

Refinement: Promoting *Gallus Gallus* welfare in an experimental poultry unit.

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Abstract

The poultry team at The Pirbright Institute reviewed existing husbandry practices, and trialled a number of refinement practices. The objective is to provide the birds used in research with an environment which enables them to express their natural behaviours and habituates them towards human contact, including procedures, with the potential to reduce cumulative suffering. This is especially important for animals used in research as stress is known to alter physiological and immunological responses, which could affect the results from infectious disease research. This poster summarises refinement approaches, including enrichment products used in the commercial poultry industry and pet trade. Various items of enrichment have been introduced through observing natural behaviour and interest. This poster presents refinement approaches which have been subjectively assessed as being of benefit to the birds. Future work will consist of implementing a more objective assessment of benefit of these refinement approaches, such as quantitative behavioural assessment.

Introduction

It is known that a barren environment can have a negative emotional impact on poultry welfare (Bassler, Arnould *et al.* 2013). In addition, environmental enrichment can improve plumage and health conditions of laying hen pullets (Liebers, Schwarzer *et al.* 2019). Moreover, it has been demonstrated that broilers in a more varied environment have showed to be less fearful by reduced tonic mobility and had lower basophil levels when exposed to acute stressors (Altan *et al.* 2013).

Human interaction

In the hope to reduce stress, staff interact with the poultry multiple times a day. This is achieved by:

- Hand feeding enrichment to the birds.
- In addition to routine husbandry practices, a radio is played and more time is spent in each room to habituate birds to human voice
- Birds are handled daily as part of a new approach of collecting daily weights (see other poster).



Live food

Giving live food allows the birds to carry out natural foraging behaviours, such as scratching and pecking.

In past studies, live food rewards induced more of an interest in quail after a negative stimuli had been applied (Favreau-Peigné *et al.*, 2016).

- Live food is now given after procedures to offer birds distraction. Additionally dried live food can be given autoclaved to promote good laboratory practice.



Raised floor pens

The raised floor pens at The Pirbright Institute (below) allow a fully bedded environment to be provided. They also have an inbuilt ability to separate birds from each other when undertaking a variety of activities, including regulated procedures and health checking. This allows birds to be given enrichment after regulated procedures as a form of positive reinforcement, as well as avoiding re-handling straight after regulated procedures.

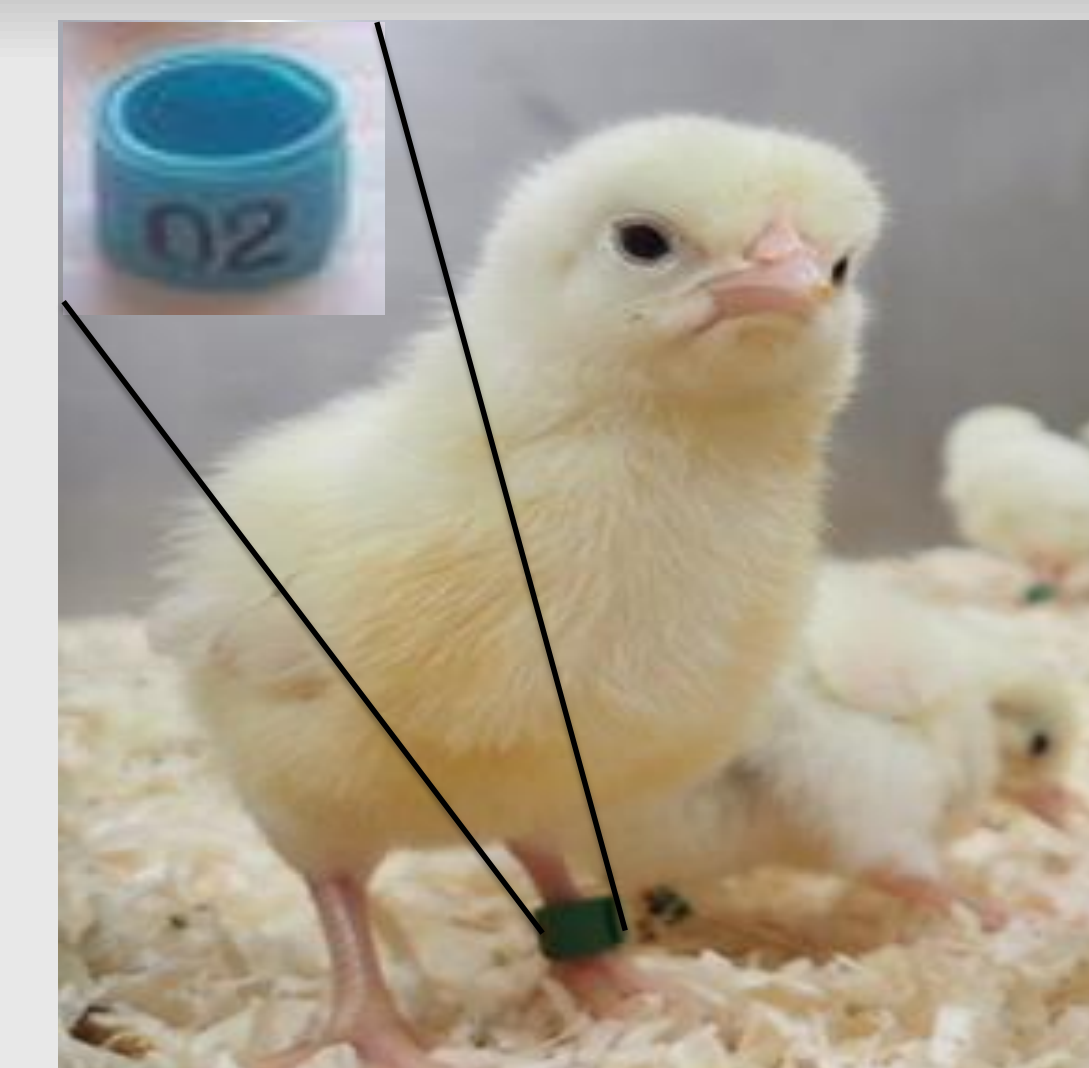


Leg banding

The use of leg banding is being trialled instead of wing banding for identifying the animals.

Wing banding is an invasive process, which requires the piercing of the skin of the wing with a permanent tag.

- Initial results show that leg bands remain in place, but may need to be replaced as the bird grows larger – Alternative materials are being investigated.
- Future work: to assess changes in weight gain of wing banded vs leg banded birds.

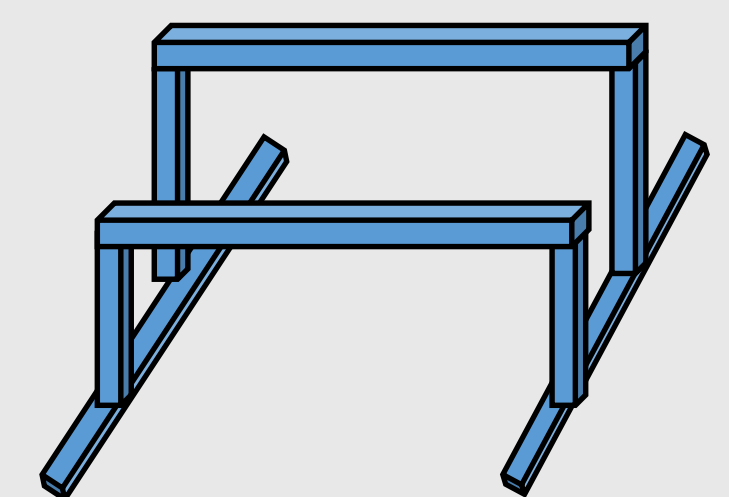


Perches

Perches have been provided for the birds in all environments in which they are housed at the Pirbright institute.

Observations of bird perching behaviour have suggested that there is a preference for a rectangular perch opposed to a circular one. This has also been demonstrated in peer reviewed research when examining different perch shapes (Duncan, Appleby *et al.* 1992).

- A perch has been designed and improved which will further refine the birds environment.



Sand bathing

Sand baths are provided as a standard enrichment item.

A greater interaction with the sand has been observed when it has been dampened.

Additions of small amounts of food enrichment also appear to increase the interaction with the sand / bathing behaviour.



The future

Future work will look to measure the impact of these enrichment approaches using an objective, quantitative set of parameters including: measuring tonic immobility with or without different enrichment items, human contact and enrichment items latency periods using ethograms, and measuring stress hormones.

References

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