



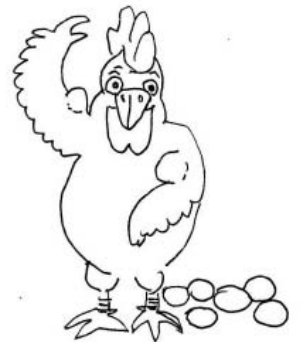
Training Handbook

Integrated Agriculture Training Program

Managing Village Chickens



Lukautim Ol Rekot Na Buk
Bilong Bisnis





**This training handbook was
written by:**

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1.0 Background

An estimated six billion village or scavenging chickens are found in almost all developing countries throughout the world. In PNG estimates of numbers vary from 1.5 to 2 million and in ENB there is no accurate figure. Village chickens are extremely important, despite their poor production, in providing, albeit in small amounts, valuable high-quality protein and food security. In surveys of village food resources, village chickens are frequently ignored.

They are mostly unmanaged, are sometimes given supplementary feed but have to find most of it by scavenging for insects, grubs, snails, seeds, fallen fruit and berries. As a consequence village chicken grow very slowly, lay few small eggs and mortality is high.

Their meat and eggs are prized and in some countries may fetch a higher price than those commercially produced. A village can support only a finite number of chickens based on the concept of 'the scavenging feed resource base', that is the amount of feed available to scavenge in a particular area. The amount and variety of feed will change with season.

Domesticated chickens were introduced unto PNG many years ago probably from SE Asia as they are small with long legs as found there. They are not often seen now and unlikely to be found in ENB. Village poultry were introduced mainly from Australia and are crosses of European breeds. They have developed various characteristics that allow them to survive under harsh conditions and to resist many diseases. Introductions of superior breeds into villages that lack some of these characteristics invariably results in failure.

To improve your poultry you must be observant and watch them carefully so that you can identify superior birds and their behaviour





Before we commence the course there are things that we need to do.

1. Your first task is to introduce yourself – tell us your name, what village you come from; a little about you family and background, why you are here and what you hope to get out of the course.

2. The trainer will now introduce himself.

3. When everyone has been introduced, you may wish to ask questions about the course or any other matter.



If throughout the course, there is anything that you do not understand, or words that you are uncertain of their meaning, please ask. Usually there are others who do not understand either!

1.1 What will you learn from the course?

At the end of the course you should understand the structure of the village poultry system and where small improvements can be made to increase productivity. We will deal with:

- Housing
- Breeding and incubation
- Rearing chicks
- Health
- Different production scenarios (situations)



1.2 Why poultry are very important for you and your family

Chicken meat and eggs contain essential nutrients that your body needs to grow and remain healthy. They are particularly rich in good proteins.



These:

- allow your children to grow and be strong,
- allow their brain to develop and be clever at school,



- allow the family to be healthy and resist disease, colds and coughs, and
- allow mothers to produce healthy babies and to nurse them well.
- Eggs and meat contain important vitamins and minerals sometimes unavailable in other foods.



It is therefore very important that when you have eggs and kill meat chickens, your family comes first.

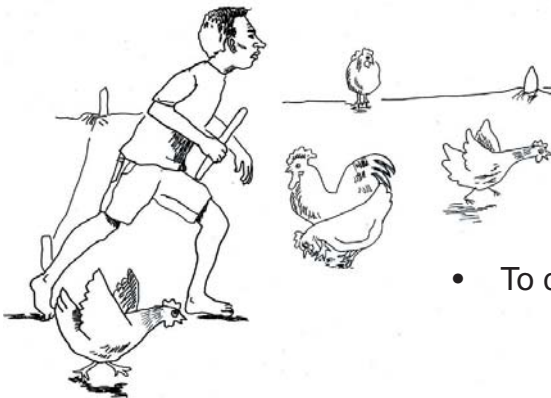




2.0 Housing

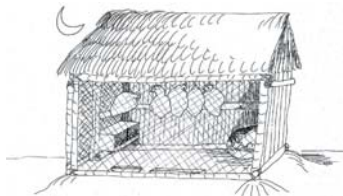
Village chickens need to be housed at night. Do not allow them to roost in trees. If they are indoors you have control over them. It is easier to:

- Observe them for disease.



- To catch them.

- Collect eggs from one place.



- Count them and inspect them for ailments.

- Give them supplementary feed just outside the house at dusk.





2.1 What kind of a house should I build?

You should plan carefully where you will build the house. It must be a strong house to protect poultry:



- From the weather.

- From predators.



- From thieves.

- It must allow plenty of light and air movement.
- If it is off the ground this will allow it to be cool and unlikely to flood.
- The roof should have good overhang.



2.2 Where should I build my poultry house?

- It should be built in a shady, dry area.
- On flat raised ground to keep the floor dry.

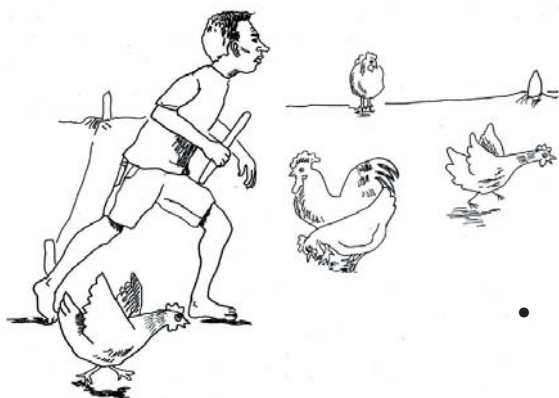
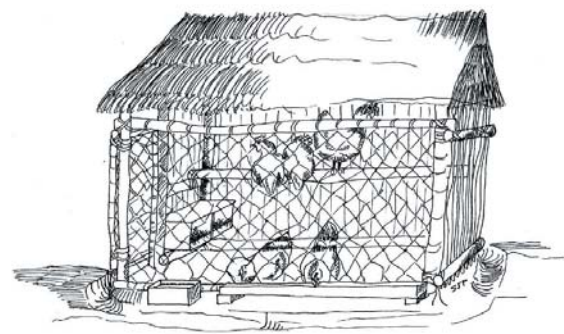


- Close to your own house to prevent stealing.

2.3 What size will my house be?

This will depend on the size of your flock.

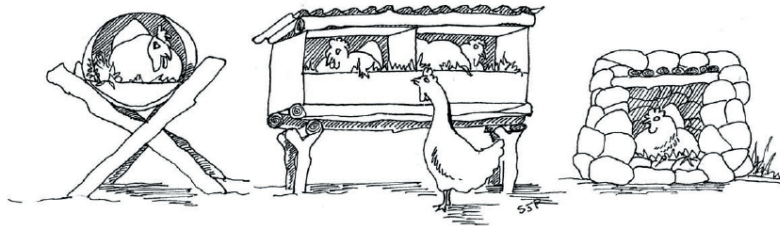
- A small house may be sufficient.



- For 10 to 15 adult birds it will be 2 large paces (metres) by 2 metres.
- It should be tall enough to allow you to enter comfortably (1.5 metres high).



- It is better to make it large so that you can expand your flock size.
- It should have space for nest boxes. These can be a basket woven from coconut or bamboo leaves, or made from stones or timber.



- Nest boxes should be off the floor.



- In a safe place.



- Put in dried grass and dry leaves as nesting material.
- Change the nesting material regularly.
- One nest box for 3-4 hens.



2.4 What materials should I use to build my house?

- Use as much local materials as possible.

- The floor can be bamboo strips 2 cm apart.



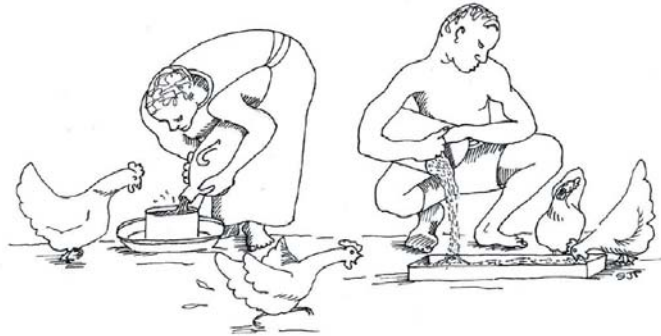
- The floor should be easy to keep clean.

- Put in wooden perches – about 4-5 birds/ metre and about 0.5 metres apart.
- You can collect the manure from under them and use it on your garden.

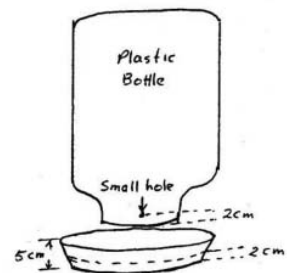
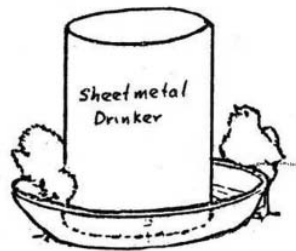


3.0 Equipment

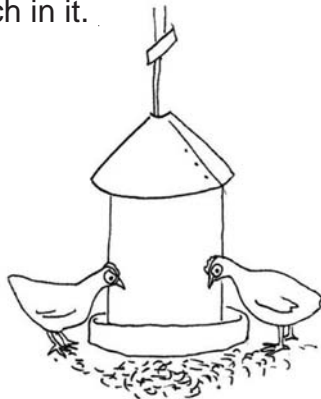
- There should be a simple drinker for holding clean, fresh water.



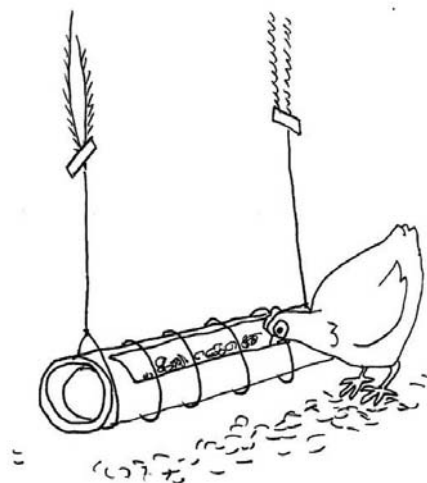
- It can be made from bamboo or an inverted can or bottle.



- The feeder should be at a height that will allow all chickens to eat but not to scratch in it.



It can also be made from local materials.



You must allow your chickens to adjust to their new home by keeping them in with feed and water for a few days then let them out for a few hours at a time so that after a week they will know that it is their home at night.

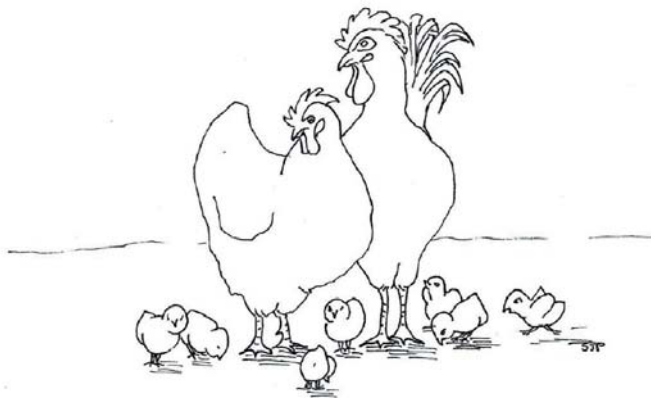


4.0 Breeding and Incubation

Village chickens normally breed indiscriminately (cocks do not select any one hen) and there is sometimes inbreeding. That is father mating with daughter or sister with brother. The offspring usually do not produce many eggs or grow well.

4.1 How can I improve my poultry?

- Watch what hens lay well.
- Observe those hens that sit and hatch most of their eggs.
- Are good mothers.
- Care well for their chicks.
- Keep those hens that produce strong, healthy chicks.
- Mate hens with the fast-growing big cockerels.



- Chicks that grow rapidly are usually the males and are best to eat.
- Swap cockerels with your neighbour now and again.
- This will reduce inbreeding (mating brother and sister) and produce better chicks that will grow fast and lay more eggs.





4.1 Should I have a breeding program?

If you want to have more eggs to eat and better chickens for meat you should have a simple breeding program. There is great wastage in the present system.

Hens usually lay a clutch of eggs and then sit on them—often as many as 15 eggs. Do not always allow this to happen.



- Do not let all broody hens incubate their eggs. Some are not good at this.
- Remove all eggs each day.

- When a good mother hen becomes broody put only 6-7 fresh (no more than 5 days old) eggs with sound shells and not misshapen under her.
- Have a special nest in an isolated part of the hen house for egg incubation.
- Give the broody hen feed and water close to her nest.





4.2 What will I do with my broody hen if she has no eggs to incubate?

You must get her back into production as quickly as possible by:

- Isolating her in a small cage with feed and water for 5 days.



- Dipping the hen in water 3-4 times a day for 3-4 days is the most effective way of stopping broodiness especially if the hen is isolated.
- This means that the hen will return to laying eggs in 10 days instead of being out of production for about 17 weeks if allowed to incubate and raise her chicks.

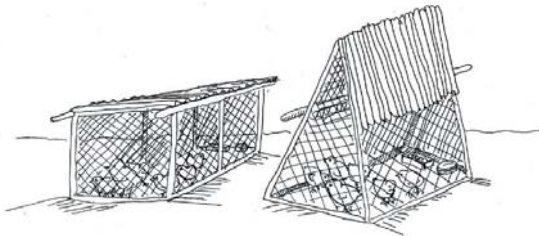


5.0 Rearing Chicks

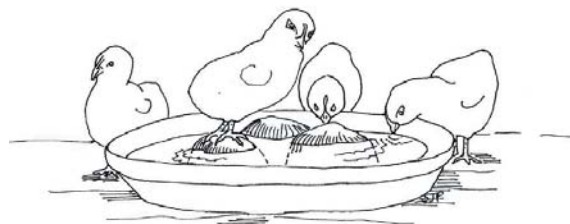
Raising chicks successfully is central to improving village poultry production. Mortality is normally 60-80% when a mother tries to raise her 12-15 chicks. One way is as suggested to allow the mother to incubate only 6 eggs. From this it will be possible to allow her to raise 4-5 chicks if steps are taken to protect the chicks and feed them well for the first 3-4 weeks.

The following steps should be taken.

- The mother and chicks should be isolated and given special feed during the day.



- Chicks should be given a drink of water immediately.
- Put stones in an open drinker to avoid chicks from drowning and clean often.



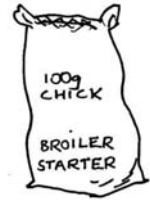
- Chicks can be given their feed in an area protected from their mother.



- An inverted bamboo basket or bamboo strips with a small entrance will allow only the chicks to enter.



- Feed can be a chopped boiled egg to start with. This will get them eating quickly.
- Chicks will eat such little feed at this age that it will not be expensive even if you buy chick starter feed from a feed company.



- Household table scraps, broken rice grains, crumbled bread should be given later.
- The mother will teach them how to scavenge for worms, insects, grains etc.
- They should be given feed scraps and other feed after 14 days, twice daily, until they are well grown (10-12 weeks).

- Dead chicks must be removed and buried quickly. They can spread disease.

5.2 Is there another system of raising my chickens?

Another way is if the hen is allowed to sit on 12 of her eggs (check them first for sound shells) and hatch say 10-11 chicks. These chicks should be immediately separated from the mother.

This requires good management skills, more work and extra feeding. But most of your chicks should survive although you will still lose 2-3. Remove and bury them.





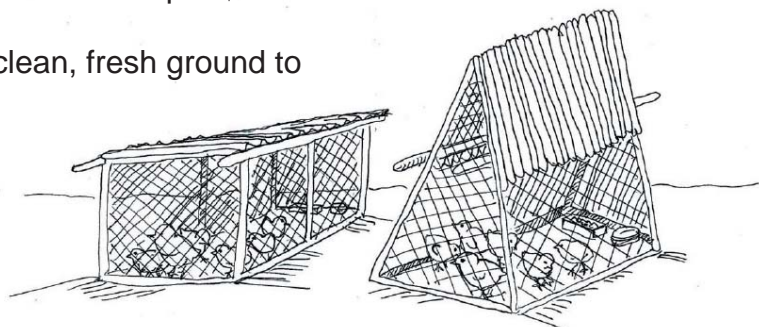
- The mother hen should be treated to stop her broodiness by dipping in water and isolating her in a cage for five days.
- The chicks should be placed in a brooder with extra heat, or in a box and taken indoors at night.

- A cold box brooder requires no heat but should be well insulated and of sufficient size for 10-12 chicks for about two weeks.
- The floor should have dried grass or other litter.
- Chicks should have clean, fresh water and feed in clean containers.



- They must be protected from predators at all times when outside.

- Again this could be a basket woven from bamboo strips or later a small moveable ark or pen.
- Move the ark to give them clean, fresh ground to find new feed each day.

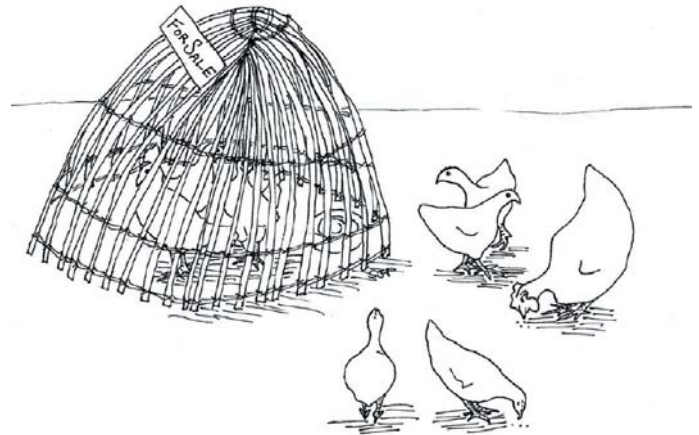




5.2 What will I do with my chickens?

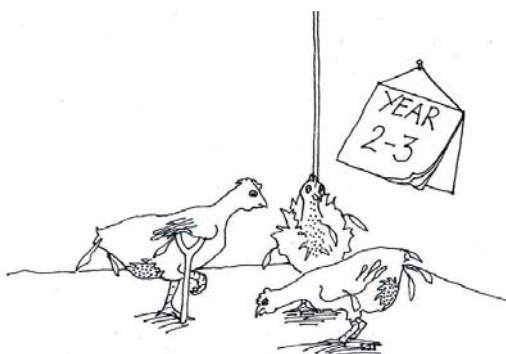
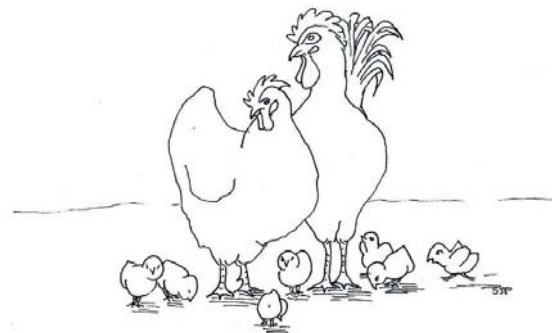
You must now decide what you are going to do with the new chickens. You will have 4-5 males and 4-5 females.

- When the males are 12-15 weeks of age (about 1 kg), some should be eaten and some sold.
- Do not keep them beyond this age as they are becoming expensive to feed. Do not keep them only for celebrations but eat them regularly.



- Your family should eat a chicken 1-2 days each week.
- If you see among the 4-5 males, a handsome cockerel that grew fast, keep him for breeding and later discard you oldest cockerel in the flock.

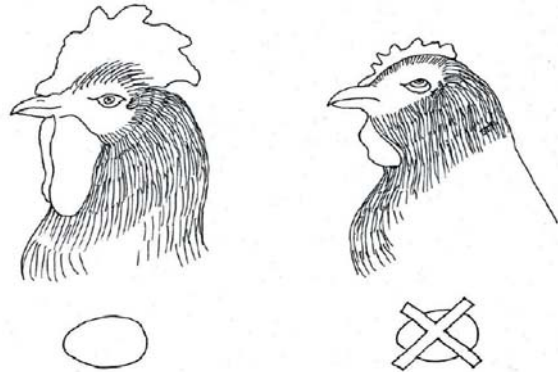
- Keep only 1 cockerel for 5 hens but you should always have a young cockerel ready for replacement.
- You should keep some pullets to replace your old hens for breeding.



- They will begin to lay when about 30 weeks of age.
- You can tell if a hen is laying by the colour and shape of her comb. It will be large, red and healthy looking.



- A non layer will have a pale, scaly comb with dry rough wattles and a small dry vent instead of moist and large vent.
- Sell or eat hens who have laid for about two years or those who are younger but lay few eggs.
- Old hens and non producers still need feed and give you nothing!

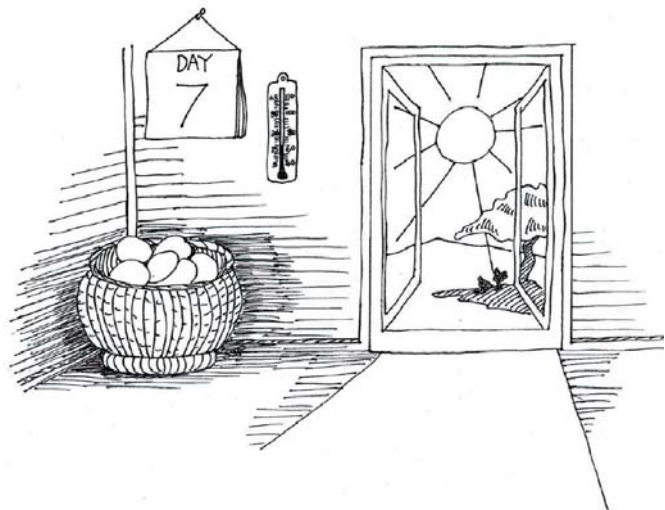


5.3 What will I do with my extra eggs that I will now have?



- You may have now more eggs than your family can eat.
- Each child should have at least 3 eggs each week and an adult 1-2.

- You should not keep them for more than 7 days or they will start to go stale.



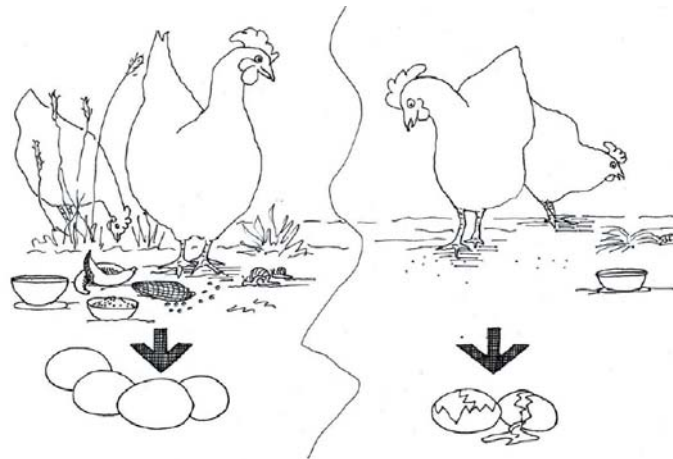
- You should sell any surplus eggs as soon as possible or boil them and sell them as boiled egg. Boiled eggs will also keep much longer and fetch more money.



6.0 Feeding

If you want your chickens to produce more eggs and meat you must feed them.

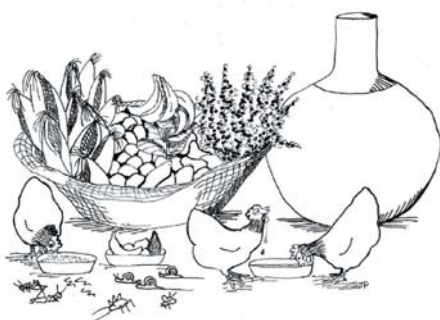
- Feed is the major constraint (drawback) to raising village chickens. The scavenging area is limited and usually over-scavenged so you can not expect it to produce many eggs or chickens to grow fast.



- Hens need a supply of calcium and phosphorus for hens to lay many eggs with sound shells.
- You can feed old egg shells and crushed chicken bones back to the hens but you must boil them first.



FEED AT 17 WEEKS OF AGE



- You can also feed them in a separate container and crushed shells and coral collected from the beach.
- Chicken should be given a variety of feedstuffs.
- Already mentioned is to give chicks a boiled eggs when they hatch out.



FEED TO 17 WEEKS

- For very young chicks you should consider buying chick broiler starter crumbles.
- Although expensive each chick will consume only about 100 grams in the first 10 -15 days and will then get a good start to life and grow fast.

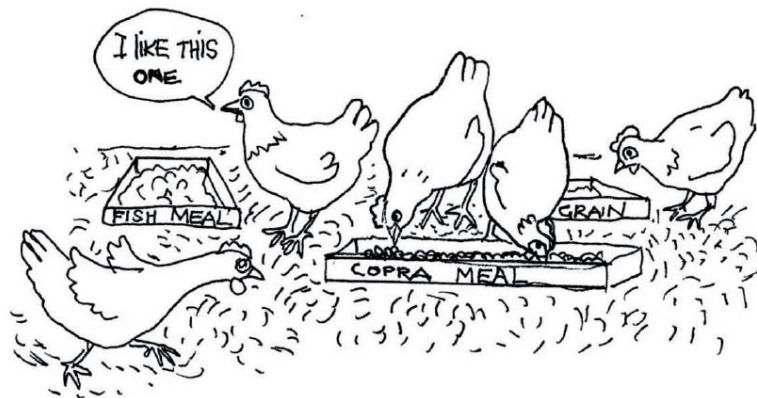


- Kitchen scraps, fruits such as bananas, coconut meat, cooked starchy roots and tubers (cassava, sweet potato, taro, yams). Fish and fish waste (cooked) are very valuable feeds.

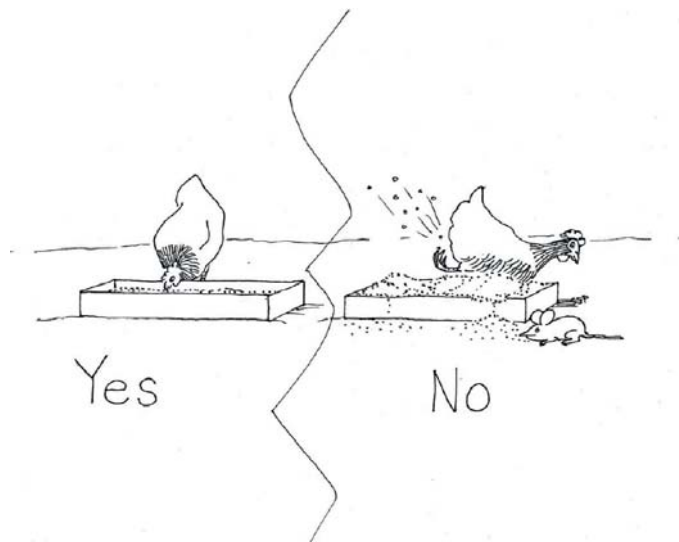
- Grains are not normally available although wheat bran and rice bran are produced from milling the grains in PNG.

- Copra meal is cheap and available in ENB.

- If you have a variety of feeds (copra meal) it is sometimes better to put them in separate containers such as copra meal and a calcium source.



- Do not over-fill the feeders or you will waste some.





7.0 Health

There are some simple steps that you should follow to keep your flock healthy. Only healthy birds will lay well and grow fast. Some we have already mentioned.



- Check your flock at night and in the morning.
- Remove and bury dead birds immediately.
- Remove sick birds. They will be seen to have drooping feathers, sitting and not eating, and away from the rest of the flock.
- Give them feed and water.

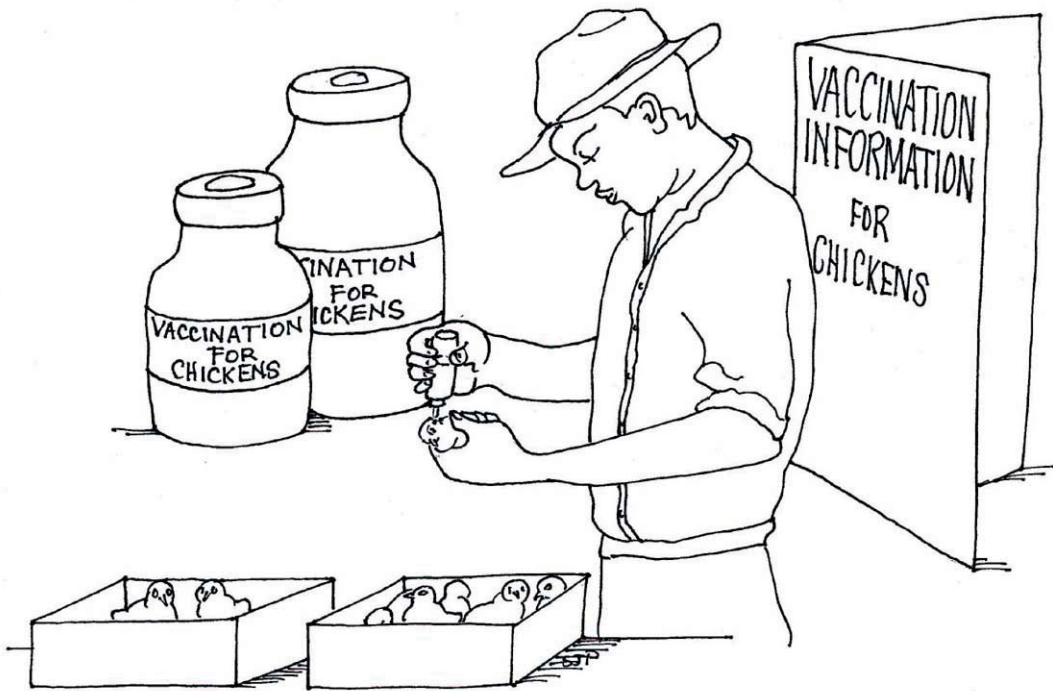
- If they don't improve, kill them and bury them but don't eat them. Your family may get ill.
- Keep your feeders, waterers, and poultry house clean.
- Disinfect the floor with Jeyes Fluid or an other disinfectant.



- If there is a disease outbreak in your village it may be necessary to call in an expert for advice.



- You may be advised to vaccinate your flock or give them medication. There are government organisations that you can call on for advice.





8.0 Scenario (Situation)

8.1 THE STATUS QUO (current situation)

Village owner has 3 hens and 1 cockerel (there are also 10 chickens of different ages-these will be ignored)

Incubating all eggs

Hen 1 lays a clutch of 16 eggs in 24 days
Farmer removes 4 eggs for his family
Hen sits on 12 eggs
10 chicks hatch out
Mortality is 80% - 8 die and only 2 chicks reach maturity

Time the hen spends out of production

Laying eggs	24 days
Sitting on eggs	21 days
Raising chickens	80 days
Back in lay	15 days
TOTAL	140 days

In one year the hen will produce 2.6 clutches (365/140) and provide the farmer with 10.4 eggs and 6.7 chickens as replacements and to eat.

The flock of 3 hens will produce in one year 31.2 eggs and 20.1 chickens. The 24 chicks that have died will have eaten some feed.



8.2 SCENARIO 2

Incubating some eggs

Flock size is the same - 3 hens and 1 cockerel.

The hen lays a clutch of 16 eggs in 24 days. All eggs are removed each day. The farmer will keep 9 eggs for himself and family. 7 sound fresh eggs are returned to the broody hen to incubate. 6 eggs should hatch and 5 chickens should survive.

Improved management and feeding allow this high survival rate.

The hen is still out of production for 140 days. In one year the hen will provide the owner with 23.5 eggs and 12.5 chickens.

The flock of 3 hens will produce in a year 70.5 eggs and 37.5 chicks.

Compared to Scenario 1, for the same flock there are 39 more eggs and 17.4 more chicks with better management and care.

8.3 SCENARIO 3

Chicks removed from mother at hatch

Same flock size of 3 hens and 1 cockerel.

Hen lays 16 eggs in 24 days. Farmer removes 4 eggs for household. Hen incubates 12 eggs and 10 chicks are hatched out.

The chicks are immediately separated and the hen is treated for broodiness

The hen will have spent - 24 days laying eggs

21 days sitting on eggs

19 days coming back into production

TOTAL

64 days out of production



Mortality of chicks is 15% so 8.5 chicks reach maturity. If the hen can go through this cycle 2.6 times in a year or 167 days there are 198 days for her to lay. If fed and managed well the hen may lay an additional minimum of 40 eggs. If 3 hens go through the same cycle there will be 31 eggs taken from the clutches (4 eggs per hatch).

There will be an additional $3 \times 40 = 120$ eggs giving a total of 151 eggs per year. There will be $8.5 \times 2.6 = 22.1$ chicken per hen $\times 3 = 66.3$ chickens per year.

With the same flock size it is possible to increase annual egg production from 31.2 eggs to 151 eggs and from 20.1 chickens to 66.3 per year with few extra inputs using simple management methods (it will take care and time).

8.4 Where do I go from here?

The next phase of improving production of village poultry will focus only on those producers who have successfully managed to increase their poultry production as a result of following the suggestions made in of this course. It will focus on introducing improved breed to mate with your village chickens. You will then move up to another level of Management.