Purpose: to provide both women and men with sufficient information and knowledge to allow them to farm poultry in a commercial and semi-commercial way, and to decide if they can make money out of the venture

Objectives: to learn about all aspects of raising poultry for their meat and eggs. Then to develop a business plan which will tell them if they can make money out of a poultry farming operation in East New Britain under the present conditions

Course: there will be trainers who will guide the participants through all aspects of producing poultry. There will be ‘hands on’ practical work, visual demonstrations and a manual that will have diagrams, photographs and illustrations. Towards the end of the course, commercial poultry production will be dealt with in two specialised areas: 1. For meat (broiler) production and 2. For egg production
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UNIT 1

1.0 Introduction

There is no point in setting up a farming venture unless it can be sustained; that is, it can survive over the long term. Therefore it is essential to make a survey in which key questions must first be answered honestly before the farmer decides to launch into a poultry enterprise in which he or she will have to invest time and precious money.

It is assumed that all trainees have a particular interest, but little information, in setting up a small poultry enterprise on a commercial or semi-commercial scale and are here to learn some basic management skills. It is only from practice and experience that the farmer will become an efficient poultry producer and this course forms the foundations of a poultry enterprise.

The other important aspect is that the farming of poultry must not harm the environment by polluting water ways with plastic bags, poultry waste or chemicals used in the farming industry for example. Each one of us has the responsibility to protect the land we farm.

Any poultry farm will be part of a farming system (vegetables, plantation crops, special crops, trees, other livestock) and all parts must be catered for and must not be compromised. In other words the new poultry venture will be part of the existing system.
(a) Your first task is to introduce yourself and give us some information on your background. We would like to know what you do, why you are here and a little about your village and family.

(b) Now that we know a little about you I will now tell you a bit about myself.

(c) I am sure that you may have some questions to ask. These may relate to the course or to any other matter. So please ask them.

1.1 What will I learn from this course?

At the end of the course you should understand the basic facts about keeping poultry for egg production and meat production.

You should have a good knowledge of
* their housing
* the different systems of how chickens are kept
* their feeding
* management
* health and hygiene
* poultry farming as a business. It is essential to have a business plan
* the importance of forming a poultry cooperative or forming an association of producers with the same interests in poultry production

Space is given throughout this manual so that you can make notes and please ask questions about any matter. This is most important.
1.2 Why keep chickens?

Can you make a list of why people keep chickens? There are at least 6 reasons although not all of them apply to PNG. Write down what you think here and we will discuss them.

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I will add some of the most important reasons that relate particularly to the health of your children.

Chicken meat and eggs contain special proteins that:

- Allow your children to **grow strong**
- Allow pregnant mothers to produce **healthy babies**
- Allow their brain to develop so that they will be **clever** at school

- Allow them to be healthy and not to catch **cold and coughs**

Eggs and meat also contain vitamins and minerals that are **essential** in your diet.

If you decide to raise poultry always remember *to keep* some meat and eggs for your own family to eat.
1.3 The business of poultry farming

There are many small farmers that are making money out of raising meat birds (broilers) in East New Britain (ENB). They buy day-old chicks from Lae and usually sell them live after 7-8 weeks. They also buy their feed in from Lae and this means that it is expensive.

Sometimes the chicks arrive sick or dead, because of unreliable transport. We are trying to hatch chicks at the University of Vudal and mix poultry feed there so that we do not have to rely on companies on the mainland for chicks and feed. That is to make chicken meat production sustainable.

Producing eggs is more difficult and there are only a few farmers on ENB who keep commercial hens. The day-old chicks are very expensive and you have to wait more than 18 weeks before they will lay an egg. They are not easy to rear as they must be grown slowly and according to a plan. They also need to have good housing and nest boxes so there is a higher initial capital cost than growing meat birds. There is a shortage of eggs in ENB and they have to be imported from Lae so there is great opportunity to farm commercial hens starting with a few and then expanding. But the system is currently unsustainable because most things have to be brought in from outside ENB. There is great opportunity to have commercial egg farms here and we hope that we will also be able to produce day-old layer chicks in ENB and some feed to make poultry production sustainable.
Opportunity for commercial egg production in ENB.

When you finish this course, we plan to be able to help you with your chicks, their feed supply and the trainers will be able to give you advice. You will see during the course that there are many different ways to keep laying hens and broiler chickens.
1.4 Background information

- You will need to look at all aspects of commercial poultry production before you decide to become a poultry farmer.
- This means that you will have to seek out information in a survey.
- On the basis of this information you will make a business plan. This will tell you how much money you can expect to make (or lose) each year.
- A good business plan will allow you to go to the bank to borrow money to get your commercial poultry farm started.

You will not start with a feasibility study now but towards the end of the course when you will know more about poultry and what farming poultry keeping entails. But you should look at it from time to time throughout the course so that you can gather the necessary information.

End Unit I
Unit II

2.0 Poultry Breeds

There are many different breeds of chickens. We will only mention here those that have commercial potential (meat and/or eggs)

**Dual Purpose.** These are used to produce both meat and eggs such as Rhode Island Reds or Plymouth Rock.
- Today they do not produce enough eggs
- nor do they grow fast enough for meat production
- they eat too much feed
- they are not efficient in converting feed to eggs and meat.

**Special Breeds.** These have been selected for egg production
- the White Leghorn was very popular for many years
- it has a small body (1.5 kg) and lays many white eggs
- the Black Australorp is another popular breed
- it is very docile (quiet) and lays a tinted (light brown) egg
- it is medium-heavy body weight (2.2 kg) and therefore eats quite a lot of feed
- it is good for free-range (out doors)

**Hybrids.** In the commercial world today only hybrids (cross-breeds) selected for either meat or egg production (not both) are used because
- they lay more eggs than special breeds
- they lay large, brown eggs
- they eat less feed per kg of weight gain or per kg of eggs
- the male chicks from hybrid layers grow very slowly and normally have to be killed. They are too expensive to rear
- the hybrid broilers grow faster than pure breeds
- they produce more breast meat than the pure breeds
Hybrid chicks are only available to the small farmer through a breeding company. The farmer will not have the parent breeding stock and therefore can not breed the chicks himself.

EXERCISE
In a few words list all the characteristics (eg many brown/white eggs) that you would like to see in 1.a laying hen, and 2. a broiler chicken

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______________________________________________________________________

3.0 Housing

There are many reasons why poultry should have a well-constructed house
- to protect them from floods, rain and the sun
- to protect them from predators - dogs, cats, snakes, birds of prey, rats and thieves
- from mice, rats and other birds from eating their feed and transmitting disease
- to give hens a safe place to lay their eggs

You must protect your chickens.
What are the basic requirements for a poultry house?

It must be
- rain proof
- protect the birds from direct sunlight and keep them cool
- must have good drainage around the house
- easy to clean
- have a strong door with a secure lock

Chickens must be protected from the weather.

Housing will likely be your biggest investment and to cut costs local material can be used. Positioning of the house is important to conform with some of the basic requirements (mentioned above). High ground will stop flooding in rain storms.

Sketches of a simple poultry house for keeping about 250 broiler chickens or 120 laying hens.
3.1 Floor

The floor must be:
- flat and smooth

Have a good depth of litter cover (sawdust, shavings, dried grass, leaves, chopped straw, crushed coffee hulls, peanut hulls).

Litter:
- should be raked weekly
- changed every two batches of meat birds or every batch of layers
- makes excellent fertiliser for your garden
- makes an excellent compost when mixed with leaves, grass, vegetable waste etc

Fresh poultry manure must be stored for six months, otherwise it might burn plants.

Adequate floor space is most important particularly in ENB where it is always hot.
Remove manure from empty house and replace with clean litter.

EXERCISE
Do you have a suitable place to build a chicken house? If so describe the site. Are there suitable materials to construct the house from? What are they? Will you have to purchase some of these materials? What are they and their cost?

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4.0 EQUIPMENT

4.1 Drinkers

Give your birds, clean, fresh water. You can make your own drinkers or buy them. They must be adjusted to the correct height so that birds can drink easily.

4.2 FEEDERS

Poultry must have continual access to feed in properly-adjusted feeders, otherwise they will not grow or lay well. These can also be made from local material, or purchased. Feeders must always have a lid to stop birds from entering the feeder.

An inexpensive spring balance for weighing birds, feed, eggs and other things, you will find to be very useful.
EXERCISE
Make a list of the important characteristics of a poultry house

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Make a list of the equipment that must be available in the house

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____________________________________________________________________________
____________________________________________________________________________

[Trainees will now visit the demonstration unit to discuss the poultry house and how much a similarly equipped house will cost and what improvements/changes could be made. Use of old litter to make compost or to spread on the garden will also be discussed]

End of Unit II
UNIT III

5.0 BROODING

This is a term which means, *keeping chicks warm and comfortable.*

When your baby chicks arrive they will need *special care.* This is the time when you can expect a few chicks *to die.*

Dead chicks should be removed and *buried deep in a hole in the ground.*
Chicks should be given water immediately and shown how to drink.

Electricity may be unreliable or unavailable and a small kerosene lamp can provide heat.
- *Weak* chicks need to be watched carefully. They rarely survive. Often it is better to *destroy them*.
- The chicks are placed in a *brooder* made from cardboard or woven bamboo, leaves or grass.
- It may be necessary to provide *extra heat* during the night.

A *cold-box brooder* can be used but only for up to 50 chicks. It needs no heat source. The chicks keep each other warm in an insulated box *without* additional heat.

**EXERCISE**

Make a list of what you will need to do to prepare your chicken house for the arrival of a batch of day-old chicks

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6.0 FEEDING

Feed is *60-70%* of the costs of producing commercial poultry.

Feed is the major *constraint* (difficulty) to producing poultry in ENB.

Compounded (mixed) feed is *expensive*. There is *no feed mill* and mixed feed is not produced in ENB. It comes by ship from Lae.

Only very few suitable ingredients (feedstuffs) are produced in PNG. Most are imported. Fish meal is produced in PNG, also palm kernel meal, copra meal, wheat bran and rice bran. Feed ingredients are mixed according to a *special recipe* to provide a *balanced* diet.

*Baby chicks* need a feed of the highest quality. That is one that is high in good quality *protein* (e.g. fishmeal) to match the protein found in meat and eggs. Chicks also need a source of *feed energy* (wheat bran, cereal grains) to make them grow well. Chicks also need other *nutrients* (minerals and vitamins) but only in small amounts. A specialist person *formulates* (puts together) diets suitable for chickens. That person should also give you good *advice* on what to and how to *feed* your poultry.

Farmers who receive the right advice...
may want to *mix* their own ingredients.  *Materials* (ingredients). You will need to *weigh* out the ingredients or have *containers* which will hold known *weights* of different feedstuffs.

The feedstuffs must be thoroughly *mixed* with a shovel or in a home-made mixer. It can be made from a drum. A cement mixer can be used.

Ingredients and the mixed feed must be *stored* in a *dry place* and safe from *birds* and *rats*.
6.1 Choice feeding

Sometimes it is better to let the birds select their own feed and balance their diet themselves. This is called choice feeding or self-selection. Feed ingredients are not mixed together but are placed in separate feeders (maximum 3) and the chickens in this way balance their own diet. There are only certain situations where this can be done, usually when the birds are on the ground or floor.

EXERCISE

What are those things that are most important in feeds for feeding chickens?
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____________________________________________________________________________
____________________________________________________________________________

Make a list of suitable poultry feeds that may be available in your village
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____________________________________________________________________________
____________________________________________________________________________

END UNIT III
Chickens are fragile and can get sick very easily especially when young.

There are two major sources of disease: Diet if not correctly formulated can result in the bird getting a metabolic disease due to a nutrient deficiency (vitamins or minerals) in the diet.

Other diseases are caused by minute organisms called bacteria and viruses. It is often necessary to treat the chicks as soon as they hatch with a vaccine which allows them to resist the disease if it occurs. This is normally done at the hatchery.

*Remember that prevention is better than cure!*

- Many diseases can be prevented by keeping your poultry house very clean
- Overcrowding of birds can cause disease
- Do not keep other poultry on your farm
- Do not allow other poultry farmers to enter your shed
Place a foot bath with a disinfectant in it or limestone outside the door of your poultry house.

Have a special pair of boots/shoes that you will use only when you are working in your poultry house.

Leave sufficient time between batches of birds to clean the house and get rid of diseases that need to have a bird (host) to survive.

Remove old litter, dirty bags and contaminated rubbish and dump them far away.

- All in-all out systems in which birds are all the same age help to reduce disease outbreaks.
- Discard damp, old feed. It can grow mould which can produce toxins. They can kill or make your chickens sick.
  - External parasites such as mites, lice and fleas can make your poultry feel uncomfortable. This will affect their growth rate and egg production.
  - Insecticides are used to treat the infected birds. A dust bath will also help to reduce these external parasites.
  - Internal parasites such as different worms and minute protozoa causing coccidiosis can be prevented by medication.
  - This is done routinely by adding a coccidiostat to the mixed feed for broilers.

Remove immediately sick birds and bury dead birds. Never eat sick birds they will make your family ill.
EXERCISE

What will you do to stop your chickens from getting sick? Make a short statement
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What will you do if they do get sick? Make a short statement
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We will now discuss the two specialised areas of commercial (intensive) poultry production: broiler (meat) production first and then egg production.

END OF UNIT IV
Chicken meat is very popular throughout the world. It is seen as a healthy meat low in fat and rich in protein (lean meat).

To prepare for the chicks’ arrival it is best that you have a time plan or schedule:
- the house will be thoroughly cleaned and disinfected
- shavings on the floor
- the brooder surrounds in place
- the brooder heater checked and adjusted (if there is one)
- feeders and waterers in place
- a supply of starter feed paper on the floor of the brooder with a small amount of feed placed on it so that the chicks can start to eat

- For the first 7-10 days the chicks will be brooded (see 6. BROODING). Broiler chickens can grow very fast but only when well looked after and given good feed.

- After 3 weeks of age when the house temperature is less than 28 –30°C they grow best. In ENB, the temperature is normally above 30°C in the day time so they will grow a bit slower than usual.

He’s developing a work plan.
Some chickens will die in the first week particularly those that are small and weak. You must remove and bury them immediately.

You can expect to lose about 4-5 chicks out of 100 in the first 3 weeks. Another 2 may die later.

- Chicks should be given a bought formulated feed. A commercial starter diet should be purchased and fed for at least the first 10 days because they need to get off to a good start.

- They will have eaten only about 450 g of feed during this time. This will cost you less than 1 Kina/bird.

- A grower diet will then be introduced by mixing what remains of the starter feed with the same amount of the grower feed. This will mean that they can adjust easily to the new feed.

- When the mixture is finished, chicks will be on the grower feed only.

- Check chicks several times a day to see that they are comfortable and have feed and water.

Check your chickens frequently. They do not like it too warm.
It will be helpful if you have **weighing scales** so that you can weigh feed given to the chickens and get the live weight of a sample of 10 birds every 2 weeks caught with a simple leg catcher. This will tell you how well your chickens are *performing*

- Do your birds reach *targets* at 3 weeks and 6-7 weeks? This should be your marketing *age range* for best growth and feed consumption?

- Weight *gain* is weight of bird divided by age in days then divided by the total number of birds to obtain the average weight gain of one bird

- Feed *efficiency* is feed consumed (kg) during a fixed number of days divided by the total weight of all birds (kg) consuming that amount of feed
  - As a guide the average weight of your chickens at 6 weeks should be 1650 g and at 7 weeks 1800 g
  - Feed efficiency should be 2.5 kg feed for 1 kg of weight gain at 7 weeks of age [a worked example of these calculation is given at the back of the manual]

Although your chickens look healthy you must still *inspect* them several times a day. You do not want to lose any. They are now becoming valuable and attractive to a *thief*
8.1 MARKETING

Selling your chickens profitably is essential.
You can sell them
- alive on a bird or on a weight basis
- through a middle man who will take some of your profit for himself
- dressed, plucked, eviscerated (guts) and organs (lungs, liver, heart) removed. This is time-consuming
- sell to an abattoir for processing
8.2 MANURE

Chicken litter will produce very valuable manure rich in nutrients.
You can:
- use it on your garden
- make it into a compost
- sell it

8.3 RECORD KEEPING

It is essential that you keep good records of feed used, dead birds, weight of birds at the end. These records will then be used to determine if you made a profit or a loss.

[A broiler record sheet is given at the end of this manual. The trainer will work through an example with you]

*No mention has been made here of vaccination of chicks. This is normally done at the hatchery.

END OF UNIT V
UNIT VI

9.0 COMMERCIAL EGG PRODUCTION

There are several choices of how you house your hens for egg production:
- in group cages of 2-5 hens (expensive but saves floor space)
- indoors on the floor (barn hens or deep litter)
- free-range out-of-doors during the day
- large group or colony cages (indoors, see later)

For replacement or point-of-lay pullets (young hens not yet in lay) there are two options
- the farmer can purchase hybrids or pure breed chicks from a hatchery (expensive) or
- the farmer can hatch and raise his own chicks

9.1 HATCHING CHICKENS

The farmer:
- can have a flock of breeder hens with one rooster for 10-12 hens.
- will need nest boxes with litter and placed in a secure, dry place
- will store the fertile eggs in a cool place for 1-6 days
- will allow a broody hen to incubate the eggs or own a small incubator (expensive and needs a reliable power supply)
- water and feed should be placed close to the broody hen in an isolated place
- the nest should have a 2 cm layer of sand then 2-3 cm of litter on top

The farmer:
- can have a flock of breeder hens with one rooster for 10-12 hens.
- at day 21 eggs will hatch out
Half will be females. The farmer must decide what to do with the males.
They will grow much slower than broiler chickens but can be given a lower-quality feed than broilers after 4 weeks of age. They still may not be profitable to keep and sell or grow them.

9.2 PULLETS
They are raised indoors in the same way as broilers. They grow slowly and may need brooding until 4-6 weeks old. They are then given more space than broiler chickens.

They should be given 500 g of broiler starter feed for the first 4-6 weeks. When this feed is used up it is replaced with a lower-quality pullet-rearing diet until 17 weeks of age. They are then given a layer diet which is high in calcium (3%) and phosphorous (0.5%). This is needed for sound eggs with hard shells. Pullets will now be transferred to their layer house.

9.3 BATTERY CAGES
- can hold 1-5 hens per cage
- are expensive but can be made from local material
- hens may peck one another and may need to have their beaks trimmed
- can scratch one another if claws are long with loss of feathers
- must be given a high-quality layer diet
- will lay more eggs and eat less feed than hens in any other housed system
- may be in future welfare issues as birds have little space. This worries the public.

9.3.1 Small scale cage unit
This is designed for a household wanting to keep only a few hens and have eggs for their family and to sell
- a single cage unit of 3 compartments holding 12 layers (total)
- cage on legs or on a stand constructed cheaply from bamboo
- can be moved easily out of rain and weather to a safe place
- thatched roof or without a roof if kept under cover
- bamboo feeders and home-made waterers (see illustration)
- hens must receive high-quality feed to lay 9 eggs/day
- system sustainable if 5 eggs sold and 4 eggs consumed by the household
- money from egg sales used to buy more feed
- hens sold after 12 months for eating
- money from egg and hen sales used to buy replacement birds or layer chicks and grown to pullets but starting these 20 weeks before selling old hens

9.4 BARN HENS

- hens kept indoors and on the floor with adequate floor space
- house must be well constructed and safe from thieves
- feeders, waterers, perches and nest boxes must be provided
- floor litter is necessary and later used for fertiliser/compost on gardens
- some eggs will be laid on the floor and some will get dirty
- green feed can be given easily to hens

9.5 FREE RANGE

- similar to the barn system except
- need a docile (quiet) breed who will not fly over the surrounding fence
- hens are allowed to scavenge in a secure outdoor enclosure during the day
- allowed to go indoors at any time
- locked up at night
- house similar to that for barn hens with nest boxes, waterers and feeders
- waterers also provided in the outside enclosure floor space per bird in house is a little less than for barn hens
**Advantage** of free range system is that the hens can *scavenge* for some of their feed and pick up some *essential* nutrients. Hens need green feed and there should be *two separate* outdoor pens which can be *rotated*. One will be rested to allow the grass to grow back.

**Disadvantage**: hens will eat a little *more* feed and lay *fewer* eggs than a battery (caged) hen. More likely to pick up a *disease* outside.

**EXERCISE**

Do you understand the different systems of housing poultry? If not write down what you do not understand about them and what you do understand about them

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____________________________________________________________________________

What *system* of keeping hens do you prefer. Why and will suit you best?

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____________________________________________________________________________
____________________________________________________________________________

Do you have the *skills* available in your village and the building *materials locally* to build a layer house and cages. Explain?

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____________________________________________________________________________
9.6 FORCE MOULTING

This is to stop old hens from laying for about a month
- replacement pullets are expensive
- egg production drops when hens get old
- egg shells will get thin and break when birds get old
- may be economical to put hens through a second laying cycle
- hens are put out of lay by feeding a poor-quality diet for 7-10 days when about 60-70 weeks old but must always have water
- hens then are put back on a layer diet and will come into lay 2-3 weeks later
- eggs will have sound hard shells
- hens will lay more eggs than before and for more than the next 20 weeks
- will lay large eggs

Disadvantage: hens are out of lay for about 4-5 weeks during moulting
9.7 EGG QUALITY

9.7.1 Internal

- eggs get stale quickly in hot weather
- store eggs in a cool place

- when the egg yolk spreads into the white the egg is stale
- a stale egg may not taste different from a fresh egg
- some people like eggs with a deep orange-yellow yolk
- others like the yolk a pale yellow colour
- colour can be measured with a yolk colour fan
- there are sometimes blood spots in the egg yolk but we are not sure why
9.7.2 External

- eggs can be misshapen, *soft-shelled*, with pimples and rough surfaces
- egg *breakage* occurs easily especially if the hens are old
- these eggs are classified as *seconds* and fetch a much lower price in the market
- dirty eggs, blood stained eggs and fly marks on the shell make the eggs *unattractive* to the customer
- consumers like eggs either *white* or *brown* shelled but both have the same nutritional value
UNIT VI

10.0 RECORD KEEPING

It is essential that you keep good records of feed consumed, eggs produced and bird deaths and removal of sick hens and non layers. A sample record sheet is given so that you can know accurately how your flock is performing. [Example of a layer record sheet at the end of this manual]

11.0 CONCLUSION

Keeping poultry is not easy. It is a learning process. You should start slowly and expand as you gain experience. You may have set backs but you must persevere and seek advice when you have problems and need help. If you are kind to your birds and treat them well they will respond.

12.0 SURVEY

Before you decide that you want to become a poultry farmer you must undertake a feasibility study that is researched thoroughly in all aspects of meat production or egg production to determine if you are going to make a profit. Otherwise you may be wasting time and money. When you have done your research you can then make a business plan. Your business plan will get you a better chance of borrowing money from the bank to give your enterprise started

Some of the questions you need to ask are given below.

**Chick costs**
- How much are day-old?
- Layer chicks?
- Broiler chicks?
- Where can you buy them from?
- How far away is the supplier from you?
- Does the supplier deliver?
- If the chicks are delivered, how much does it cost?
- If no delivery, how will you collect them and what is the cost of this?

**Broiler costs** *(It may be possible to buy brooded chicks from a farmer who broods chicks for sale)*
- Can you buy 3-week-old or 5-week old broilers? If so where?
- How much do 3-week-old or 5-week old broilers cost?
- Do they deliver and charge, is there a minimum batch size?
- How much will it cost me to deliver if they don’t?

**Layer costs**
- What is the cost of point-of-lay (16-18 weeks) pullets?
- Do they deliver free or charge?
- How much do they charge?
- If no delivery, how much will it cost to pick them up?
Feed costs
Where is there a supplier close to me?
How much per bag and size (kg) for broiler starter?
How much per bag and size (kg) for broiler finisher?
How much per bag (kg) and size for pullet finisher?
How much per bag and size (kg) for layer feed?
Does the supplier deliver, if so at what charge?
If not, how will I get the feed and cost?

Equipment and water
Where can I get medical supplies and vaccines?
Where can I get medical advice?
Where can I get floor litter?
How much will it cost?
Where will I get water from?
Do I have sufficient for drinking water and cleaning equipment and the house?

Market survey questions
Where will I sell my broilers?
Who will I sell them to? (neighbours, schools, local market, shop)
Who else is selling chickens in your area?
How much are they charging per bird or per kg?
What age are they?
Why will people buy from you?
What will you charge per bird/kg?
How many birds can you sell per week or month?
How do you know that you can sell that many?

Egg sales
Where will you sell your eggs?
Who will you sell them to? (neighbours, schools, local market, shop)
How much will transport be?
How much will you charge for 12 eggs mixed grade?
Who else is selling eggs and as mixed or graded?
How much for 12?
How many can you sell per week?
How do you know that you can sell that many?
## 13.0 BUDGET

A statement of expected expenses, income and profit or loss is then calculated.

### Expenses and Direct Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chickens (____ Birds x K____ per bird)</td>
<td>K</td>
</tr>
<tr>
<td>Feed (____ bags of each kind x K____ per bag)</td>
<td>K</td>
</tr>
<tr>
<td>Heating (cost of fuel)</td>
<td>K</td>
</tr>
<tr>
<td>Medicine, vaccines, disinfectants</td>
<td>K</td>
</tr>
<tr>
<td>Transport for everything</td>
<td>K</td>
</tr>
<tr>
<td>Litter</td>
<td>K</td>
</tr>
<tr>
<td>Other costs (5%)</td>
<td>K</td>
</tr>
</tbody>
</table>

**A. TOTAL DIRECT COSTS**  
K

### Indirect Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>K</td>
</tr>
<tr>
<td>Electricity</td>
<td>K</td>
</tr>
<tr>
<td>Telephone</td>
<td>K</td>
</tr>
<tr>
<td>Rent</td>
<td>K</td>
</tr>
<tr>
<td>Bank loan interest</td>
<td>K</td>
</tr>
</tbody>
</table>

**B. TOTAL INDIRECT COSTS**  
K

### Monthly Income

- ____ broilers sold at K____ per bird  
- ____ dozen eggs sold at ____ K

**C. TOTAL INCOME**  
K

**PROFIT (C-A+B)**  
K
# Broiler record sheet
(PHOTOCOPY THIS PAGE FOR RECORD KEEPING.)

<table>
<thead>
<tr>
<th>Batch No.:</th>
<th>Shed No.:</th>
<th>Breed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hatch date:</td>
<td>Starting No.:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Feed given (bags)</th>
<th>Day</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
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<td>Week 3</td>
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<td>Week 4</td>
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<td>Week 5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Live body weight at 42 days:</th>
<th>FCR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of birds weighed:</td>
<td>Mortality: %</td>
</tr>
<tr>
<td>Total weight of birds: kg</td>
<td>Total feed intake: kg/bird</td>
</tr>
<tr>
<td>Average weight of one bird:  kg</td>
<td></td>
</tr>
</tbody>
</table>

Remarks:
Example of calculation for 100 broiler chickens to determine performance

**Starter period**
- Weight at 1 day old: 4.5 kg
- Weight at 3 weeks old: 62.0 kg
- Weight gain (21 days): 57.5 kg
- Feed at start: 100 kg
- Feed at finish: 13.75 kg
- Feed eaten (0-21 days): 86.25 kg
- Feed conversion ratio (0-21 days): 86.25 \( \div \) 1.50 = 57.50

**Finisher period (21-49 days)**
- Weight at 21 days: 62.0 kg
- Weight at 49 days: 180.0 kg
- Weight gain: 118.0 kg
- Feed at 21 days: 300.0 kg
- Feed at 49 days: 5.0 kg
- Feed eaten (21-49 days): 295.0 kg
- Feed conversion ratio (21-49 days): 295 \( \div \) 2.50 = 118

**Whole period (1-49 days)**
- Weight gain: 175.5 kg
- Feed eaten: 381.25 kg
- Feed conversion ratio (1-49 days): 381.25 \( \div \) 2.17 = 175.5
**Layer record sheet**  PHOTOCOPY THIS PAGE FOR RECORD KEEPING

<table>
<thead>
<tr>
<th>Batch:</th>
<th>No:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hatch:</td>
<td>Date:</td>
</tr>
<tr>
<td>No. at begging of period:</td>
<td>Age at beginning of period:</td>
</tr>
</tbody>
</table>

### Feed given (bags)

<table>
<thead>
<tr>
<th>Day</th>
<th>1</th>
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<th>7</th>
<th>Total</th>
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<tbody>
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### Death and culls

<table>
<thead>
<tr>
<th>Day</th>
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### Eggs laid (Saleable = G and Non Saleable = B)

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<th>Day</th>
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<tbody>
<tr>
<td>G</td>
<td>B</td>
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</table>

Mortality %________ Feed intake______ g/hen/day Rol_________%
Remarks_______________________________________________________
14.0 POULTRY GROUPS

A poultry group is an organised group of like-minded producers who combine to form a farmers’ group or partnership. Members share responsibilities and any profit or loss. They speak with a single voice and allow the purchase of feed, equipment, chicks, building material and other supplies more cheaply. Eventually storage facilities can be established and a supply shop set up. The group can also have a strategic plan to reduce competition between individuals, set prices for poultry products and generally work to help one another to establish an industry on a firm footing. Trainers should provide as much assistance as possible to the farmers in establishing a working party that will spearhead the formation of a poultry group. The group may eventually expand into other areas of commerce where the farmers can trade other farm produce in addition to poultry.

15.0 COMMUNITY OWNERSHIP

This is similar to, but less rigid than a poultry group and is run by a committee representing a district or village community. For example the committee may be responsible for raising point-of-lay pullets. These they sell at 17-18 weeks to individual egg producers and the profits are distributed amongst the community. The egg producers may be individual farmers or a small group of men and women who share the responsibility similar to that in a poultry group.

In both cases there is opportunity to buy equipment, large numbers of chicks and bags of feed. This is usually attractive to the supplier and cheaper for the community.

END UNIT VI and END OF POULTRY TRAINING MODULE