

STUDIES IN POULTRY-KEEPING

Part III. NATURAL INCUBATION OF POULTRY

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Natural Incubation. The natural method of hatching i.e. by the employment of broody hens is right and proper for those who intend keeping fowls in a small way, say up to 100 chicks.

Signs of Broodyness. Broodyness is a maternal instinct in all female species of birds. It is an irresistible tendency to sit on the eggs until the chicks hatch out, which nature has provided for reproducing the species. A country hen ordinarily lays 10 to 15 eggs in three or four batches and after each such lot, she goes broody. Broody hens can be recognised by:

- (1) Ceasing to lay eggs.
- (2) A partiality towards a dark corner where she would like to make a nest and sit undisturbed
- (3) The feathers stand out when a person approaches it and the hen clucks.
- (4) A general lack of appetite.
- (5) A reduction in the size of the comb, wattles and the reproductive organs.
- (6) A rise of temperature.
- (7) A general lack of lustre throughout the face.

The average time for a hen to incubate her eggs is 21 days although this period may either be lengthened or shortened by the influence of the temperature to which the eggs are subjected. She can also be employed to incubate the eggs of other species of domestic fowls.

The following are the approximate periods of incubation of eggs for the different species of fowls.

Hen	...	...	...	21 days.
Duck and Turkey	...	...	...	28 days.
Goose	...	...	...	30 days.

Sitting hen. Care should be exercised to see that the hen is properly broody before setting. Very often it so happens that, when a hen shows the signs of broodyness, the eggs are set and the hen after a few days of sitting deserts the nest, which is a source of great disappointment, and loss.

To test that a hen is properly broody, one or two eggs or an artificial egg can be placed under her and tried for 2 or 3 days. If the hen settles to sit on the eggs properly, it can be taken for granted that the hen is properly broody.

Selection of a hen. A medium sized hen which is docile and in sound health should be selected; she must be perfectly clean with no lice or mites on her body; those with scaly legs should strictly be avoided for the reason that unless the hen is perfectly clean, she will pass on all the complaints to the chicks that she hatches. Some hens are clumsy, awkward and excitable and are apt to break the eggs every time they are let out and resettle. It is therefore necessary to watch the sitters carefully and if a hen proves unreliable, it will be a

good thing not to use her for the purpose. Long-legged hens are generally clumsy and the breakages of eggs are more, although some of them happen to be good mothers. Short-legged variety of hens is more reliable and as such preference should be given to it.

Number of eggs to a hen. A good average size hen of imported strain can take from 10 to 12 eggs and a country hen 8 to 10 according to the size of eggs. Care should be taken to see that the hen is able to cover all the eggs properly. When the hen shuffles her eggs it is quite possible that one or two eggs might be left outside and consequently chilled. So it is always safe just to give her the number of eggs which she can conveniently cover and have the others removed.

The number of eggs that a hen can sit on depends on the breed and size of the bird as follows :—

	<i>Hen of imported breeds.</i>	<i>Country hens.</i>
Hens' eggs.	10 to 12 eggs.	8 to 10 eggs.
Ducks' eggs.	7 to 8 „	6 „
Geese's eggs.	5 to 6 „	4 to 5 „
Turkeys' eggs.	5 to 7 „	4 to 5 „

The Nest. It is a simple matter to make the nest, but special attention is required. A dealwood case about 18" square with a trapdoor in front can be taken and the nest made out of hay or straw, over a layer of moist sand. On top of the hay or straw place some wood ashes; this helps to prevent lice etc.

It is necessary to put some ventilation holes in the sides of the box to enable free circulation of air. During the process of incubation if dry weather is experienced a little water should be sprinkled all round the nest to increase the humidity and also on the sand at the bottom of the nest. The nest proper should be made circular with a slight hollow in the centre covered with a layer of wood ashes as mentioned before. It should not be too deep as there is the possibility of the eggs rolling to the centre and consequently some breakages occurring amongst the eggs.

The box and the nest should be dusted with some disinfectant powder to keep off vermin. Powdered sulphur mixed with wood ashes, Sodium fluoride and tobacco dust, answer the purpose very well. A good powder can be made from a cigarette tin full of equal quantities of petrol and carbolic acids poured over one lb. of plaster of Paris and allowed to dry.

The nest must be examined for vermin carefully once a week and action taken; if it is not attended to the hen becomes restless and does not sit properly and when the chicks are hatched out, they will be found to be covered with lice or fleas and so their growth suffers. The nest should be scrupulously clean and should never be fouled. Any broken egg or droppings should be removed and any source of contamination should strictly be avoided. If however, the nest is fouled

either by a broken egg or the hen's droppings, another clean nest can be made and the remaining eggs so contaminated should be washed in warm water about 100° F. and the hen immediately returned to the nest.

Setting eggs. Fresh eggs of uniform good oval shape and size should be selected. Too small or abnormally big sized ones should be rejected. The shell of the egg must be of sound texture, free from ridges and encrustations. While selecting eggs preference should be given to those laid by vigorous and well matured hens.

Storing and holding eggs. When collecting eggs for setting, they should be kept in a dry, cool, airy place. In plains they should not be kept too long. Under the best conditions, to get the best results, eggs should not be older than 4 to 6 days. In hill stations there is no harm in using eggs 10 days old. As the eggs absorb odour very easily it is not good to store them near smelly substances like onions, kerosine oil etc.

The hen and its treatment. After having arranged the nest as described above, the nest box should be placed in a partially dark, quiet place, where there is no disturbance.

The hen should be set preferably in the evening and should not be disturbed until the following evening. She must get plenty of grain food and drink before setting. From that day onwards she must be let out once a day at a stated regular time for feeding, exercise etc. This guarantees the cooling and turning of eggs at regular intervals.

Dust-bath. The fowls' natural method of cleansing themselves so as to be free from vermin and parasites is to take dust bath. So, the hen should be provided with a place for this which should contain sand mixed with wood ashes.

Feeding. Sitting hens should be given hard grain like maize, wheat, cholam, cumbu, paddy etc. The whole grains take a longer time for digestion and so the hen can sit comfortably on the eggs. Soft food like cooked rice and wet mash made of bran is not good for sitting hens. It is a bad practice to place either mash, grain or water in the nest itself for the hen to eat whilst sitting.

Good sitters generally do not come off the nest when required and so it will necessitate the removal of the hen by hand. While so doing it is quite possible that some eggs are concealed in her wings and dropped and consequently broken. This fact should be borne in mind while handling the bird. Usually good sitters go back to their nests after 15 to 20 minutes when they have finished their feed, drink, dust-bath etc.

This daily routine should continue with occasional dressing of disinfectant powder on the bird and the nest.

Testing of eggs. The eggs are tested on the tenth day of incubation. The simple method of doing is by means of a tube made out

of a stiff paper, and holding each egg between the thumb and fore-finger and middle finger exposed to the sun light and examining it through the tube. All eggs that appear clear can be taken as infertile and those that have spider-like structure inside with radiating lines which are the blood vessels, can be taken as "fertile" ones.

End of incubation. The 19th. day evening will be the final day for the hen to be allowed out of her nest. On the 20th. day the hen sits tight and the chicks start their active life. They pip on one side of the shell with their beak-horn and break open the shell and struggle. The whole hatch finishes on the 21st. day. It is not good to help the chicks to come out as such chicks will invariably be weaklings and hand assistance will cause injuries and damage.

Conclusion. Another clean hen coup should be kept ready for transferring the newly hatched chicks with the mother-hen. The hen can be given her food but the chicks should not be fed for at least 48 hours. The chick just before hatching takes in all the yolk material in the system and this serves as reserve food for a number of days. Such being the case, they should not be over-fed, as it is likely that they may get indigestion, diarrhoea, and in fact all sorts of complications. The first food for the chicks may be some finely broken grain eg. Wheat, maize, cholam and broken rice. Oat meal is the best food for young chicks. The mother hen will teach them to pick up grain and drink water and all we have to do is to house them properly and keep them free from lice, mites etc.

The essential factors for a successful hatching are moisture, heat and air. When a hen goes broody, the normal temperature of her body increases due to the accelerated flow of the blood in the system. This heat aids towards the maintenance of the eggs at a temperature of about 103° to 104° F.

An egg when placed in its normal position, the impregnated or the fertilized germ comes topmost. The yolk which contains the germ is of less specific gravity than the albumen and so it floats on it. It is the object in nature's purpose to bring the fertilized germ topmost, as near to the source of heat as possible. When a hen is let out for daily exercise (generally this occupies 10 to 15 minutes per day) she returns to her nest afterwards. Before she settles down on the eggs she shuffles the egg by which the object of turning is accomplished. If the eggs remain in the same position, there is the possibility of the developing germ sticking to one side of the egg and consequent death of the embryonic chick.

It may be mentioned here that the incubators are made so as to subject the eggs almost to the same conditions as they would be under a hen during the process of incubation.