

Summary HSI report: Welfare Issues with Furnished Cages for Egg-Laying Hens

Furnished cages (also known as colony, enriched or modified cages) were developed as an alternative to battery cages. Unlike battery cages, furnished cages are equipped with perches, nests, and a dustbathing area to promote natural behavior. In the European Union, a legal requirement stipulates that each bird must be given at least 600 cm² (93 in²) of usable space or 750 cm² (1,16.3 in² or 0.81 ft²) including the nest box space, slightly more than provided in battery cages (432.3 cm²; 67 in²).

Although furnished cages offer more enrichment compared to conventional cages, they are still very limited in space, preventing important locomotory activities such as running, jumping, flying, and wing-flapping, and constraining perching, dustbathing, and nesting. In contrast, cage-free systems (with or without outdoor access) are alternatives to cages already used worldwide that provide opportunities for the full range of natural hen behavior. Though there are very few studies comparing furnished cages to cage-free systems, the science available demonstrates the existence of sizable problems related to cage confinement that remain unaddressed in furnished cages.

Welfare concerns in furnished cages include:

- Lack of space:** Although furnished cages provide more space than battery cages, some of the most popular brown laying hen strains require more than 600 cm² to adopt basic body postures, such as laying down in fully. Birds confined in small spaces also show poor feather coverage due to abrasion against the cage while trying to eat or enter the nest. Poor feather coverage reduces hens' ability to thermoregulate and increases susceptibility to further injury.
- Constraints on perching and roosting:** According to E.U. legislation, furnished cages must have a minimum of 45 cm (17.7 in) of vertical space, but this is very limited for perching. Higher perches are important for preventing injurious pecking, as they serve as a refuge for vulnerable birds. Additionally, an environment with a variety of perch heights accommodates different types of behavior as hens prefer to sleep and rest in higher perches and walk and stand in lower ones.
- Restricted dustbathing and foraging:** The litter space provided in furnished cages is variable and insufficient. This makes foraging difficult and leaves some birds unable to dustbathe due to competition or mere lack of space. Dustbathing is a social activity that would occur in synchronicity, and the sight of birds performing this behavior encourages others to join, which leads to crowding in dustbathing areas. Furthermore, hens need between 1,028 to 1,191 cm² (159.34 to 184.6 in²) of average area to dust bathe comfortably, which exceeds by almost double the area that furnished cages provide per bird under the E.U. regulations. Dustbathing is also restricted by time due to the automated door systems that prevent access to the litter area during early hours of the morning, creating short and incomplete dustbathing bouts, and frustration. Hens spend more than 50% of their time performing foraging if given the appropriate environment. In furnished cages, the lack of loose substrate can lead to abnormal feather pecking behavior, because hens redirect their foraging pecks to each other.
- Nesting difficulties:** Nesting is considered one of the most important behavioral needs. Although furnished cages provide nest boxes, their usefulness to fulfill hens' needs is questionable. Egg laying occurs mostly in the morning for a 1–2-hour period. When several individuals try to access the same nesting space simultaneously it creates competition. European Union law requires that birds have at least 150 cm² (23.3 in²) per hen of nesting space, which is not enough area to allow several birds in the nest at the same time, resulting in pushing, climbing and possibly, feather damage. Nest site selection is also an important feature of the nesting process. In cage-free housing, birds can select from different nest boxes, whereas in furnished cages the selection is limited and may contribute to egg laying in inappropriate places, such as the litter area.
- Inability to exercise:** Cages in general restrict birds' locomotion and ability to exercise. For instance, wing flapping requires a minimum of 3,446 to 2,804 cm² (534.13 to 434.62 in²), which far exceeds the space provided in furnished cages. Laying hens are prone to osteoporosis and the lack

of exercise contributes to this problem, leading to bone fragility and impaired bone strength. Although birds in furnished cages have more opportunities to exercise than those in conventional cages, they still have weaker wing and keel bones compared to those living in cage-free environments. The lack of exercise creates disuse osteoporosis (bone loss due to low mechanical stress), and birds in furnished cages have weaker bones compared to those living in cage-free systems.

6. **Keel bone damage and fractures:** Outdated research concluded that birds in cage-free systems are more likely to suffer bone fractures due to collisions and falls; however, current research demonstrates a similar prevalence of keel bone fractures in furnished cages. Recent studies have found that the late ossification of the keel bone along with the selection of smaller birds with increased egg production, common in all systems, is the cause. However, despite the common origin, it has been also observed that birds in cage-free systems have signs of better fracture repair compared to those in furnished cages, probably due to the ability to exercise. Likewise, keel bone deviations (variations from the normal straight line of development) are more common in furnished cages and are likely related to weaker bones and inactivity in a roosting position. Although non-caged birds have the risk of developing bone fractures due to potential trauma, hens living in furnished cages seem equally likely to suffer these injuries due to weaker bones and lack of activity, without proper bone healing.

Despite the welfare problems associated with furnished cages, they continued to be used, in part because of the common argument that cages reduced mortality. However, a recent meta-analysis concluded that with each year egg producers have experience managing cage-free systems, average mortality rates decline. These results contradict the common notion that high mortality rates are inherent in cage-free housing and highlight the importance of the maturity of a system, proper training, and the implementation of best practices such as vaccination programs and preventive strategies against feather pecking.

Conclusions

Furnished cages, while better than conventional battery cage systems, do not deliver the standard of welfare that well-managed cage-free systems can provide. The lack of space for behavioral expression and exercise can have severe consequences for birds, such as osteoporosis, injury, and frustration. Problems with furnished cages have prompted several European countries, such as Austria, Luxemburg, and Switzerland to ban their use, while other countries such as Germany and Czech Republic will phase out their use by the end of this decade. Although some studies support the use of furnished cages, these confinement systems will never compare to the freedom of movement in cage-free housing. It is entirely possible to house hens commercially in a way that affords them much more freedom of movement, and it is important that the industry strives for a system in which all the behavioral and physical needs of the hens can be met.



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