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# A slow-growing broiler strain has more beneficial effects on broiler welfare than providing environmental enrichment



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## Extensive broiler production systems include common housing and management factors:

- Reduction in stocking density
- A slower-growing broiler strain
- Environmental enrichment
- Outdoor area
- Roughage or low-protein/energy diets

These are considered to be beneficial for broiler welfare and to affect meat quality aspects



## Aim of the project and experiment

In mEATquality, we aim to determine the effect of **extensification factors** on **animal welfare, other sustainability aspects and meat quality**

Aim of this study was to determine the effect of two extensification factors, i.e., **a slower-growing breed and environmental enrichment**, on broiler welfare and meat quality

We here report the effects on **broiler welfare**





Enrichment:  
Perch, dustbath & lucerne bale  
No enrichment

Stocking density: 31 kg/m<sup>2</sup>



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# Environmental enrichment

Peat dustbath

Barrier perch



Lucerne bale



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# Measurements

- Performance
- Behavioural observations (0.5, 1.1, 1.9 kg)
- Behavioural tests (fearfulness, play) (0.5, 1.1, 1.9 kg)
- Use of roughage (0.5, 1.1, 1.9 kg)
- Feather corticosterone (10 birds/pen)
- Litter quality (0.5, 1.1, 1.9 kg)
- Clinical welfare indicators: gait score, footpad dermatitis, hock burns, cleanliness and injuries (1.9 kg)
- Slaughter yield, sensory & chemical meat quality aspects (at appr. 2 kg)

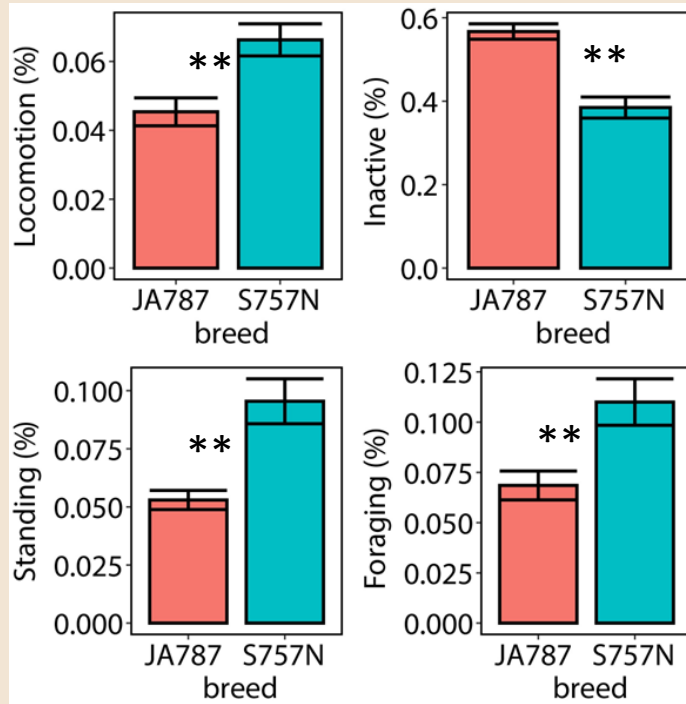


# Measurements

- Performance
- Behavioural observations (0.5, 1.1, 1.9 kg)
- Behavioural tests (fearfulness, play) (0.5, 1.1, 1.9 kg)
- Use of enrichment (0.5, 1.1, 1.9 kg)
- Feather corticosterone (10 birds/pen)
- Litter quality (0.5, 1.1, 1.9 kg)
- Clinical welfare indicators: gait score, footpad dermatitis, hock burns, cleanliness and injuries (1.9 kg)
- Slaughter yield, sensory & chemical meat quality aspects (at appr. 2 kg)



# Results: home pen behaviour



## Breed effect

No effect of environmental enrichment, or interaction breed \* enrichment

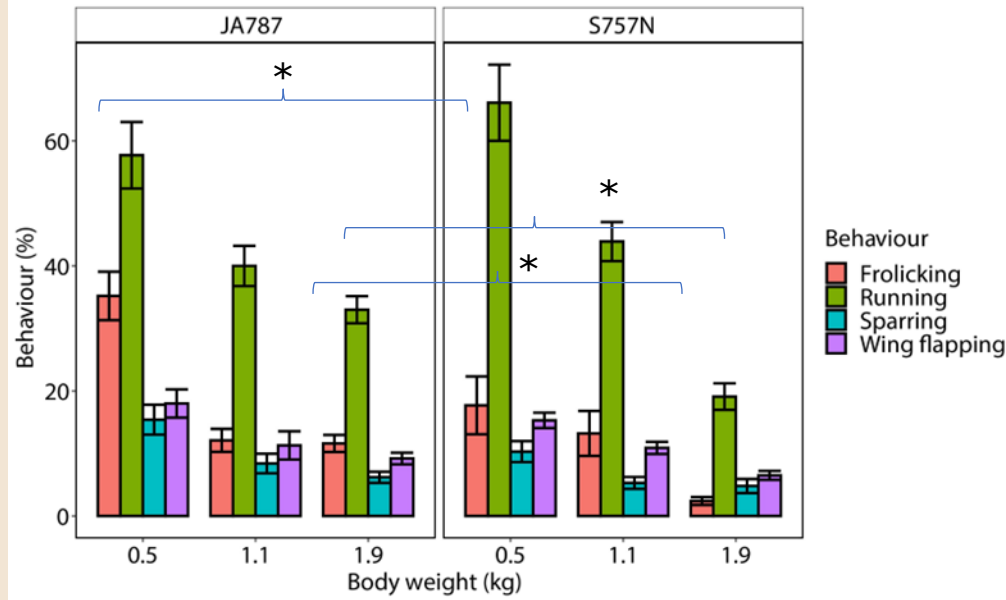
S757N ↑ locomotion, standing and foraging and ↓ inactive as compared to JA787

No breed effect on ingestion & comfort behaviour





# Results: Free space test (play behaviour)



## Breed effect:

JA787 ↑ running vs. S757N at 1.9 kg

JA787 ↑ frolicking vs. S757N at 0.5 and 1.9 kg

Indicates JA787 ↑ play behaviour vs. S757N

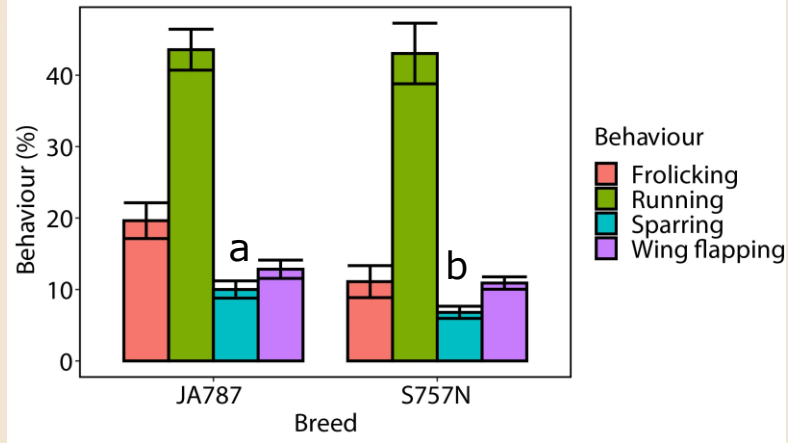


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# Free space test (play behaviour)

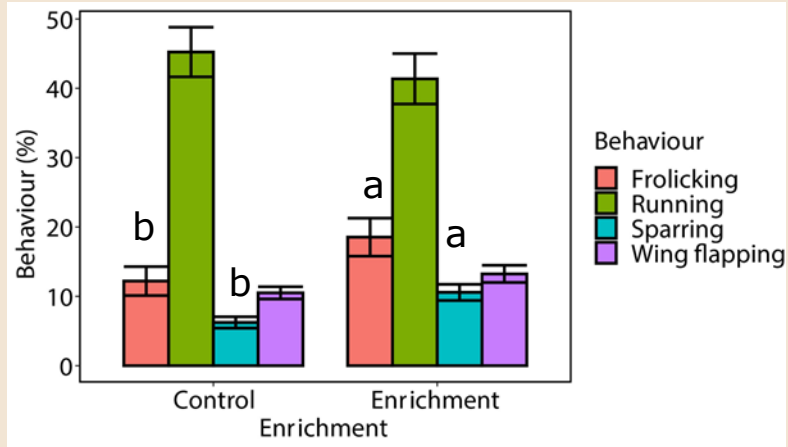
## Breed effect:

JA787 ↑ sparring vs. S757N



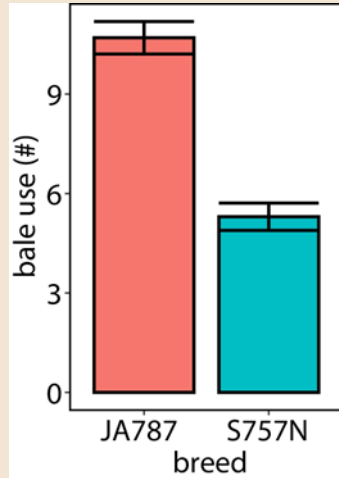
## Enrichment effect:

Control ↓ frolicking and sparring vs. enrichment

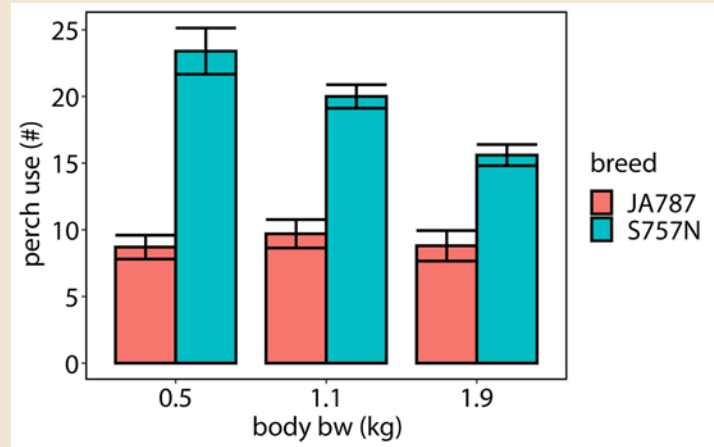


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# Results: enrichment use



JA787 ↑ bale use vs. S757N



JA787 ↓ perch use vs. S757N at 0.5, 1.1 and 1.9 kg

No differences between breeds for dustbath use

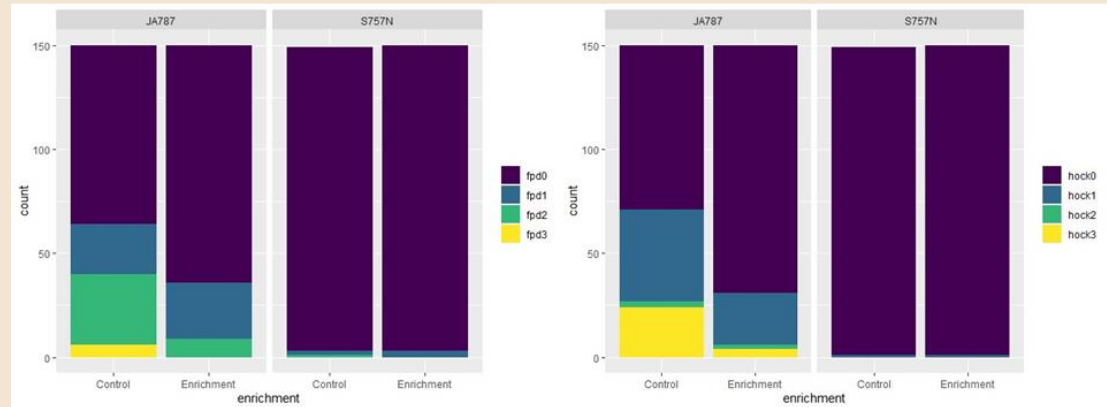
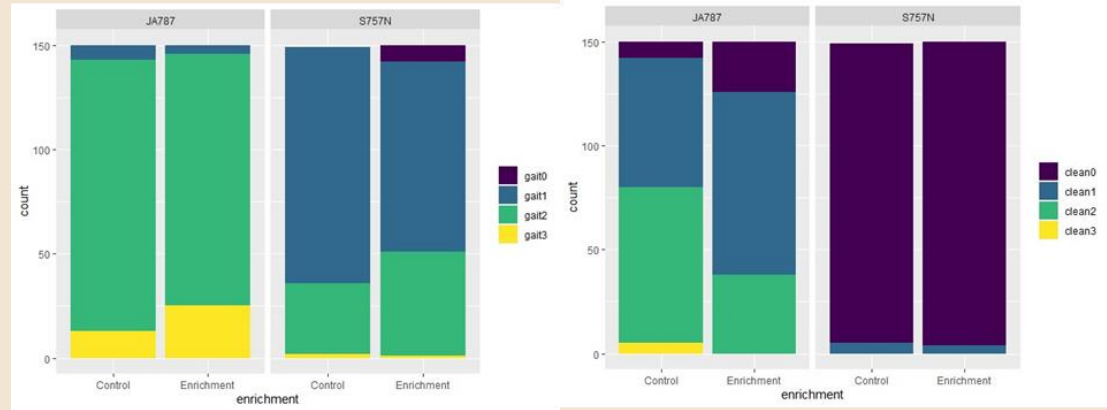


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# Results: clinical welfare indicators

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Breed effect:  
JA787  $\uparrow$  (= worse) gait  
score, cleanliness,  
footpad dermatitis  
and hock burn vs.  
S757N



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## Discussion & conclusions

- Using a slow-growing breed improved welfare indicators more than environmental enrichment
- But more play in the fast-growing breed
- To have a significant welfare improvement, including a slow-growing breed in extensive systems is advised
- Environmental enrichment offers choice and opportunities for natural behaviours but has a relatively smaller contribution to broiler welfare when slow-growing breeds are applied
- Preferably, different extensification factors are combined to promote welfare



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Thank you for your attention  
– questions?

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Thanks to Hubbard  
Breeders for providing  
the chickens



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