

Good Pullet Rearing Prevents the Need for System Doors

The best investment for true cage-free multi-tier housing for laying hens are systems that do not include tier doors OR internal partitions within the tiers. The design of some multi-tier systems (i.e., [combination/convertible or select/limited access aviaries](#)) routinely partially or fully restrict the movement of hens. This prevents regular access to all areas of the system and limits the hens' ability to express their full behavioral repertoire. When the doors are closed, hens cannot access the littered ground surface and move throughout the full system to choose their preferred perching height and nesting location.

When pullets are first transferred to the layer house, some producers close the system doors continuously for several days or weeks to adjust the young hens to the new system. However, this prolonged confining of the hens essentially means these birds are housed in cages during this time. It is a critical for young hens to fully learn about the 3D layout of the system before starting to lay. This critical period of nest site exploration allows the hens to choose a preferred nesting spot and can minimize disturbances and lead to better egg production throughout lay. Research has also shown matching pullet rearing systems is necessary for hens to develop load bearing bone strength as well as physical and cognitive navigation skills, and reduces hen fearfulness, cannibalism, and floor eggs later on in life [Brantsæter et al., 2016; Colson et al., 2008; Gunnarsson et al., 1999, 2000; Regmi et al., 2015; Tahamtani et al., 2015].

Additionally, these young hens are at high risk to feather peck from the cumulative stress of adjusting to a new environment and the hormonal changes at the start to lay. Therefore, it is vital for the young hens to have access to the littered ground to forage, peck, scratch, and dust-bathe to keep them occupied and alleviate their stress. The [University of Bristol's 2013 FeatherWel report](#) stated that "access to good quality, friable litter from day one and throughout the whole laying period is the single most important strategy to encourage foraging behavior and reduce feather pecking, particularly the severe forms."



Matching ramps and perches in the pullet system allows birds to better navigate the layer house

On existing multi-tier systems with doors, the doors on the tiers should only be used to temporarily enclose the hens for short-term procedures, such as vaccination or while catching birds for transport.

Key Considerations for Good Pullet Rearing



Pullets provided unrestricted access to deep, friable litter from two weeks of age

A well designed and managed pullet rearing system can avoid the use of doors when adapting new birds to the laying hen aviary by:

- **MATCHING THE LAYOUT OF PULLET & LAYING HEN HOUSING:** Pullets should be reared in systems that match the 3D layout of the layer house with the same type of resources in both set-ups (i.e., feeders, drinkers, perches, raised slatted areas). Training the birds to navigate the vertical housing space is vital while they are still young and growing to aid the development of strong bones. Pullets will begin perching as early as two weeks of age so early access to perches and ramps makes them better able to move around the laying house space with more successful landings, fewer falls and crashes, and a reduced likelihood of keel and bone damage. Birds

with early perching access also have fewer floor eggs and incidences of feather pecking and cannibalism later on in life. In contrast, pullets that are raised on single tier, all litter floors, or in cages lack experience on how to properly move through the 3D space of the multi-tier system and have a significantly higher risk of injury when transferred to the layer aviary.

- **TRAINING PULLETS ON THE LAYOUT OF RESOURCES:** Once the rearing system is opened up to allow the young pullets access to littered floor (no later than four weeks of age), the gradual increase/decrease in light at dawn/dusk trains the birds to fully use all the resources in the multi-tier system. The gradual decline in light at dusk reduces the likelihood of crowding and smothering as birds return into the system at night and move up to the perches to roost. At dawn, the progressive increase in light encourages the birds to move down to the lower tiers to feed, drink, and use nest boxes to lay.
- **PROVIDING EARLY ACCESS TO LITTER:** Research has shown the sensitive period for birds to learn to perform highly-motivated dust-bathing and foraging is within the first 10 days of life. Access to dry, friable litter at the start of their lives (either on paper sheets or the ground) prevents birds from re-directing these internal drives into destructive behaviors, such as the pecking of their flockmates' feathers, or sham dust-bathing, which can damage the plumage of the performing bird.
- **USING DARK BROODERS:** Dark brooders provide a dark, warm area for pullets to rest without being disturbed and the opportunity to retreat from other birds if being pecked. The use of dark brooders during pullet rearing results in calmer birds and can reduce the incidence of feather pecking in lay.

Case Study: Noble Foods

PULLET REARING

Noble Foods has successfully implemented multi-tier pullet housing to effectively train the birds for their multi-tier layer housing. From day zero to two weeks of age, pullets are housed in brooding compartments within the multi-tier structure (100 chicks/section). Along with feeders, drinkers, and perches (same type as the laying house), litter is scattered on paper sheets lining the compartments from the first day of age. Housing the chicks in these compartments at the start of their lives prevents the birds from injuring themselves as they cannot safely access the different levels of the system at this age due to their small body sizes. At two weeks of age, the metal dividers between sections and the outer doors are permanently opened allowing the chicks access to all areas, including the littered ground surface.



Noble Foods multi-tier pullet rearing system with 12-week-old birds

Perches are provided at every tier opening (15 cm/bird) and ramps (400 birds/ramp; each ramp: 50 cm x 25 cm) are positioned for additional access points from the floor to the first bottom system tier. A dawn/dusk lighting program (15 mins dawn and <45 mins dusk) teaches the pullets to come off the barn floor and settle within the system at night. The stockpersons also lift the birds back into the system during the first week of ground access (between 2-3 weeks of age). At four weeks of age, the wire mesh separators underneath the system are opened providing the pullets additional floor space and the opportunity to move the full width of the barn. The pullets are stocked at a final density of 20 kg/sq m (RPSCA Assured).¹ The young birds in this system are more active and exploratory than birds reared in caged or all litter floor systems. These pullets also spend less time playing with the feed at the feeders resulting in less feed wastage.

LAYING HEN HOUSING

Noble Foods uses a gallery-style multi-tier system for the adult laying hens with no doors² and the same type of perches, ramps, feeders, and drinkers as the pullet system. These resources are distributed throughout all tiers, but with the greatest amount of perch space provided at the top of aviary. Young hens are transferred to the laying hen facility at 16 weeks of age and housed at 15 birds/sq m in colonies of ~10,000 birds. Birds have access to the full width of the barn with four rows of tiers and ~2 m between each row. The entire floor surface is littered and several types of pecking enrichments (e.g., lengths of rope, pecking blocks) are provided within the alleyways. Kick-out nest boxes (with rubber mat flooring) are available on the bottom two tiers.

¹ <https://science.rspca.org.uk/sciencegroup/farmanimals/standards/pullets>

² There were no doors on the system tiers, but a wire mesh separator was present that could be used to prevent access underneath the system. However, the separator was kept open except during a couple of hours at the end of lay when the hens were caught for transport.

Good pullet rearing ensures the hens can navigate the multi-tier laying hen house using the perches, ramps and slatted areas and easily fly between the rows of tiers. At 34 weeks of age, the hens appear well-feathered with good body condition and normal, undamaged keels upon palpation. The hens in this system also have high egg productivity with a very low percentage of floor eggs and overall mortality (Table 1).



In the laying house, hens have continuous access to all system tiers and the littered barn floor

Table 1. Performance of the 34-week-old Noble Foods laying hen flock

	Flock Performance at 34 Weeks of Age
Egg Production (Hen-Day)	96%
Floor Eggs	<1%
Mortality	<1%

References

Brantsæter M, Nordgreen J, Rodenburg TB, Tahamtani FM, Popova A, Janczak AM. Exposure to Increased Environmental Complexity during Rearing Reduces Fearfulness and Increases Use of Three-Dimensional Space in Laying Hens (*Gallus gallus domesticus*). *Front Vet Sci.* 2016;3(FEB):14. doi:10.3389/fvets.2016.00014

Colson S, Arnould C, Michel V. Influence of rearing conditions of pullets on space use and performance of hens placed in aviaries at the beginning of the laying period. *Appl Anim Behav Sci.* 2008;111(3-4):286-300. doi:10.1016/j.applanim.2007.06.012

Gunnarsson S, Keeling LJ, Svedberg J. Effect of rearing factors on the prevalence of floor eggs, cloacal cannibalism and feather pecking in commercial flocks of loose housed laying hens. *Br Poult Sci.* 1999;40(1):12-18. doi:10.1080/00071669987773

Gunnarsson S, Yngvesson J, Keeling LJ, Forkman B. Rearing without early access to perches impairs the spatial skills of laying hens. *Appl Anim Behav Sci.* 2000;67(3):217-228. doi:10.1016/S0168-1591(99)00125-2

Regmi P, Deland TS, Steibel JP, et al. Effect of rearing environment on bone growth of pullets. *Poult Sci.* 2015;94(3):502-511. doi:10.3382/ps/peu041

Tahamtani FM, Nordgreen J, Nordquist RE, Janczak AM. Early life in a barren environment adversely affects spatial cognition in laying hens (*Gallus gallus domesticus*). *Front Vet Sci.* 2015;2(MAR). doi:10.3389/fvets.2015.00003



For more information, visit compassioninfoodbusiness.com.
Images © CIWF