

Sustainable agriculture for the future

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Poultry Farming for Beginners: Part 4

Planning Systems For Layers

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The demand for eggs increases by the day as more and more people become aware of the tremendous nutritive value of eggs.

Starting out as an egg producer can be very expensive if the prospective farmer wishes to establish a modern laying battery system. However, the secret to success is not to start too big. Start a small project and once one has gained the necessary experience, and the project is a success, then only start thinking along the lines of expansion and then only as far as the market will allow.

Basic planning data

Laying hens can be brooded and reared as chicks and pullets, or if you want to start selling eggs quite soon, or if you want to specialise only in egg production, 18-week-old birds can be bought from poultry agents. These birds are kept in the laying accommodation from 18 weeks of age till laying starts at 20 to 25 weeks of age. Different housing facilities, constructions, and equipment are available and will be discussed in the following sections.
Price of Point of lay chick R85/chicken.

Different layer systems

Fold unit (Free range eggs)

The unit is systematically moved over an area of grassland, to avoid infections and give new

pastures for the layers. Management and layout on big fold units are high. The unit must be moved daily to a fresh piece of land and not be returned to the same spot or area for about 30 days.

The ideal site for this type of layer accommodation is flat land with light, well-drained soil and with short-cut grass pastures. Each unit needs about 160 m² of pasture and each layer needs 0,30 m² of floor space. For a general quantity of 16 layers per fold unit, 5,0 m² of floor space are needed.

Poultry run system (Free range)

The advantage of a layer house with an outside fowl run, is that the layers can benefit from the sunlight and pasture. However, the system could be expensive depending on the amount of netting for the run.

The poultry run system consists of a house and a well-drained exercise area enclosed by wire netting. The house must be equipped with perches, nests and feed and water troughs.

The size of the house and run is determined by the quantity of layers and the guideline is that each layer needs about 5,0 m² in the run area and 0,2 m² in the house. Thus, a system

for 25 layers requires a run area of 125 m² and a house of 5 m².
 For laying, six single nests or one communal nest with a floor space of at least 0,24 m² is needed for 25 layers.

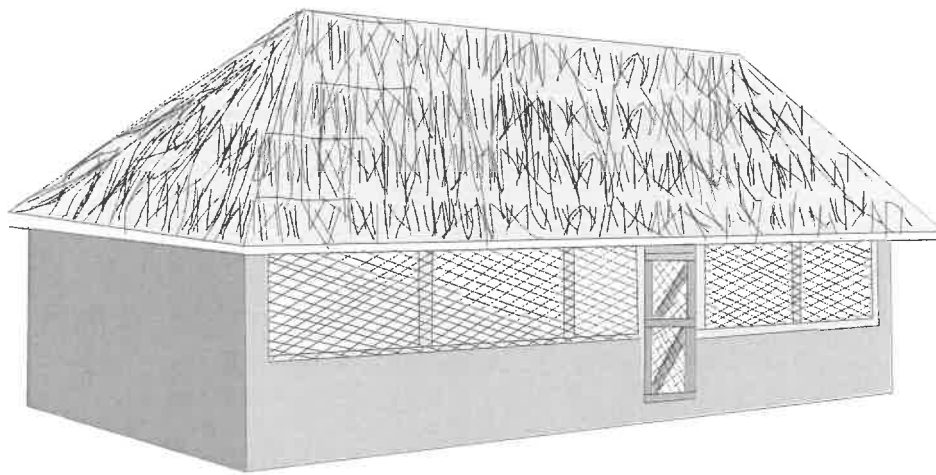
Deep litter systems (intensive farming)

This is an intensive layer system because poultry are kept indoors all the time and very little space is necessary. The litter should be removed from the house and put into a compost heap at the end of the hens' laying cycle, that is approximately every 12 months.

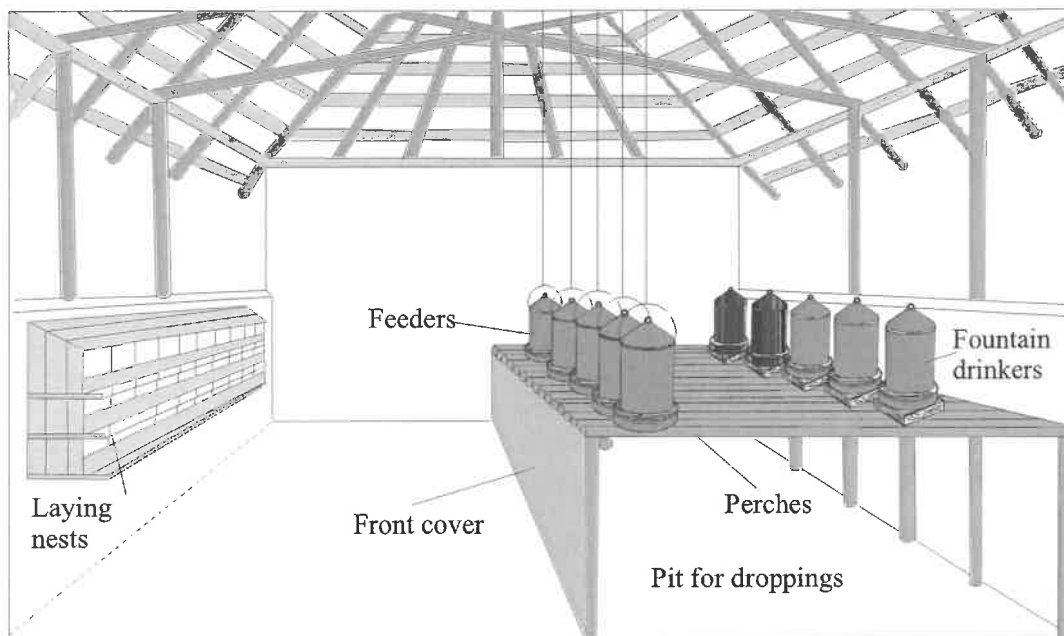
The number of birds per square metre floor space depends on the size of the unit and the breed of layers. The layout and construction of a general deep litter layer house is the same as for a poultry run system (but without the run area).

Battery system (intensive farming)

Some poultry and egg producers use this more intensive and sophisticated method for egg production by layers. It is a type of "factory" farming where the layers are kept in cages arranged above the floor in a weatherproof and ventilated chicken house.



Deep litter house



Inside the house
 Deep litter and slatted floor house

Droppings fall through the wire bottom of the cage onto the floor. Eggs are laid on the wire and roll forward out of reach of the hens. Up to five layers live in one cage and food is usually restricted so that the hens do not get fat and stop laying eggs.

The battery method is layout- and space-saving. It is comparatively easy to feed and water the hens, collect the eggs, and check on their health. Droppings are easy to remove from the floor and no litter is needed.

Fittings and equipment for layers

Nests

In a hot climate, well ventilated nests with small perforations at the back of the box, are recommended. Nests should be deep and dark and designed in such a way that nest material cannot be easily scratched out. A 60 mm high lip in front of the opening to the nest would be sufficient for above-mentioned purpose.

Nest boxes may be construct from timber, metal, bricks, or concrete slabs. Single nests should be 250 to 300 mm wide, 300 to 380 mm deep and 300 to 350 mm high, depending on the size of the layers. A landing board or a perch should be attached 100 to 200 mm from the front of the nest on each tier. The number

of nests depends on the size of the groups of birds.

Single nests can be place in one, two or three tiers above each other. The lowest should be raised at least 600 mm from the floor or ground level, otherwise hens tend to crawl underneath these nests and lay there. Nests should preferably not face the light, because dark conditions reduce egg eating.

Nest boxes may be arranged so that the eggs can be collected from outside the shed. Alternatively, an open-topped nest with three or four compartments can be placed just inside the door so that eggs can be collected without going into the pen.

Feeders and drinkers

The feed requirements of layers are about 120 grams layers mash per bird per day, or two kilograms per day for a total of 16 layers. Two meters of linear feed space is required for a unit of 16 layers. Troughs are attached along the side of the unit to be filled by hand from the outside. For 16 layers about five litres drinking water is needed per day in a water trough or a fountain drinker. Linear water trough space needed is about 250 mm for 16 layers.

Feed should be stored in bags in a dry room protected from pests and insects. For larger units a separate lockable storeroom should be built close to the poultry house. Feed bags should be stored on a slatted wooden floor. A storeroom of 1,5 to 4,0 m² area is recommended, depending on the size of the unit. A layer eats about 3,5 kg of Layers mash in one month.

Drinking troughs should be designed to contain enough water for at least 24 hours and should be made of non-corrosive material, like galvanized iron, plastic, or burnt clay. All layers need a drinking place within a distance of three meters.

Temperature and light

Keep layers comfortable. Between 11 and 26°C layers produce most eggs and eat a minimum of food. Below 11°C more feed is eaten to produce eggs. Above 26°C, less feed is eaten and less eggs are laid. Above 35°C the layers pant a lot, stop eating and do not lay any eggs. When temperatures are high you can cool down the layers by spraying the roof, and even the hens, with water. If the hot



Battery Cage

(Picture source: https://www.alibaba.com/product-detail/Nepal-Layer-Chicken-Battery-Cages-For_62387902058.html)

weather lasts for a few days, you should paint the roof white or cover it with grass or shade cloth and open all windows and doors wide.

If the layers often get heat stress in summer (e.g., Lowveld conditions) then the poultry house should be altered, and fewer layers kept in the house. Suggestions for house alterations are:

- Replace a metal roof with fibre cement or thatch.
- Raise the height of the roof.
- Remove rows of bricks in the side walls and replace with wire netting.

In places that have cold, windy weather you can cover the netting with hessian or plastic or have solid brick walls up to the eaves on windy sides. Layers are more comfortable and produce more eggs if there are no smells in the house and the litter is dry. Fresh air (but not draughts) moving through the house will remove excess moisture and smells. Natural ventilation and a well-designed poultry house will ensure this.

Managing the laying flock

To secure a high rate of egg production, it is essential to ensure that pullets and layers are well bred, reared, fed, and managed throughout the growing period.

Modern hybrid layers properly fed, housed, and managed, will produce over 230 eggs per layer in twelve months. Well managed pure breeds may produce 200 eggs and indigenous birds 150 eggs during the same period of time. Good layers can lay well for only 12 to 14 months, so keep layers only for this period.

Poultry manure is a valuable fertilizer. A layer produces about 150 to 200 g of manure daily. Litter and manure from the poultry house should not be left in a wet heap and should also be covered from rain. It should be spread out to dry and then stored in a dry place. Dried manure could be sold in bags for cash, or spread on crop fields, orchards, and vegetable gardens as compost.

A typical management program is shown in the table below.

Management program		
Management daily	Management 14 days	Management monthly
Check the poultry for signs of disease	Change litter in nest boxes.	Total record. Calculate how much feed (and money) was needed for egg production.
Check the environment - temperature	Check the house for insects and clean it.	
Clean drinkers and provide fresh drinking water	Turn old litter if necessary.	
Check feeders and clean, if necessary, provide fresh feed	Add more litter on top if necessary.	
Check litter, remove wet cakes		
Collect eggs three times a day		
Keep records and check for deviations		

If hens stop laying eggs, one or more of the following may be the reason:

Moulting

It's a natural process in which a hen loses its old feathers and replaces them with new ones. While moulting, hens will stop laying for up to three months, depending on their age. Normally hens moult or nest once a year. Moulting as a reaction of stress causes hens to stop laying or to lay at a reduced rate.

Stress

Stresses such as moving, handling, chilling, overheating, beak trimming, lack of water and fright, can cause moulting or a drop in egg production.

Decreasing daylight

Decreasing daylight frequently causes hens to moult and to stop laying eggs for about two

months if they are receiving only natural light, and especially if they have been laying for a long time. To prevent this, supplementary daylight should be provided to maintain a constant daylight length of 15 to 16 hours.

Disease outbreaks

Disease problems can occur even under the best conditions. Often the first sign is a drop in feed consumption followed by a decline in egg production. Other symptoms include moulting, dull and listless appearance, coughing, lameness, and death. Remove wet litter as soon as possible to avoid a build-up of worms and other parasites.

Age of the flock

The older the hens are, the fewer eggs they will lay. Egg laying will be interrupted by annual moults and sometimes even two

moults a year for older hens. For economic reasons it is usually good practise to replace hens after two laying seasons.

Feeding

Hens need to be fed a balanced diet if they are to lay well. This means that they require a daily ration of energy, protein, vitamins, and minerals. Hens will lay on a diet of grain, green feed, and kitchen scraps; but egg numbers will be lower than if they are fed a correctly balanced diet. If the diet is deficient in calcium, the hens will lay more soft-shelled eggs.

Water

Hens must have a supply of cool, clean water at all times.

In the next final issue, we will discuss the building of a poultry house.

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