



Research summary

Understanding healthy feather cover in laying hens

About the study

Maintaining healthy feather cover in laying hens is an important issue for egg farmers. In some cases, hens' feathers can be damaged through feather pecking. For laying hens, which rely on their feathers to regulate body temperature and navigate their environment, feather pecking can have wide-reaching impacts on bird welfare and productivity.

Researchers at the University of Guelph sought to mitigate these risks by assessing how to maintain healthy feather cover. By exploring the prevalence and factors that contribute to feather damage, researchers hope to provide clear management plans to assist farmers in reducing feather pecking in their flocks. Such plans will be increasingly helpful as egg farms transition to new production methods including enriched colony, single/multi-tier housing systems, and as farmers seek to continuously improve their management strategies.



Methods

For the study, farmers with flocks in enriched colony and single/multi-tier housing systems were asked to score the feather conditions of their flocks and fill out a questionnaire on the details of their operation. Farmers were provided with visual aids to score the feather cover condition of 50 birds from their flock. The questionnaire covered litter management, nutrition, lighting, air quality, flock characteristics, hen health and egg production. The feedback from the scoring and questionnaire were then compared to identify factors associated with feather damage.

Findings

The study received responses for 65 flocks. Twenty-six of the flocks were in enriched colony systems, 17 were in single-tier floor systems and 22 were in multi-tier aviary systems. The average prevalence of feather damage was 21.9% in enriched colony systems and 25.9% in single/multi-tier systems. Overall, feather damage was found to be more prevalent in older flocks.

In enriched colony systems, brown-feathered hens were 34.6% more likely to have feather damage than white-feathered hens. The researchers suggested this may be the result of genetic differences, or that damaged brown feathers may be a more attractive target to the hens. Midnight feeding was similarly correlated with a 24.4% increase in feather damage in enriched colony systems. The presence of a scratch area appeared to encourage hens to express foraging behaviour, which resulted in a 17.7% decrease in feather damage.

Single/multi-tier housing systems with wire or slatted flooring had a 37.6% higher prevalence of feather damage. Another factor that affected feather cover was the frequency of manure removal from the barn. Farms that removed manure regularly saw a significantly lower rate of feather damage. This finding suggested that hens are less likely to use litter for foraging and dustbathing when manure remains in the barn and that this may result in increased feather pecking behaviour. Manure also impacts air quality and creates higher levels of ammonia, which can increase hen stress and lead to further feather pecking.

Lastly, in barns where some enrichments such as mineral blocks or hay bales were added, there was a 19.1% higher level of feather damage. This was unexpected, as enrichments are often introduced to manage feather pecking. The researchers concluded this higher rate could be due to pre-existing feather cover issues in flocks where enrichments had been added after the pecking began.



Conclusions

This study gathered a sampling of feather cover conditions and assessed feather pecking behaviours for the first time in the Canadian egg farming industry, revealing a similar prevalence of feather pecking in enriched colony and single/multi-tier housing systems. Consistently monitoring feather damage in laying hen flocks can help inform and strengthen management practices and enhance bird welfare.

As the researchers found, there are many varied factors leading to feather damage. The study opened up new opportunities for research, including in-depth examinations of each of the factors, as well as exploring management strategies to ensure healthy feather cover across housing systems. These new areas of exploration will continue to support egg farmers who are implementing best practices for all housing systems.

About the researchers

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