

Training Notes
For
Community Animal Health Workers

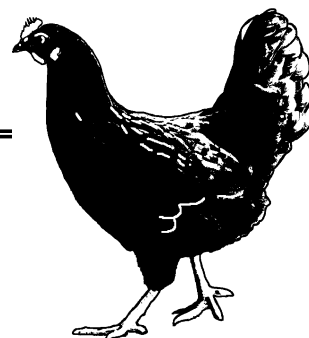
**Village
poultry**

Small Scale Livestock and Livelihoods Program
PO Box 1604, Lilongwe Malawi



Village Poultry

Session 1: Raising Village Chickens*



Session Objectives:

At the end of this training session, each participant should be able to:

1. Understand the context of village chicken production in Malawi
2. List the different types of village chickens in their respective areas
3. Describe the various ways under which village chickens are raised in Malawi
4. Explain other types of chicken production apart from village chicken production

Exercise:

What are the different ways in which chickens are raised in Malawi? Consider the systems listed below.

Discuss what are the major problems associated with raising village chickens. List these problems and rank them in order of importance.

* (Note: These notes are designed for rural communities. They are not designed to provide adequate information about the raising of broiler poultry or layer poultry on a commercial basis. For guidance on commercial poultry raising, please refer to the SSLPP head office or to the Agricultural Development Division headquarters for your District.)

- Types of chicken production systems in Malawi:

Free range (village chickens)	Free range systems are commonly referred to as village chickens. These are the most common type of chickens in Malawi. There are many more village chickens than housed chickens. Village chickens are those that are allowed to range outside the khola during the day and which are not given a full diet or ration. They are raised for meat, for eggs, and for breeding.
Intensive	Broiler chickens are raised for meat production. They are housed indoors and fed with chicken feed which is either purchased from outside or prepared from a mix of local ingredients.
	Layer chickens are raised for egg production. They are raised indoors, sometimes in cages, and are fed a prepared diet similar to broiler chickens.

Breeds of chickens used in chicken production in Malawi

Breed	Main use
Black Australorp	A dual-purpose bird for meat and egg production.
Hyline	Egg production
Rose	Meat production
Cobbs	Meat production
White leghorn	Egg production
Local village chicken	Village based egg and meat production

Different varieties of village chickens

Exercise:

Discuss the different varieties (physical types) of village chickens raised in Malawi. Make a list of all the different varieties you can think of. (Each participant should state the ones that are raised in his/her area). Discuss the types shown in the table below.

Name	Appearance	Basis for the name
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Session 2: Housing (kholas) for village chickens

Session Objectives:

At the end of this training session, each participant should be able to:

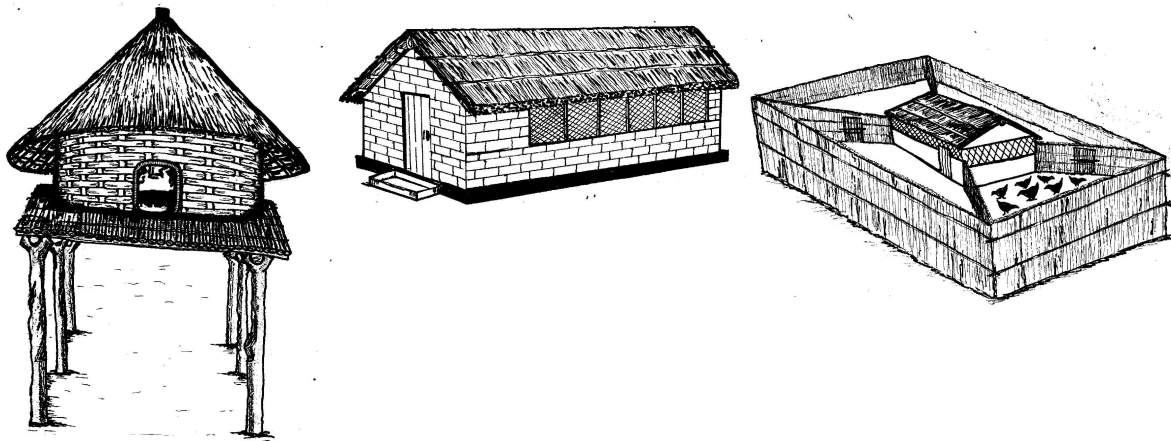
- 1. Understand the need for good housing for village chickens in Malawi**
- 2. Understand the basic construction requirements for village chicken houses in Malawi**

Exercise:

Discuss the reasons why we house village chickens.

- Rank these reasons - which are the most important reasons and which are less important?
- What are the elements of a good house for village chickens?
- What are the most commonly used building materials for chicken kholas in your area?
- What are the most commonly seen deficiencies of housing for village chickens?
- Discuss the elements of a village chicken khola: location, carrying capacity, floor, walls, roof, perches.

Types of houses for chickens



Poor housing for chickens



Kholas for Village Chickens

Purpose	Protection from the elements, rain, heat, cold, wind. Protection from predators, cats, dogs, wild animals, humans. Comfort for the chickens, perches.
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Kholas for Village Chickens	
Location	The khola should be located on high ground, not muddy. It might need to be close to the house for security. The general area should be dry. There should be a source of drinking water nearby.
Size	Minimum floor area - each adult chicken needs 30 cm x 30 cm of floor space plus space for any other smaller birds. (Note: This is for a night khola; more space is required for chickens which are housed full-time).
Floors	Dirt floors are common. Cement floors are easier to clean. The floor should be dry to keep diseases away. It should be raised at least 20 cm above the ground level outside. Wet muddy floors carry germs which can spread diseases. The floor can be a raised platform of stakes with spaces to allow the droppings to fall below. This is referred to as the "pigeon type". Chicken manure makes good fertiliser for gardens and crops. Do not waste manure.
Walls	Mud brick, burned bricks or wood walls are most common. Walls should be strong enough to prevent excessive drafts but there should be spaces to allow some ventilation inside. Two thirds of the wall area should be well ventilated. There should also be access to allow the manure to be cleaned out.
Roof	For the ground based kholas, the roof should be 2 metres high and waterproof. It should extend well beyond the walls to prevent entry of rain. Thatch should be thick enough to prevent rain entering. Tin roofs are good but they can cause the interior to get very hot during the day.
Perches	Chickens like to be able to roost at night. They need perches. Perches should be made of wood or bamboo, 3-5 cm in diameter. Perches should be strong and securely bound so that they do not bend, move or twist. Each adult chicken needs 20 cm of perch space. Higher perches should be placed such that droppings do not fall on birds on lower perches.

Session 3: Feeding for village chickens

Session Objectives:

At the end of this training session, each participant should be able to:

- 1. Understand the different feeding systems for village chickens in Malawi**
- 2. Understand the basic nutritional needs of chickens**
- 3. Understand the basic nutritional value of some feeds for village chickens**

Exercise:

Discuss the advantages and disadvantages of different feeding systems for chickens in Malawi namely:

- Full-time free range scavenging
- Scavenging supplemented with additional feed; and
- Feeding of a complete ration.

Feeding system	Advantages	Disadvantages
Full-time free range scavenging	• No cost • No labour input • No special expertise needed	• No control of quality • Little control of quantity • Low nutritional value • Higher exposure to disease or predation
Scavenging supplemented with additional feed	• Low cost of feed • Some control of nutritional quality	• Nutritional value less than optimal • Some labour required • Knowledge of ingredients required • Cost of feed • Higher exposure to disease or predation

Feeding of a complete ration	• Good control over nutritional quality • Balanced diet for different ages and classes eg layers • Best production rates • Better control of many diseases • Poultry can be housed and protected full time	• Cost of feed • Cost of housing • Feed not always easily available • No control over ration formulation unless prepared at home
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Free range scavenging

- Scavenging is often the only significant source of feed for the chicken. However, the amount of feed available through scavenging varies significantly during the year. At the end of the dry season, chickens obtain much less feed each day than they do during the wet season. For this reason, it is a good idea to encourage owners of village chickens to supplement with kitchen scraps, madeya, or other sources of feed, especially during the dry season. If they do this the chickens will grow more quickly and the owners will get more eggs.
- Some of the materials which can be used to supplement what the chicken can find on its own include:
 - many types of kitchen scraps which are readily eaten by chickens
 - madeya, broken rice and other by-products from edible grains
 - termites, snails, worms, and other insects
 - left over grain (**but never feed treated seed intended for sowing**)
 - harvesting by-products, millet, other seeds, and grass
 - fodder tree leaves, eg leucaena, sesbania or albizia
 - many of the by-products of oil seeds eg cotton seed cake, sunflower cake
 - other non-traditional feed materials which are readily eaten by chickens

Exercise:

Discuss what are the basic components of feed which are important for growth and health.

- Energy (in the form of carbohydrates and fats) is essential for growth. If feed is low in energy content, chickens need to eat more of it to grow well. If animals consume excessive energy, they get fat.
- Protein for early growth and for production of meat and eggs. Young chickens need more protein in their diet than older chickens.
- Minerals and vitamins which are necessary for health and strength. Lack of minerals can cause leg weakness in young chickens or soft shelled eggs in laying chickens.
- Water - the most important component of all! The water in the body constitutes 70-85% of the body weight and the egg. It is an essential medium for many of the biological processes in the body. Chickens can stay longer without feed than they can without water. Clean water should always be available. It should be replaced regularly.

Which feeds have which nutrients

Exercise:

Can you name feeds which are high in energy? High in protein?
High in vitamins?

Where do chickens get the minerals which they need?

- In general, grains have high levels of energy. Chickens grow well when they are fed plenty of grain based feeds.
- All chicken feeds have energy but some feeds which are good sources of energy and which can be easily obtained in Malawi include:
 - maize meal (mgaiwa) and maize bran (madeya, gaga)
 - rice, broken rice and rice bran
 - millet and millet bran
 - cassava, sweet potatoes
- Some feeds which are better sources of protein include:

- beans, cow-peas
- cotton seed cake and ground nut cake (after oil extraction)
- leucaena leaves and crushed leucaena seed
- fish meal, or meat and bone meal, blood
- termites
- Minerals are important especially for young growing chickens and layers. Calcium is important for bone growth and strong egg shells. Animal and fish bones, egg shells and even snail shells, can be burned and crushed and added to the feed to improve the mineral content.
- Vitamins and minerals can be obtained in commercial products called premixes. Usually, it is not necessary to add these to the diet of free-range chickens. They get sufficient when they forage the soils.

Session 4: Diseases of village chickens

Session Objectives:

At the end of this training session, each participant should be able to:

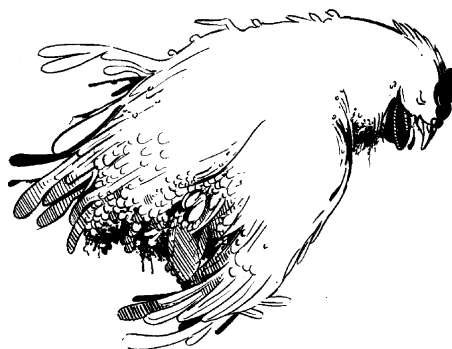
- 1. Understand the common signs of disease in chickens**
- 2. Understand the major causes of disease in village chickens in Malawi**
- 3. Know the appropriate treatment or preventative measures, if any**

Exercise:

List the signs of sickness commonly seen in chickens. What are the likely causes of these signs. Compare your list with the signs of disease shown below:



A healthy chicken



A sick chicken

Signs of disease

- The following table lists some of the common signs of disease seen in poultry and indicates the likely cause. We will look at specific diseases later.

Signs of disease	Comments
Weakness, dullness, loss of interest, loss of appetite, closed eyes, head dropping down, fluffed feathers	These are common signs in lots of diseases of chickens. If the chicken is sick from anything, it may show these signs.
Coughing, sneezing, rapid breathing, discharge from the nostrils	All of these are respiratory signs. Something is wrong with the breathing. There are many possible diseases which may cause these signs.
Diarrhoea or odd coloured droppings (green, white or reddish), dirty vent	Something is wrong with the digestion or gut. The cause may be worms, or germs in the gut. There are several diseases which can cause these signs.
Turned or twisted neck, erratic movement, poor control of movement.	Something is wrong with the brain or nerves. The cause might be Newcastle disease or it could be another disease caused by a germ.
Sudden deaths	This means deaths in significant numbers and over a short time - perhaps 1/4 of the flock dies within 1-5 days. The cause could be a serious disease like Newcastle disease. <u>Sudden deaths like this should always be reported</u> to the alangizi.
Paralysis of the legs or wings	Something is wrong with the nerves. This can be caused by diseases like Newcastle disease or other diseases caused by germs.

Signs of disease	Comments
Swelling of the head and comb and wattles. Blueness about the head.	There is something wrong with the blood supply to the head. There are several diseases caused by germs which may cause these signs.
Pale comb and wattles, often combined with dullness	There may be an insufficiency of blood. This can be caused by parasites which suck blood.
Wart-like nodules about the eyes and head	There is probably an infection with a disease called fowl pox. However the nodules might be caused by mites, tiny insects which attack the skin.
Bent legs and swollen joints, especially in young chickens	The bones are not strong enough to support the bird. This can be caused by poor diet or an imbalanced diet.
Scaly swellings on the legs	This can be caused by mites, tiny insects which attack the skin.
Groups of tiny dark insects around the eyes or on the wattles	These can be stick fast fleas. They are different from fleas on dogs because these ones do not move around.

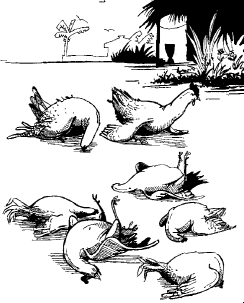
Exercise:

List the most common diseases of chickens in your area?

For each disease, give the local name and discuss how to treat the disease and how to prevent the disease.

Specific diseases of chickens

- Now we will describe some of the common diseases which are seen in chickens in Malawi.

Newcastle disease 	 (Images courtesy of Cornell University College of Veterinary Medicine, Partners in Animal Health, and US Department of Agriculture, and Kyeema Foundation) This disease appears perhaps 2-3 times a year and can kill many chickens within a few days or a week. It is spread directly by contact between sick chickens and healthy chickens.
Cause	It is caused by a virus which is brought by other chickens or occasionally wild birds.
Signs and symptoms	There may be diarrhoea, twisted necks, circling behaviour, and/or nasal discharge.
Prevention	If chickens are properly vaccinated against Newcastle disease, they will not die when it comes to the area. Vaccination against Newcastle disease will protect only against Newcastle disease, not other diseases. Chickens vaccinated against Newcastle disease may still die of other diseases. Vaccination of chickens against Newcastle disease is cheap. It is one of the most important ways in which to improve village chicken production.
Treatment	There is no treatment for Newcastle disease but it can be prevented using vaccines.

Infectious coryza 	  (Images courtesy of Cornell University College of Veterinary Medicine, Partners in Animal Health, and US Department of Agriculture) This disease is common in Malawi. It is spread directly by contact between sick chickens and healthy chickens.
Cause	A bacteria which is common in Malawi.
Signs and symptoms	Coryza is usually acute, but sometimes chronic. It affects the respiratory system, especially the nose and sinuses of the head. It causes swelling around the eyes and head, coughing, and a nasal exudate. This disease can make chickens sick for a week or so. It can kill many of the chickens.
Prevention	Under village conditions, prevention is not possible. Keeping chickens completely isolated from infected chickens is used in commercial operations.
Treatment	Various antibiotics can be given to treat the disease, best through medication of drinking water.

Fowl pox 	 Dr. Jaime Ruiz  (Image courtesy of Cornell University College of Veterinary Medicine) This disease is common in Malawi. It is spread directly by contact between sick chickens and healthy chickens.
Cause	A virus which is common in Malawi.
Signs and symptoms	Fowl pox is a disease which causes nodular swellings on the combs and wattles. This disease can make chickens sick for a week or so. It can kill some of the chickens.
Prevention	There is a vaccine but it is not used much in Malawi.
Treatment	There is no treatment which will stop fowl pox. Once the disease has appeared in a khola, it will run its course. However, the nodules on the head can be treated with disinfectants such as iodine solution. Take care - do not allow the solution to contact the eyes, nose or beak.

Worms	Worms are common in village chickens. Worms lay eggs which are tiny and are eaten by the chicken as it scavenges for food. They then grow into adult worms in the gut of the chicken and the worm eggs come out with the chicken's droppings. 
Cause	There are several different types of worms which can infect chickens. They include round worms and tape worms.
Signs and symptoms	Slow growth, a drop in egg production, diarrhoea, dullness, death. Young chickens will be affected worse than adults because they lack resistance to the worms.
Prevention	Under free range conditions, little can be done to prevent worms because the chickens continuously get infected from worm eggs in the dirt as they scratch around. If chickens are kept indoors, worms can be controlled through regular treatment with deworming drugs.
Treatment	Worms can be treated with deworming medicines. It is especially important to treat young birds because they are more likely to suffer from worms.

Stick-fast fleas	Stick-fast fleas are spread from an infested chicken to non-infested chickens by direct contact.
Cause	Dark coloured fleas which stick in clusters around the eyes and head.
Signs and symptoms	The symptoms are due to the loss of blood because the fleas suck blood from the chicken. Egg production will go down. The comb and wattles can be pale due to blood loss and some chickens can die if the infestation is severe.
Prevention	Flea infestations are difficult to prevent because young fleas survive in the khola and only attach to the chicken when they become adults. Brooding hens should be treated if they have fleas so that infestation of chicks is reduced.
Treatment	The fleas can be treated with greasy or oily substances which kill the mites by stopping them from breathing. Products which have been recommended include paraffin (kerosene), vaseline (petroleum jelly). As far as possible, avoid contamination of other areas of the skin with these products. The treatment should be done several times a day. The dead fleas will not drop off for some days. Some people have successfully used one drop of a pour-on insecticide on the head of the chicken. Others have used tick grease.

Fowl tampans	Fowl tampans are a type of tick which suck blood from chickens. They are introduced into the khola when new chickens, which are already infested, are introduced.
Cause	Tampans are insects which hide in crevices around the khola during the day and come out at night to suck blood from the chickens. They are similar to cattle tick but attack only chickens. The tampan is about 3 mm long and visible to the naked eye.
Signs and symptoms	The symptoms are due to the loss of blood because the tampans suck blood from the chicken. Egg production will go down. The chicken will be generally sick and depressed and it can die if the infestation is severe.
Prevention	Infestations are difficult to prevent because tampans survive in the khola and only attach to the chicken at night.
Treatment	There are chemicals (for example malathion) which can be used to spray the khola when the chickens are outside during the day. The chickens also need to be sprayed or dusted. This might need to be repeated after about one week. The chemical should be one which is safe for use in the khola. Your alangizi may be able to recommend the correct chemical which must be labelled and recommended for use in poultry.

Skin Mites	Skin mites are spread from an infested chicken to non-infested chickens by direct contact.
Cause	Tiny insects which live in crevices in the khola and which come out at night to feed on the chickens. They bite the skin and suck blood.
Signs and symptoms	The signs are due to blood loss and irritation. Egg production will go down. The comb and wattles can be pale due to blood loss and some chickens can die if the infestation is severe.
Prevention	Cleaning out the khola thoroughly can help remove the mites. Bark should be removed from wooden structures to remove hiding places for the mites.
Treatment	There are insecticidal sprays which may assist in killing the mites. The khola can be smoked out to eliminate many of the mites hiding in crevices. Spreading ash or agricultural lime on the floors and walls will deter mites from moving around.

Scaly leg mite	Scaly leg mites are spread from an infested chicken to non-infested chickens by direct contact.
Cause	A tiny insect which attacks the scales on the legs causing them to swell up and irritate the chicken.
Signs and symptoms	Swollen skin on the legs. There can be lameness and deformities of the leg.
Prevention	There are no easy preventive methods
Treatment	The legs can be treated with greasy or oily substances which kill the mites by stopping them from breathing. Products which have been recommended include paraffin (kerosene), vaseline (petroleum jelly), and even engine oil. As far as possible, avoid contamination of the soft skin and feathers with these products. The treatment should be done every week for at least 3 weeks.

Coccidiosis	Coccidiosis is a common disease of poultry which is spread from infected birds. Sometimes the infected bird may be an older bird which does not appear sick. Coccidiosis is often seen in intensively housed chickens but only rarely in village chickens.
Cause	Coccidiosis is caused by a tiny parasite which is spread in the droppings. The chickens get infected as they peck in the dirt and swallow the parasite.
Signs and symptoms	This disease causes diarrhoea which may be reddish with blood. Coccidiosis mostly affects young chickens and chickens which are housed in wet dirty conditions. Coccidiosis can kill chickens.
Prevention	Coccidiosis can sometimes be prevented by allowing more space or less birds in the chicken house and by avoiding wet dirty flooring.
Treatment	Coccidiosis can be treated with medicines if they are given early.

Other diseases

- There are other diseases which can kill chickens or make them sick.
- **Report sudden deaths:** If significant numbers of chickens die or get sick, this should be reported to the nearest mlangzi or other person responsible for animal health in the area.

"Sudden deaths" means deaths in significant numbers and over a short time - perhaps 1/4 of the flock dies within 1-5 days.

Review questions

1. Describe some of the different physical types of village chickens seen in Malawi.
2. What are the important considerations with respect to chicken khola construction in terms of:
 - location
 - minimum floor space
 - minimum perch space
3. Name the basic components of feed which a chicken needs.
4. Name some high energy feeds which are commonly fed to chickens in Malawi.
5. Name some high protein feeds which are commonly fed to chickens in Malawi.
6. Name some of the commonly seen signs of disease of chickens.
7. What are the signs of Newcastle disease?
How can Newcastle disease be treated?
How can Newcastle disease be prevented?