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The Handbook on Layer Farming



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Introduction

Chicken Layer farming is the fastest-growing industry in the livestock sector in Kenya. This is because eggs are in high demand because of their nutritional value and they are easy to prepare.

Breeds of Layers

Chicken Layers are high producers of eggs. They have a long production period and high peak production.

These are the four breeds of the commercial Layers in Kenya:



White Leghorn



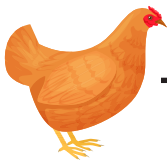
Kalinga Brown



Cari Gold

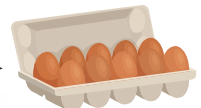


The Coloured Layer



Layers

Laying hens raise 700 days
120 days to start income



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Chicken Housing

Chicken housing should be carefully planned to give your chickens a comfortable place to grow well.

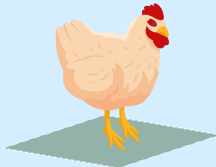
Key Housing Elements

Your chicken house should:

- Face in an East to West direction (length wise)
 - ✦ This will stop wind and direct sun from getting in
- Be well ventilated
- Be open on both long sides, with curtains that can be rolled upwards
- Have a foot bath in front of the entrance
- Have a solid foundation and cemented floor
- Have a rain proof and reflecting roof
- Have good biosecurity – rodents or birds should not be able to enter
- *If possible, add a roof catchment and water tank*

Dimensions

- The size of the house will depend on the number of birds you intend to keep.
 - Each layer chicken / improved Kienyeji chicken needs a space of 1.5 x 1 feet.
 - Each broiler bird needs a space of 1 by 1 feet.
- If you want to start with a small number of birds, and intend to expand, it's best to build a bigger house from the start.



Layers - 1.5 ft²



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Chicken Farm Blueprint

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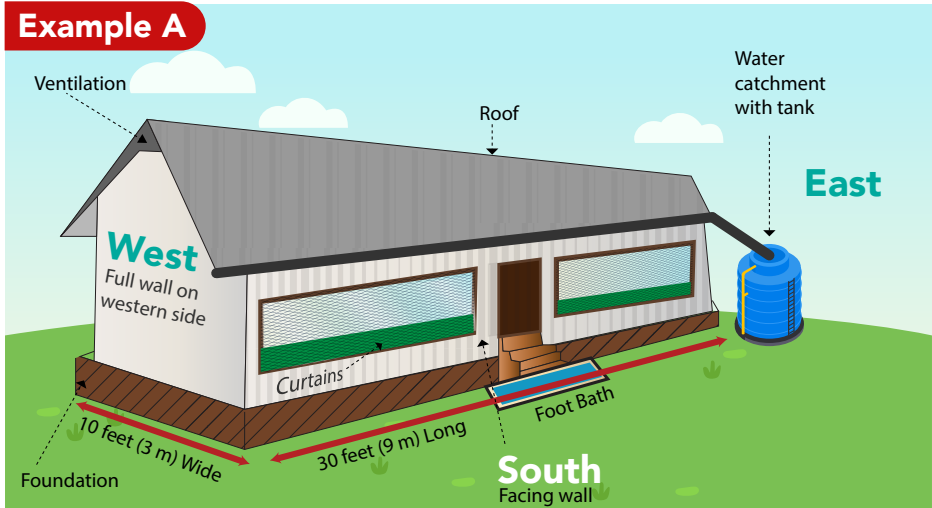
Example A

- House Dimension: 10 x 30 feet (3 x 9 m).
- Holding Capacity: 200 Layers / Improved Kienyeji Chicken OR 300 Broilers.

Example B

- House Dimension: 10 x 12 feet (3 x 3.6 m).
- Holding Capacity: 80 Layers / Improved Kienyeji Chicken OR 120 Broilers.


Here is an example for chicken house which can hold 300 Broilers/ 200 Layers or Kienyeji Chickens.



Equipment

Chicken equipment, both drinkers and feeders should always be kept clean and well-maintained. This will prevent cases of diseases in your chicken.

Equipment for 100 Chicks

Equipment	Comments	
Feeder	<ul style="list-style-type: none"> • One feeder for every 50 Day Old Chicks • Cleaned and disinfected. • All with fresh starter feed 	
Drinkers	<ul style="list-style-type: none"> • One drinker for every 50 Day Old Chicks. • Cleaned and disinfected • All with fresh water. • Use 6 L or 10 L drinkers <p>Features of a drinker:</p> <ul style="list-style-type: none"> • Has a twist-lock system and a hanger or carry handle • Easy to fill, easy to clean • Drinkers come in different sizes 1 L, 6 L and 10 L 	
Litter	<ul style="list-style-type: none"> • Use wood shavings or rice husks (not sawdust as chicks can choke) • Spread evenly to a depth of 5-10 cm • The litter should be soft and dry 	
Heat source	<ul style="list-style-type: none"> • Ensure that you have a source of heat like a brooder jiko and it is working well • Maintain a good temperature for your birds 	
Light	<ul style="list-style-type: none"> • The idea is to provide 23 hours of light for the first 7 days as this dramatically improves chick development 	
Brooder guards	<ul style="list-style-type: none"> • Round plywood is used to make the brooding area 1.5 m² per 50 Day Old Chicks • The area is cleaned, disinfected and with well spread fresh litter • Cover this area with paper and remove after 3 days 	

Layers Management Systems

There are two main ways of keeping and managing your layer chickens.



Deep litter system

- The chicken house should be made of concrete floors and covered with litter like wood shaving to make birds feel comfortable.
- The house is big to allow the chickens to move freely.
- Food and water provided within the house.

Points to consider when choosing the deep litter system:

- Keep the litter dry at all times.
- Only keep the right number of birds in the house to avoid overcrowding.
- The house should be well ventilated to allow free flow of fresh air.
- Mix the litter at least once a week.



Slatted floor system

- This system is similar to the deep litter system but no wood shaving is used on the floor.
- The floor is raised and fitted with slats of wood, strong mesh or plastic that have spaces in between.
- The chicken manure passes through the space to the ground.

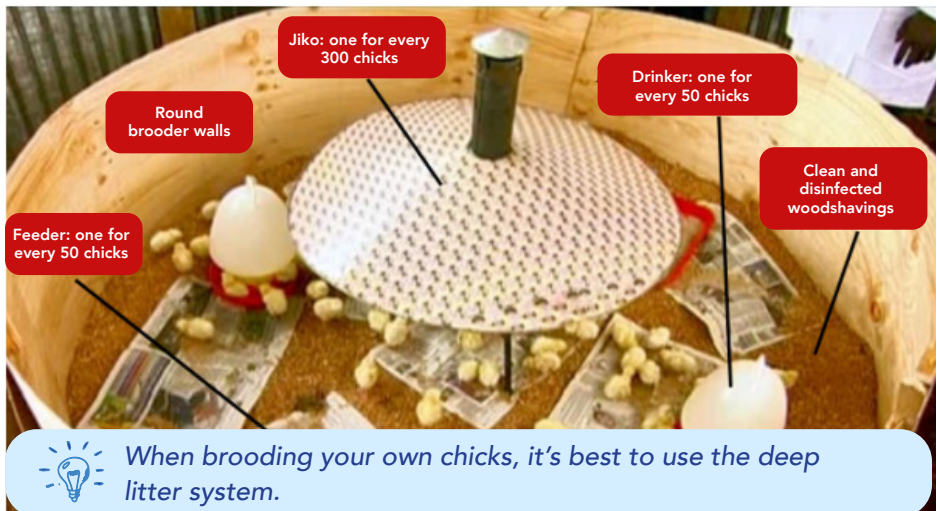
Chick Brooding and Management

Brooding

Brooding is the period immediately after hatching when special care and attention is given to chicks to support their health and survival.

This is done because recently hatched chicks:

1. Cannot maintain body temperature properly for the first weeks.
2. Can get cold easily if extra heat is not provided.
 - ◆ You can use a brooding jiko, gas or electricity.
 - ◆ When chicks are cold, they might not eat or drink enough, which slows down their growth, and their digestion organs may not develop properly.



What are the factors you need to check in this process?

- The brooder should be well prepared before the arrival of chicks.
- Ensure that there is a 3-4 week break between selling your old birds and bringing in new flocks.
- Wash and disinfect all the walls, ceilings, floors, cracks, and equipment.
- Clean all the water lines and channels.
- Whitewash the walls of the house.
- Set the heating system to 32 - 35 °C on the brooding floor.
- The brooder should be round in shape. This means chicks will not hide in any corners.
- Provide clean litter material (5-10 cm deep) inside the brooder.

Transportation

- Transport the chicks in a well-ventilated but not windy vehicle.
- Avoid direct sunlight or rain.
- Place the chicks in the brooder 6-12 hours after hatching.
- The shorter the transport period, the better for the chicks.

Arrival and Placement

- On arrival, carefully place the chicks in the already prepared brooder.
- Check that you have the number of chicks that you ordered.
- Ensure chicks are uniform, alert, active and free of signs of infection or any deformities.
- Ensure chicks have water and feed.
- The water should have glucose, and vitamins.
 - ✦ This gives the birds energy and eases transportation stress.



Temperature Management

The ideal temperature of 33 °C is recommended.

- ✦ This can thereafter be reduced by 2 °C every 3 days depending on the season.
- ✦ Under very good brooding, the temperature should be 27 °C by the 14th day.

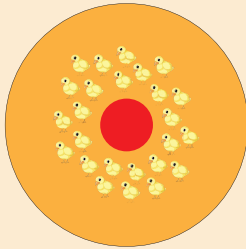
Chicken Behaviour in relation to Temperature

Observe your chicks and see how they behave – this will tell you whether they are too hot, too cold or just right.

Too cold

No activity, chicks get close to heat source.

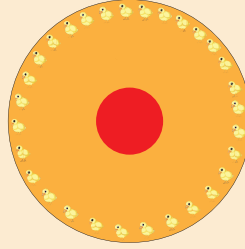
Action: Increase temperature.



Too hot

No activity, even spread, chicks are away from heat source.

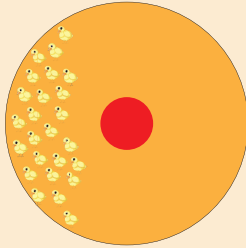
Action: Lower temperature.



Windy

No activity, chicks move to one side of brooder.

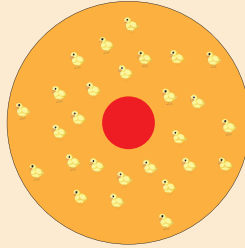
Action: Check breeze, light and noise around.



Right temperature

Good activity, chicks are spread well.

No action needed.



When the brooding temperature is just right, the birds will be evenly spread within the brooding area.

Did you know?

You can check the chick's temperature by placing its feet on your face.

- If the feet feel cold, they are cold, and you need to increase the temperature.
- If their feet feel hot, they are hot and you need to reduce the temperature of the brooding area.
- If their feet feel the same temperature as your face, they are OK.

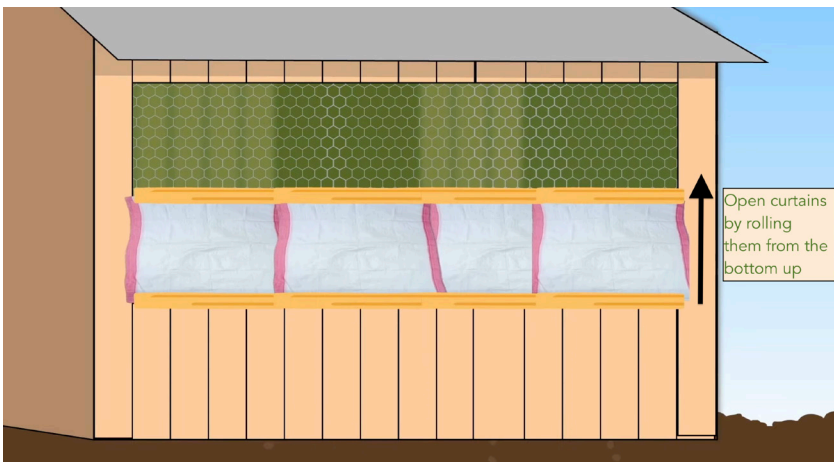
Spacing at the Brooder

- The brooding area should take up 1/3 of the house during the first week of the bird's life.
- Expand the brooder area every 2 days and the birds should take up 2/3 of the house by the time they are 14 days old.
- The birds take up the whole house by the time they are 3 weeks old.
- Good bird to space ratio means the birds can access water and feed easily and grow well.
- If there is not enough space, you will see higher death among your flock due to starving out, poor uniformity and stunted birds.

Brooder Ventilation

During brooding, it is important to have good airflow:

- Good air flow helps get rid of bad gases like ammonia and keeps the litter fresh and dry.
 - ✦ This reduces disease.
- Chicks need fresh air to grow and be productive.
- In high temperatures open the curtain from the bottom up and not from the top down. This is to avoid draft/wind. Chicks are sensitive to wind and the cold.
- A good house should have a window of at least four foot for ventilation.
- This might mean your costs for keeping the brooder warm are higher, but airflow is very important.



Feeding your Layers

Feed is the largest cost in layer farming. Your chickens need regular and good quality feeds and clean drinking water to grow well.

- Upon arrival chicks should have access to clean and fresh feed.
 - ✦ This is to ensure we get good final performance and growth.
 - ✦ If chicks are feeding and drinking well, they will store their feed and water mix in what is called a "crop".

Feeds

Layers need feeds that contain: **Energy** **Protein** **Vitamins**

Age in weeks	Weight in grams
Week 1	Full feed (<i>Ad libitum</i>)*
Week 2	Full feed (<i>Ad libitum</i>)*
Week 3	35 g/bird/day
Week 4 (1 Month)	40 g/bird/day
Week 5	43 g/bird/day
Week 6	46 g/bird/day
Week 7	49 g/bird/day
Week 8 (2 Months)	52 g/bird/day
Week 9	55 g/bird/day
Week 10	59 g/bird/day
Week 11	62 g/bird/day
Week 12 (3 Months)	65 g/bird/day
Week 13	68 g/bird/day
Week 14	71 g/bird/day
Week 15	74 g/bird/day
Week 16 (4 Months)	77 g/bird/day
Week 17	80 g/bird/day
Week 18	85 g/bird/day
Week 19	90 g/bird/day
Week 20 (5 Months)	95 g/bird/day
Week 21	108 g/bird/day
Week 22	116 g/bird/day
Week 23	125 g/bird/day

**Ad libitum*= allow them to feed as much as they want

Vitamins

- In nature, vitamins are found in young and green plants, seeds and insects.
- It is a good idea to supplement your birds' feeds with greens like kales to remain healthy.
- Buy and mix vitamins with feeds.
- Give vitamins when there is change of weather, when changing feeds, after vaccinations and when there is a disease outbreak.

Water

Water is important for layer birds and it impacts the bird's growth.

- Provide clean and cool water every day.
- When chickens don't have enough water, they won't convert feed to meat or eggs well.
- The temperature, humidity (how moist or dry) and type of feed given to birds all affect the amount of water birds take.
- Ensure that no water touches the litter. If this happens, it becomes a breeding ground for chicken disease.



Remember!

About 65-78% of a chicken's body is made up of water.

Litter Management

Litter is wood shavings spread on the floor to absorb moisture, break down chicken droppings, and provide warmth to the birds.

Manage your litter well to support:

- Good growth in your chicks
- A good healthy flock with low sickness and disease risk
- High-quality meat

Here some tips:

- Use cemented floors as they are easy to clean.
- Cover the floor with wood shavings to keep chicks warm.
- Sprinkle a mixture of wood ash and fertiliser grade superphosphate in the ratio of 4:1.
 - ✦ Use 4 parts of wood ash to 1 part of fertiliser grade superphosphate.
 - ✦ Apply 5 kg of the mixture per 10 m² area, then mix it up with the litter.
- When you see dirt on the bird's feet, it means that you have not managed your litter well.



Did you know?

Fertiliser grade superphosphate is a type of fertiliser used in the chicken house to help reduce the release of Ammonia gas. Ammonia gas can be poisonous and may make the birds blind and affect their normal growth.

Stress Management

When chicks are stressed, they will die – avoid this by all means!

The main causes of stress in broiler farming include:

- Noise from people
- Predators such as cats, rats and dogs
- Temperature is either too hot or too cold
- Poor biosecurity

Weekly Breakdown: From Chicks to Layers

Your Layers will go through three different sets of “housing” from when they are one day old, until they are laying. In each phase, they need different floor space. You can simply expand the brooder as they chicks grow bigger.

Duration	Type of house	Spacing needed
0-2 Months (0-8 Weeks)	Brooder house	0.7 ft ² /bird
3- 5 Months (9- 20 Weeks)	Grower house	1 ft ² /bird
6 – 18 Months (21-72 Weeks)	Layer House	2 ft ² /bird



Management of Chicks

Age: 0-8 weeks (0-2 Months)

Provide a clean brooding area to keep the chicks for the first two months.

✦ Temperature:

- On day 1 start at 35 °C
- Reduce by 3°C for five weeks until you reach 20-21 °C

- Light: Provide continuous light during the brooding period.
 - Water: Provide clean and fresh water throughout.
 - Inspection: Check your birds daily to identify any sickness or abnormalities.
 - Feeders and drinkers: Adjust to a height the chicks can feed and drink comfortably.
- ✦ Chicks should not have to move more than 1 m (3 ft) to find water or feed in the first 24 hours.

- ✦ Feed the chicks on *Chick Starter Mash*.
- ✦ For the first 2 weeks, give plenty of feed but reduce little by little.
- Weigh a sample of birds every week to make sure that they are feeding and gaining weight well.

Management of Growers

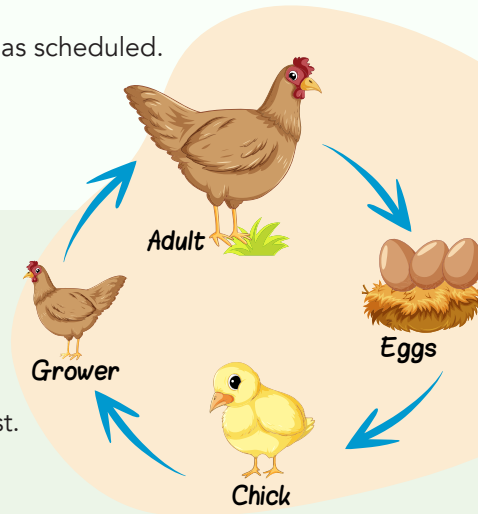
9-20 Weeks (3-4 Months)

- At 9 weeks, transfer the chicks to the grower house.
- Adjust the drinkers and feeders as per the needs of the birds.
- Introduce *Grower Mash* to the birds.
- Roll the curtains from the bottom to the top when it is warm. This will allow fresh air to flow in and out.
- Repeat debeaking if necessary.
- Vaccinate the birds against Fowl Typhoid or as scheduled.
- Check feed intake and body weight often.
- Light: Provide 12 hours of light a day.
- Remove sick birds as early as possible.

Management of Layers

21-72 Weeks (5-18 Months)

- At this stage feed the birds on *Layer Mash*.
- Provide 1 laying nest for every 5 birds.
 - ✦ Use clean wood shavings in the laying nest.
 - ✦ Change the nesting material daily.
 - ✦ Collect eggs 3-4 times daily.
- Ensure free flow of fresh air in the layer house without wind.
- Light:
 - ✦ At the start of the 5th month, provide light for 12 hrs a day.
 - ✦ Increase by 30 min every week until 16 hours of light is reached (they will be 7 months old)
- Disinfect the chicken house weekly to stop external parasites like ticks, mites, and lice.
- Remove dead birds quickly and dispose of them properly.



Good Quality Eggs

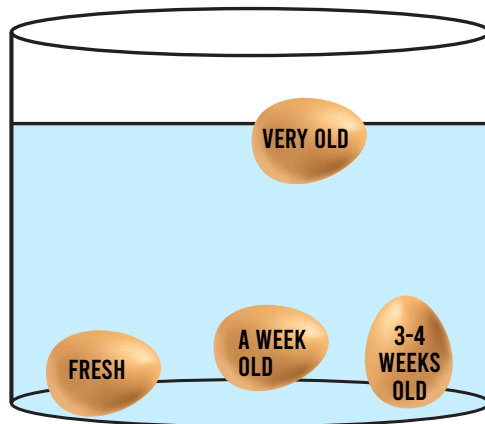
Laying Boxes

- Set up laying boxes for your chicks and add wood shavings.
- Place the boxes at least 2 feet off the ground.
- Do not let your chicken eat their eggs. This is a common problem with hungry birds.
- Most chickens finish laying eggs by 10 am.
- It is important to keep your nesting boxes clean and to pick up your eggs daily.

Knowing the exact time that you have to collect the eggs before the hungry birds attacks is important.

Keeping eggs

- Eggs get stale quickly in hot weather.
- Eggs need to be stored in a cool place.
- They should not be dirty.
- The best fresh egg will lay on its side when put in water. If it stands on its end it is still fresh and good to eat, it is just not as fresh as it would be if it laid on its side.
- Very old eggs will float.



If you keep your eggs refrigerated they should last about six weeks.

External features

First Grade Eggs

- Consumers prefer eggs that are either white or brown shelled but both have the same nutritional value.
- Dirty eggs, blood-stained eggs and fly marks on the shell make the eggs unattractive to the customer. They should be cleaned before selling or eating.

Second Grade Eggs

- Eggs can be deformed and have soft shells with pimples and rough surface.
- Eggs may break easily especially if the hens are old.
- These eggs are classified as seconds and fetch a much lower price in the market.

Biosecurity and Biosafety

Prevention is better than cure!



Ensure the house is cleared of birds 14 days before you bring in a new batch.

This will allow you to clean and sanitise the house and get rid of diseases that only survive in birds.

Good Practices to protect your Chicken against Disease and Enemies



Only allow essential staff to enter the chicken house.



Place a footbath with a disinfectant like Kupacide outside the chicken house.

Each person working in the house should have their own special pair of gumboots that they wear when entering the house.



Remove old litter, dirty bags and rubbish away from the house.



Remember!

Remove sick birds and bury dead birds as soon as you notice them. Never eat or sell sick birds as they may make the family and others sick.



Throw away old feed as they may have moulds or produce toxins.



Keep birds of the same age together to reduce disease outbreaks.



Ensure no rodents or wild animals can enter the house.



Regularly clean and dry all equipment.



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