Guelph's alternative housing system for hens

by

J.F. Hurnik

Department of Animal and Poultry Science University of Guelph

Battery cages are the predominant housing system in modern poultry egg production. The main reasons for broad acceptance of this system was increased spatial density of birds, easier control of microclimate, simplified waste disposal, reduced labour costs, and easier supervision of individual birds for production level and health status.

In recent years, however, serious animal welfare concerns have been raised in several countries regarding the use of a battery cages. One of the most commonly raised concerns focuses on the spatial restrictions or crowding of the hens, which might compromise important comfort movements. In battery cage systems for laying hens such movements include wing flapping, body stretching, litter bathing, ground scratching, and walking.

Other commonly raised objections include lack of nests, continuous standing on wire floors, unnatural lighting regime, and low environmental complexity which may cause boredom and boredom-related social vices such as feather pecking and cannibalism among the birds. Furthermore, multiple-floor high rise battery cage systems are also criticized because of the difficulty to effectively supervise birds in the highest level, thus potentially delaying detection of health problems and implementation of corrective treatment.

There is a tendency among many animal welfare proponents to overlook or de-emphasize some of the benefits of cage confinement housing. This includes continuous access to water and feed, reduced contact with excrete and potentially easier maintenance of cleanliness. Nevertheless, animal welfare criticism of battery cage systems in some countries (e.g. Switzerland and Sweden) has generated political pressure to discontinue or substantially improve this form of poultry housing.

Search for alternatives

The main objective of this research project was to devise a housing system for laying hens which would offer more liberty of movement and a more complex environment for the birds, while maintaining a high degree of economic attractiveness for the producer. It

is obvious that any housing system for farm animals must provide satisfactory income for the producer in order to have a realistic chance of implementation.

The University of Guelph aviary system was designed to fit the existing housing facilities of the Poultry Research Station at the university. The aviary is 660 cm (22 feet wide), and 850 cm (28 feet long). Group nests are positioned along two sides of the room. Eggs laid in the nests roll by gravity on a conveyor, by which they can be transported to the collection area.

In the central part of the aviary are three horizontal levels with wire floors above manure-collecting boards. Through an opening in the centre of each level, manure falls onto a 112 cm wide (45 inches) conveyor, by which it is mechanically transported outside the room. Each level has chain feeders, waterers and perches for comfortable resting.

Between the central part and the nests is an open floor space, covered with wood shavings, for walking and litter-bathing. The birds have free access to any part of the room. The overall housing capacity of our aviary is similar to a pen with battery cages. In our experiment, the number of commercial-type laying hens housed in this room was 437.

Observations

Performance during the first 308 days of production in the aviary was compared with the same type of birds housed in modern battery cages (Meller type of battery cages). Egg production, calculated as hen-day production, was very good in both housing systems.

Nevertheless, a slightly higher (2.9%) overall performance was observed in the battery cage housing system. During the last 4 weeks of the observation period (day 281 to 308), the average hen-day production was 82.6% in battery cages and 80.8% in the aviary. The number of floor eggs in the aviary was 1% of the total amount of eggs laid. The mortality was slightly higher in the aviary, but the difference was only 0.6% (5.1 v. 5.7).

The overall average daily feed consumption was 4 grams higher in the aviary (125 grams/hen) than in the battery cage system (121 grams/hen). Average egg weight was similar in both housing systems (63.4 grams in battery cages; 62.6 grams in aviary). Feed conversion efficiency calculated as a ratio between total feed consumed and total egg mass produced was slightly more favourable in battery cages.

In the aviary, litter-bathing and ground scratching of birds occupied most of their daylight time, followed by wing flapping, wing/leg stretching, tail wagging and head scratching. Comfort behaviours, especially litter-bathing were more frequent in the afternoon. There was no significant difference between morning and afternoon in the numbers of birds located at each position of the aviary. Feather pecking was observed very rarely and, in contrast to the battery cage system, stereotypics in the aviary were not detected.

Conclusions

Laying hens housed in our aviary system achieved a production performance level comparable to those in battery cages. The birds in the aviary appeared to be more behaviourally comfortable and their feathering was in distinctly better condition. On the other hand, aviary birds appeared to be more sensitive to sharp weather changes such as thunder-storms or strong winds. The study will continue for another 2 production years in order to assess the impact of this housing system on the long-term occurrence of disease and bird longevity.

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