WELFARE OF DUCKS, GEESE AND QUAIL ON FARM

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EUROPEAN FOOD SAFETY AUTHORITY

Background and Terms of References (ToRs) from the mandate

For each species (ducks, geese and quail) and category of animals:

ToR-1: Describe, the main husbandry systems with a focus on housing systems currently used in the EU for keeping these animals;

ToR-2: Describing the relevant welfare consequences concerning restriction of movement, injuries, group stress and inability to perform comfort behaviour related to these husbandry systems;

ToR-3: Provide recommendations on qualitative or quantitative criteria to prevent the negative welfare consequences listed above in relation to:

- Space allowance (three-dimensional) per animal,
- Maximum size of the group,
- Floor quality,
- Availability, design and size of nesting facilities,
- Enrichment provided (including access to water to fulfil biological needs).

ANIMAL SPECIES, CATEGORIES AND PRODUCTION PURPOSES

	Breeding	Production of meat	Production of foie gras	Production of eggs
	- Immature breeders - Pedigree breeders - Great-grandparent breeders - Grandparent breeders - Parental breeders	- Starting period - Growing period	na	(a)
			- Starting period - Growing period - Overfeeding period	na
			- Starting period - Growing period - Overfeeding period	(a)
		- Starting and growing period(b)	na	Immature layers Layers

The process of collecting feathers and downs, of overfeeding for foie gras production, transport and slaughter are not part of the mandate.

(a) In some EU MSs, there is limited production of eggs for human consumption; however, in the knowledge of the EFSA experts these represent only niche production

(b) In quail, these two periods have been combined because the animals are mostly kept in the same system.

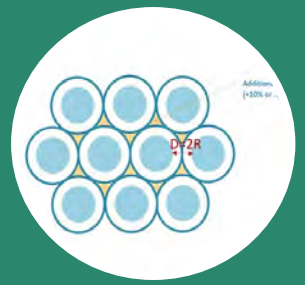
na= not applicable

DATA AND METHODOLOGY

Literature review

Joint EFSA/EC questionnaire to the MSs

A second EFSA questionnaire to Stakeholder umbrella organizations



Behavioural space model

Expert opinion

- Exercise
- Group discussion

Uncertainty analysis

- > 50-100% = Most likely than not
- 66-100% = From likely to almost certain
- 90-100% = Very likely to almost certain

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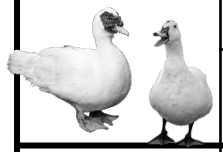
RESULTS: DESCRIPTION OF THE MAIN HUSBANDRY SYSTEMS (ToR-1)

		Individual cages	Couple cages	Collective cages	Indoor floor systems	Floor systems with outdoor access	Outdoor systems	Elevated collective cages indoor	Elevated pen systems indoor	Floor pen systems indoor
Domestic duck 	Breeders	x			x					
	Meat production				x	x	x			
Muscovy and Mule ducks 	Breeders	x			x					
	Meat and foie gras				x	x	x			
	Foie gras (overfeeding)							x	x	x
Domestic geese 	Breeders				x	x				
	Meat and foie gras					x	x			
	Foie gras (overfeeding)								x	x
Japanese quail 	Breeders		x	x	x					
	Broiler quail				x					
	Layers quail			x	x					

HUSBANDRY SYSTEMS (Examples)

Indoor floor systems with outdoor access for ducks

(© IRTA, Spain)

Indoor floor systems for quail

(© IRTA, Spain)

Systems during overfeeding phase in foie gras production for Mule ducks

Elevated collective cages

Floor collective pens

Elevated collective pens

(© Litt, ITAVI, France)

ToR-2: DESCRIPTION OF THE RELEVANT WELFARE CONSEQUENCES

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RELEVANCE OF THE WELFARE CONSEQUENCES IN THE HUSBANDRY SYSTEMS

1. Restriction of movement
2. Bone lesions (including fractures and dislocations)
3. Soft tissue lesion and integument damage
4. Locomotory disorders (including lameness)
5. Group stress
6. Inability to perform comfort behavior
7. Inability to perform exploratory or foraging behavior
8. Inability to express pre-laying and nesting (maternal) behaviors

Welfare consequences

Hazards

Three steps approach:

1. Identification of relevant hazards for the different welfare consequences.
2. Elicitation of the prevalence of these relevant hazards in relation to each husbandry system.
3. Relevance of the welfare consequences in the husbandry system based on the estimated prevalence of the relevant hazards

Assessment of the husbandry systems in relation to the relevant welfare consequences

Husbandry systems

Identification and assessment of the prevalence of the hazards (steps 1 and 2)

Per each of the husbandry system , the prevalence of the hazards was qualitatively classified:

HIGHLY PREVALENT hazards (3- estimated to be present in 66% of farms with a given husbandry system)

MODERATELY PREVALENT hazards (2- estimated to be present in 33% - 66% of farms with a given husbandry system)

LOW PREVALENCE hazards (1- estimated to be present in < 33% of farms with a given husbandry system)

Domestic geese	Breeders		Meat and Foie gras (starting and growing phases)			Foie gras (overfeeding phase)		Welfare consequences
Hazards	Indoor floor systems	Indoor floor systems with outdoor access	Indoor floor systems	Indoor floor systems with outdoor access	Outdoor systems	Elevated pen systems indoor	Floor pen systems indoor	
Insufficient space allowance per bird	3.0	1.0	3.0	1.0	1.0	3.0	3.0	• restriction of movement • group stress • bone lesions (including fractures and dislocations) • soft tissue lesions and integument damage • locomotory disorders (including lameness) • inability to perform exploratory or foraging behaviour
Insufficient drinker space	2.0	2.0	2.0	2.0	2.0	3.0	3.0	• group stress
Insufficient total floor space	2.0	1.0	2.0	1.0	1.0	3.0	3.0	• restriction of movement • group stress • inability to perform comfort behaviour • soft tissue lesions and integument damage • inability to perform exploratory or foraging behaviour
Lack or impaired access to open water	3.0	2.0	3.0	2.0	2.0	3.0	3.0	• group stress • restriction of movement • inability to perform comfort behaviour • inability to perform exploratory or foraging behaviour

Step 3 - Relevance of the welfare consequences in the husbandry systems – Example: Muscovy and Mule ducks

Muscovy and Mule ducks	Breeders (Muscovy ducks only)		Meat and Foie gras (starting and growing phases)			Foie gras (overfeeding phase)		
Welfare consequences	Individual cages	Indoor floor systems	Indoor floor systems	Indoor floor systems with outdoor access	Outdoor systems	Elevated collective cage systems indoor	Elevated collective pen systems indoor	Floor collective pen systems indoor
Restriction of movement	100% (5/5)	40% (2/5)	40% (2/5)	25% (1/5)	25% (1/5)	100% (4/4)	75% (3/4)	75% (3/4)
Group stress	69% (9/13)	8% (1/13)	17% (2/12)	0% (0/12)	0% (0/12)	67% (8/12)	58% (7/12)	50% (6/12)
Inability to perform comfort behaviour	100% (4/4)	25% (1/4)	25% (1/4)	0% (0/4)	0% (0/4)	100% (4/4)	75% (3/4)	75% (3/4)
Soft tissue lesions and integument damage	78% (7/9)	0% (0/9)	11% (1/9)	0% (0/9)	0% (0/9)	78% (7/9)	67% (6/9)	56% (5/9)
Locomotory disorders (including lameness)	100% (2/2)	0% (0/2)	0% (0/2)	0% (0/2)	0% (0/2)	100% (2/2)	100% (2/2)	100% (2/2)
Inability to perform exploratory or foraging behaviour	100% (6/6)	17% (1/6)	33% (2/6)	0% (0/6)	0% (0/6)	100% (6/6)	100% (6/6)	100% (6/6)
Inability to express pre-laying and nesting (maternal) behaviours	100% (1/1)	0% (0/1)	na	na	na	na	na	na

RECOMMENDATIONS ToR-2

1) The systems called cages (individual, couple or collective) and the systems currently used during the overfeeding phase for foie gras production as described in this SO, lead to high risk of occurrence of the welfare consequences and should be avoided.

2) All these systems should be improved according to the recommendations of ToR-3

3) Further research is recommended on the welfare consequences of rearing practices (e.g. overfeeding) which are not covered from the current mandate.

ToR-3: RECOMMENDATIONS TO PREVENT THE NEGATIVE WELFARE CONSEQUENCES

SPACE ALLOWANCE

The assessment of space allowance considered the following items:

1) **Behavioural space model**
2) **Height of the enclosure**

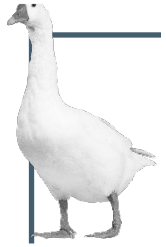
1) Space allowance – Behavioural space model

Which space allowance would support the birds to perform their behavioural needs?

Behavioural space model was based on a bird weight of :

3 kg (before slaughtering)

4.4. kg (before slaughtering or before entering in the overfeeding phase for Mule ducks)

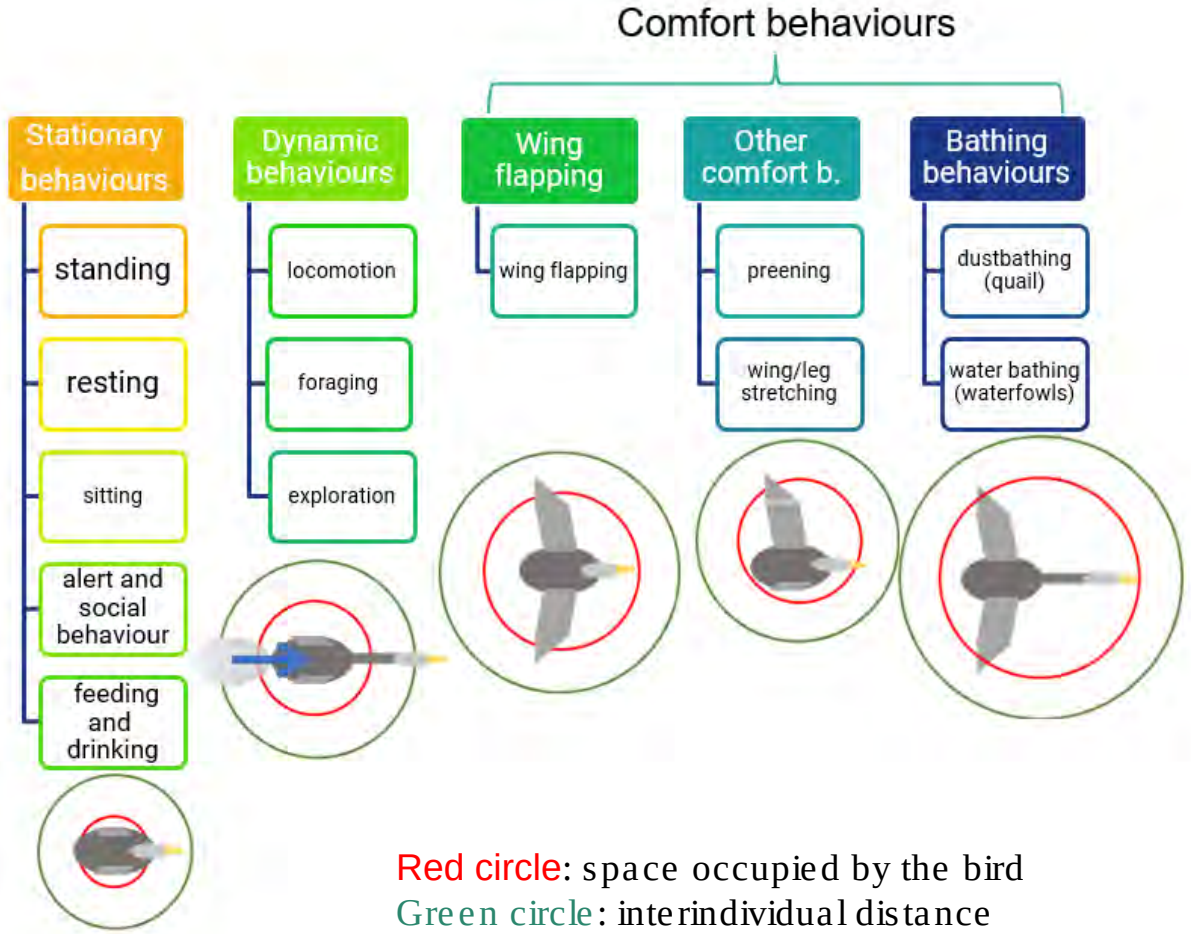


6.7 kg (before slaughtering or before entering in the overfeeding phase)

0.3 kg (sexually mature layers and broilers before slaughtering)

1) Space allowance – Behavioural space model

- A quantitative modelling approach is applied to calculate the space allowance that would allow birds to express their behavioural repertoire
- 5 behavioural categories
- It considers the space occupied by the birds and the interindividual distance among birds (obtained by literature, morphometric data, EKE)
- Four scenarios were proposed based on different possibilities to express behavioural categories
  - Scenario 1: Only stationary behaviour
  - Scenario 2: Dynamic + wing flapping + other comfort behaviours
  - Scenario 3: All of them considering functional areas
  - Scenario 4: All of them all the time



Red circle: space occupied by the bird
Green circle: interindividual distance

1) Space allowance – Behavioural space model

Recommendations: Minimum space allowance to be provided to prevent restriction of movement, inability to perform comfort behaviour and inability to perform exploratory or foraging behavior

Scenario 2

Scenario 3

	Domestic duck	Muscovy and mule duck	Domestic geese	Japanese quail
Space allowance (on dry land)	4,139 cm^2/bird (2.4 birds/m^2)	4,061 cm^2/bird (2.5 birds/m^2)	7,776 cm^2/bird (1.3 birds/m^2)	581 cm^2/bird (17.2 birds/m^2)
+ Space for exhibit complete water bathing	219 cm^2/bird (or in any case not less than 10,188 cm^2 per enclosure)	187 cm^2/bird (or in any case not less than 12,010	1,166 cm^2/bird (or in any case not less than 24,728 cm^2 per enclosure)	Included functional area for dustbathing with preferred material 32 cm^2/bird (or it any case not less than 1,155 cm^2 per enclosure).

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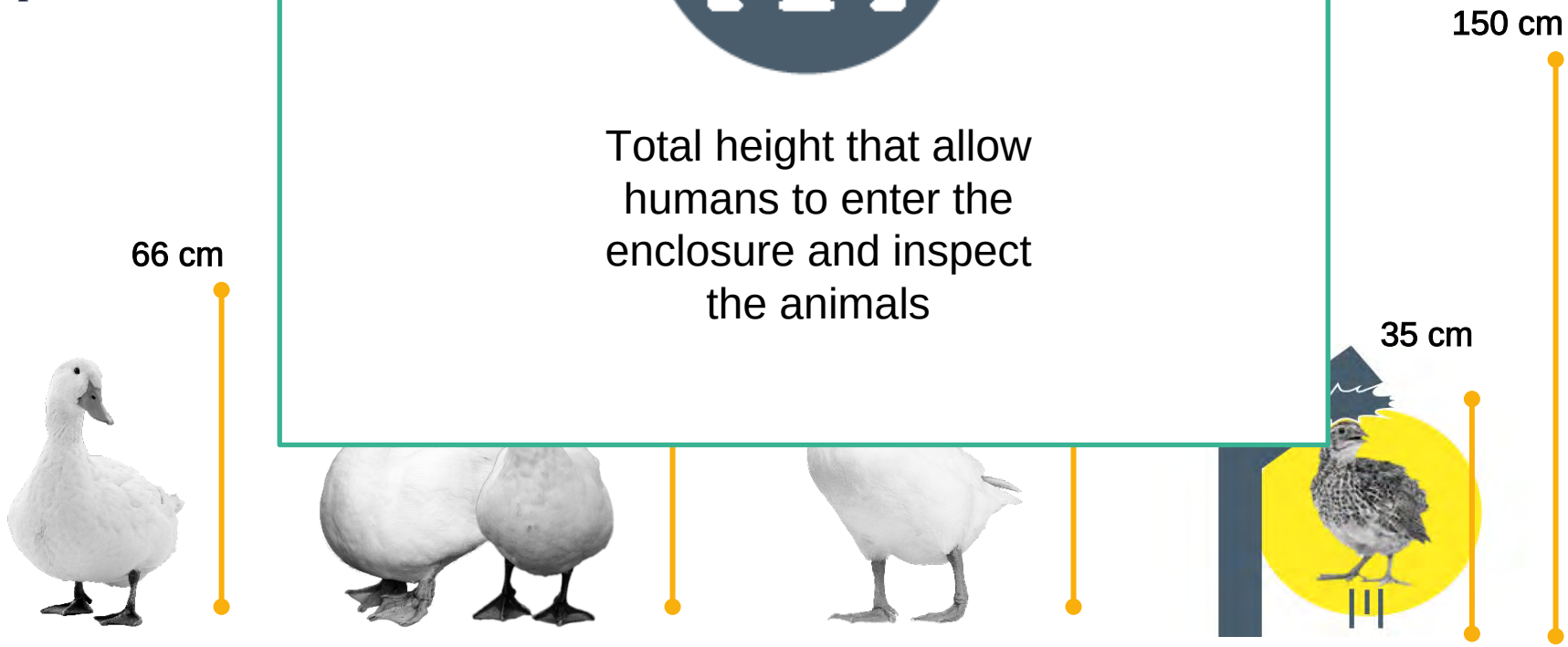
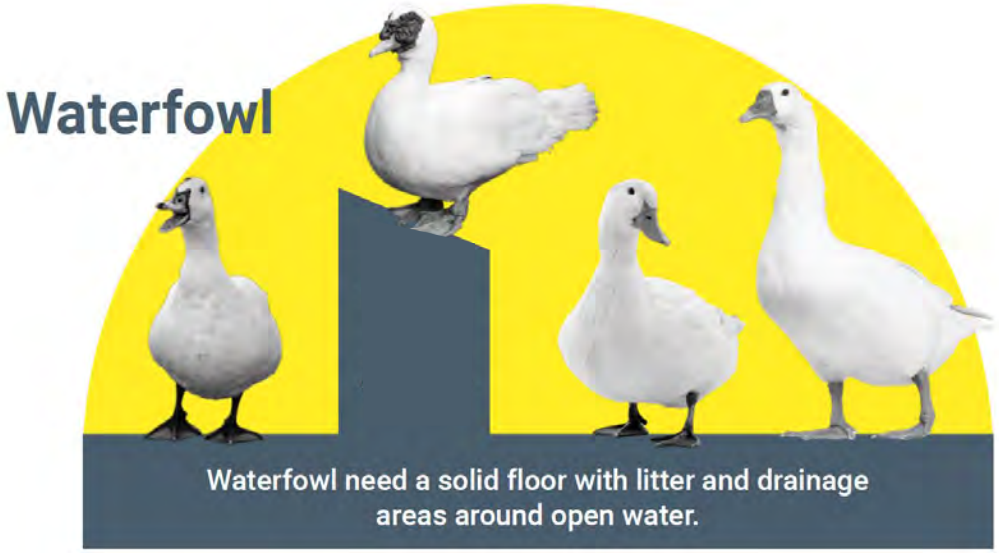
2) Space allowance – Minimum height of the enclosure - Conclusions

- To prevent the welfar **a bird to adopt a normal standing post**
- This height should be
  - ✓ from the surface of the epth over time
  - ✓ in the case of Muscovy which is provided, to the lower part of the ce

Total height that allow humans to enter the enclosure and inspect the animals



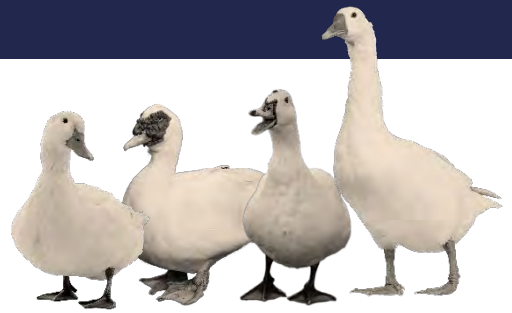
FLOOR QUALITY - Recommendations



Litter management :

1. The **quantity and replenishment frequency** of new litter should ensure **dry and friable condition** , and presence of **uncontaminated bedding material** that facilitates foraging, exploratory and comfort behaviours.
2. **More research** is needed on how to optimise different types of litter management in duck and goose barns.

NESTING FACILITIES - Recommendations



1. Any enclosure where adult female breeders are kept should contain one or more separate areas destined for egg laying.
2. The floor should not be of wire mesh, and it should contain manipulable material deep enough for nest building . Nests should be dimensioned to allow a single bird to show nesting behaviour.
3. A nest with sides, back and opaque top protection is recommended for ducks .
4. For Domestic geese the nest should not be placed under direct sunlight .
5. Further research is suggested to optimise nest design and nest ratio (nest: female) for Domestic and Muscovy ducks, and Domestic geese.

1. Nests providing cover , should be available for all laying quail and quail breeders, and should contain dry and friable material which is attractive for the species of interest.
2. Further research is necessary to optimise nest design for Japanese quail.

ENRICHMENT PROVIDED – Recommendations on material for water bathe

(Küster, 2007)

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Waterfowl

- Open water facilities that allow **at least head dipping** , but preferably **full body contact** with the water surface, should be provided throughout the birds' life.
- These water facilities should be placed on **well-drained areas** and deterioration of water quality should be prevented.
- Separate drinkers should be provided in addition to bathing water.
- **Minimum space requirements** at water facilities to allow the bird to exhibit water bathing should be as reported in space allowance.

ENRICHMENT PROVIDED – Recommendations on structural equipment and foraging-related enrichment

Structural equipment

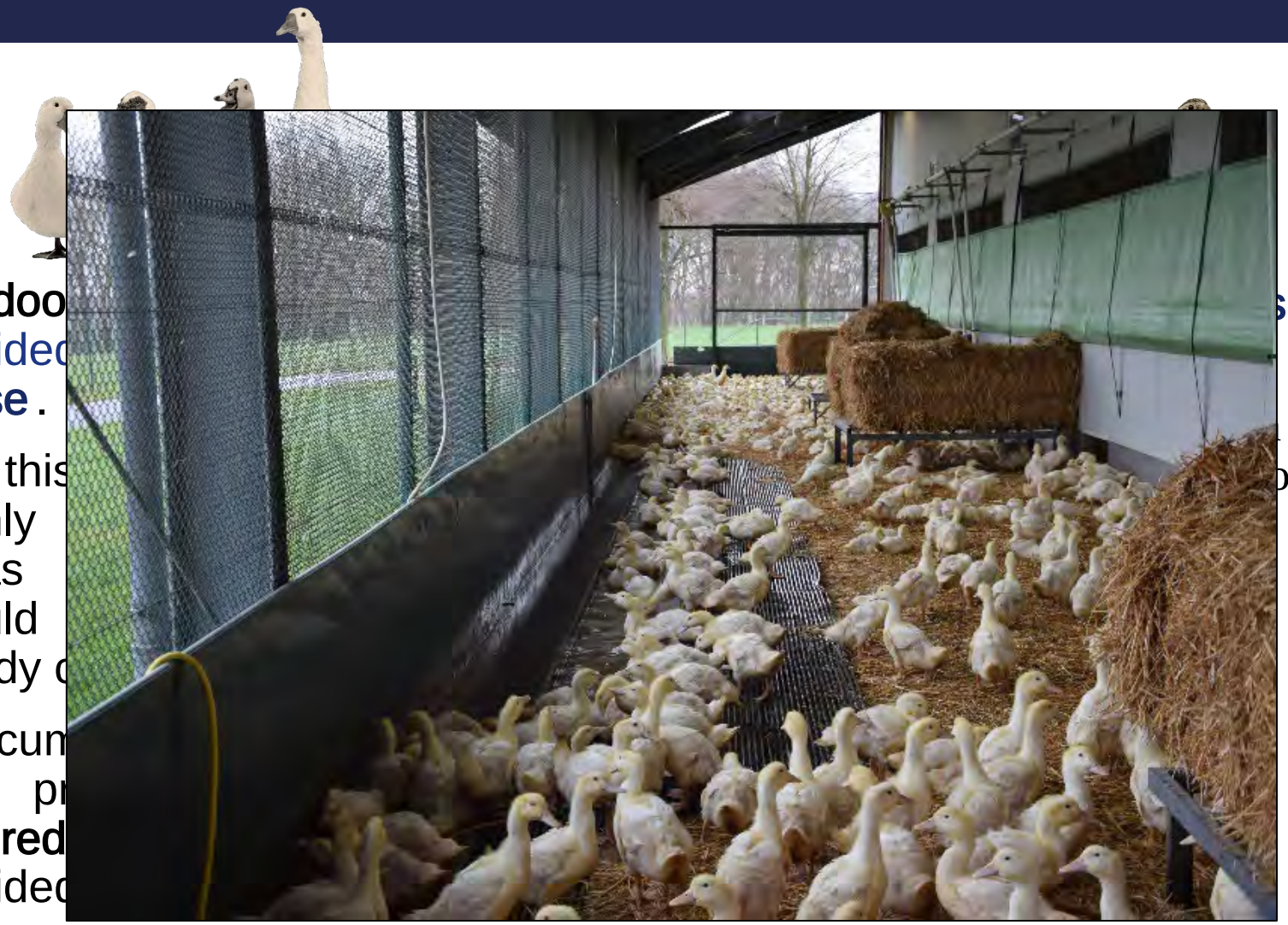
- For **Muscovy ducks**, provision of **structures that allow perching**, as well as resting under or adjacent to cover, are recommended, but further research should be carried out to understand their necessary characteristics, including height and length per bird.

- For **Japanese quail**, **horizontal structures providing cover** for the birds should be made available, but further research should be carried out to determine their necessary characteristics and space needed per bird.

Foraging- related enrichment

- In **all species**, **permanent access to manipulable enrichment** should be provided not only in the form of dry, friable litter on at least part of the floor, but also in the form of additional, preferably edible, material (such as silage, fresh fodder or pecking blocks) suitable to stimulate foraging and further exploration.

ENRICHMENT PROVIDED – Recommendations on outdoor access



- **Outdoo** s should be provided **phase**.
- For this on the mainly of veranda Areas commercial should be carried muddy
- If circum risk, pr **covered** provided

(Farm for Education and Research, Ruthe
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MORE DETAILS IN THE SCIENTIFIC OPINION ONLINE

SCIENTIFIC OPINION

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Welfare of ducks, geese and quail on farm

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