



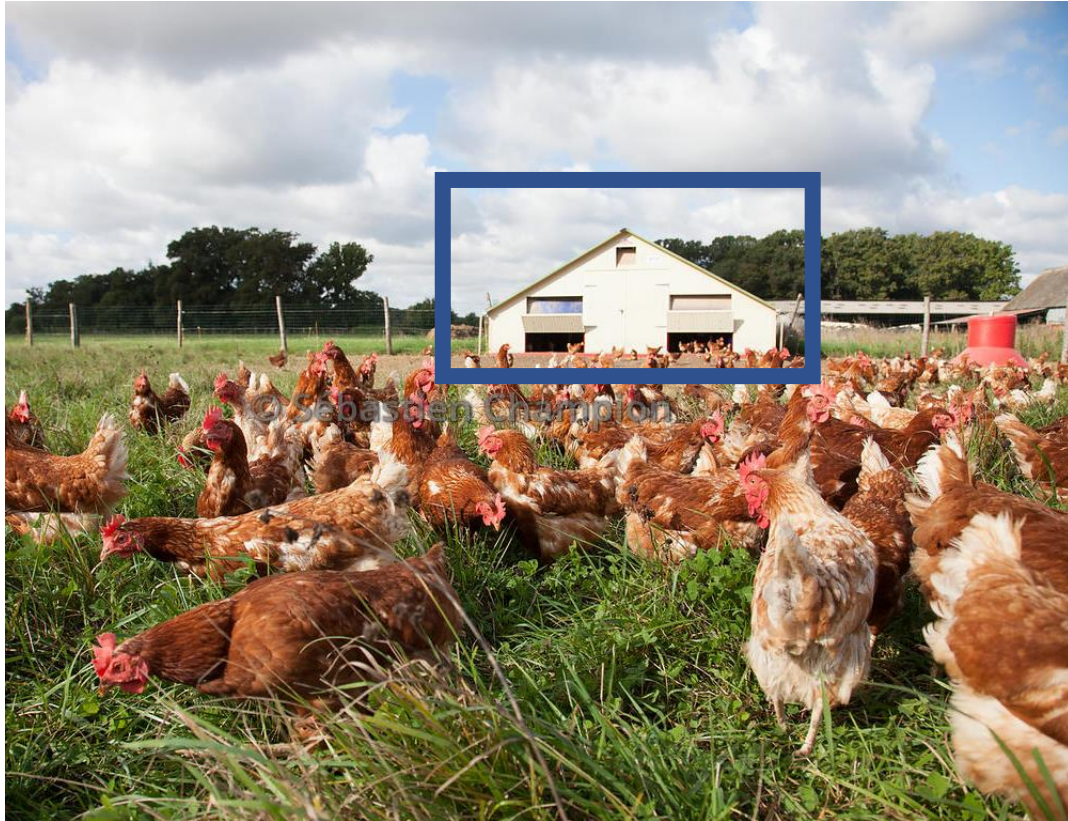
The free-range broiler chicken as model to study animal behavior and cognition

Vitor Ferreira, Christine Leterrier, Anne Collin, Elisabeth Le Bihan-Duval, Sandrine Mignon-Grasteau, Julie Collet, Claire Bonnefous, Ludovic Calandreau, and Vanessa Guesdon

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INTRODUCTION

BROILER CHICKENS AS AN INTERESTING MODEL FOR FUNDAMENTAL RESEARCH



Problematic: Free-range birds do not use the range equally, some birds use it more, while other birds use it less (some not at all)

INTRODUCTION

BROILER CHICKENS AS AN INTERESTING MODEL FOR FUNDAMENTAL RESEARCH

High concentration of chickens inside the barn =
Welfare problems



Barn

Range

External influences



Internal influences

Even when the best conditions are reunited for a given flock, birds still show some inter-individual variability in how they use the range...

THE BEHAVIOR AND COGNITION OF FREE-RANGE BROILER CHICKENS

In various animal species, individuals exhibit **varying degrees of exploratory behavior**. This trait plays a crucial role in shaping how they interact, perceive, and process the information from their environment, influencing their **cognitive abilities**.



Questions:

- 1) Do free-range chickens have personality differences? Are there potential early indicators of range use/exploratory tendencies?
- 2) Is range use linked to birds' cognitive abilities?

THE BEHAVIOR OF FREE-RANGE BROILER CHICKENS

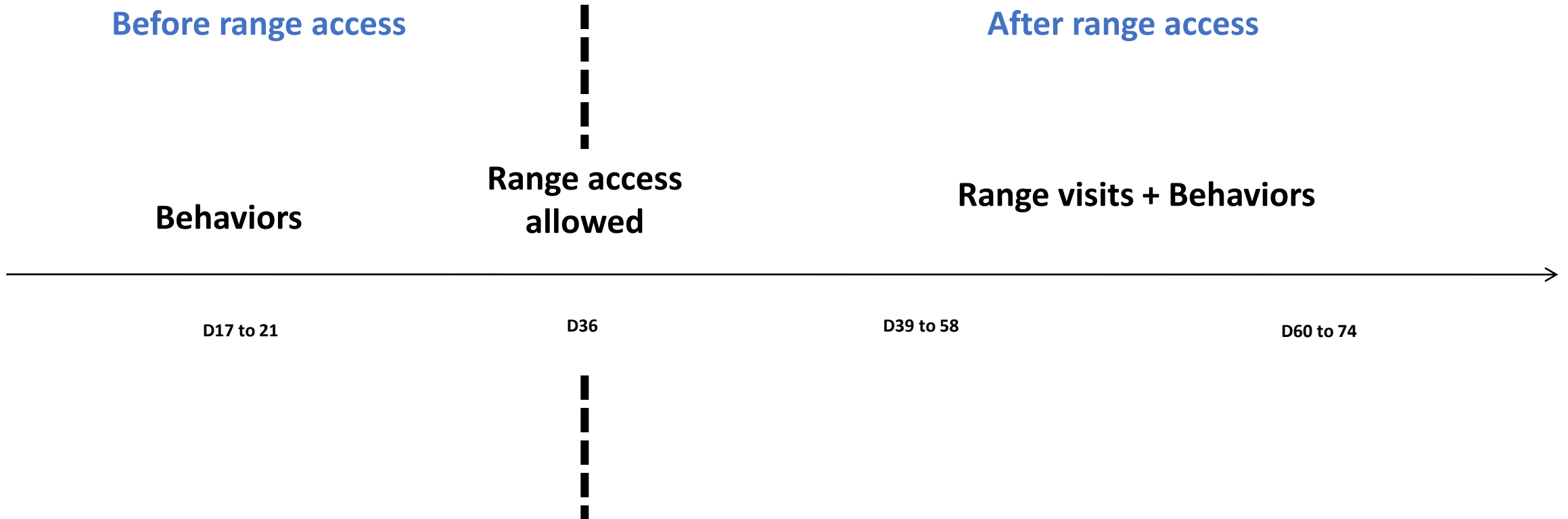
METHODS



Behaviors
Range visits

THE BEHAVIOR OF FREE-RANGE BROILER CHICKENS

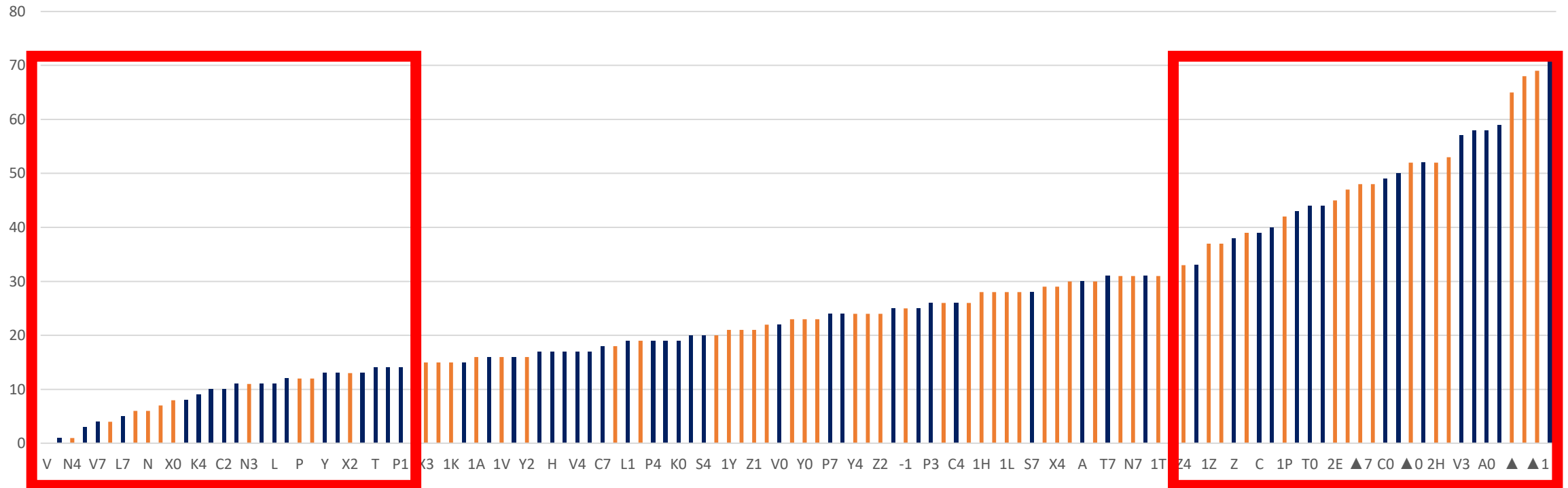
METHODS



THE BEHAVIOR OF FREE-RANGE BROILER CHICKENS

METHODS

Total range visits



Low rangers

High rangers

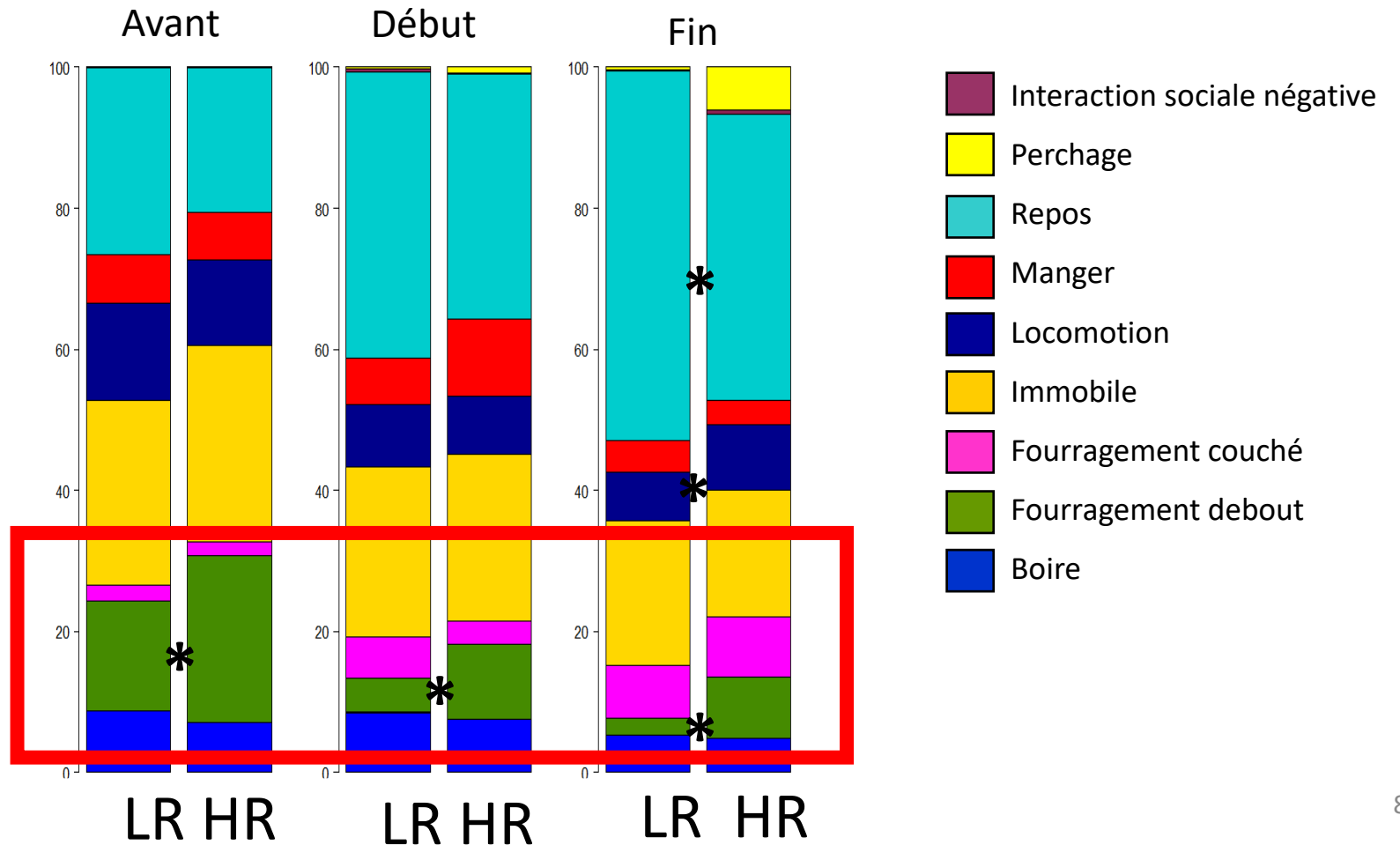
THE BEHAVIOR OF FREE-RANGE BROILER CHICKENS

RESULTS



VGIF.RU

Foraging
=
Food search, exploration



THE BEHAVIOR OF FREE-RANGE BROILER CHICKENS

RESULTS

Foraging



Foraging

=

Food search, exploration

1. LR foraged less than HR, even before they could access the range – **potential early indicator of range use?**
2. Only behavior to show within-individual consistency over time and to correlate positively with range visits in a consistent manner.

Free-range chickens may have different personalities
(exploration trait)

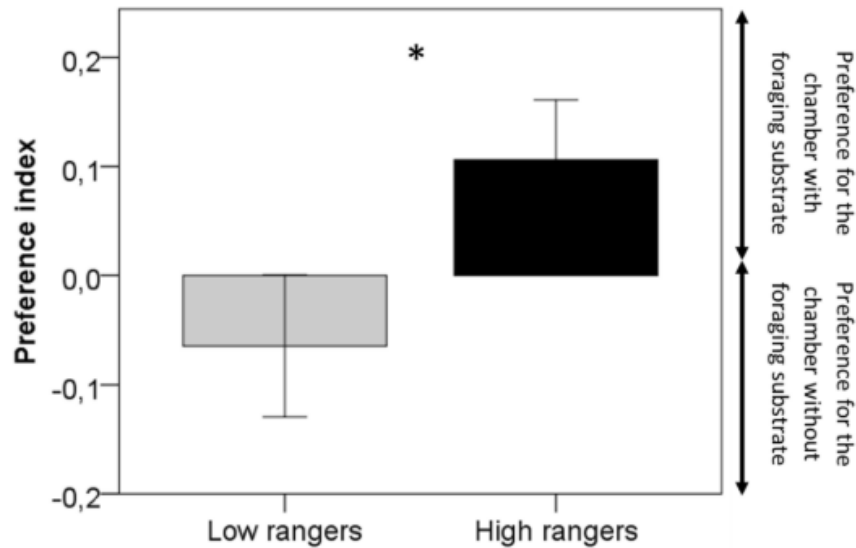
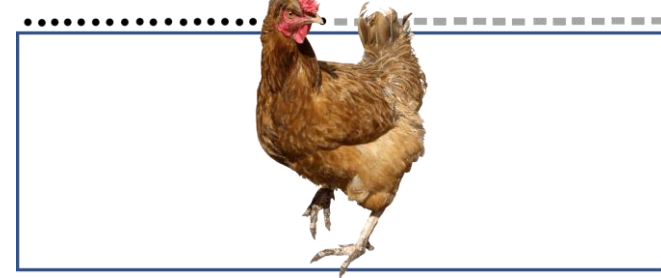
THE BEHAVIOR OF FREE-RANGE BROILER CHICKENS

CONTRAFRELOADING

Conditioning



Testing



- High rangers preferred the compartment with foraging substrate (difficult access)
- Low rangers did not show a preference for any of the two compartments



THE BEHAVIOR AND COGNITION OF FREE-RANGE BROILER CHICKENS

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THE COGNITION OF FREE-RANGE BROILER CHICKENS

Questions:

2) Is range use linked to birds' cognitive abilities?



High rangers due to their more exploratory tendencies and contact with different situations **are expected to be better** in adapting their behavior and processing environmental information **than low rangers**.

Associative memory

Spatial memory

➔ **Inhibitory control**

THE COGNITION OF FREE-RANGE BROILER CHICKENS

INHIBITORY CONTROL

Apprentissage
Cylindre opaque



Test (Cylindre transparent)
Échec



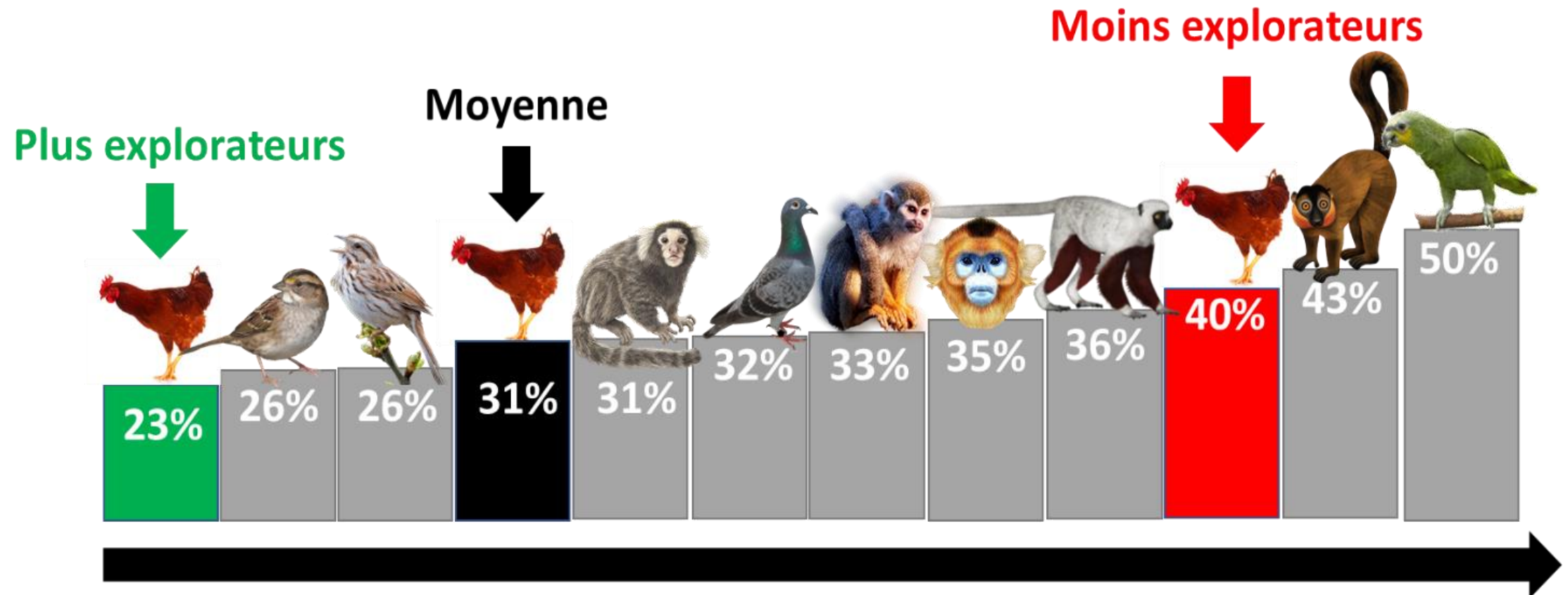
Test (Cylindre transparent)
Essai réussi



THE COGNITION OF FREE-RANGE BROILER CHICKENS

DISCUSSION

10 testing trials with the transparent cylinder
7 low rangers et 8 high rangers

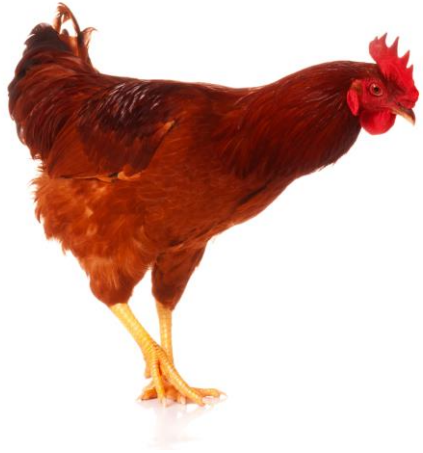


THE BEHAVIOIR AND COGNITION OF FREE-RANGE BROILER CHICKENS

These results corroborate biological theories (trade-off speed vs. accuracy) that link exploration to cognition (cognitive performance) in different species. These links are present even in a domesticated species, selected for years for its zootechnical performance.

	More exploratory – less accurate	Less exploratory – more accurate
Behavioral types	Insensitive to changes	Sensitive to chages
	More impulsive	Less impulsive
Learning and memory		
Spatial memory	Less complex	More complex

TAKE-HOME MESSAGE

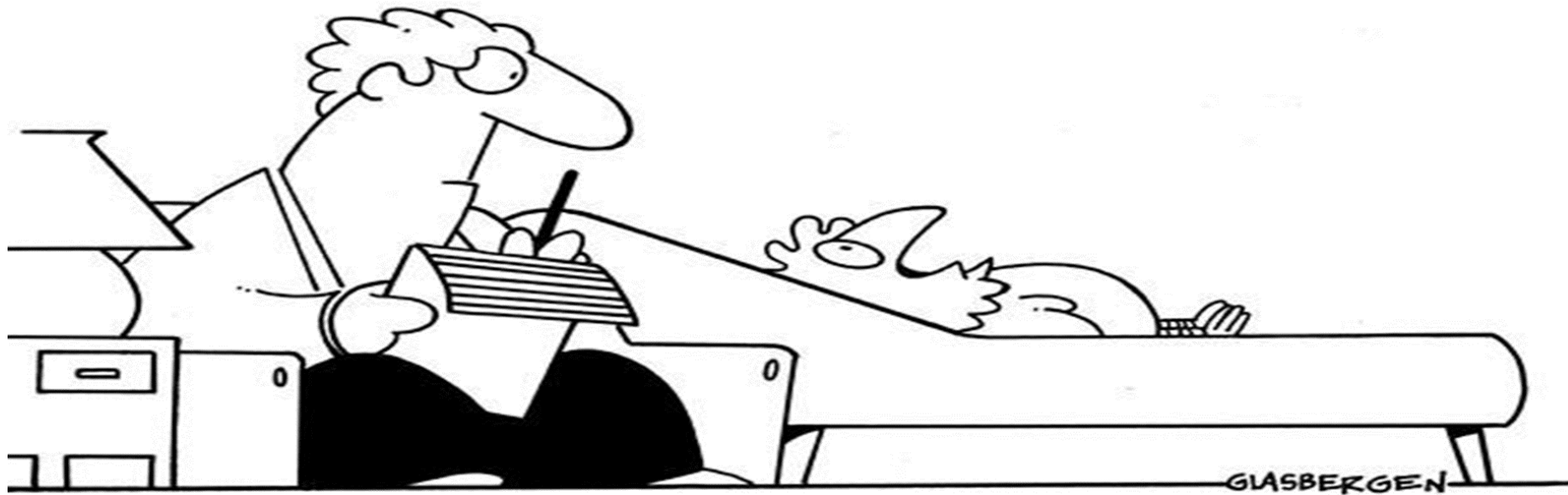


Free-range chickens can have different personalities and may differ in their cognitive processes. Personality and cognition are linked to the way they use the range!

As **animal welfare** is linked to the **individual's perception** of its situation, this knowledge is important for **identifying individual features**, such as personality and cognition, that affect range use. Ultimately, these results can help to **develop effective ways of encouraging chickens to go out and enjoy the benefits of range use.**

Thank you/Merci!

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“I’m free-range, but I still feel caged in by my doubts and fears.”



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