lbs)

Grower – a pig older than 30 kg (66 lbs) – feeder pig

Finisher – a pig older than 60 kg (120 lbs)

Farrowing – giving birth - parturition

Lactating – producing milk

Gestating – the period from weaning to giving birth (dry sow period elsewhere)

Litter – each group of piglets from a sow

Parity – each parity refers to each separate farrowing – a 3rd parity sow has had three litters

Mummified piglet – fetus which died during gestation born in a state of mummification

Stillborn – piglet born dead – but otherwise normal

Fostering – moving piglets between sows to assist them getting enough milk

Colostrum – the first milk after farrowing – full of antibodies

Processing – the variety of procedures carried out on piglets – castration, tail docking, teeth clipping, ear notching and an iron injection.

Pre-weaning mortality – the number of piglets who die in the farrowing house

Post-weaning mortality – the number of weaners/grower or finishers who die in the post-weaning period until slaughter

Breeding/service – the mating process

Weaning to breeding interval – the days between weaning until the next breeding

Repeat – a sow or gilt who fails to conceive

Conceive – to become pregnant

Farrowing rate – number of animals bred / number of animals who actually farrow

Culling – removal of an animal from the farm

Body condition score – a method of estimating amount of body fat 5 point scale 1-5

Food conversion ration – FCR – the rate of growth (g) / amount of dry food eaten (g)

Growth rate – number of grams increase in bodyweight per day



Types of production:

Farrowing house – the room where sows and gilts give birth and lactate

Gestation barn / dry sow house – where the sows live while pregnant

Nursery – the room where pigs live from weaning to about 30 kg

Grow/finish – the room where pigs live from 30 kg until slaughter

Wean to finish – a room where pigs live from weaning to slaughter

All-in/all-out – the process where buildings are emptied of one group of pigs, thoroughly cleaned and then populated with a new group of pigs

Batch – one group of pigs

Batch farrowing – a group of sows and gilts breed to farrow in a group

Three site production – a system where pigs are reared on three separate farms – classically gestation and farrowing on one farm/site : nursery on another and grow/finish on a third site.

Two site production – a system where pigs are reared on two separate farms – classically two forms – a) gestation, farrowing and nursery on one farm/site and the grower/finisher on another farm/site.

b) gestation and farrowing on one farm and wean to finish on another

Some variations in gestation housing:

Crates/stalls, ESF (Electronic sow feeding), trickle feeding (feeding small amounts over a short period of time), outdoor – housed outside in arcs.

Some basic facts:

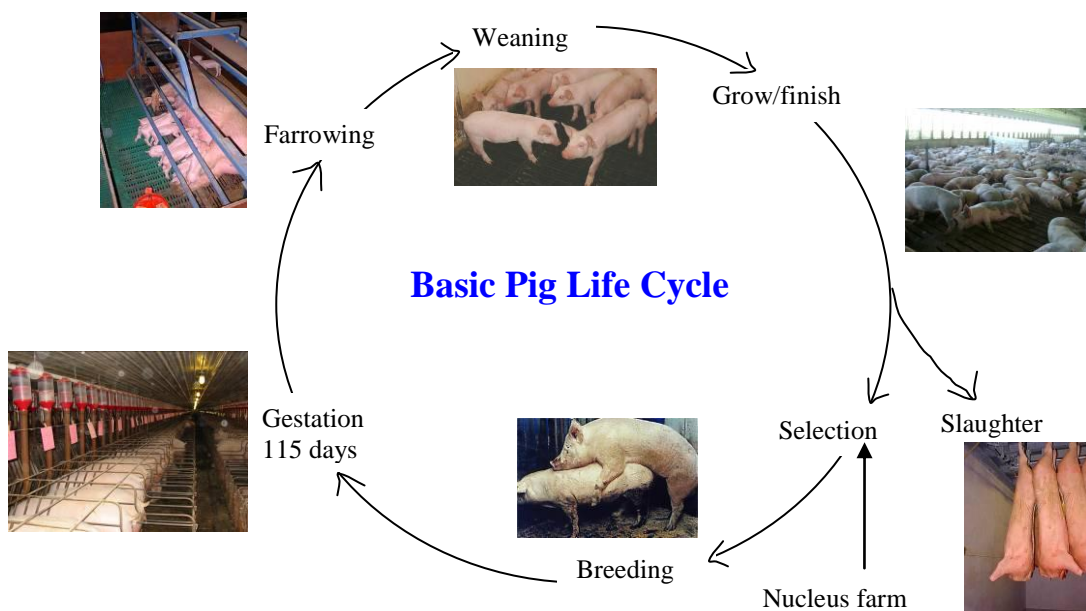
Age at breeding – varies: for a gilt 220 days; for a boar about 7 months

Estrus cycle – 18-24 days – three weeks

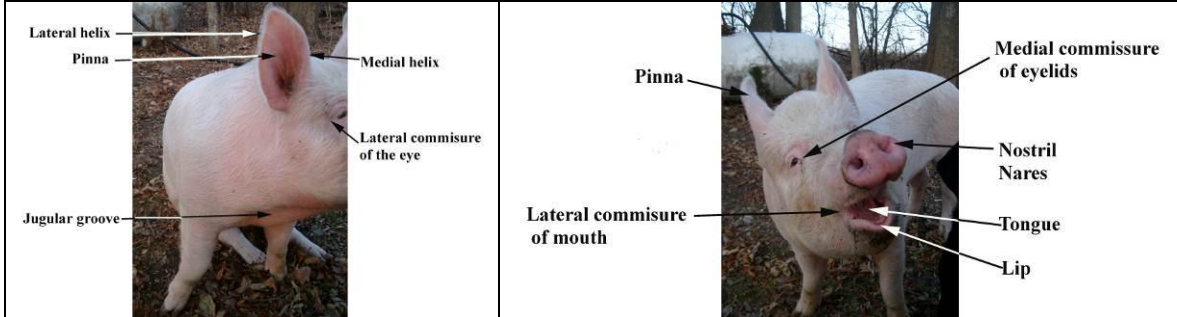
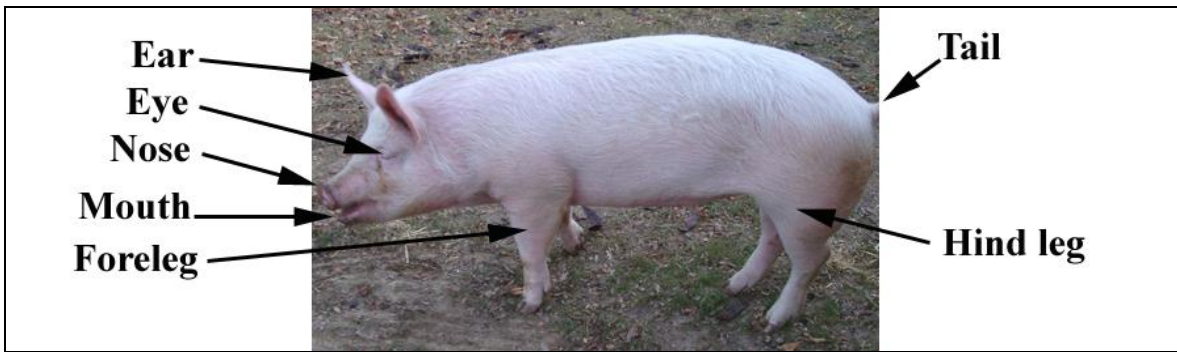
Gestation – 115 days – three months, three weeks and three days

Breeding season – generally year-round – poorer in the summer and early autumn

Slaughter weight – about 114 kg (250-280 lbs) at about 26 weeks of age



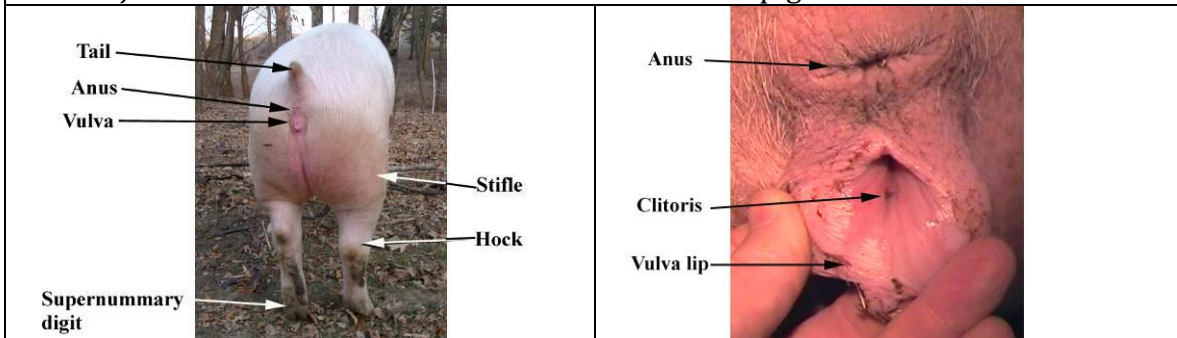
KNOW YOUR WAY AROUND YOUR PIG



View of the pig neck

The head view of the pig

The major surface landmarks of the rear of the female pig:

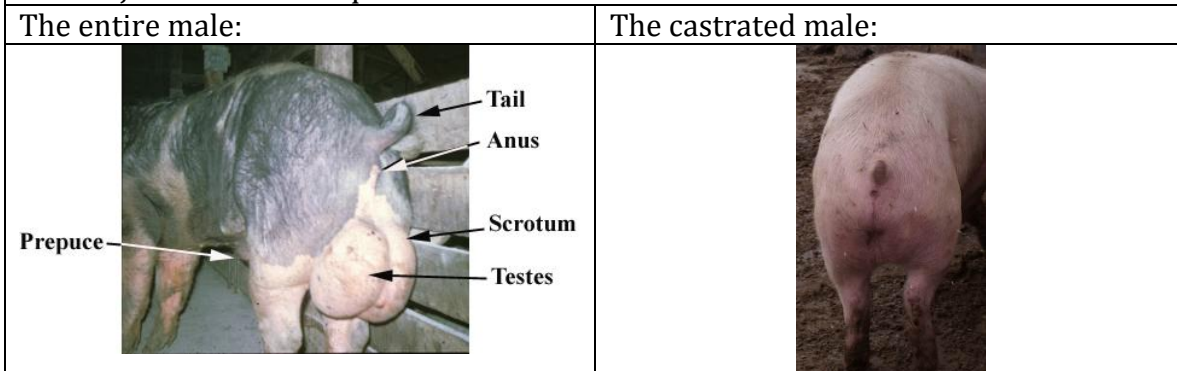


The hind view of a female gilt

Detail of the vulva opened

The sow has 12-14 mammae each with a nipple

The major surface hind quarter landmarks of the rear of the male:



The entire male:

The castrated male:

Remember that the male also has the prepuce on the ventral surface.

Introduction to the Pig

The Basic Economic Life Cycle of the pig

Where is money generated?

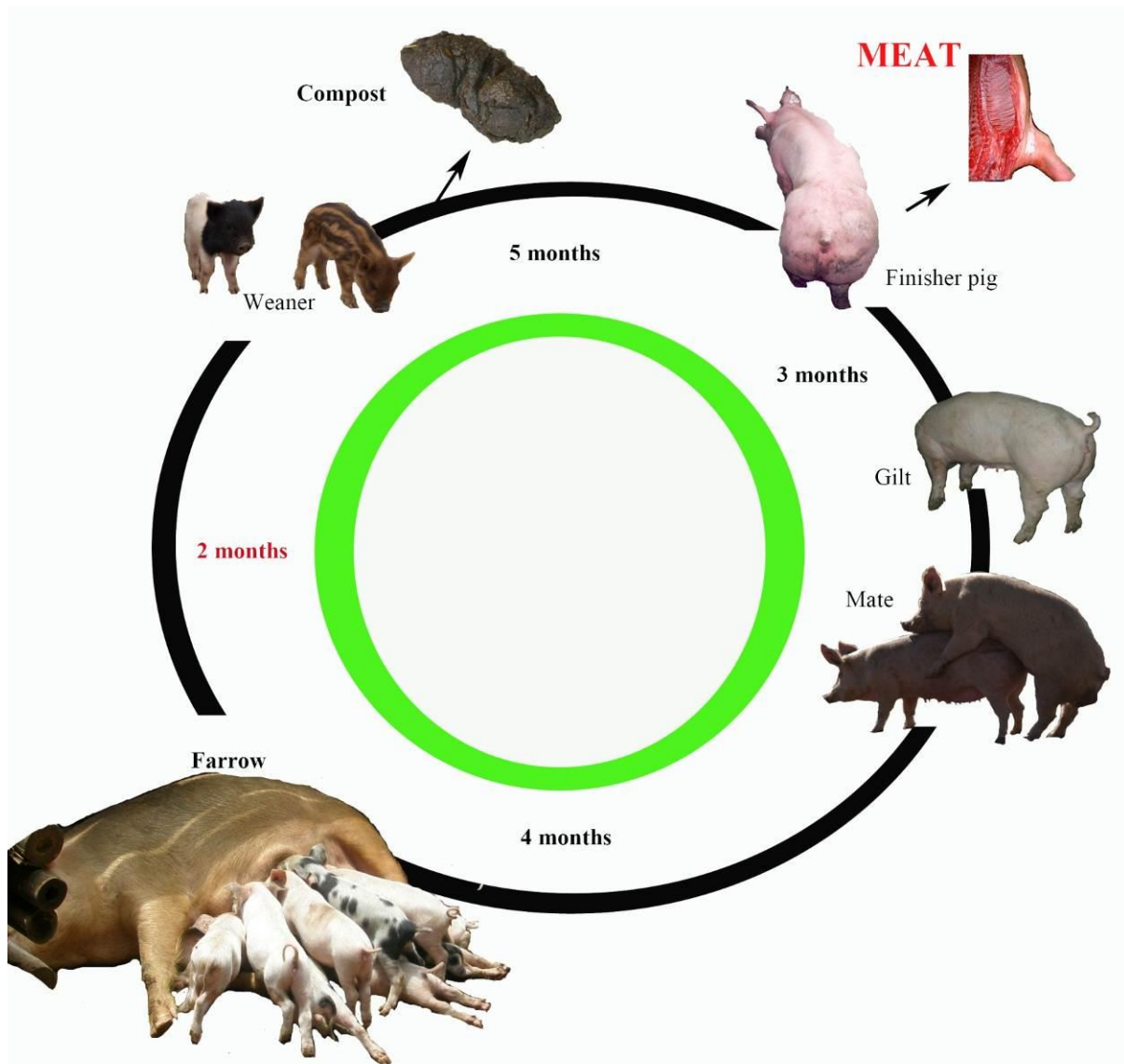
Compost from faeces

Meat from finishing pigs

Gilts for sale

Weaners

Also note pigs are useful to clear land and “plough” the fields.



The stages of the life cycle are simplified

Finishing – depends on weight – 40 kg by 12 weeks of age, 100 kg by 22 weeks of age

Gestation lasts 115 days – 3 months, 3 weeks, 3 days

Weaning can successfully occur between 3 weeks to 3 months of age

Pig Products in Uganda

What are the four main products that pigs produce and how long can it take before I get any return on my investment?

1. Manure or Compost

Pigs produce faeces, this combined with plant material and any wasted feed can be placed into a compost pile. Pig manure can be solid or liquid depending on the type of plant that requires the manure.



Within 4 weeks even young pigs will start producing manure/compost for sale or use in your own garden produce.

2. Meat

The second purpose of pigs is to produce meat. Weaned pigs at 15 kg will cost around 25,000 shillings and a 70 kg meat pig can raise about 150,000 shillings. But note this difference is not all profit – there is feed, labour and possible medicines to pay for.

However, how long does it take to go from a weaned pig to a sale pig? With the proper feeding routines – this can be as short as 5 months – but will poor feeding this can take 12 months. We are going to assume good feeding routines.



Good pigs growing well



Emaciated pigs on a poor diet



Ready for the Pork joint

3. Weaned piglets

The ultimate goal is to produce your own piglets! But while this seems extremely high value – if you wean 10 piglets each worth 25,000 shillings – this is 250,000 shillings!! But it takes around a year before you get this money - can you wait that long before earning?



Lots of babies



Lots of weaned pigs

Why does it take this long?

Weaner purchased – 2 months old Gilt mated – 8 months old Gilt farrowed 13 months old Piglets weaned 1 month later. Thus from purchasing your weaners it will take 12 months And the weaners are sold some 5 months later – this is 17-18 months after your initial purchase!






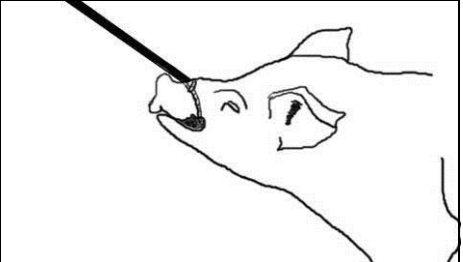



4. Labour

Pigs can be utilized to help clear land of trees and till the soil. This was a traditional use of pigs.



Handling and Moving Pigs

Most pigs are not used to being handled. They become very vocal when caught and will not settle easily. Pigs will work as a herd or as individuals, before moving a group of pigs think of escape routes you would take and then try to block them.

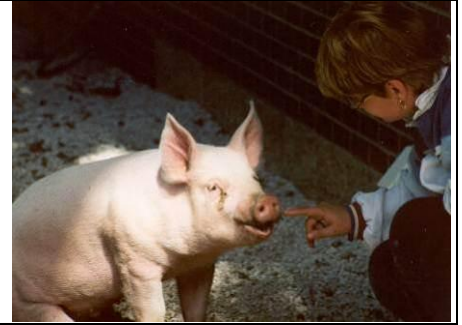
Handling		
Young pigs may be picked up and will generally settle		
		
Older pigs examine within a crate or restrain using a loop around the upper jaw behind the canines		
		
Moving		
		
Pigs can be moved as a group	Design passageway to prevent escapes. Walls 850 mm high	Young pigs may be easier to move in a barrow
Pigs have a wide angle 310 degree vision which allows them to see behind themselves without turning their heads. They are easily distracted by objects to the front and sides and sharp changes in floor texture and appearance. A shaft of sunlight is sufficient to affect pig movement.		



When moving growers pigs use a pig boards, hands and your voice. Avoid electric prods



There is never any need to use violence - the pig will object



Pigs move much easier in a quiet controlled environment



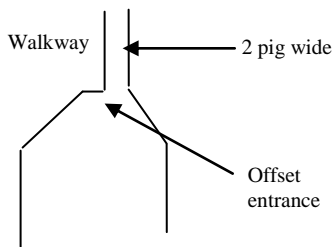
Pigs can be trained to a harness. This is how they are used to hunt truffles.



Boars can be trained to walk to heel and follow a route



Take special care with boars or lactating sows. Pigs are armed with razor blades



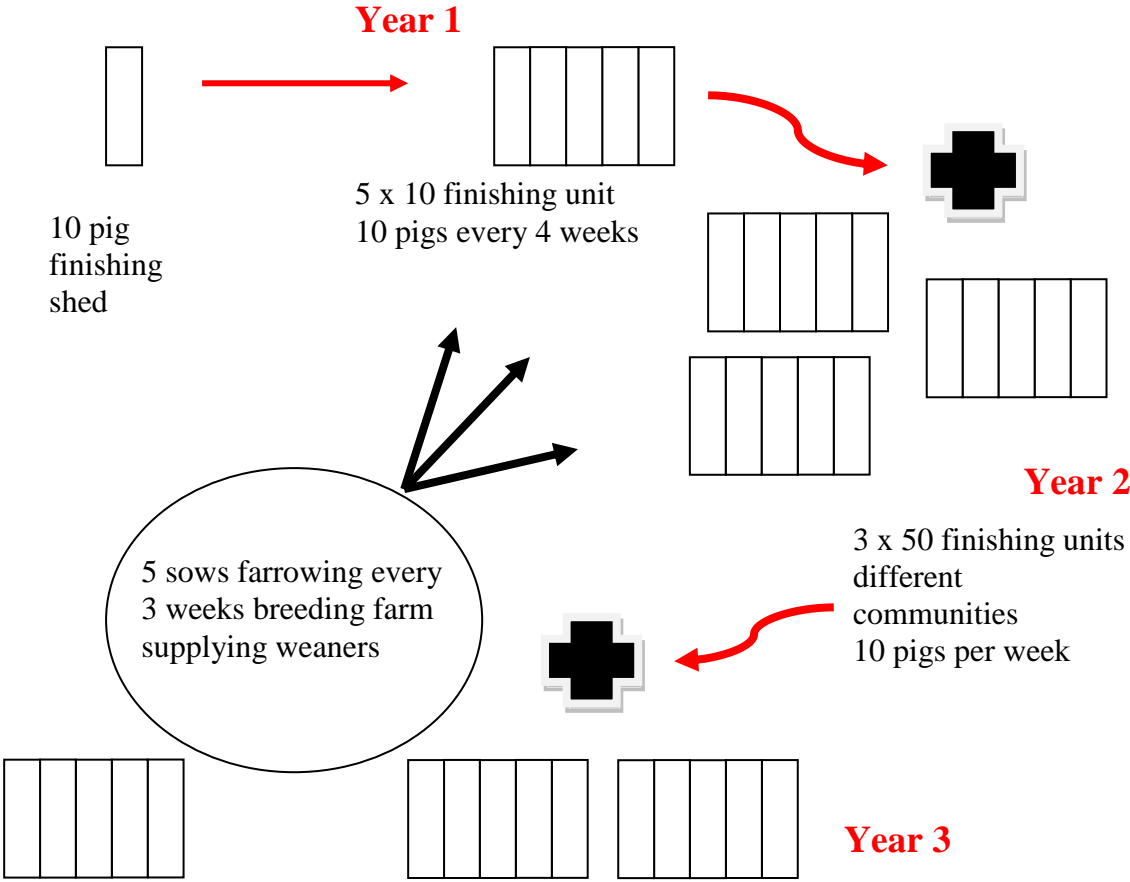
Loading finishing pig can be a particularly stressful time for a pig. It is essential to carefully design the loading area. Avoid steps and any rise over 20°. Ensure the area is well lit without corners. The use of hydraulic lifts (right) is to be encouraged.

With ramps they should be constructed with at least 850 mm high to prevent distraction. The passageway should allow 2 pigs to move at the same time, allowing physical contact. Have an offset panel at ramp entrances, rather than a funnel. A catwalk along the outside of the ramp will allow staff easy access to the pigs on the ramp to improve pig movement.

Mixing pigs

Care is needed because:	
1	Pigs will fight whilst they establish their 'pecking order'. This happens whenever the group is disturbed.
2	It takes 1-2 days to establish the pecking order, and performance may be compromised during this period.
3	Pigs need time and space to work out their pecking order. After this, the weaker pig will back down.
For all pigs;	
1	Pigs should be kept as much as possible in stable social groups, and mixing at any stage between accommodation types should be kept to a minimum.
2	Avoid mixing in pens where sharp edges to feed troughs and drinkers protrude, and can injure the pigs.
3	Always mix pigs of similar size.
4	As a general rule, never introduce less than 3 pigs into an established larger group. However, it may be necessary to introduce 1 or 2 sows to dynamic service groups.
5	Low levels of lighting can reduce aggression when mixing. This must not be used for longer than 1-2 days.
6	Resorting to the use of tranquilisers and masking sprays may indicate that the mixing methods and facilities on your farm are inadequate.
For sows:	
1	Allow plenty of space (eg if mixing sows, you need 3.5 m ² per sow) so that there is enough space to get away if chased or threatened. Sows will mostly chase for less than 2.5 m.
2	Ideally only mix sows at weaning. Avoid mixing sows 5-21 days after service as this is when the eggs implant and stress can result in high numbers of returns.
3	Use physical barriers in the pen such as big bales or plastic sheeting suspended from the roof. This allows a beaten pig to get out of sight and quickly ends the fight.
4	Time mixing to fit in with management routines to best allow supervision, however mixing in the evening may be best if you can arrange to be there to oversee this.
5	Use fresh straw at mixing – it acts as a cushion if fighting occurs and increases surface grip.
6	Consider <i>ad lib</i> feeding when mixing.
7	Consider allowing physical contact eg through a gate, between a dynamic main group and a sup-group to be mixed into it, prior to mixing. This may reduce fighting when they are introduced.
8	Avoid re-mixing groups. If practical mix sows back into their original groups post weaning.
9	Avoid mixing in any form of cubicle system. Sows can be trapped easily and injured – consider a specialist mixing pen.
10	Consider breaking up the edge of the lying area with divisions so that sub-groups can have their own areas.
11	Try closing off a section of a large yard system for a few days then penning the sub-group in this area when mixing. This helps to establish a new territory for the smaller group.

Small holder's sustainability plan for 3 years



Sustainable pig farming – making a start

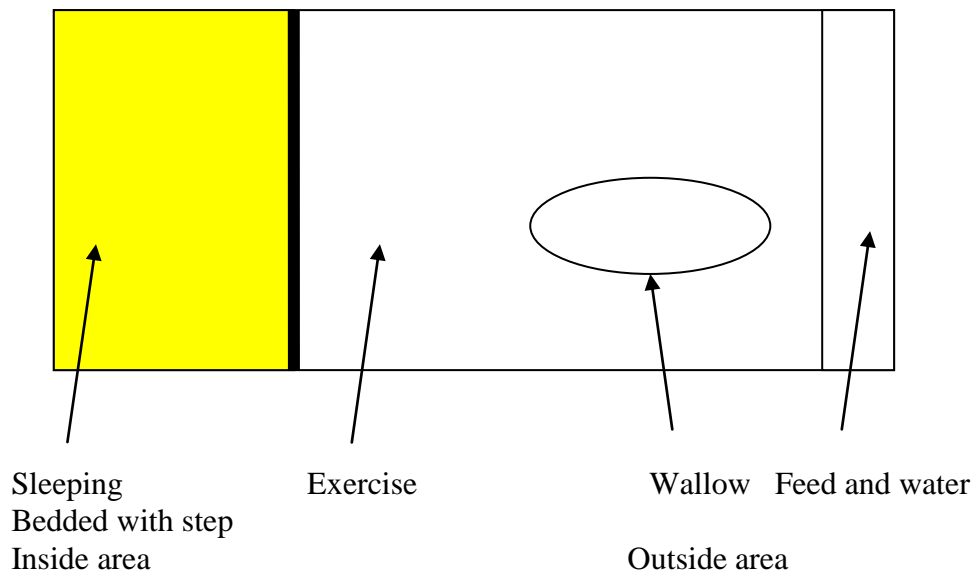
If you are not used to raising pigs from scratch – breeding, farrowing, looking after piglets- it is best to start just learning about the animal – its habits, feed, water and cooling requirements. Start with weaners and aim to produce good compost and excellent finished pigs. Along the way, some farmers will start wanting to produce their own pigs but that is the topic for a different day.

Basic pig building

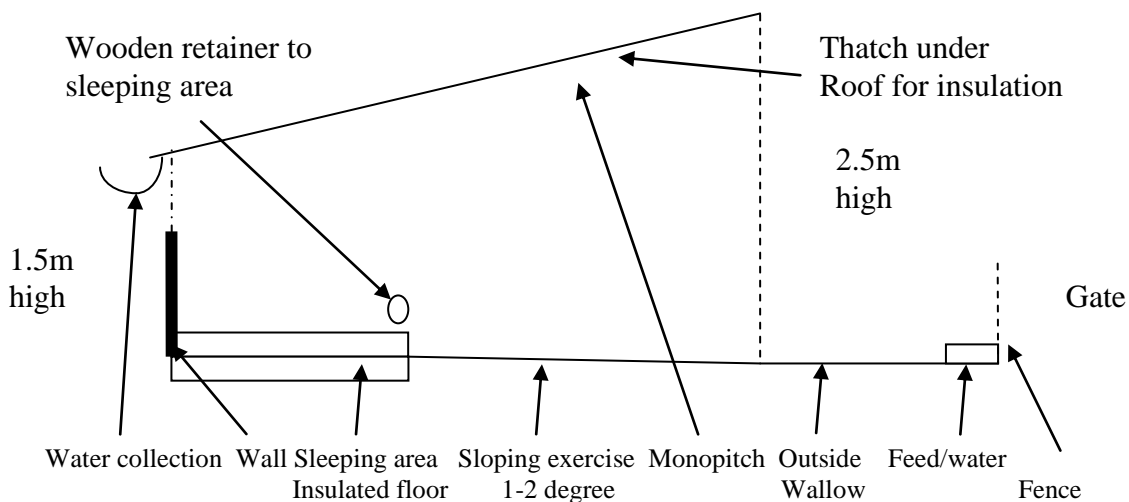
Once we have decided not to have big sows and boars, we can radically simplify the building design.

The building will be 3m wide and 7m long- thus providing 21 m² – enough room for 10 pigs.

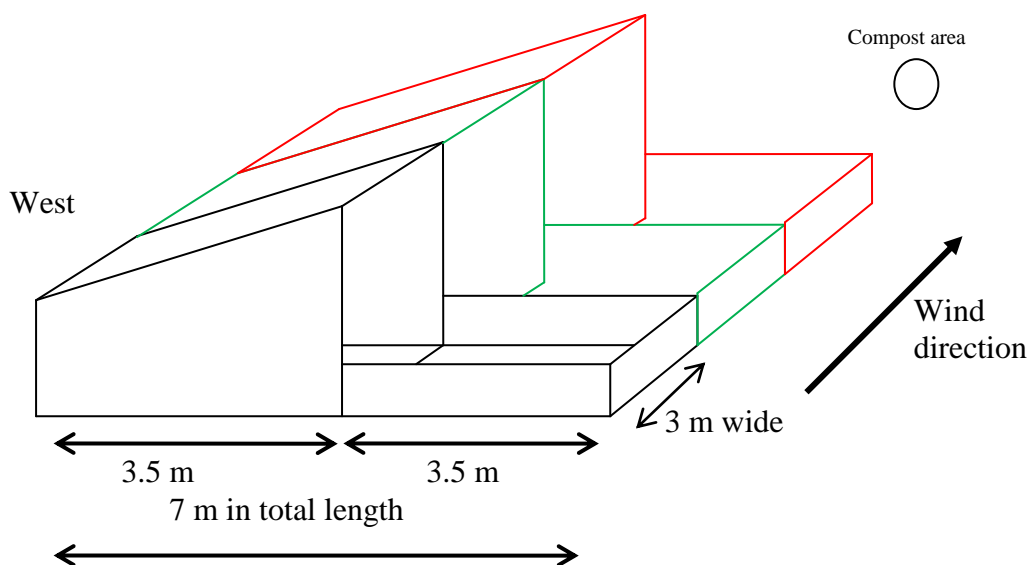
Floor plan view:



Side plan view



The building design can be modulated – making expansion easy.



Example of this style of building:

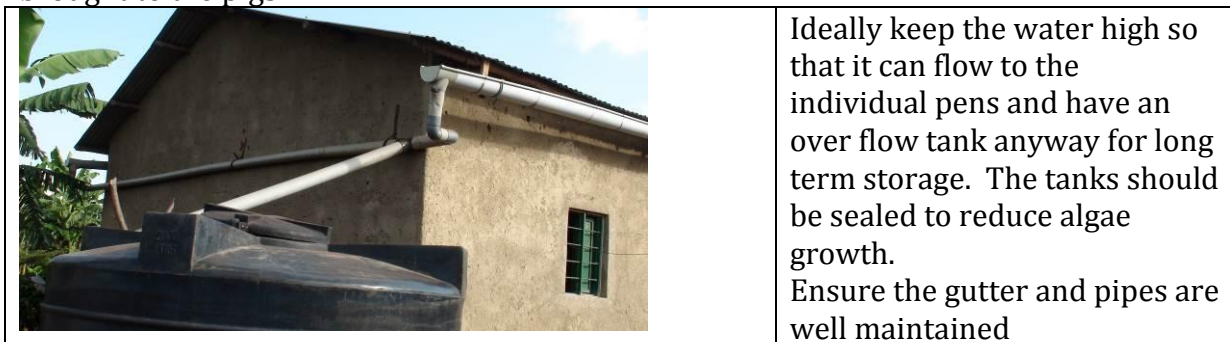


Orientation

In Uganda the big issue is hot pigs. Orientate the building so that the sleeping area is at the west end of the building – thus providing shade from the afternoon sun. The other consideration is the wind direction to provide maximum ventilation.

Water collection

Collecting water from the roof can significantly reduce the amount of water which needs to be brought to the pigs.







Biosecurity

Ensure that there is a 2 metre clear walkway around the building to reduce rodent and other vermin/pests from entering the unit.


Timber protection

All timber which is placed in the ground should be protected from being eaten and rooting, particularly from termites.

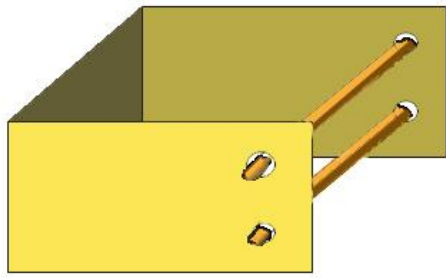
	
<p>Peel back the bark</p>	<p>Carefully cover the end in burnt engine oil. Use a rag to rub the oil into the wood</p>
	
<p>Cover the protected timber with a plastic sheet</p>	<p>Place in the ground</p>

This will greatly increase the life of the post. Without this protection the termites will eat the post in around 6 months.

Pigs and wood posts

	<p>Pigs will also eat any wood posts. Be particularly careful of any post which is supporting the roof. Protect such posts with metal sheets (although this can become sharp) and/or concrete.</p>
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Observation area and Sow modification

	<p>The building could be used for sow and farrowing accommodation The sleeping area is slightly modified so that wooden beams can be placed across the sleeping area restraining the pigs either for treatment or as a farrowing area</p>
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Example of a similar building - although thatch roof is used in this example



Side view of the entire house. Note the 2 metre biosecurity zone around the building



The rear of the house



From inside the outside area

How does this fit into a three year plan for the community?

Year 1

Month 1

Build building for 10 finishing pigs – learn the ropes of pig production

Income from composting.

Months 2 to 6

Build four more 10 finishing pig buildings – this provides 5 buildings – each with one month supply of pigs. Thus income now coming in every month from pigs.

10x 150,000 shillings per month – net 15,000,000 shillings a year.

Year 2

Build 4 more community finishing units

Income now 10x 150,000 shillings per week – net 65,000,000 shillings a year

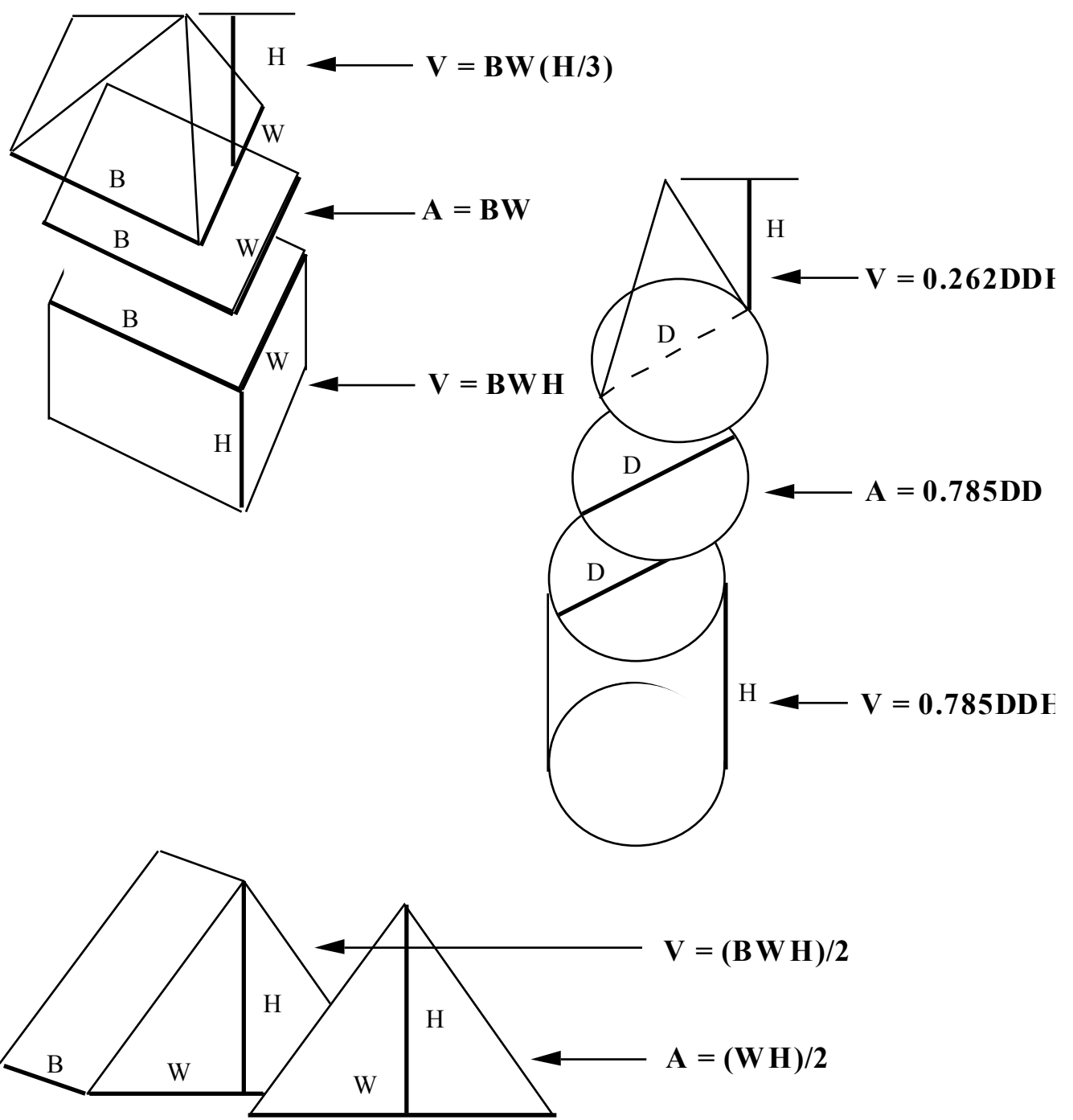
Year 3

Build a 5 sows a week breeding unit- supplying 50 pigs a week to one of the community finishing units. Control the cost of producing the piglets – net 78,000,000 shillings a year

What if I decide I don't like pigs?

The buildings are designed to be able to accommodate other animals – chickens, turkeys or goats for example. They could be modified for other pigs also.



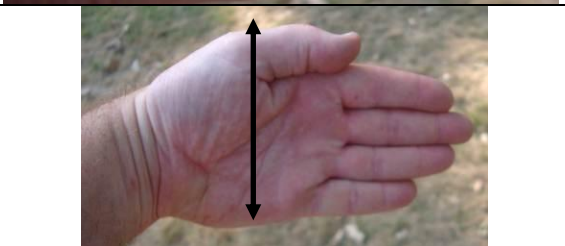
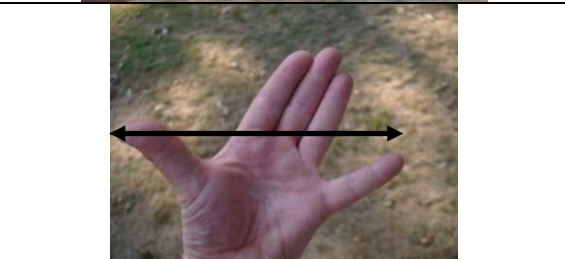


AREAS AND VOLUMES



BASIC MEASUREMENTS

When on the farm, it can be useful to make estimates about the size of objects. However, there are times when a tape measure is not easily available
 Within reason it is possible to make some assessment using your own body features

For example:

<p>2.5 cm (1") is approximately from the tip of your thumb to the knuckle</p>	
<p>5 cm (2") inches is approximately the length of the thumb</p>	
<p>10 cm (4") is the width of the hand - hence the term 'hand' in horse measure</p>	
<p>20 cm (8") inches is the spread of your hand</p>	
<p>30 cm (12") inches is the approximate length of a foot</p>	
<p>1 m (1 yard) is approximately the length of one stride</p>	

Get to know your own measurements and note the exact measurement. However, on a day to day basis using these simple measures will help you estimate depth of water, length of a feeder or the rough dimensions of a pen

Basic tools required to build and run the unit

Builder tools

The essential tools to building the building

	
Spade	Dibbler – iron bar
	
Machete/Panga	Saw
	
Measuring rope	Plumb line
	
Tape measure	Trowel



Hammer



Chalk



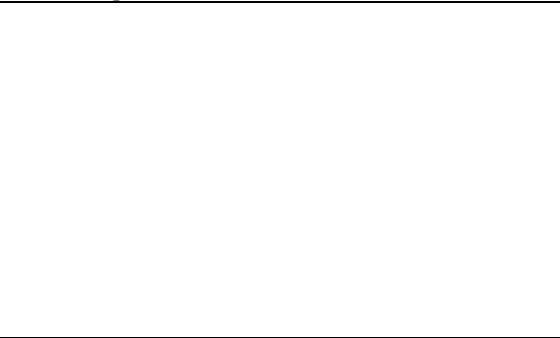
Small blackboard or other record



Burnt engine oil



Wheelbarrow – ready with useful equipment



Green Warrior's minimal equipment



Tape measure



Chalk, pen and paper



Animal marker



Soap to wash hand - biosecurity

Basic materials to build the structure

	
Stones	Bricks
	
Posts	Bamboo or sticks
	
Iron sheets	Gutter and downpipe
	
Water butt	Thatch
	
Nails	String
	
Concrete	Sand/aggregate

Equipment in daily use



Boiling pan



Buckets



Measure



Brush and pan





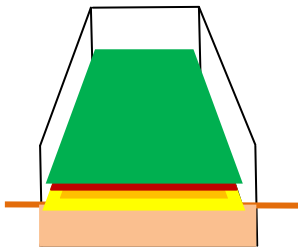
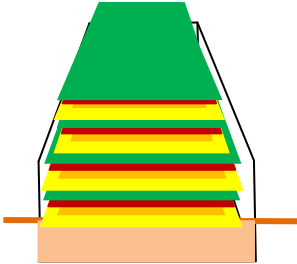
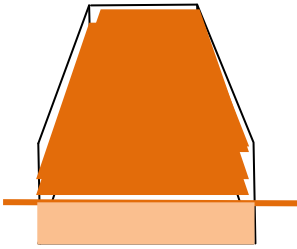
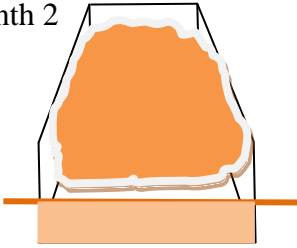
Boots



Basic medicinal supplies –
syringe and needles

Composting manure

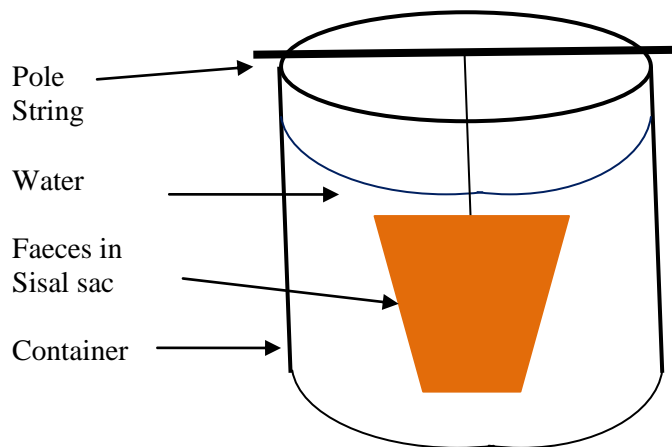
Forms	Solid	
	Liquid	
Solid		
Site selection	The area needs to be well drained Under shade Protect from wind, sun and running water	
Equipment	Four pits	
	1 x 2 metres and 15 cm deep. Can be built up to any height	
	Ensure that the bottom of the pit soil is loosened to ensure good contact between composting material and organisms	
Method	Run four pits	
Pit 1 Preparation	Vital to get the initial mixture right – working to a carbon/nitrogen ratio of 30:1	
	Ensure all plastic materials are removed from anything going into the compost heap	
	Move pit 1 contents to pit 2 (once system in progress)	
	Place the following layers onto the loosened soil	
	Hard plant materials – maize corn stalks	
	Green grass materials	
	Soil plus ash (to neutralize acid in faeces)	
	Dry grass waste – animal bedding	
	Animal manure and animal feed wastes	
	Green grass materials	
	Soil plus ash	
	Repeat the next day for one month.	
	After making each days compost cover heap with grass to stop drying	
Pit 2 Maturation	After one month move pit 2 contents to pit 3	
	Fill pit 2 with the contents of pit 1	
	Add water to the pit	
	Cover with grasses	
Pit 3 Aeration	After one month move pit 2 contents to pit 3	
	Each day turn pit 3 and add water each day.	
	Cover with grasses to stop compost drying out	
Pit 4 Storage	After one month move pit 3 contents to pit 4	
	Pit 4 is a storage pit. Prepare the solid compost for use or sale.	
Note	If you have large amounts of faeces the compost piles may have to work once a week rather than monthly.	

Initial layers Covering Soil Manure Water Dry grass Soil/ash Green Grass Covering Repeat		
	Pit 1 Prepare compost in layers – month 1	Pit 2 Allow compost to mature – month 2
		
	Pit 3 Aerate the compost each day – month 3	Pit 4 Store and prepare for sale/use

Liquid

Method

- Obtain a large water container – cleaned drum
- Liquid manure will be made with a ratio of 3:1 water to faeces
- Place manure into a sisal sac
- Tie the sac top with a rope
- Suspend the sisal sack in a container full of water
- Leave for 2 weeks
- Prepare liquid manure for use or sale



Uses

Solid

- For all crops. Ideally place before crops grown
- Very useful for Banana crops

Liquid




- Apply to fruit crops at the roots. Do not apply to the leaves
- Ideal for tomatoes, peppers etc
- Ideal for restricted environments ie pots or plastic bags

Security fencing



Making your farm secure is important. Not only to keep unwanted human visitors but also to reduce animal visitors and to stop your animals from straying, essential to maintain biosecurity.

The type of fencing may vary with species. Pigs for example will burrow under fencing if required and therefore the fence must go into the ground. Birds will obviously fly over a fence.

Basic Fencing - Natural products


		
Wicker fencing	Thorn fencing	Close hedge

To stop animals

	
<p>Electric fencing – here powered by solar power to protect bee hives. Electric fencing can be extremely useful in the farming of pigs</p>	<p>Fox and other small predators Note the above fence is not placed into the ground and will not stop pigs. To stop pigs place the fence 0.5m underground</p>

Stopping human

Humans are extremely difficult to stop. In general the fence will be extremely expensive.

	
Barb wire is not a real deterrent to people	Razor wire will reduce humans

Feed and water for growing pigs

The provision of food and water is an obvious essential for production animals.

In pig the average daily feed intake dry matter can be estimate to be 4% of the bodyweight of the pig. The pig's average daily water use can be estimated to be 10% of its bodyweight.

There are two main types of pigs feed – a dry feed – whose water content will be below 20% and a “wet” fed where water is added deliberately and/or the water content is high initially – for example vegetables or swill is being fed.

With these guides expected intake can be calculated per pig in the group.

Body weight	10	30	50	70	90	110	Kg live weight
Dry matter feed intake	0.4	1.2	2	2.8	3.6	4.4	kg per day
Daily water intake	1	3	5	7	9	11	Litres per day
Wet feed intake	1.2	3.6	6	8.4	10.8	13.2	Kg per day
Daily water intake	0.2	0.6	1	1.4	1.8	2.2	Litres per day

How often should the pigs be fed?

Dry feed

With dry feed after weaning the food is placed in a feeder and food is made available all day.

Thus the entire day's feed for the whole group of pigs is added to the feeder once daily.

Wet fed

With wet fed, the feed is offered to the pigs around 5 times a day. All the pigs eat at the same time. Therefore, the trough length needs to be long enough for all the pigs (at the end of finishing) to be able to eat at the same time.

The pigs will rapidly become accustomed to this type of feeding regime. One additional “feed” time should be provided which is just plain water. Keep a record of each feeding time – as shown below:

How long a feeder is required?

Body weight	10	30	50	70	90	110	Kg live weight
Ad lib feed pig -dry	3.3	4.0	5.0	6.5	7.0	7.5	cm
For 10 pigs	0.3	0.4	0.5	0.7	0.7	0.8	metres
Restricted feed pig - wet	13	17	21	25	28	30	cm
For 10 pigs	1.3	1.7	2.1	2.5	2.8	3.0	metres

At the end of the feeders have a slope so that the feeder is easier to clean.

Food preparation

If swill feed is used, it is essential to boil the food thoroughly for at least 30 minutes. This is to kill any viruses that might be present in the feed – potentially African and Classical Swine Fever virus – both which can result in extremely high mortality in pigs. Feed should be used within 48 hours of collection.



Swill being boiled for a minimum of 30 minutes



Feeding records for wet feeding – 5 times a day and one additional water only feed

Northern Uganda Feed Ingredients

Food	Positive characteristics	Negative characteristics	Weaner	Grow finish	Adult
Cassava - Meal	Good energy source	Very low minerals Very low protein – 1% Cyanide in tubers need processing – roasting and drying	No	40% of ration	40% of ration
Cassava - leaves	Good protein – 21% Rich in lysine Good minerals	Low sulphur aminoacids Cyanogenic compounds Sun drying – wilting, chopping removes 90% of these compounds High fiber	No	10%	40%
Sweet Potato – meal	Energy high	Protein low Low in sulphur aminoacids Lysine low Trypsin inhibitor – heat treat	5% of grain	50% of grain	50% of grain
Sweet Potato – leaves	Good minerals Good protein – 20% Silage good for sows			40% grain	40% grain
Maize bran	Low in protein	High in fibre			
Rice bran	Low in protein	High in fibre			
Ground nuts	Good fat 2x soya Good energy Good protein Good lac sow	Low in methionine, lysine and tryptophan Tannins Roasting and grinding help	5% roast	10%	10%
Beans	High protein 20% Good lysine	Low B vitamins Trypsin inhibitors Tannins Haemagglutinins Steaming helps – 75 minutes		50% of soya	50% of soya
Mukene – little dried fish	High in protein	Watch salt levels	15%		
Blood meal	Rich in leucine Rich in lysine	Minerals low Low in isoleucine	2%	5%	5%
Brewers waste		May contain high salt			
Greens – Dodo, boo, Cabbage, napier, lablab, mucina, callandra, lukoko	High in fibre High in water content				

Bones, hooves, horns					
Millet					
Sorghum					
Sunflower – meal	Good protein Good energy	Poor lysine Supplement sulphur and tryptophan	100% soya	2/3 soya	100% soya
Sunflower – leaves	High in energy Medium protein	High fiber 17%	15%	10%	25%
Banana (not many in Northern Uganda)	Rich potassium Good B6 Ascorbic acid 30% protein Better ripe Per day: Growing pigs will eat 5-6kg Finishers 9kg Sows in lactation 20kg	Protein low (peeling helps but not time element) Poor minerals Green should be chopped or crushed	50%	50%	50%
Banana silage	Made in 4 days and lasts 6 months		50% diet	50% grain	50% grain

GUIDE TO THE BASIC MAKEUP REQUIREMENTS OF PIG DIETS

Diet	Body weight	Energy DE	Crude protein	Total lysine	Dig lysine	Crude Fibre	NDF	Ash	Vit A	Vit D3	Vit E
Units	kg	MJ/Kg	%	%		%					mg/kg
1 st Creep	7-12	16	22	1.8	1.6	1	3	7.5	10,000	2,000	250
2 nd Creep	12-18	16	22	1.8	1.6	1.5	4	6.0	10,000	2,000	250
Weaner	18-30	15.5	21	1.5	1.3	2.0	6	5.5	10,000	2,000	150
Grower	30-65	14.5	19	1.5	1.3	3.0	10	5.	10,000	2,000	65
Finisher	65-110	14	19	1.25	1.1	4.0	13	5	7,500	1,500	40
Gilt rearer	60-130	13.6	14	0.85	0.7	5	15	7	10,000	2,000	100
Gestating sow		12.5	16	0.7	0.52	6.5	24	7	10,000	2,000	60
Lactating sow		14	18	1.0	0.85	4.5	16	6.5	10,000	2,000	100
Boar		12.5	16	0.7	0.52	6.5	24	7	10,000	2,000	60



Swill - collection and distribution

Swill is made from kitchen byproducts – this can be from the home or from restaurants. Hospital waste should be avoided due to the possible contamination by human diseases and pathogens.

All feed from kitchens can be collected – this can include alcohol products. Include all vegetable peelings, egg shells and bones. Ideally food not containing pig meat is preferred but this option is not always available. Therefore, it is best to assume that all kitchen feed contains pork products. It is then essential – absolutely essential-- that the kitchen wastes are thoroughly boiled for at least 30 minutes before it can be fed to the pigs.

The kitchen wastes should be as fresh as possible. Ideally do not use food over 48 hours old. Boiling also helps to preserve the kitchen wastes. Rodents and other vermin will also eat this kitchen waste and the storage of the prepared products needs to be clean and secure.

Any feed not eaten by the pigs must be cleaned up thoroughly and disposed. Ideally any feed not eaten should be included in the composting pile.

Collection - 2 or 3 x a week		
		
Motor bike collection	Small trailer for a bike	Truck for larger amounts
Preparation		
		
Food	Collect waste feed	Remove all plastics, glass and metals
		
Collect	Boil for 30 minutes Add a small amount of water to help boiling	Store before use

Feeding



Ideally feed 5 times a day little and often. Have one additional “meal” as water only each day. Record eat feeding time



With swill feeding it is fed as a restricted feeding option, therefore all the pigs need to eat at the same time. This requires a long feed trough.

Feed trough size with age of pig

How long a feeder is required?

Body weight	10	30	50	70	90	110	Kg live weight
Restricted feed pig - wet	130	170	210	250	280	300	Cm per pig
For 10 pigs (as an example)	1.3	1.7	2.1	2.5	2.8	3.0	metres



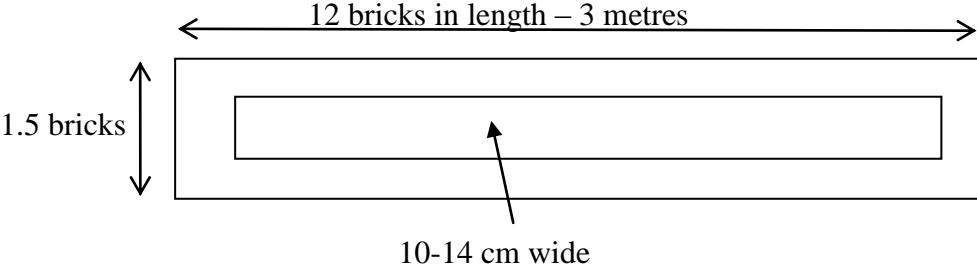


Commercial liquid/wet feeding with sufficient room - highly efficient



Watch the pigs eating. Ensure there is sufficient space for all to eat. Note any pig which is reluctant to eat (as shown) and then check to ensure the pig is healthy

Building a feeder

1	<p>Calculate: The number of pigs in the pen The type of feeding system – adlib or restricted Final weight of the pigs</p>
2	<p>Determine the length of feeder required. For examine for 10 pigs each @ 70kg on restricted feed- they require 3 metres</p>
3	<p>Place the feeder in the pen so that the pigs can be fed from outside the pen</p>
4	<p>Layout the position of the feeder on the ground</p>
5	<p>Ensure that the ground is level</p>
6	<p>Lay the bricks. For a 3 metre feeder 27 bricks will be required as shown</p>

	 <p>12 bricks in length – 3 metres</p> <p>1.5 bricks</p> <p>10-14 cm wide</p>
7	<p>Concrete the feeder</p> 
8	<p>Make a ramp at both ends to assist cleaning</p> 
	<p>Cross-section of the feeder showing ramp at each end – not to scale</p>
9	<p>For the unit system the pigs will walk over the feed when entering or leaving the pen</p>
10	<p>Ensure the feeder is managed to maximize hygiene and minimize feed wastage. This is essential both to minimize cost, but just as important to reduce the risk of encouraging rodents and other vermin – including other pigs to your unit.</p>

Variety of pig diet specs which might be of use in Uganda

How to use these tables:

Four different diets are presented –Creep for weaned pigs, Grower diets for growing and finishing pigs and sow diets. The fourth category is a general pig diet

In each category if the reader follows each column different options are given for ingredients in % of the diet – making a total of 100%.

These diets come from various sources and farmer’s opinions. They are presented in order to provide the reader with feeding options depending on what food stuffs are available in the locality. The diets are chosen to provide a range from a more “commercial” maize, soya, fat and mineral diets to a more local by-product range of diets.

	Creep diets - high in protein and lysine						Grower diets - moderate protein							Sow and weaner diets			General pig diet recommendations				
Bananas	0	0	0	0	0	0	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0
Barley	0	0	0	0	0	25	0	0	0	0	0	0	27	0	0	0	25	25	10	10	0
Blood meal	0	0	0	0	0	0	3	1	0	0	0	0	3	5	0	0	0	3	3	0	1
Bone Ash	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Brewers Residue	0	0	10	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
Cassava dry	0	0	10	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	21
Cassava leaves	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0
Cotton seed cake	14	16	5	14	20	0	0	0	17	18	6	17	0	0	21	23	4	4	4	5	0
Field beans	0	0	0	0	0	0	5	3	0	0	0	0	0	0	0	0	0	0	0	0	19
Fish meal	11	12	10	11	5	9	0	0	7	8	8	7	8	5	5	6	0	0	0	0	5
Ground nut cake	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0
Lucerne meal	0	0	0	0	0	0	0	0	0	0	0	0	7	11	0	0	0	0	0	0	0
Maize	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	25	0
Maize bran	71	27	40	70	68	9	0	0	70	27	48	70	10	15	68	26	17	20	0	0	0
Meat and Bone meal	0	0	3	0	0	0	0	0	0	0	4	0	3	5	0	0	12	6	6	12	3
Oat	0	0	0	0	0	13	0	0	0	0	0	0	22	37	0	0	0	0	0	0	0
Red Ant hill soil	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
Restaurant waste	0	0	0	0	0	0	7	11	0	0	0	0	0	0	0	0	0	0	0	0	0

	Creep diets - high in protein and lysine						Grower diets - moderate protein								Sow and weaner diets			General pig diet recommendations				
Rice bran polish	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Salt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Shells	4	4	0	4	5	0	0	0	5	5	0	4	0	0	5	6	0	0	0	0	0	
Soya fat	0	0	0	0	0	13	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	
Soya meal	0	0	20	0	0	16	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	
Sunflower meal	0	0	0	0	0	6	0	0	0	0	0	0	8	9	0	0	0	0	0	0	0	
Sunflower meal	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	0	0	0	0	0	7	
Sweet Potato leaves	0	0	0	0	0	0	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sweet potato meal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	
Vitamin premix	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Wheat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	20	30	0	
Wheat bran/pollard	0	41	0	0	0	9	0	0	0	41	0	0	10	15	0	39	0	0	20	18	0	
Wood Ash	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	

Dry feed mixing

Mixing the complete feed

When mixing feed, mix the smaller quantities first and then move to the larger quantities

Thus for example when making a diet for sows

Place feed in the centre of the floor

Mix first feeds with your hands
















Then mix with a small scoop



















Finally mix the larger ingredients using a shovel.
















Vitamin premix	0.25 kg
Add the salt and mix thoroughly	0.25 kg
Fish meal. add half the volume, mix. Add the second half and mix thoroughly	4 kg + 4 kg
Shells - As the fish meal mix in two halves	4.5 kg + 4.5 kg
Cotton seed cake As the fish meal mix in two halves	15kg + 15 kg
Maize bran - As the fish meal mix in two halves	50 kg + 50 kg




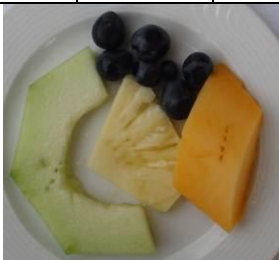





Once the feed has been mixed, place the completed feed into 25 kg bags.

Which of these feed stuffs can be fed to pigs?

								
Irish Potatoes			Sweet Potatoes			Bitter tomatoes		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Tomatoes			Irish Potato peelings			Banana Leaves		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Banana fruit			Cassava leaves			Sweet Potatoes leaves		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Cassava root			Animal Bones			Milk powder		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Eggs			Maize			Maize husks		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+

								
Home brew residue			Meckene - fish			Egg shells		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Soya			Beans			Cabbage		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Fish heads and remains			Ground Nuts			Sugar Cane and Molasses		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Silage - grass, banana			Salt (NaCl)			Shells		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Lemon/limes/oranges			Maize, Wheat or Rice bran			Meat and Blood meal		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Sorghum			Sunflower			Banana peelings		

NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Egg plant			Margarine/butter/cheese			Avocado		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Matooke			Beer			Cotton seed - the white seeds		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Milk liquid			Soap			Bottle tops		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Plastic pieces			Carrots			Papaya		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Restaurant food			Rice			Lupins		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+

								
Sycamore fig fruit			Maize cobs			Wheat, Barley, Oats		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Pineapple, melon, grape, mango			Insect larvae and grubs			Grass		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+
								
Acorns and nuts from trees			Apples			Bread/bakery waste/chapatti/injera		
NO	OK	OK +	NO	OK	OK+	NO	OK	OK+

This photomontage aims to illustrate the wide variety of items that can go into a pig's diet and a few items which cannot. Many items need further processing- but boiling for 30 minutes is a great general start. Consult your local advisor or Green Warrior if you are concerned about a particular food product or how to process the food to make it suitable for your pigs.

Obtaining the pigs

Which pig to take home?

It is human nature to feel sorry for the weak and defenseless.	
However, it is nature's way to remove the weak and defenseless from the genetic pool	
	Do not buy someone else's problem
	Do not buy a sick or sorry pig
	Avoid pigs with a listless manner which hang back into the group
Only examine the pig in a well-lit area. Walk the pig on an even coloured floor. Pigs do not like to cross lines, shades or wet areas.	
What to look for:	
	Pigs with exceptionally long and coarse hair coats
	Pigs with heads that appear too big for their bodies
	Pigs which are stunted, compared with their litter mates
	Look for bright clear open eyes – avoid small shrunken eyes
	Avoid pigs which are excessively dirty – housed too hot
	Avoid groups of pigs who are too huddled – housed too cold
What to listen for:	
	Note any sniffing and sneezing in the pigs
	Avoid groups of pigs which present with discharges from the eyes and noses
	Avoid groups of pigs who are coughing, particularly when they first rise up
Touch the prospective pigs	
	Examine the head carefully – avoid any pigs with twisted, swollen or misshapen snouts
	Examine the jaw line in detail, looking for knots or swellings. Do not think you can easily lance an abscess. This will only result in a scar and may release the causal agents onto your farm
	Examine the skin, looking for lice, a greasy feel and lots of wax in the ears – while treatable this is probably a sign of mange.
	Examine the legs – watch the pig in motion – which should be 'free'
	Note if the pig is housed in deep bedding, move the animal to a solid concrete floor and if necessary hose off the feet so they can be easily examined.
	Don't take a pig with a stiff gait
	Avoid front legs which are too straight
	Avoid hind legs which are too tucked under the body
	Avoid knocked knees
	Avoid front legs which are too close together
	Run your hands down over all four legs looking for swellings in the joints, muscles and feet – which may indicate injury or arthritis
	Examine the feet – do not select pigs with toes of uneven size.
	Examine the feet for lines, cracks, under run heels or bruised soles
	Length of the pig – note 3 nipples in front of the prepuce in males and note position and number of the teats
	Ensure the gilt has an anus
	If the boar is intended for breeding examine the testes, size, shape and consistency.
	Any defect you note in a weaner or young grower is not going to be missed by the butcher 20 weeks later.

Take a breath

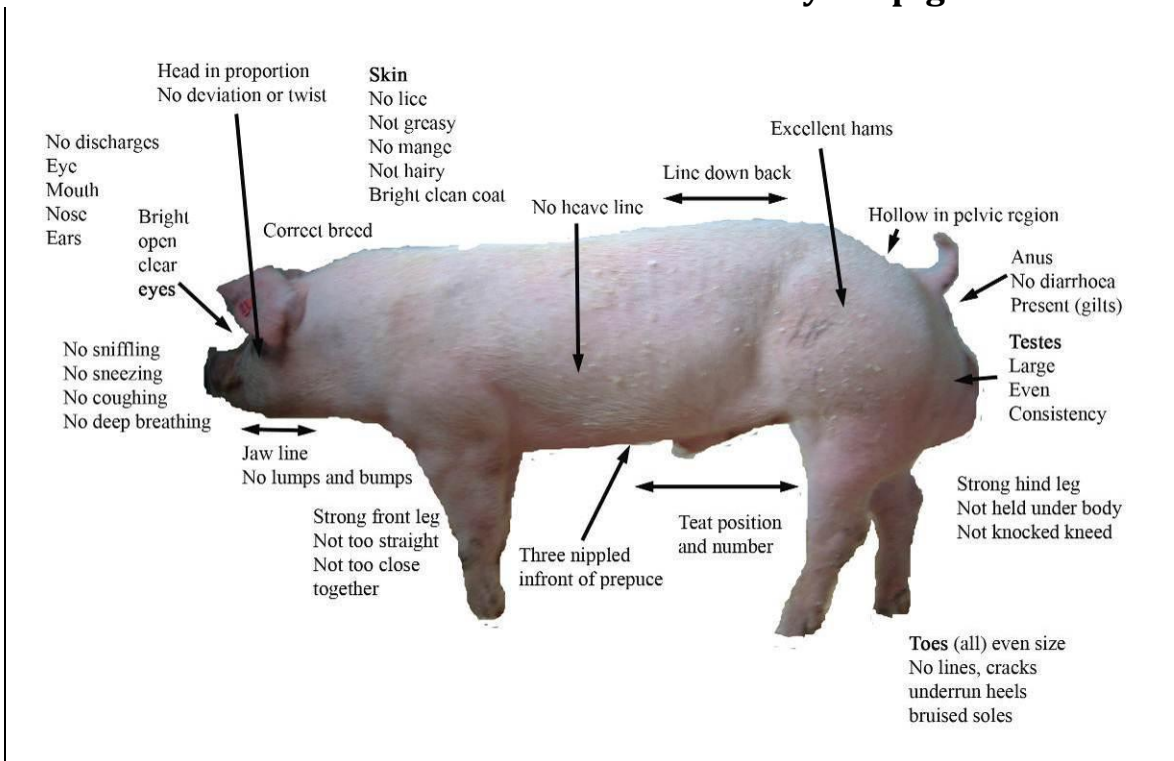
Stand back and consider your prospective pig

- Leg at each corner
- Good loin development
- Ideally a line dipping along the back – indicating lean
- Ideally a hollow in front of the tail and shape of the ham
- Good growth for its age
- Does it look like its breed, note its colour distribution and markings
- Hair coat bright and clean

Additional questions to ask:

- Date of birth?
- Diarrhoea as a piglet?
- Vaccine programme? – mother and piglets
- In-feed and water medication programme
- What is it currently being fed on? Can you have 5kg to help settle the pig at its new home?
- Movement form available?
- Required blood tests have been completed?

Check list for the visual examination of your pig



Settling your Pig into its New Home

Biosecurity	
	Always review the biosecurity arrangements for the pig – particularly if there are already pigs in the household – isolation and acclimatisation will be required.
	Treat the pig for mange (<i>Sarcoptes scabiei</i>). Unless told otherwise, it is always wise to assume the pig is positive. Two injections of ivermectin 7-14 days apart should eliminate this and other parasites. (except tapeworms)
Preparing the pen	
	The pig will want to sleep in a dry draught free area. Allow the pig to select this area. Place a loosely broken bale of straw and allow the pig to make its own nest. Even newly weaned pigs will make their own nest.
	In the area designated as the toilet area, make the area damp with some damp straw.
	Observe the pig over the first few days to ensure it agrees with you regarding the layout of the pen. Healthy pigs are determined by minimizing stress.
	Ideally the source farm should supply 5kg of food to reduce the risk of digestive upset.
	Ensure the water supply is clean and accessible.
	In the hot months, with pigs over 30 kg, the provision of a wallow or other cooling aid will be necessary.
First day	
	Plenty of dry straw
	Provide water as soon as the pig settles in the pen
	Provide food at the end of the day – make sure the pig knows the position of the feeder. The addition of milk to the feed (2:1) may help encourage appetite. If the pig is over 30 kg the addition of a 0.5 litre of beer/ale to the food will assist the pig to sleep.
	Remove the feeding bowl
	Turn all the lights out 1 hour after feeding.
	Allow the pig to get a good night's sleep.
Get to know the pig	
	Give him or her a name and use it.
	Gentle handling will equate to tender pork
	Get to know his (her) eating and other behaviours.

Make the pig your friend

As a stockperson you can still enjoy pork and the company of pigs

What is not suitable?

	
<p>Dirty poorly prepared accommodation The floor is dirty and broken</p>	<p>Damp bedding full of mould which was intended for sleeping</p>
	
<p>Unclean polluted water supplies – with water from the cleaning programme</p>	<p>Contaminated (rodent droppings) old feed – from the last pigs who left 3 weeks ago!!</p>
	
<p>Draughty accommodation</p>	<p>Use of old needles and syringes</p>
	
<p>Neglect – the pig cannot be saved – the kindest treatment is euthanasia.</p>	<p>Abuse (staged photo). If the pig will not do what it asked – it's our fault not the pig's. They have the right to be difficult</p>

Introduction and medication for your pigs

Bringing new pigs to the farm is always a worry. If there are no other pigs on the property then this worry is less. But if there are other pigs already there it is always best to keep the new pigs separate for the first 2 weeks at least. This obviously causes problems, especially when the pigs are very young, with housing.

Separation for 2 weeks – why

Two main reasons:

1. It allows for the new pigs to develop any clinical signs of ill health before meeting your other stock. They can then be treated for the disease
2. It allows the new pigs to become accustomed to you and the property before meeting your other stock.

Where should this isolation building be placed?

The building should be placed around a minimum 50 metres away from the main buildings. The further the better – but within the same ownership.

Requirements

All new stock should be healthy on arrival. You should not buy any pigs which look sick – see selecting pigs. Separate boots and ideally covers for your clothing should be worn in the isolation area



Ideally these boots and overalls should be a different colour to normal.

Suggested injections on arrival

Two injections of ivermectin 0.3mg/kg on arrival and 7 days later
This is to remove the risk of Mange (*Sarcoptes scabiei* var *suis* and other internal parasites (not tapeworms). (Details on Mange - <http://www.portec.com.au/thepig/disorders/skin/mange/mange06.htm>)

Consult with your local veterinarian regarding any specific pathogens that might be present in the area and take necessary precautions.

Hand Washing Instructions Before and After handling the Pigs



- **Ensure your finger nails are short**
- **Turn on the tap and allow the flow of warm water**
- **Rub your hands vigorously together for at least 15 to 20 seconds under the water**
- **Apply soap**
- **Scrub all surfaces, including the backs of your hands, wrists, between your fingers and under your fingernails**
- **Rinse well**
- **Dry your hands with a disposable towel**
- **Use a towel to turn off the tap**







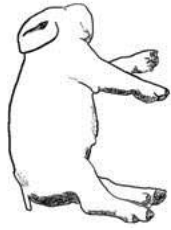




Why is it vital to wash your hands?

To reduce the risk of spread of pathogens between farms

To protect yourself from zoonotic pathogens

In pigs this is primarily to reduce infection from *Streptococcus suis* and *Erysipelothrix rhusiopathiae*

Lying pattern as an indicator of comfort

Too cold		
 	<p>Lie on the floor with their legs tucked under their body to reduce floor contact. Lie huddles with other pigs. Lie close to a wall Pigs may shiver, The pigs may become hairy With larger pigs they seen unable to adopt this tucked position for very long and tend to lie semi-recumbent with their legs tucked into their body.,</p>	
 <p>Chilled piglets</p>	 <p>Chilled weaners</p>	 <p>Chilled finishing pigs</p>
Comfortable		
<p>Within a group of pigs there will be a selection of lying patterns. The main group of pigs will sleep together in a pile, however, other pigs will be lying spread out but with maximum contact with the floor. These separated pigs will be the more dominant pigs. The lower order pigs will lie on the edge of the main group. Pigs sleep with legs stretched out from the body.</p>		
 		
Too hot		
	<p>Pigs will be panting > 40 per minute Pigs are generally dirty. Lie away from other pigs, sometimes against a cold wall. They do not pile Lie in any wet/cooler area Pigs will dig into earth/bedded floors.</p>	
		

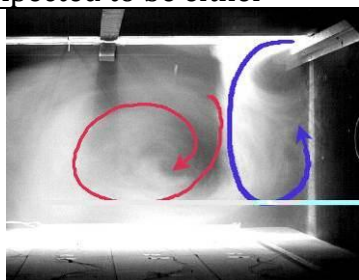
Defecation behaviour

Pigs are inherently clean animals and avoid lying in faeces. From a few days of age pigs will become toilet trained to defecation in a specific area of the environment.

The defecation pattern of the pen provides a good long term indicator of comfort. The veterinarian can see the area even without the pig's presence. Abnormal defecation patterns indicate a chronic reduction in optimal environment.

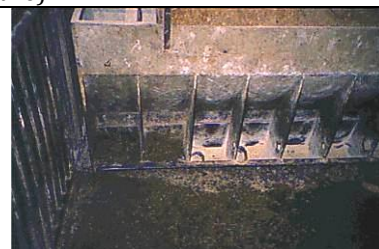


Pig's defecation area can be expected to be either



Where the pen is coolest

Where the pen has a draught – the pigs will defecate under the cold dropping air (blue in the picture)



Where the pen is wettest – note the faeces under the drinker

Where the pen is darkest

Where the pen is most private – this can lead to a blocked feeder

Hot pigs will specifically choose to wallow in faeces and slurry to assist cooling. Sometimes, this is unavoidable, but its occurrence should be minimised. Once pigs become 'dirty' they can be extremely difficult to restrain – even when provided with 'ideal' environments.

Note the pigs in the picture are lying by the drinkers – another abnormal position






Abnormal defecation patterns can also limit other pen resources creating additional stressors – for example when pigs defecate into feeders, waters or over lying areas.

Pigs at Play

Any stockperson watching a group of pigs will soon be amused to observe their play activities. Play prepares them for situations and teaches survival skills.

Pigs are extremely intelligent animals with a degree of complex behaviours that match and may even surpass a domestic dog. Unlike cattle and sheep, pigs exhibit greater inquisitiveness and individualist behaviour patterns. This can be practically demonstrated when moving a group of pigs. In many ways pigs are more like people than they would wish to admit.

Providing an environment where pigs can explore their play behaviour can help relieve stress and allow the pig to cope better if their environment is temporarily adverse.

Company	
	<p>Pigs will gain comfort and support from other pigs and other animals. Pigs should not be kept in isolation. There may be obvious exceptions when the pig is under treatment for meningitis or a severe lameness. However, once the pig is over the critical stage of the condition it should be housed with other pigs of a similar weight and age.</p>
	
Environmental enrichment	
Adult pigs	
	<p>Adult pigs have a generally lower requirement to play with items placed in their pen. However, playing music to adult sows can have a calming effect and has been used to reduce savaging of piglets by gilts.</p>
	
	<p>Farrowing sows can be provided with chopped paper, straw and hay to allow them to act out their nesting behavioural requirements. Adult sows can be provided with some chopped straw even while being housed in stall accommodation. Note that the bedding materials can cause disturbance to the slurry system which if blocked would lead to other significant problems.</p> <p>Picture shows shredded paper</p>
	

Wean to finish pigs

All wean to finish pigs should be provided with toys within the pen. The simplest toys are often the most effective. Pigs love to play with chains, rattles, large plastic bottles, rubber belting, old boots and feedbags. Large balls became popular in the 1990's and while these can be useful pigs can also become bored with them. In addition they can be placed in feeders and block feed access.



Balls



Chains



Purpose built

Car tires should be avoided as they have metal supports which can be swallowed by the pigs resulting in intestinal rupture.



Pen layout/shape

Pen layout can encourage play behaviour. However, note that in pens which are long and narrow this can result in a running game with large numbers of pigs running at high speeds. As the pigs attempt to turn at the end of the pens individuals may slip and become injured – including long bone fractures. When designing the pen ensure that this running behaviour is catered for by providing chicanes which will slow the pigs down.



Daily job list

1	Say hello to the pigs	
2	Observe their behaviour	
3	Enter pen	
4	Clean up all faeces – place outside the pen	
5	Clean up any spilt feed – place outside the pen	
6	It may be necessary to wash down urine areas if urine pools evident	
7	Feed the pigs	
8	Watch pigs behaviour when eating	
9	Watch pig's defecation and urination behaviour	
10	Ensure the pig's bed has plenty of bedding. Replace any bedding moved by the pigs.	
11	Fill water only bowl	
12	Mark chalk board for first feed.	
13	Move faeces and waste food to the compost pile. Turn compost pile 3	
14	Prepare feed for the day	
15	Ensure all utensils are thoroughly cleaned	
16	Check the outside run – including the wallow	
17	Repeat from point 7 5 times during the day	
18	At around midday provide a water only “feed”	
19	At the end of the day provide last feed	
20	Look at the behaviour of the pigs	
21	Say good night to the pigs	

Daily Checks – the basics

		
Say hello	Observe behaviour	Clean up faeces
		
Clean up any spilt food	Prepare the food and feed the pigs	Watch pigs eating
		
Watch pigs defecate and urinate	Check bedding	Mark up work board
		
Place faeces and food in compost check compost pile	Clean all utensils	Check outside run – and repair as required

Weekly job list

Friday

1	Do normal daily tasks	
2	After the feed has been prepared ensure all the utensils are cleaned	
3	Ensure there is no split feed to clear up	
4	Move compost piles to next week	
5	Clear up any rubbish around buildings	
6	Ensure that there will be sufficient water for next week	
7	Check the roof	
8	Check the walls and buildings from any issues	
9	Repair any issues where possible	
10	Check the outside area and clean if necessary	
11	Check the week completed section on the chalk board	

Stockmanship – the basics

Take time to scratch their ears









	There is nothing more important that a stockperson can do than simply go out and look and listen to the pigs
	Early in the morning and late in the day (around sunrise and sunset) are excellent times to take a really hard look at the animals under your care
	Seeing the pigs well fed and content at the end of the day can take the edge of all the aches and pains of the day
	Remember – there is not one pig producer who is caught up with all the chores, there is always something else to do. But do not let the job get in the way of caring for the pigs themselves
	The pigs are your hopes and dreams of the future

Stockmanship – the basic signs of ill-health

Animal Behaviour	Stage of the disease	Action required
Does not get up quickly	Early	Caution
Stomach not full	Early	Look further
Agitated	Early	Look further
Rapid breathing	Fairly early	Look further
Looks gaunt	Fairly early	Intervene
Does not come to eat	Fairly early	Intervene
Remains at back of group	Fairly early	Intervene
Arched back	Fairly early	Intervene
Hair stands on end	Fairly early	Intervene
Pale, long hair	Fairly late	Intervene
Straggler	Late	Intervene
Losing weight	Very late	Improve process
Slow growth	Very late	Improve process
Small in the group	Very late	Improve process

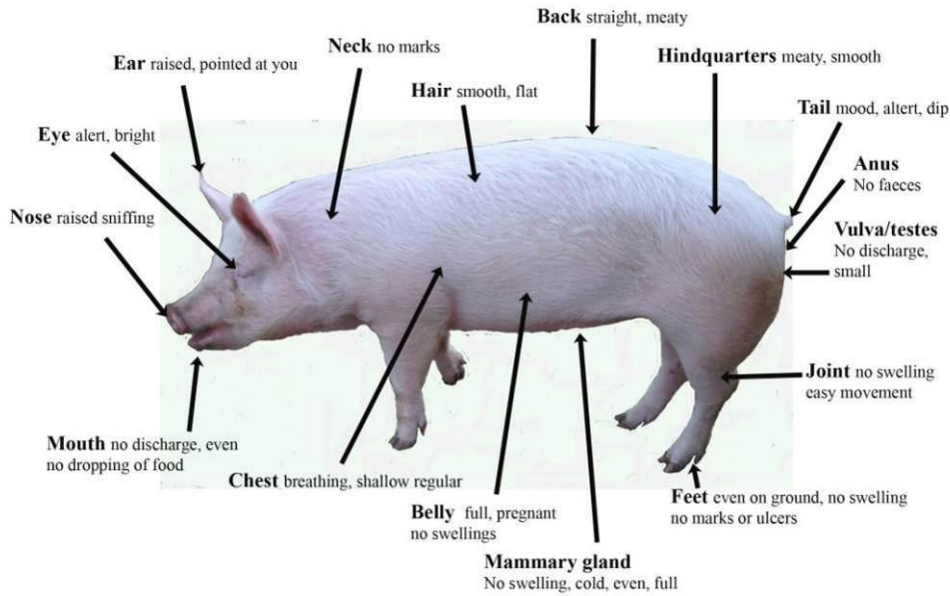
Medicines and treatment of pigs – Basics

<p>Consult with your veterinarian regarding what medications to administer to the pigs Note needles are very sharp and care needs to be taken so that medicines and needles are not used or stored casually so any person may become hurt</p>	 <p>Keep medicines out of the reach of children</p>
<p>Where do you inject pigs? In the neck as this area is the cheapest joint</p>	 <p>Inject in neck</p>
<p>Never use dirty needles and syringes. Never use needles which are blunt</p>	 <p>Dirty syringe and needle do not use</p>
<p>After treating any sick pig, ensure the needle and syringe is cleaned and boiled before re-use. Never use a used needle on healthy pigs</p>	 <p>A sick pig boil the equipment afterwards</p>
<p>If necessary place sick pigs in isolation These simple wicker baskets come in a variety of sizes</p>	
<p>Dispose of needles, syringes and bottles safely for example in inside a plastic bottle. Ideally return them to your veterinarian for safe disposal</p>	 <p>Unsafe medicine and needle disposal</p>

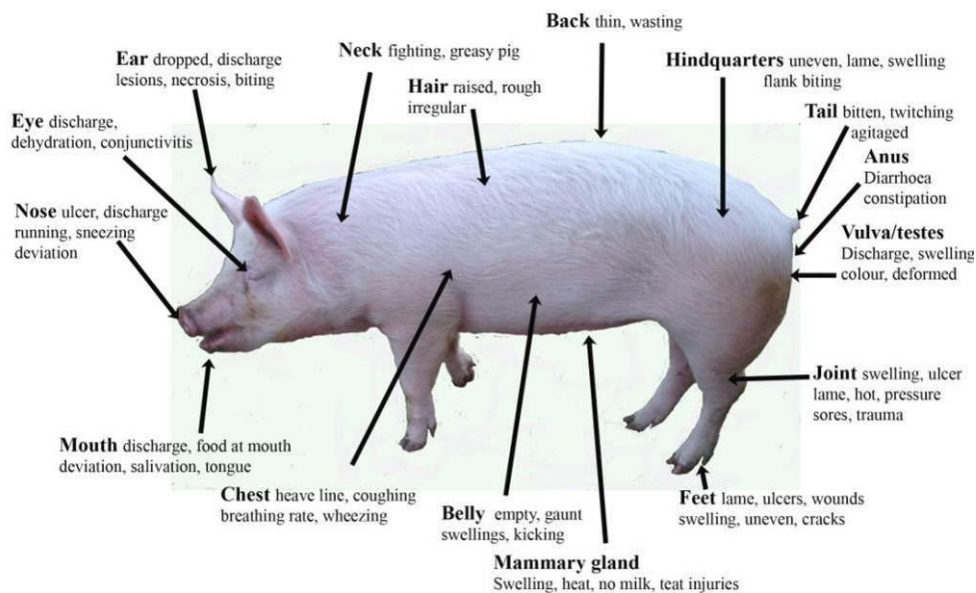
Stockpeople basics

Normal and Abnormal Clinical Signs

Normal expected signs

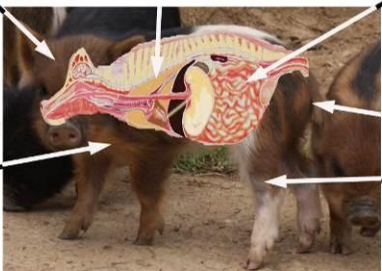


Signs which should raise concern



Major Disorders of the Pig by Age/Group

Piglet



Clostridium difficile
Clostridium perfringens
 Coccidiosis
E. coli
 Epidemic diarrhoea
 Glasser's
 Rotovirus
 TGE

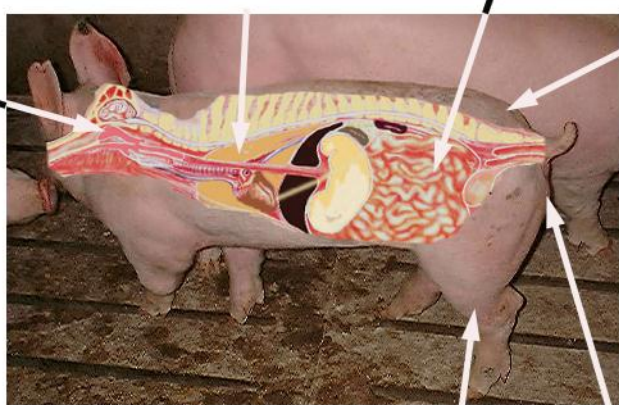
A. suis
 Glasser's
 PRRSV
 Swine Fever

Atrophic rhinitis
 Congenital tremor
 Glasser's
 Meningitis

Abrasions
 Abscess
 Dermatitis vegetans
 Epitheliogenesis imperfecta
 Facial necrosis
 Hernia
 Insect bites
 Sunburn
 Swine Pox
 Thrombocytopaenia
 Trauma

Zearalenone
 Bacterial arthritis
 Carpal abrasions
 Foot and Mouth
 Glasser's
 Joint ill
 Splayleg
 Streptococcal arthritis

Nursery - weaning to 30 kg



A. suis
 APP
 Glasser's
 Mulberry Heart
 Mycoplasma hyopneumonia
 Pasteurella
 PRRSV
 Swine Fever
 Swine Influenza

Coccidiosis
 Colitis
E. coli
 Gastric ulcer
 Ileitis
 Swine Dysentery
 TGE
 Trichuris

Aural haematoma
 Meningitis
 Middle ear
 Oedema disease
 Progressive atrophic rhinitis

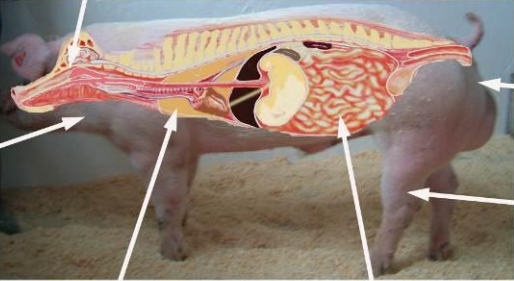
Abrasions
 Abscess
 Dermatitis vegetans
 Ear biting
 Erysipelas
 Greasy Pig Disease
 Hernia
 Mange
 Parakeratosis
 PNDS
 Swine Pox
 Trauma
 Vices

PMWS - lymphatics

Arthritis
 Carpal injuries
 Foot and Mouth
 Streptococcus arthritis

Zearalenone

Grow/finish - 30 to 110 kg



Atrophic rhinitis
Conjunctivitis
Glassers
Meningitis

Abscess
Eperythrozoonosis
Erysipelas
Flank biting
Hernia
Insect bites
Lice
Mange
Parakeratosis
PDNS
Ringworm
Swine Pox
Sunburn
Tail biting

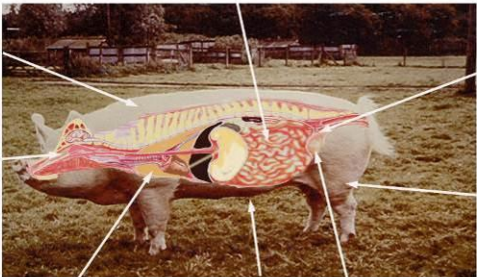
Zearalenone (Females)

Arthritis
Bursitis
Bushfoot
Foot and Mouth
Fractures
Glasser's
Kinky back
Mycoplasma arthritis
OCD
PSS
Sores
Spinal abscess

APP
Aujeszky's
Endocarditis
Glasser's
Mycoplasma pneumoniae
PRRSv
PMWS
Salmonellosis
Swine Fevers
Swine influenza

Ascaris
Clostridium
Colitis
Epidemic Diarrhoea
Gastric ulcer
Glasser's
PIA (ileitis)
Rectal stricture
Salmonella
Swine dysentery
TGE
Torsions

Gilt, Sow or boar



Abrasions
Abscess
Erysipelas
Fat sow
Flaky skin
Insect bites
Lice
Prolapse
Ringworm
Sarcoptic mange
Shoulder sores
Sunburn
Trauma
Vulva biting

Atrophic rhinitis
Glasser's Disease

Aujeszky's Disease
Enterovirus
Erysipelas
Leptospirosis
Parvovirus
PRRSv
Swine Influenza

Arthritis
Borrelia granuloma
Bursa
Epiphyseolysis
Erysipelas arthritis
Foot and Mouth
Mycoplasma arthritis
Overgrown feet
PSS

Ascaris
Clostridium novyi
Constipation
Epidemic diarrhoea
Gastric ulceration
Haemorrhagic bowel
Ileitis
Intestinal parasites
Spirochaetal colitis
Swine Dysentery
TGE
Torsion

Mycoplasma hyopneumoniae
Pleurisy
Swine Fevers

Agalactia
Mastitis
Udder oedema

Crystalluria
Cystitis
Pyelonephritis

Monitoring the pigs

Pig Weight Estimation

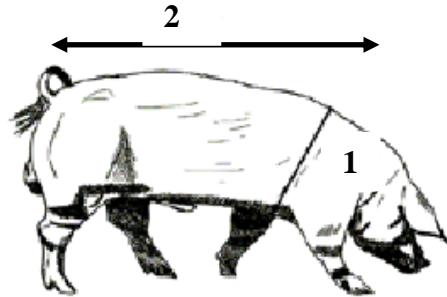
To estimate the weight of the pig in pounds:

1. Measure the heart/girth in inches
2. Multiply this measure by itself
3. Then multiply that times the length of your pig (ears to beginning of tail)

Divide by 400 and you will have the approximate weight of the pig

Summary imperial weight
 $= \frac{[(\text{girth})^2 \times \text{length}]}{400}$

This is accurate to within 3% of actual weight






Girth Only - metric

If we just do the girth measurement 1 in cm the weight will be calculated by:

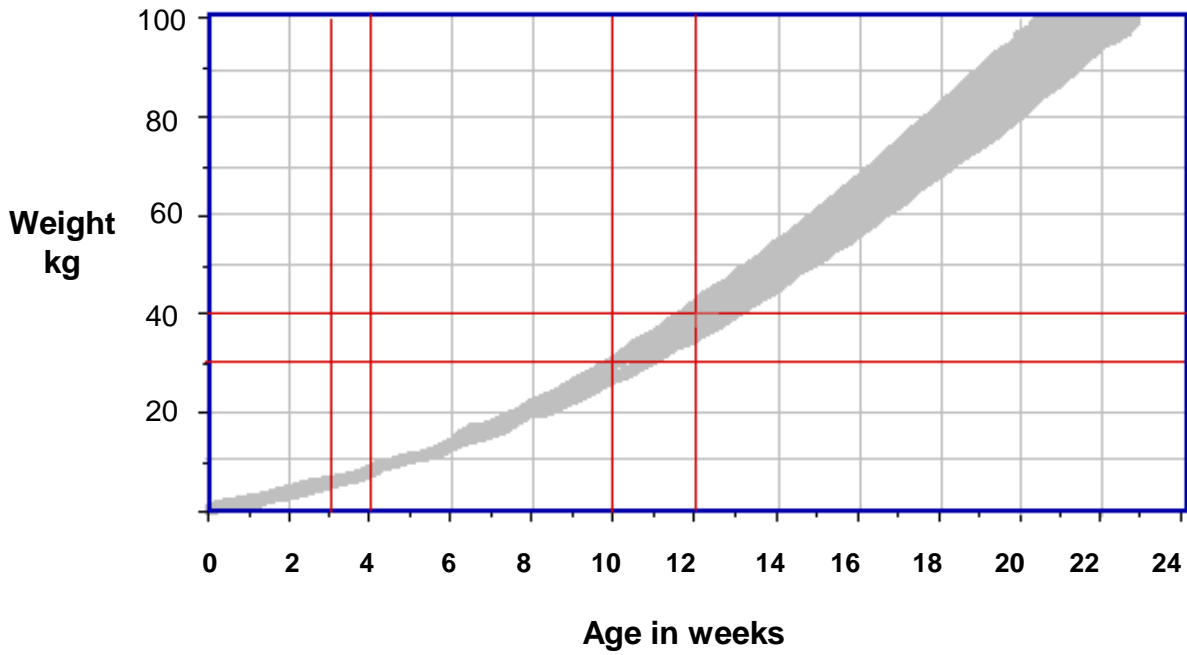
$$\text{Weight (kg)} = 4.07 \times (\text{girth}) - 333$$

To convert into metric: 1 pound = 453.59g 1 inch is 2.54 centimetres.

Monitoring the growth of the pigs





	
<p>Measure the girth of the pigs weekly or monthly</p>	<p>Plot on a convenient surface – note pig Maria was 3 weeks younger than Blessing</p>
	
<p>If any pig appears to slow down, examine the pig in detail. If necessary feed separately.</p>	

Growth Rate



Age of the pig		Daily Liveweight Gain g/day	Weight (kg)
Weeks	Days		
4	28	215	7.0
6	42	395	12.5
8	56	630	21.3
10	70	660	30.5
12	84	715	40.5
14	98	800	51.5
16	112	965	65.0
18	126	1000	80.0
20	140	1100	95.0
22	154	1100	110.0

Transportation of pigs

1	Follow the rules
2	Inform the authorities – get clearance In Uganda a livestock permit from the government veterinary department is required to transport livestock or livestock products
3	Use only a permitted vehicle- open vehicle ie a truck or pickup These provide maximum ventilation to the animals. It also allows for easy inspection
	  
	Truck Motor bike truck Avoid motorbikes
4	Transport pigs when the weather is not too hot Early morning or late evening is favourable time. Splashing water over the pigs helps in warm weather. But do not overdo it – do not get the floor of the vehicle wet so the pigs slip on the flooring. Have a non-slip floor, with good grip If preparing the pigs for slaughter do not allow them to get too hot
	
5	Do not over load
6	Pregnant sows should be carefully transported and should not be transported on the roads after day 80 of pregnancy
7	Carefully avoid pot holes. Bruising and cuts on the pig will reduce its value

Cleaning a building after the pigs leave

1	Pigs leave the building
2	Remove all faeces, left feed, bedding and other easily removed materials
3	Compost all of the removed materials
4	Wash water down over all the surfaces
5	Leave for 30 minutes
6	Examine the outside area
7	Remove all faecal materials from the outside area
8	If the outside area has been dug up, replace the soil as required.
9	It may be necessary to turn-over the soil surface
10	Repair the wallow area if required. Drain if possible and allow to dry
11	After allowing the floor area 30 minutes to soak
12	Brush the floor thoroughly with hot/warm water with soap added to the water
13	Clean thoroughly the floor, bedded area, feeders and waterers
14	Allow the floor to dry
15	Examine the building and repair where necessary
16	Make up lime-wash – 3:1 Calcium carbonate
17	Wash all the floor and wall surfaces to 1 metre high with lime wash
18	Allow the floor to dry
19	The new pigs are not to enter the building until the lime wash is totally dry – minimum 24 hours



Successful pig farming – batch after batch

Application of Lime Washing

1	Wear goggles and gloves
2	Obtain a large plastic bucket
3	Mix Burnt or Builders Lime (CaCO_3) with 6 litres of water into a pasty liquid. Mix one third lime with 2/3 water
4	Add lysol (a disinfectant) to the mixture
5	Brush onto the surface using a soft household brush
6	It is possible to dedicate a pressure washer to assist the painting of lime, use the washer as a spray gun
7	Leave to dry for 24 hours. If this time span is not available, do not lime wash any surface the pig is going to lie on as this will result in burns



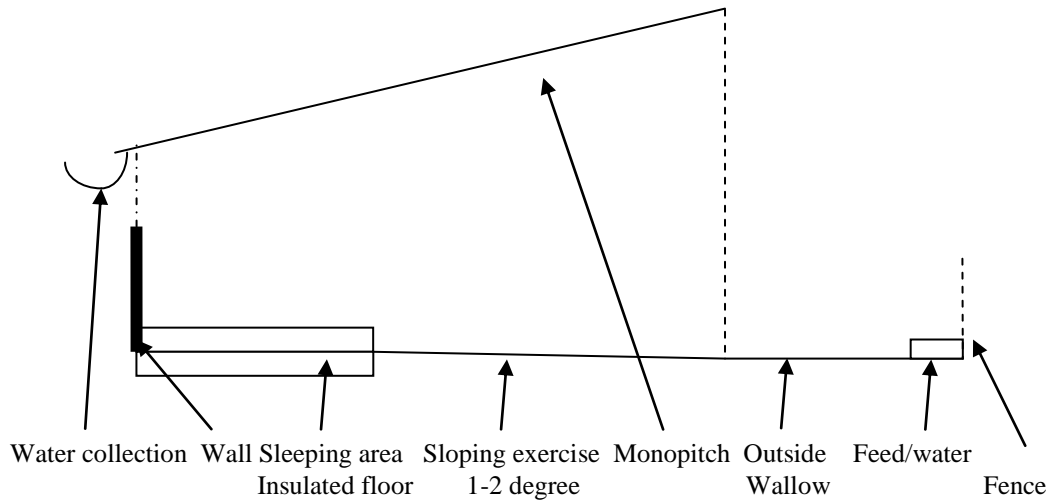
Limewashing to control scour in the farrowing house and a splayleg problem



Lime-wash used as the terminal disinfectant in a grower house

Building costs

Estimation of the building costs. The excel spreadsheet is embedded, double click to customize.



Building costs - small building

The yellow boxes can be customised

	Number required	Cost per unit	Total costs
Floor			
Stone/bricks	200	95	19000
Concrete bags	3.75	26000	97500
String	1	4000	4000
Walls			
Posts	8	1200	9600
Bamboo	8	2500	20000
Gates	1	0	0
Nails kg	3	4000	12000
Roof			
Wood supports	0	0	0
Thatch	10	1000	10000
Metal piece	2	28000	56000
Guttering 28g	1	20000	20000
Water container	1	6000	6000
Large water store	1	25000	25000
Outside run			
Posts	6	1200	7200
Bamboo	2	2500	5000
Feeder and drinkers			
Bricks	14	95	1330
Concrete	0.25	26000	6500
Utensils			
Boiling pot	1	12000	12000
Plastic containers	2	10000	20000
Plastic measures	1	5000	5000
Brushes	1	1000	1000
Boots	1	6000	6000
Soap	1	400	400
Lime wash	1	2000	2000
Total costs			345530 shs @ 2200
			157 \$ US

Other tools which will be required

Iron bar	1	5000
Hammer	1	20000
Saw	1	20000
Trowel	1	3000
Spade	1	4000
Wheel barrow	1	90,000
Plum line	1	5,000
Measuring tape	1	5,000
Total others		152000

Budget- wean to finish

Small holder budget costs

Wean to finish costs

Number of pigs **10** pigs

	Unit cost		Total costs
Cost of purchasing the pigs	30000 shs		300000 shs
Movement licence	2000 shs per pig		20000 shs
		Total	320000
 Running cost			
Based on a single pig			
Weeks on the farm	18 weeks		
Sale weight	80 kg		
 Water usage			
	4 litres per day	504 litres	
water costs	100 sh per 10 litres	5040 shs	50400 shs
Feed per day	400 sh	50400 shs	504000 shs
Labour costs	1000 sh per day per 10 pigs		126000 shs
Health costs	100 sh		1000 shs
Building cost returns	69,231 sh		69,231
		Total costs	1050631
		Total building cost	400000 shs
			Building paid off in 2 years
 Income			
Compost	10000 per week		180000 shs
Sale income	150000 shs per pig		1500000 shs
		Total income	1680000
 Profit			
		(Income - cost)	1360000 shs
		Equivalent	2000 shs/dollars
			\$ 680.00 dollars

Adopt a pig

These pig farms are intended to be a community effort. It is essential that the community takes ownership in the pigs and enjoy the profits of their venture.

One suggestion is that when 10 pigs are purchased, the pigs are “adopted” by individual homes or individuals.

It will then be expected that these people will then pay for the pigs initially and help with the care, management, feed and watering of their pigs.

When the pigs are slaughtered or sold for future breeding, the money is divided between the whole team. Note this should include any group whose pig unfortunately died during the growing phase.

Note sufficient money should be set aside to purchase 10 more pigs (or whatever the group size is) to perpetuate the project.

		
Planning the project as a community	All hands to help build and run the project	Enjoying the rewards

Notes

Index

- Adopt, 70
- All-in/all-out, 6
- Areas, 20
- Banana, 31
- Batch, 6
- Beans, 30
- Berkshire, 5
- Biosecurity, 46
- Blood meal, 30, 37
- Boards, 12
- Breeds, 5
- Brewers waste, 30
- Budget, 69
- Building, 48, 66
- Cassava, 30, 37
- Cleaning, 66
- Clinical, 60
- Community, 70
- Compost, 9, 10, 66
- Cost, 10
- Daily tasks, 29, 54, 64
- Defecation, 51
- Diets, 32, 37, 38
- Disorders, 61
- Duroc, 5
- Energy, 30, 32
- Equipment, 24, 25, 26, 59
- Feed, 29, 30, 34, 40, 54
- Fencing, 28
- Finishing, 9
- Gestation, 6, 7, 9
- Gilts, 9
- Ground nuts, 30
- Growth, 6, 64
- Hampshire, 5
- Handling, 11
- Home, 46
- Housing, 7, 48
- Inject, 59
- Introduction, 9, 48
- Landrace, 5
- Large Black, 5
- Large White, 5
- Life Cycle, 9
- Lime-washing, 67
- Lying, 50
- Lysine, 30, 31, 32, 37, 38
- Maize bran, 30, 37, 39
- Manure, 9, 10, 66
- Measurements, 21
- Meat, 9, 10, 37
- Medication, 45, 48, 59
- Millet, 31
- Mixing, 13, 39
- Moving, 11
- Mukene, 30
- Needles, 47, 59
- Obtaining pigs, 44
- Play, 52
- Plough, 9
- Production, 6
- Products, 10
- Protein, 30, 31, 32, 37, 38
- Rice bran, 30, 38
- Saddleback, 5
- Security, 28
- Signs, 60
- Sorghum, 31, 41
- Stockmanship, 57, 58
- Sunflower – meal, 31
- Sustainability, 14
- Sweet Potato, 30, 38
- Swill, 33
- Syringes, 47, 59
- Tamworth, 5
- Terms, 6
- Tools, 22
- Transportation, 65
- Trough, 29, 34
- Volumes, 20
- Water, 29, 33, 34, 45, 46, 47, 49, 54, 56, 65, 66, 67
- Weaners, 9
- Weaning, 9
- Weekly tasks, 56
- Weight, 63, 64
- Yorkshire, 5

