# Validation of enhanced floor pen housing for chickens

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## Introduction

This study assesses the transition from isolator housing to an enhanced floor pen system for chickens, with the goal of improving Animal Welfare and promoting natural behaviours. Historically, chickens in our facility were housed in isolators, which limited the opportunities for species-specific behaviours and human-animal interactions. Our new floor pen design allows for provision of increased environmental enrichments to create a more stimulating and natural environment and allows greater human-animal interactions. To validate the effectiveness of this new housing system, we conducted an ethogram, systematically observing and recording the behaviours exhibited by chickens in the floor pens (Figure 1). The results demonstrated engagement with enrichment items and the expression of normal behaviours such as foraging, dust bathing and social interactions (Figures 2 and 3). This research demonstrates the successful introduction and validation of a new enriched housing system that enhances the welfare of chickens by promoting natural behaviours and improved human-animal relationships.

## Ethogram development and observation method

An ethogram was developed to categorise and define specific behaviours of interest. This included:

- Social interactions: pecking, grooming, chasing.
- Feeding behaviours: foraging, drinking and feeding.
- Exploratory behaviour: interaction with environmental enrichments and dust bathing.

Each behaviour was clearly defined before starting to ensure consistent observations. Observations conducted twice daily for 6 minutes, once in the morning between 07.00 to 08.00 and once in the afternoon 14.00 to 15.00 to capture variations in behaviour throughout the day.

Observers were positioned at a distance that minimised disturbance to the chickens but still allowing clear visibility of interactions. Each observation was recorded on a table and using a stopwatch, direct observations were performed. Observers used the ethogram to record frequency and duration of each behaviour exhibited by the chickens during the observation period. Data was recorded in real time and each behaviour was tallied (Table 1).

**Figure 1.** Enrichment.

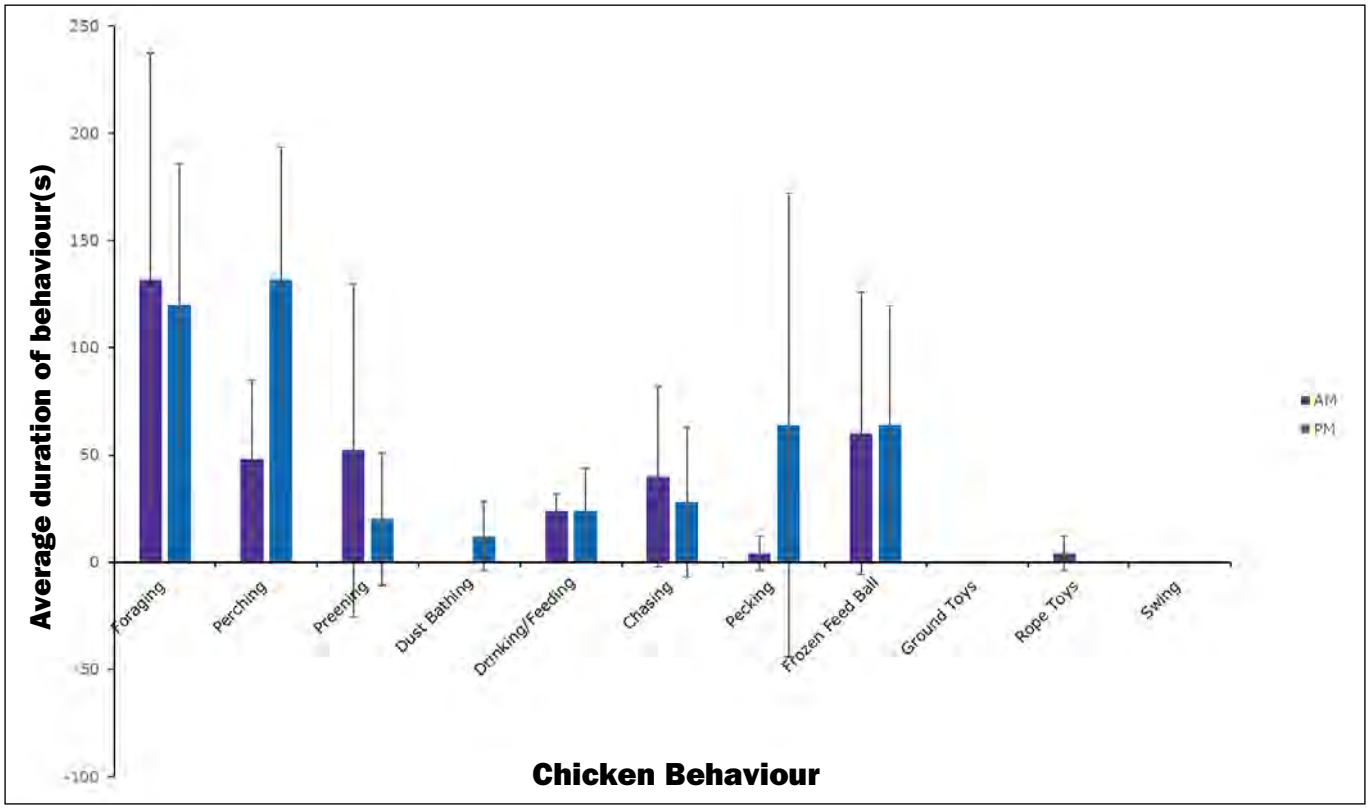


**Table 1.**

**Figure 2.** Foraging.

**Figure 3.** Social interaction.

## Results

The ethogram data collected over the observed days highlights several key behaviours of chickens.

## Foraging

The frequency of foraging varied significantly, with a peak of 340 on one day, indicating that foraging is a primary activity for the chickens. Other days showed lower levels, suggesting variability based on environmental factors or resource availability.

## Perching

Perching behaviour fluctuated across the days, with some days showing high activity (e.g. 100) and others very low or none. This variability may indicate social dynamics or comfort levels within the flock.

## Preening and dust bathing

These behaviours were less frequent overall, suggesting they may not be as significant in daily activities compared to foraging and feeding.

## Drinking and feeding

This behaviour remained relatively consistent, indicating regular feeding patterns among the chickens which is crucial for their health and wellbeing.

## Chasing and pecking

Both behaviours were observed less frequently, with some days showing no activity. This could suggest that these behaviours are more situational or dependent on interactions within the flock.

## Conclusion

The ethogram analysis reveals important insights into the behavioural patterns of chickens. The significant variation in foraging activity suggests that environmental factors and resource availability play a critical role in their daily behaviour. Consistent drinking and feeding patterns highlight the importance of these activities for chicken health. The variability in perching and interaction with toys indicates potential influences from social dynamics and environmental enrichment. Overall, understanding these behaviours can inform better management practices for poultry welfare and productivity. The ethogram demonstrates a range of species-specific behaviours exhibited by chickens in an enriched environment. The observed behaviours indicate that the chickens engaged positively with the enrichment provided, such as foraging, dust bathing and social interactions. Notably, no negative behaviours were recorded, suggesting that the enrichment strategies implemented effectively supported the wellbeing and natural instincts of the chickens. This reinforces the importance of providing a stimulating environment to enhance the quality of life for these animals.