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# The Handbook on Improved Kienyeji Chicken



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# Introduction

The Improved indigenous chicken is also known as an Improved Kienyeji Chicken in Kenya.

It is a breed made by crossing different local, or Kienyeji Chickens from Kenya. The result is a bird that matures faster and is high producing compared to the traditional Kienyeji bird.

**Kienyeji Chickens are the most common type of poultry amongst smallholders in Kenya. This is because they are:**

- Easy to get
- Easy to maintain
- High in demand

**Kienyeji Chicken provide:**

- Meat for consumption
- Eggs
- Money from selling the chickens or eggs




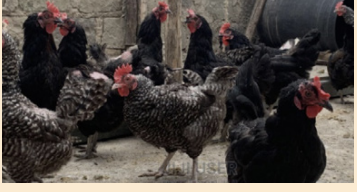



Kienyeji Chicken is an easy source of income for women and youth in rural areas as one can start with just a few chickens and add more slowly.

## Why keep Improved Kienyeji Chicken?

- They need less feed than layers and broilers.
- They eat kitchen waste and leftovers.
- Chicken meat and eggs are good sources of protein, especially for children and nursing mothers.
- They are a good source of income.
- They are easily available in rural areas and near urban centres at affordable prices.

# Breeds of Improved Kienyeji Chicken

In Kenya, there are different breeds of Improved Kienyeji birds.

<p><b>KARI Improved</b></p> <ul style="list-style-type: none"><li>• Developed by the Kenya Agricultural and Livestock Research Organisation (KALRO).</li><li>• Grow fast, growing to a weight of 1.5 kg in 5 months.</li><li>• Lay around 200-270 eggs per year.</li></ul>	
<p><b>The Kuroiler Bird</b></p> <ul style="list-style-type: none"><li>• Easily convert the kitchen and farm waste into meat and eggs.</li><li>• They are a fast-growing breed.</li><li>• They lay around 150 eggs per year.</li></ul>	
<p><b>Rainbow Rooster</b></p> <ul style="list-style-type: none"><li>• Fast growing multi-coloured bird.</li><li>• Bred at Indbro Research &amp; Breeding Farms in India.</li><li>• They have to be fed commercial layer feeds to lay 160-180 eggs/year.</li></ul>	
<p><b>Kenbro Chicken</b></p> <ul style="list-style-type: none"><li>• They have red feathers.</li><li>• They grow fast.</li><li>• If kept for meat, they can grow to a weight of 1.5 kg in 3 months (12 weeks).</li><li>• If kept for eggs, they will start laying in 22-24 weeks.</li><li>• They lay around 200 eggs per year.</li></ul>	
<p><b>Sasso</b></p> <ul style="list-style-type: none"><li>• Multi-coloured birds.</li><li>• They grow slowly.</li><li>• Lay around 150-200 eggs with good management.</li><li>• Mostly raised for meat and is left free to eat grass, worms, and insects with little supplementation.</li></ul>	

# Improved Kienyeji Production Systems

There are three main ways of keeping Kienyeji Chickens:



## Free and Semi/free Range

- Free range is where the chickens are left free to eat worms, insects, grasses and leaves around the farm. They are then sheltered at night.
- Semi-free range is where birds are put in an enclosed place for some time and given food. They are then allowed to roam outside to eat worms, insects, grasses and leaves around the farm.



## Fold Unit System

This is also known as a “chicken tractor”.

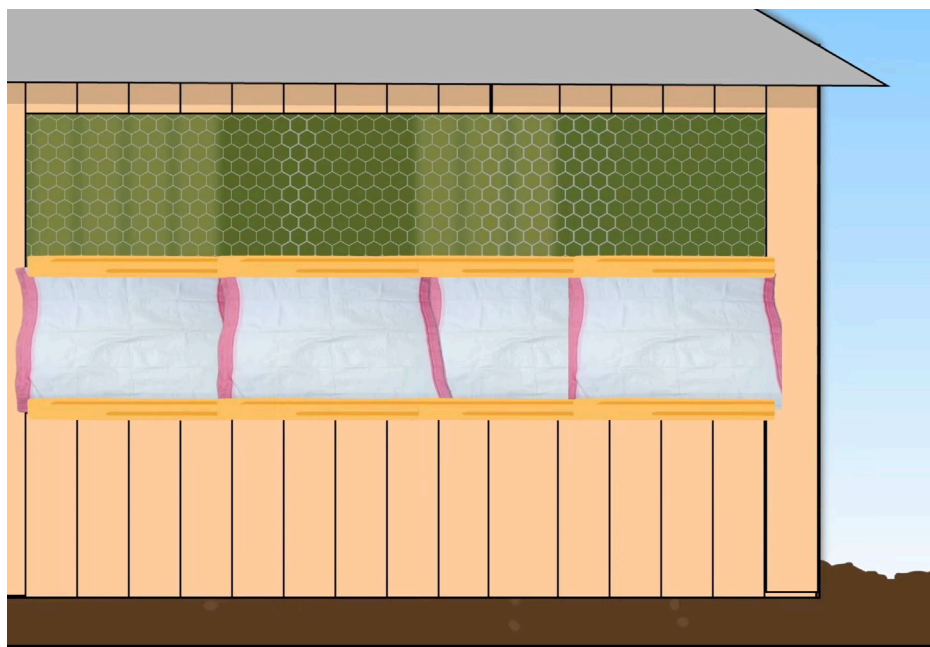
- Birds are kept in a small, movable house made out of wire mesh big enough for the chickens to move around.
- This house is moved from one spot to another every day.
- This system is best suited to small scale operations.



## Small-scale Confined System

This is also known as the “deep litter” system.

- The chicken house is made of concrete floors but covered with litter (wood shavings) to make birds feel comfortable.
- The house is big to allow the chickens to move freely.
- Food and water are provided inside the house.



## Chicken Housing

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

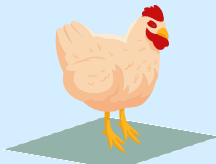
### Key Housing Elements

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 Improved Kienyeji Chicken/ Layer 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.



Kienyeji Chicken - 1.5 ft<sup>2</sup>



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### Example A

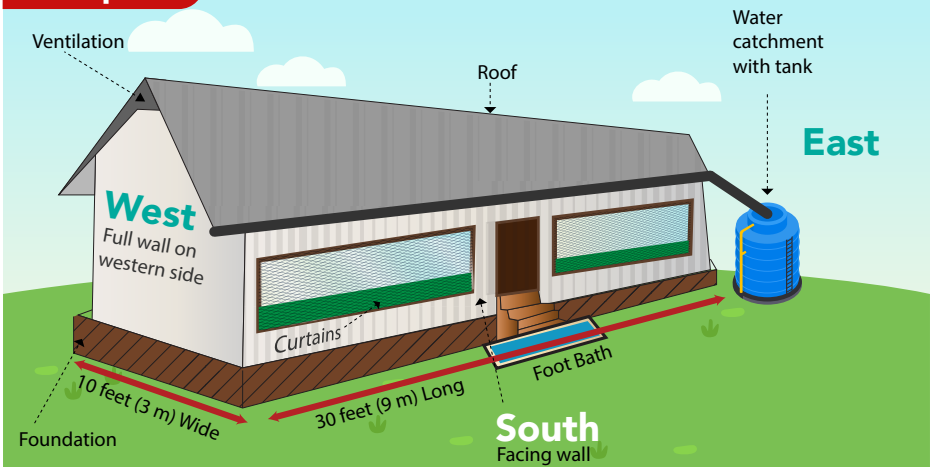
- House Dimension: 10 x 30 feet (3 x 9 m)
- Holding Capacity: 200 Kienyeji Chicken / Layers OR 300 Broilers

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

### Example B

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







### Example A



# 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"> <li>• One feeder for every 50 Day Old Chicks</li> <li>• Cleaned and disinfected.</li> <li>• All with fresh starter feed</li> </ul>	
Drinkers	<ul style="list-style-type: none"> <li>• One drinker for every 50 Day Old Chicks.</li> <li>• Cleaned and disinfected</li> <li>• All with fresh water.</li> <li>• Use 6 L or 10 L drinkers</li> </ul> <p><b>Features of a drinker:</b></p> <ul style="list-style-type: none"> <li>• Has a twist-lock system and a hanger or carry handle</li> <li>• Easy to fill, easy to clean</li> <li>• Drinkers come in different sizes 1 L, 6 L and 10 L</li> </ul>	
Litter	<ul style="list-style-type: none"> <li>• Use wood shavings or rice husks (not sawdust as chicks can choke)</li> <li>• Spread evenly to a depth of 5-10 cm</li> <li>• The litter should be soft and dry</li> </ul>	
Heat source	<ul style="list-style-type: none"> <li>• Ensure that you have a source of heat like a brooder jiko and it is working well</li> <li>• Maintain a good temperature for your birds</li> </ul>	
Light	<ul style="list-style-type: none"> <li>• The idea is to provide 23 hours of light for the first 7 days as this dramatically improves chick development</li> </ul>	
Brooder guards	<ul style="list-style-type: none"> <li>• Round plywood is used to make the brooding area 1.5 m<sup>2</sup> per 50 Day Old Chicks</li> <li>• The area is cleaned, disinfected and with well spread fresh litter</li> <li>• Cover this area with paper and remove after 3 days</li> </ul>	

# Sourcing for Chicks

## Hatching own Chicks

Mother hen sits on eggs for 21 days to keep them warm until they hatch.

- This is a natural process.
- She can sit and incubate her own eggs or those of another hen.
- It's the simplest way of hatching a small number of eggs.



## Artificial Brooding

Incubating machines are used to hatch eggs into chicks.

- It's mostly used by farmers who are in the business of selling Day Old Chicks or keeping many birds.
- It hatches many eggs at once.



## Buying Day Old Chicks from Hatcheries

You can buy Day Old Chicks from hatcheries directly and start brooding the chickens on your farm.

- Identify registered hatcheries or chick nurseries to buy Day Old Chicks.
- Select hatcheries that vaccinate chicks against Marek's disease.

Now that we have our chicks, how do we care for them?





# Chick Management

## Brooding

Brooding is a period right after the chicks have hatched and special care and attention is needed to support their health and survival because:

- Hatched chicks can't control their own body temperature in the first weeks.
- You need to provide extra heat otherwise chicks will be too cold and may not eat well, drink enough or may even die.

### Traditional brooding

- Here brooding is done by the mother chicken.
- She covers the young ones with her wings to keep them warm.



### Artificial brooding

When there is no mother hen to look after her chicks, you need to set up an artificial brooder.

- During the first 2-3 weeks, chicks need to be kept in a brooder as they cannot control their own body temperature yet.
- You need to give them special care to support their health and survival.
- Artificial heat helps keep chicks stay warm until the feathers grow.
- Heat can be provided by using a brooding jiko, gas, or electricity.



*Remember! Without the extra warmth, chicks can easily feel cold and may not eat or drink enough and their digestive organs may not develop properly.*

## Setting up the Brooder

The brooder is a good set up for making sure the chicks are warm and have enough food and water. Here's what to do:

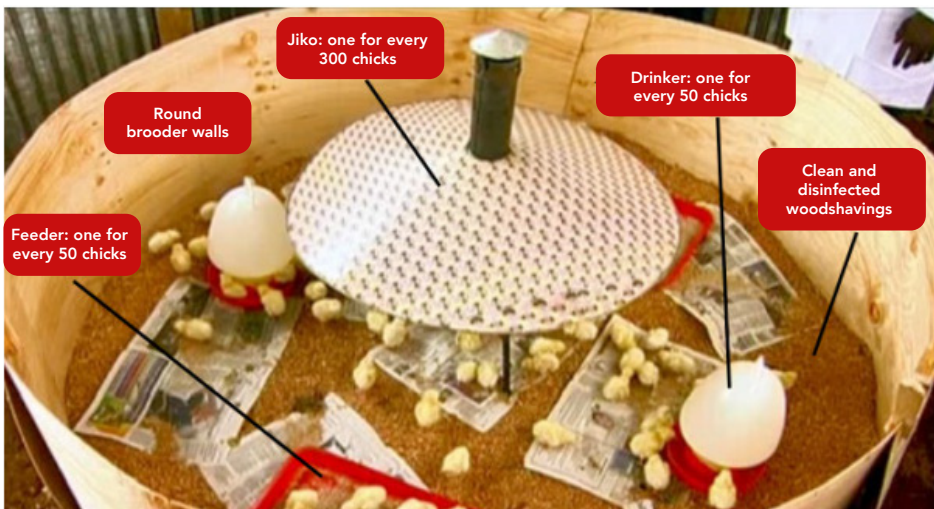
- The chicken house should have been empty for at least 3 weeks before bringing in the new chicks.
- Set up a circular brooder made out of plywood.
- Wash and disinfect all the walls, ceilings, floors and equipment (including drinkers and feeders).
- Set up drinkers and feeders and spread evenly so the chicks can access them easily.
- Pre-heat the house to a temperature of 28-30 °C.
- Provide clean litter material (2-4 inches deep) inside the brooder.

The brooder area should be ready at least a day before the chicks arrive. During brooding, make sure you manage the following well:

Temperature Spacing Ventilation Feeds Water

### Making a brooder for 100 Chicks:

- You will need a brooding space of 40 ft<sup>2</sup>.
- The standard size of plywood available in Kenya is 8 ft by 4 ft. You will need 1.5 pieces of this size.
- Divide the plywood into 2 pieces to measure 8 ft by 2 ft and join the sides together with U-nails to form a large circle.
- Put 2 feeders and 2 drinkers in the brooder (1 serves 50 chicks).



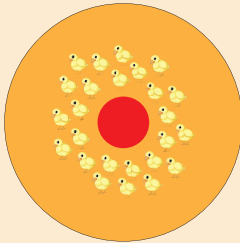
## Chicken Behaviour in relation to Temperature

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

### Too cold

No activity, chicks get close to heat source.

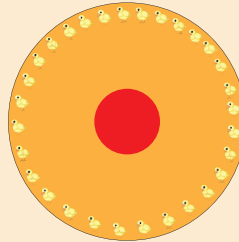
*Action:* Increase temperature.



### Too hot

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

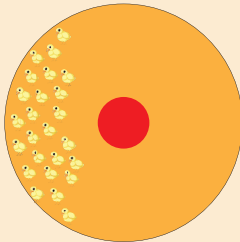
*Action:* Lower temperature.



### Windy

No activity, chicks move to one side of brooder.

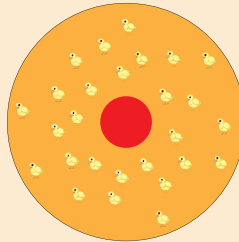
*Action:* Check breeze, light and noise around.



### Right temperature

Good activity, chicks are spread well.

No action needed.



## Litter Management

Litter is the material we put on the floor (wood shavings) to absorb moisture, dilute chicken droppings, and provide warmth and cushion between the birds and the floor.

### Importance of good Litter Management

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

### How to manage Litter

- Have cemented floors as they are easy to clean and disinfect. Cover the floor with wood shavings to provide warmth.
- The wood shavings should be to a depth of 2-4 inches (5-10 cm) and as it breaks down, add more wood shavings.

- During cold seasons, increase the litter depth to 10-12 inches (25-30 cm) to provide extra warmth.
- Mix up litter (wood shavings) to break clumps and allow it to dry.
- Sprinkle a mixture of wood ash and fertilizer-grade superphosphate with a ratio of 4:1. Use 4 parts of wood ash to 1 part of fertilizer-grade superphosphate.



### Did you know?

Fertilizer-grade superphosphate is a type of fertilizer 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 can affect their normal growth.

- Apply 5 kg of the mixture per 10 m<sup>2</sup> 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.

## Feeding, Vitamins and Water

Improved Kienyeji Chickens need feed that contains:

Energy

Protein

Vitamins

Minerals

Water

Feed requirement is dependent on the age and status of the birds: chicks, growers, layers, meat birds and broody hens.

### Feeds

There are different types of chicken feed for the different age categories, as shown below.

Age	Feed type	Feed quantity	Feed quality
0-8 weeks	Chick mash	20-35 g per chick per day	Provide high protein feed.
8-18 weeks	Growers mash	80-100 g/bird/day	Provide high quality well-balanced feed that helps chickens gain weight fast.
Layers	Layers mash	120-140 g/chicken/day	Include a DCP salt, to enhance the calcium and phosphorus. Feed that improves egg production in laying birds.

## Vitamins

- In nature, vitamins are found in young and green plants, seeds and insects.
- It is a good idea to supplement your birds' feed with greens like kale 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

- Give chicken clean, fresh water all the time at the same place. Water given to chickens should be fit for people to drink.
- Lack of water will reduce feed intake and seriously reduce growth and egg production.
- Chicken can get diseases by drinking unclean water.
- Keep all feeders and drinkers clean to avoid diseases.

## Biosecurity and Biosafety

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

*Prevention is better than cure!*



## 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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