



EFFECTS OF PHYTOZEN® ON THE WELFARE OF LAYING HENS IN ENRICHED HOUSING

Introduction

The Canadian egg industry is in the process of phasing out conventional hen housing in favour of alternative systems including enriched colony, free run, and free-range housing. It is part of industry's efforts to plan for the future and think long term. As of mid-2023, 48% of hens in Canada are in enriched and free run/range/organic housing (Personal Communication EFNS, 2024). There is the expectation that birds in the new housing systems will be provided with an improved quality of life, which in turn may result in better health outcomes. Environmental enrichments in the new housing systems include such items as nest boxes, perches, scratch pads and pecking blocks to support natural behaviors and enhance mental well-being. However, despite the provision of enrichment objects, even the most well-planned enrichment program cannot guarantee that birds will show interest in the objects or use them consistently. A study conducted with hens housed in furnished cages found that the use of the dustbathing area was highly variable, with some hens visiting the dust bath frequently and others not at all (Wall et al., 2008). Other studies have reported that birds in enriched housing spend a considerable amount of time just standing or sitting (Rodenburg et al., 2008). It has traditionally been presumed that the enrichment objects possess either highly attractive or less attractive qualities that determine their own usage. The focus has always been solely on the object, but rarely has bird 'affect' (i.e., mood) been considered a contributing factor to enrichment usage. Data suggests that animals in a more relaxed,

positive mental state are more likely to explore and therefore make better use of their environment (Perveen et al., 2009). Moreover, the enriched colonies and cage-free systems are characterized by large groups of birds and frequent social encounters, which can aggravate negative, stress-induced behaviors in high-density environments (Cloutier et al., 2002). Phytozen® is a formulated blend of botanical extracts scientifically shown to have anti-anxiety and antidepressant effects. It does so by increasing levels of brain serotonin, thereby allowing birds to better cope with various environmental stressors (ex. high stocking density, handling, housing transitions, etc.).



Photo Credit: Dalhousie University

Objective

To investigate the effect of Phytozen® on laying hen motivation to use enrichment objects, stress response, and production performance in a furnished/enriched housing system.

Industry Impact

The botanical extract blend increased average daily egg weight at 42-44wks, enhanced albumen quality throughout the trial, improved the use of enrichment objects (perches, scratch mats, and nest boxes) and lowered serum corticosterone levels. In conclusion, Phytozen® Liquid has the potential to improve the overall welfare of laying hens in enriched housing.

Trial

This was a 16-week trial with 38-week-old Lohmann Lite laying hens. A total of 280 hens were randomly allocated to one of two treatment groups, with four replications per treatment and 35 birds per treatment. The birds in treatment 1 did not receive Phytozen® and the birds in treatment 2 received the Phytozen® liquid in their drinking water at the recommended dilution of 200 ml in 1000 L of water. The enriched housing was a multi-tier design equipped with wooden perches, nest boxes, scratch mats, and pre-tested pecking blocks. Two video cameras were installed in all housing units for each treatment to record bird behavior. Data collected throughout the trial included feed intake, feed conversion ratio, daily egg production, egg quality and blood samples to measure the stress hormone, serum corticosterone.

Results

Phytozen® Liquid did not impact feed conversion ratio and hen-day egg production. However, the birds that received the botanical extract blend had the following significant differences over the control:

- Increased average daily egg weight at 42-44 wks.
- Enhanced albumen quality. This could be attributed to the antioxidant present in the botanical extract blend of bioactive components.

- Improved the use of enrichment objects (perches, scratch mats, and nest boxes).
- Lowered serum corticosterone levels, indicating reduced stress levels.

In conclusion, Phytozen® Liquid has the potential to improve the overall welfare of laying hens in enriched housing.

Researchers and Cooperators

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