

Cooped up: refinement of a *Gallus gallus domesticus* environment

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Introduction

Providing an enriched species specific environment coupled with the principles of the 3Rs (Refinement, Reduction and Replacement) is at the heart of the poultry team at The Pirbright Institute. Periodically reviewed custom made cage designs (Raised Floor Pens) have allowed the team to combine bird welfare with staff requirements thus formulating an improved livable environment for the birds and a workable setting for Animal Technicians.

Other aspects recognised as key to providing a healthy environment include:

- temperature and humidity
- lighting
- space allowance
- food and non food enrichment
- human interaction

We show the refined conditions installed at The Pirbright Institute based on Animal Technician experience and information from the Home Office Code of Practice for the housing and care of animals bred, supplied or used for scientific purposes.



Housing 2016 to 2018

Raised Floor Pen version 1:

Original design bespoke to The Pirbright Institute. Floor area: 11,745cm². Optimal number of birds housed: up to 43. Bird numbers vary based on weight up to 600g.



Pros:

- Flexibility
- Birds off the ground
- Removable front panels
- Removable side panels
- Cross bar
- Lockable wheels
- Solid floor



Cons:

- Metal panels bang
- No roof panels
- Awkward panel removal
- Awkward bird removal
- Large cage depth
- Dirt traps

Housing 2018 to 2020

Raised Floor Pen version 2:

Second design, version 1 refined to improve bird welfare and usability. Floor area: 10,125cm². Optimal number of birds housed: up to 37. Bird numbers vary based on weight up to 600g.



Pros:

- ⊗ Less cage depth
- ⊗ Bi-folding doors on hinges
- ⊗ Locking bolts
- ⊗ Roof panels
- ⊗ Solid lower shelf panel
- ⊗ Less dirt traps
- ⊗ All pros from version 1



Cons:

- ⊗ Less floor space
- ⊗ Doors bang
- ⊗ Bolts are stiff and noisy
- ⊗ Less floor space
- ⊗ Low roof panels



2020 to present

Raised Floor Pen version 3:

Third design, version 2 refined to further improve bird welfare and usability. Floor area: 10,854cm². Optimal number of birds housed: up to 40. Bird numbers vary based on weight up to 600g.



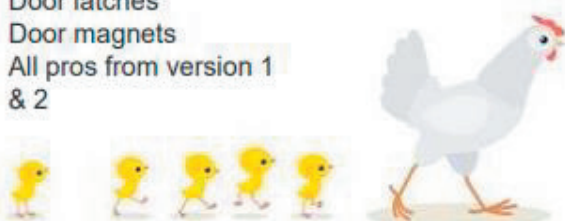
Pros:

- ⊗ Increased floor space
- ⊗ Increased height
- ⊗ Door latches
- ⊗ Door magnets
- ⊗ All pros from version 1 & 2



Cons:

- ⊗ Less floor space than version 1



Enrichment

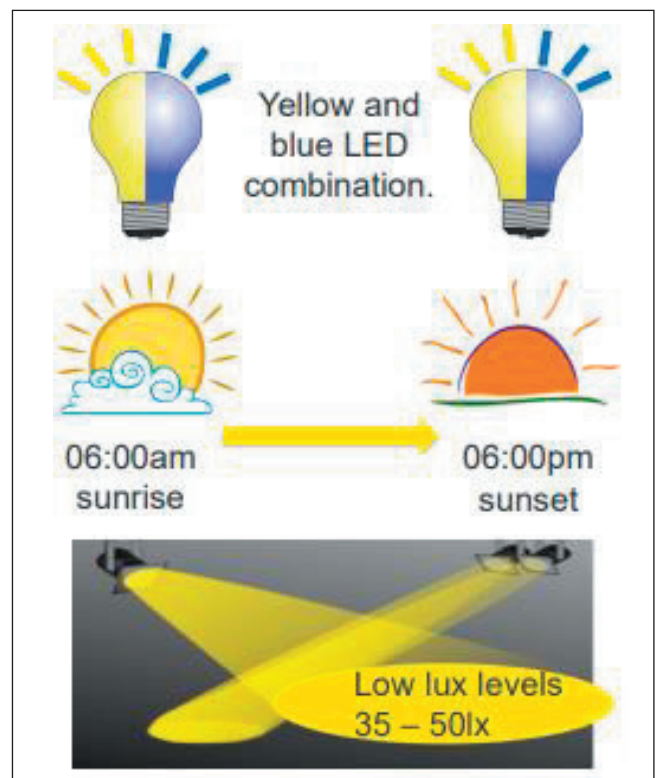
A variety of food and non food enrichment is provided and rotated daily to promote the following:

- natural foraging behaviours
- positive reinforcement
- boredom prevention

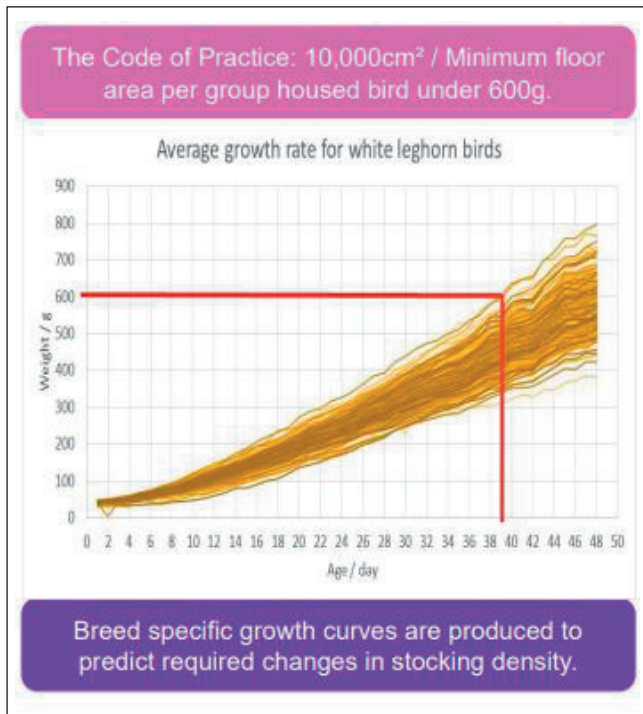


Lighting

Well managed lighting promotes healthy immune system, growth, mobility and natural behaviours



Space allowance



References

- 1 Home Office. (2014, December 17). Code of practice for the housing and care of animals bred, supplied or used for scientific purposes. <https://www.gov.uk/government/publications/code-of-practice-for-the-housing-and-care-of-animals-bred-supplied-or-used-for-scientific-purposes>

Temperature and relative humidity (rH%)

The Code of Practice guidance:			The Pirbright Institute:		
Age (days):	Temp (°C)	RH (%)	Age (days):	Temp (°C)	RH (%)
1 – 7	22 - 27	60 - 80	1 - 6	26	65
7 - 14	19 - 25	60 - 80	7 - 13	24	65
14 - 21	18 - 25	40 - 80	14 - 20	24	65
21 - 28	18 - 25	40 - 80	21+	22	65

Human Interaction

Birds weighed daily

Wing band checks

Daily physical checks

Hand fed enrichment

De-pasting

Leg band checks