

How to benefit most from automatic community nests

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Today there is a strong interest worldwide to automate the collection of hatching eggs at parent stock breeder farms. The mechanical individual nest has been developed in the USA and has been on the market for many years.

In this setup the house has one third of the floor area on each side covered by elevated slats, and the remaining centre one third of the house serves as a scratch area at floor level. The feeder and drinker system, plus a row of individual automatic nests, is installed on each slatted area.

Successful configuration

This individual nest configuration has been very successful in many countries but has certain limits when higher bird densities (birds/m² or ft²/bird) are housed. The community nest system may allow for more options in these situations.

With the automatic community nest house, there is one line of nests in the middle of the house with slats extending outward from both sides of the nests. However, in this setup there are some very important considerations to be made to keep the number of floor eggs at a minimum.

Short mini-slats, 1.2 metres (4ft) wide, with all the feeding equipment placed in the floor area will not work well with this system and will result in higher number of floor eggs.



An opened nest of 120cm (4ft) in length with adequate space for six hens. This means 20cm (8 inches) of space per hen compared to 25 or 30cm (10-12 inches) width per hen in an individual automatic nest. The automatic community nest will give 25% or more usable nesting space, important when higher bird densities are being used to increase the hatching eggs and chick numbers per square metre or square foot of house area. This is one of the big advantages of this nest system.

This has been one of the main criteria why many operations have had second thoughts about the use of community nests. Floor eggs have a negative effect on the company results:

- People get tired of picking up floor eggs.
- Lost production (also eating of eggs by birds).
- Floor eggs give less hatch and lower quality chicks.
- With bad quality litter more eggs are soiled and lost.
- Contamination in the hatchery contributes to poorer broiler results, both in growout and at the processing plant.

Thus, it is important for the females to be comfortable on the slats and be able to move around easily on them to be able to find, explore and get familiarised with the nests. These are some of the important considerations for success:

- Relation of slat area to floor area.
- With community nests, the slatted area needs to be 40-50% of the total area.
- In a 12m (40ft) wide house the slats need to extend a minimum of 2m (6.5ft) on each side of the nests.
- With 13 or 14m (42-45ft) wide house the slats need to extend for a minimum of 2.5m (8ft) on each side of the nests.

- Reduce the slope of the slats to a minimum, so that the females can move more easily on the slats.
 - Most of the hen feeders need to be placed on the slats.
 - On the 2m wide slats, position the nipple or bell drinker line as the first line in front of the nest entrances, and farther away, the first feeder line on the slats. The distance recommended from the nest entrance to the drinker line is around 60cm (2ft) and then an additional minimum of 60cm to the first feeder line.
 - With 2.5m or more wide slats, install two feeder lines.
 - With high bird densities (up to seven birds/m² / 1.5 ft²/bird), place an additional female feeder line in the scratch or floor area to have enough feeder space available.
 - Do not place a drinker line for females in the floor area. There can be a drinker line for males but the height needs to be out of the reach of the females.
 - In a 12m wide house the lights need to be installed over the floor area but just next to the slat step-up. This is important to eliminate shaded areas at the slat step-up in solid wall production houses or when black plastic curtains are used.
 - The light distribution needs to be a minimum of 40 lux in the darkest part of the house and between 65 to maximum 100 lux directly below the lamps. There is no need to have more than 100 lux under the lamps with modern parent stock. As a rule, there needs to be from 7-10 times more light intensity in the production house compared with the rearing house but staying between the lux limits mentioned above. A good
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Fig. 1. Left, automatic nests with slats on the side and, right, automatic community nest with normal sized slats.





Fig. 1. A view of one side of a wide house with three chain feeder line loops (yellow arrows) and the male feeder line winched up (white arrow). Under these conditions females could have somewhat less feeder space as suggested by the breeders but performance is still good if all the other management requirements are well covered. Note the bell drinkers in front of the nests. Calculate for a maximum of 65 females per drinker to minimize slat or broken eggs below the drinker line. When using nipple drinkers, calculate for a maximum of 10 females per nipple and have a water flow of 80-90cc/minute per nipple over the whole length of the line.

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light distribution within the house would have less than 30% lux difference between the areas of highest and lowest light intensities.

- Place the lights in such a position that the back of the nest entrance is receiving 2-4 lux.
- No additional lamps should be installed inside or on top of the nests under normal conditions. In 14m (45ft) wide houses or wider, more rows of lamps need to be placed in the house for good light distribution.

Automatic community nests can handle up to 45-48 females on each nest side per each meter (3.3ft) house length.

This means that the utilization or house efficiency can be increased considerably without hurting production performance.

Many companies worldwide still

operate with fairly low bird densities (4.5-5.0 females/m² - 2.10 to 2.35 ft²/bird) and could be more productive (more hatching eggs or chicks/m²) using the automatic community nest.

Higher bird densities

The higher bird densities are possible but depend on three factors:

- Feeder space.
- Nesting space.
- Environmental conditions (temperature and humidity control).

Feeder space can be increased by using pan feeders in the production house or adding an additional chain feeder loop.

Nesting space can be amply covered by the community nest system. Environmental control depends on a good ventilation system from

Fig. 3. Widening the slats and placing two chain feeder lines on them and reducing the slope of the slats made the house set-up more comfortable for the hens. This resulted in hens exploring the nests more and laying around 1% floor eggs compared with 6% for the control. Fertility was not at all affected with these house set-up changes.

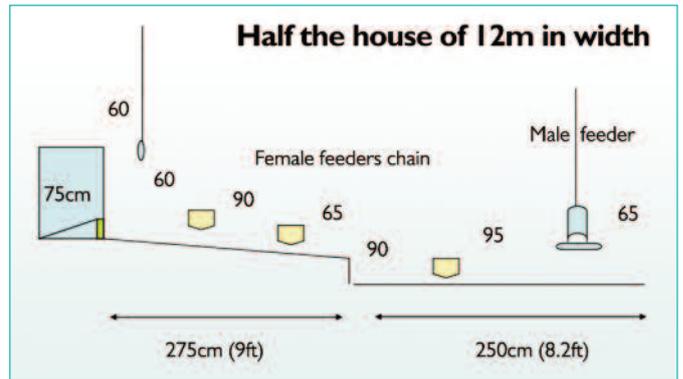
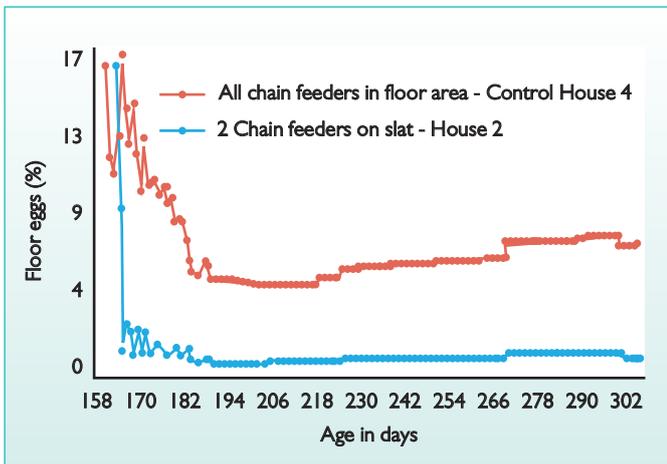


Fig. 2. Half house configuration with the nipple drinker line before the nest entrance, then two chain feeder lines on the slats and one chain line in the floor area. The nests are configured in one straight line end-to-end and down the center of the house. There are normally no crossovers, (only at the end of the house) to maximise nest space and be able to increase bird density.

which transition and tunnel ventilation are an important part of the equation.

Egyptian companies, for example, are able to be very efficient with 6.0 females/m² (1.75ft²/bird) in desert-like conditions with pad cooling and tunnel ventilation.

Summary

House set-up is extremely important in reducing floor eggs to a minimum, especially when using higher bird densities with the automatic community nest system.

There needs to be a proper balance between slat and floor area to have maximum production, maxi-

mum hatching egg numbers and good fertility. There are situations in which some of the hens will not come off of the slats, thus lowering fertility rates, especially with overly aggressive males.

Balance the sexual maturity between the sexes, so that the females are not afraid to go into the floor area.

Adding scratch grain or oyster shell in the litter in the afternoon is another effective way to get the females off the slats and into the scratch area, resulting in higher mating activity and increased hatch.

There are many other factors that can affect the floor egg percent, but the comments in this article will normally solve most of them. ■

Table 1. Bird density per m² (ft²/hen) based on house width with same installation set-up (identical feeder and nest amount and drinker space).

House width meters(ft)	12 (40)	13 (42)	14 (45)
Females/m ² (ft ² /hen)	6.6 (1.60)	6.2 (1.70)	5.7 (1.85)

Fig. 4. A disaster situation with floor eggs. Widening the slats and placing at least one chain line on the slats almost completely solved the problem. Although the average of 2.0-2.5% floor eggs is still too high (objective must be an average below 1%), it is much better than the 14% average of the other houses.

