

MANAGEMENT OF FLOOR EGGS WITH AUTOMATED EGG COLLECTION SYSTEM

As with several animal species, heavy female breeders often return to their natural instincts: in a large population what one does is mimicked by others and it appears that floor laying follows this behaviour.

It is important to manage this situation quickly, if not the consequences are severe and become proportional to the level of floor eggs due to:

- Extra work,
- Dirty and contaminated eggs,
- Loss of hatching eggs,
- Lower hatch,
- Inferior chick quality,
- Contamination of the hatchery.

Today the different systems of available automated nests are largely used to improve work comfort, obtain better egg quality and reduce the number of reject eggs, due to fewer handlings compared to the manual system using straw or other nest litter.

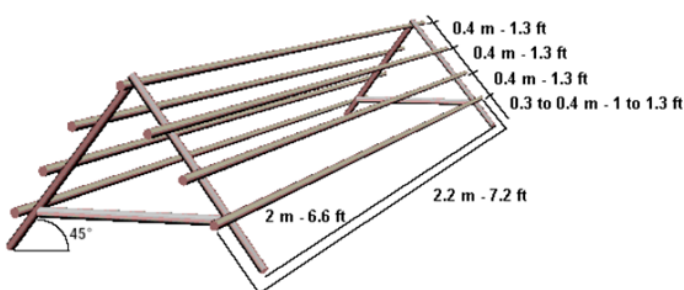
What techniques can be implemented with this type of equipment to help reduce floor laying and to encourage the females' to lay in the nests? The required work starts early, during the growing period.

Growing period : The objective is to achieve an active flock.

- Use of **perches** from 4 to 5 weeks to train the birds to perch. Different designs are possible. One that is close to the design of the slat that will be used in production can be an advantage to train the flock to find the nests and drinkers more easily.

1m² de slat / 500 birds

3cm of perch / bird



- **Light intensity:** Avoid intensity that is too low. Intensity should be uniform and between 8 and 10 lux throughout the house, to entice the flock to be more active and perch more easily.
- Distribution of **grit or grain** on the litter (3grs / bird 2 to 3 times / week).
- Good flock **uniformity**.

Production period:

The house should be ready to receive the flock; all ventilation, feeding, drinking and nests should be in working order.

Do not transfer the flock late (at the latest 2 weeks before production starts).

Organisation of the house:

The layout most observed consists of a central nest with slats on each side and with a litter area on each side of the slat area that will be dependent on both the slat area and the width of the house.

Another layout is with the automated nest and slats on each side of the house with a central litter area. This layout is used in different countries, generally with good results regarding the level of floor eggs (ex USA, photo N°1). In other situations, depending on the placement of the nests and equipment, the amount of the slat area and the width of the house, this layout can provoke more floor eggs. (Photo N°2).

Photo N°1



Photo N°2



✓ **Slats**

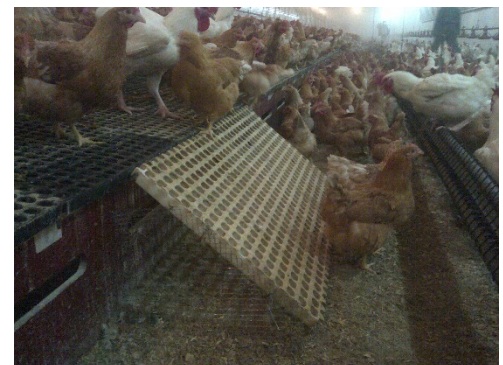
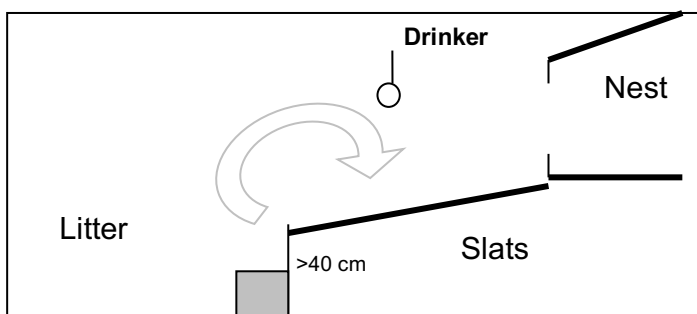
A sufficiently large slat area ($\frac{2}{3}$ rd of the total floor area), helps to maintain good litter and in some case reduces the level of floor eggs, but there are several inconveniences: higher investment cost, increased labour during cleanout, the risk of lower fertility due to females that spend more time on the slats, where mating is more difficult. Also the foot pads of both males and females can become damaged. The arrangement of the feeder lines and drinkers on the slats can become an obstacle to the females, blocking easy access to the nests.

The layout frequently used in many countries:

- Slat area = approximately 20% of the total floor area
- Drinkers on the slats and feeder lines on the floor.
- The male feeding system is close to the side-walls so that access to the nests is not blocked during male feeding.
- For the system with the nests on the side-walls, the male feeder is in the centre of the house.



- The height of the slats from the floor should not be more than 35 /40 cm for mini breeds and 40/45 cm for standard sized breeds.
- The slope should be between 5-8 %; too strong it can provoke floor laying. When the slat height is too high, use a “ramp / step” for them to walk up to the slats more easily.



- Respect the equipment standards: drinkers, eating space (refer to the correct management guidelines for each product) and nest space (80 to 90 females per linear metre of nest space).
- Correct adjustment of both drinker and feed equipment height helps flock activity. A winch system, to raise the feeder line is useful, as it helps flock activity and limits floor eggs beside or under the feed trough.
- Use of small lights inside the nest helps to attract females to the nest. Turn them on 25 to 30 minutes before lights on and again 25 to 30 minutes after lights off.

✓ Light

- Maintain a uniform level of light intensity of at least 50 lux above the litter area to avoid dark spots. For this, 3 to 4 lines of lights is required depending on the width of the house. Check the light intensity at bird level using a lux meter, because over the years the lights may still work, but the light intensity emitted becomes dimmer.
- The maximum day length of 14-15 hours, even 16 hours for some breeds, to avoid females laying before the lights come on, should be achieved by the time production starts.

✓ **Floor litter: chopped straw, litter, rice hulls**

- If the litter is too deep before females have chosen where they will lay their eggs, it provokes floor laying. So, limit the litter depth as much as possible, until peak production. It also depends on the situation (climate, ventilation, type of house and heating). The depth can range from no litter at the start of production to generally 1 - 3 cm and up to 4 - 6 cm in cold weather to maintain good uniform litter quality over the total floor area. Conversely, when litter quality is not uniform the birds are likely to congregate in the dry areas, increasing the chance of floor laying.
- Manage the house temperature (a minimum of 20 – 21°C), ventilation and drinker system after transfer. Avoid adding litter between start of lay and peak production.
- Hard or wet litter does not help to reduce floor laying, as the birds are less active, sensitive to the cold and remain in groups on the litter. On the other hand the foot pad quality deteriorates and affects flock performance.

✓ **Flock management at the start of lay**

- **Feeding:** Assure fast feed distribution, increase feed after 5 – 10% daily production quickly to avoid females that are waiting for feed. Peak feed should be attained at between 50 and 60% production. The first meal should be distributed within 15 minutes of lights on. If the eating time becomes too long (> 4 - 5 hours), as the flock increases towards peak production, it is useful to divide the feed into two meals (50% morning / 50% afternoon), to avoid females eating during the peak laying period. At this same time the feed system should not be running.

- **Drinkers:** Assure that the flock daily water consumption is sufficient. The water level in the round drinkers should be about 1cm (adjust during hot weather). The water pressure for nipple systems should have a flow rate of at least 90 ml/minute to reduce the number of birds waiting to drink, which creates “a fence” to the entrance of the nests and thus limits access.

During the onset of lay it is possible to cut water in the afternoon and to turn it on again 1 hour prior to lights out, to bring the females onto the slats.

- **Nests:** Females start to look for a nest about one week ahead of laying their first egg. Therefore, the nests can be opened during the day, one week prior to the expected start of production, but close them up at night to keep them clean.

Raise the flaps of the nest (1 out of 2) up to at least 40-50% daily production.

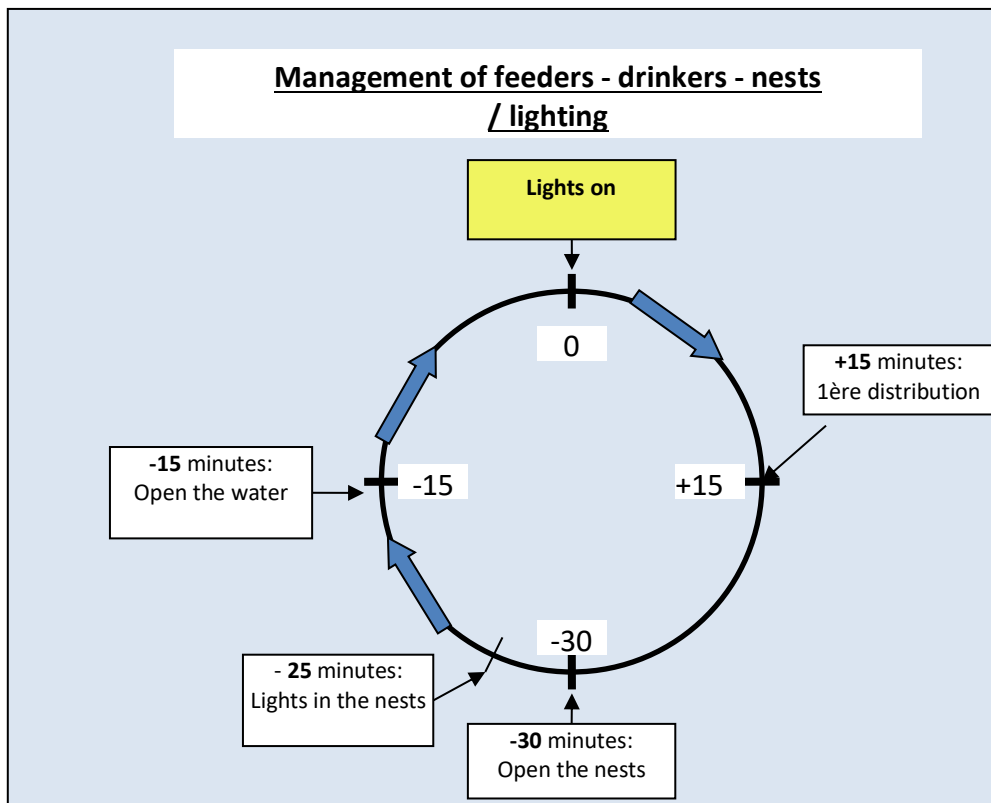
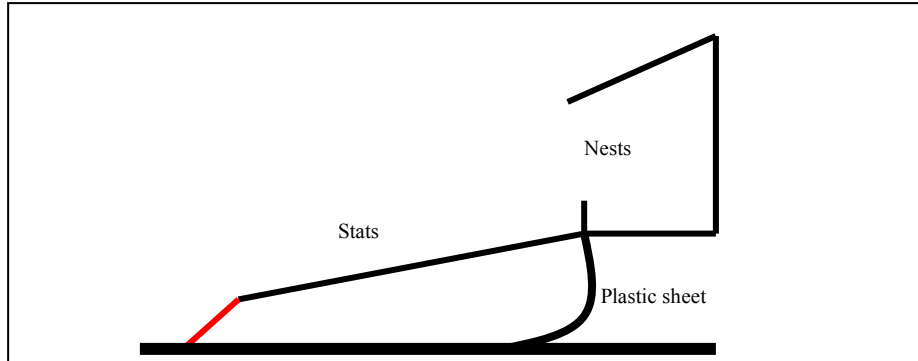
Once the nests are open, it is possible in the afternoon each day to put some litter and / or feed inside the nests to entice the females to enter until 40 – 50% production is achieved.

At the start of laying place the nest floor flat if possible, so that the first eggs remain in the nest during the day to attract other birds to enter. Use of “dummy” eggs is also possible.

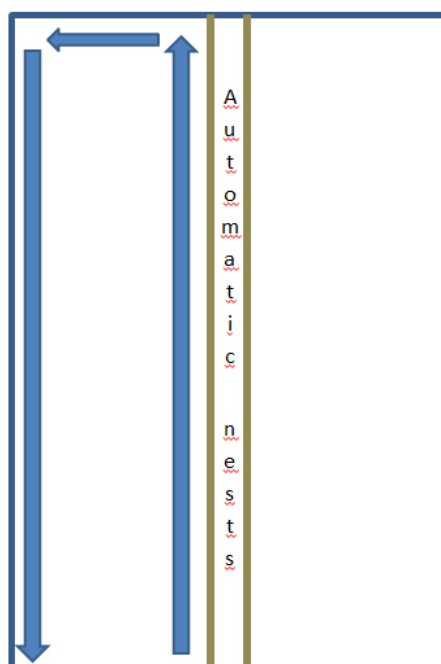
From the moment of transfer, turn on the egg collection belts daily for a few minutes to accustom the flock to the noise and vibration.

If the nest is equipped with “mini lights” turn them off 20 to 30 minutes after lights off.

Correct management of the ventilation system should maintain a nest temperature of between 18 and 24°C and avoid strong air flow, to entice females to enter and lay their eggs. A plastic sheet can be placed beneath the nests to reduce air speed inside the nests.



- Collection of floor eggs:** This is very important in managing the level of floor laying. One floor egg attracts others. Therefore, regular collection at least once / hour when the flock is at maximum use of the nests, is essential from the first eggs. Frequent walking of the house disturbs the females and discourages them to lay on the floor. It also allows for females to be carefully picked up and placed into the nests. Finally “walking the floor” assists in pushing the females towards the nests.



- **Male management** can also help in managing the level of floor eggs.

Although the objective is to mix mature males, it is important to limit aggressiveness, so that the females are not stressed. This is achieved by control of male bodyweight and the number of males, which should be linked to the level of female sexual maturity.

The use of high fibre feed, which helps to increase the male eating time, and / or feeding the males at the same time as the females start to lay their eggs, can also help to push the females towards the nests.

✓ **Electric fence:**

If regulations permit, the use of an electric device can prove to be useful to help push the females towards the nests. Nevertheless, it should be used with caution and as a last resort, if the above mentioned recommendations are not completely successful.

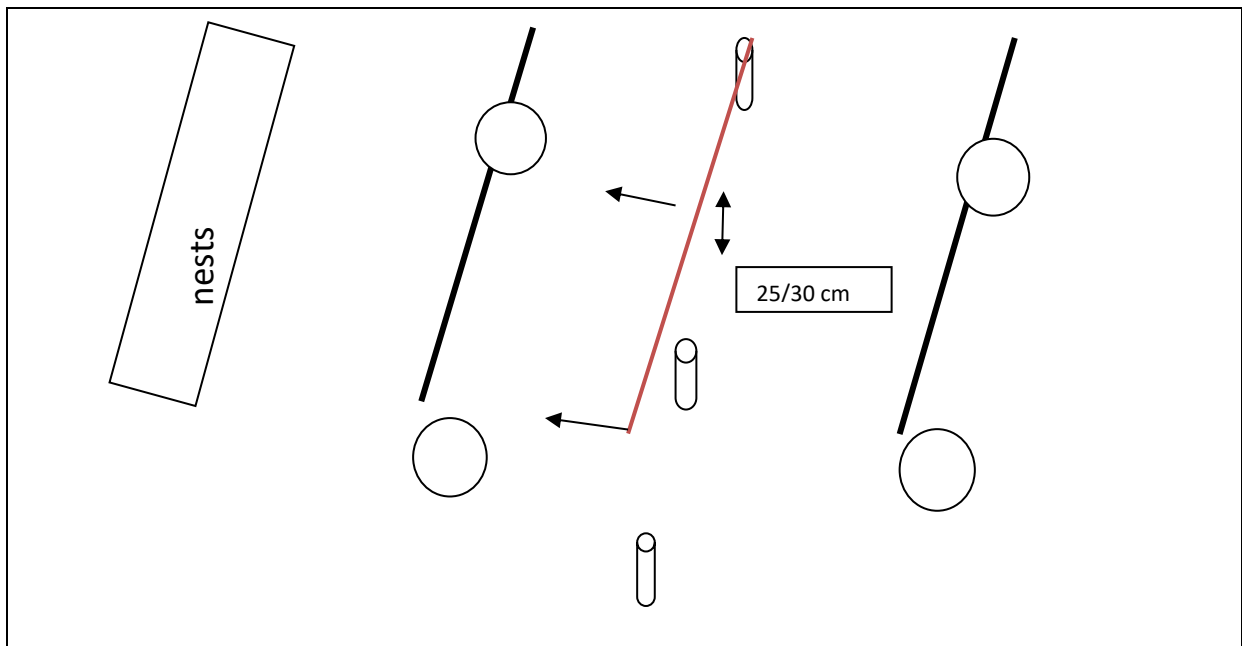
- 1- Place the wire around the side-walls of the house and under the feed troughs. In certain situations this can be done before production starts
- 2- Start the system progressively on the walls opposite the nests.
- 3- Turn the system on intermittently during the morning after feeding for 2 to 3 hours (e.g. 10 minutes on / 20 minutes off).

Assure use of this system after eating time, especially under the feed system and during the period of the day when the laying rate is at its maximum. As soon as the level of floor laying is controlled, use of this system can cease.

So that flock movement is not impeded, the feed system should be at the correct height and the electric wire should be fixed under the trough, as shown in the photo below.



When using a pan feeding system, one can consider a moveable system that can be placed directly on the litter and moved progressively closer to the slats, depending on the area where floor laying is occurring.



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