Best Practice Hens

Introduction to the project

Incentives to transition to cage-free systems and introduction to the various cage-free systems

Bas Rodenburg, Utrecht University

Project leader

Brussels, 3 May 2023

Funded by the European Union

Introduction to the project

https://youtu.be/dQLaIJdu_cs

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Incentives to transition a cage-free system?

- Increasing societal pressure to ban cage housing for farm animals

- EU petition End the Cage Age taken over by EU parliament: ban from 2027

- EFSA Opinion Welfare of laying hens: cage-free housing recommended

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Benefits of cage-free housing over furnished cages

- Additional space per bird and a much larger total floor space
- A large litter area, allowing foraging dustbathing behaviour
- An elevated resting area with perches and/or platforms, allowing resting

- Good quality nest space is provided, allowing nesting and egg laying

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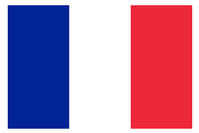
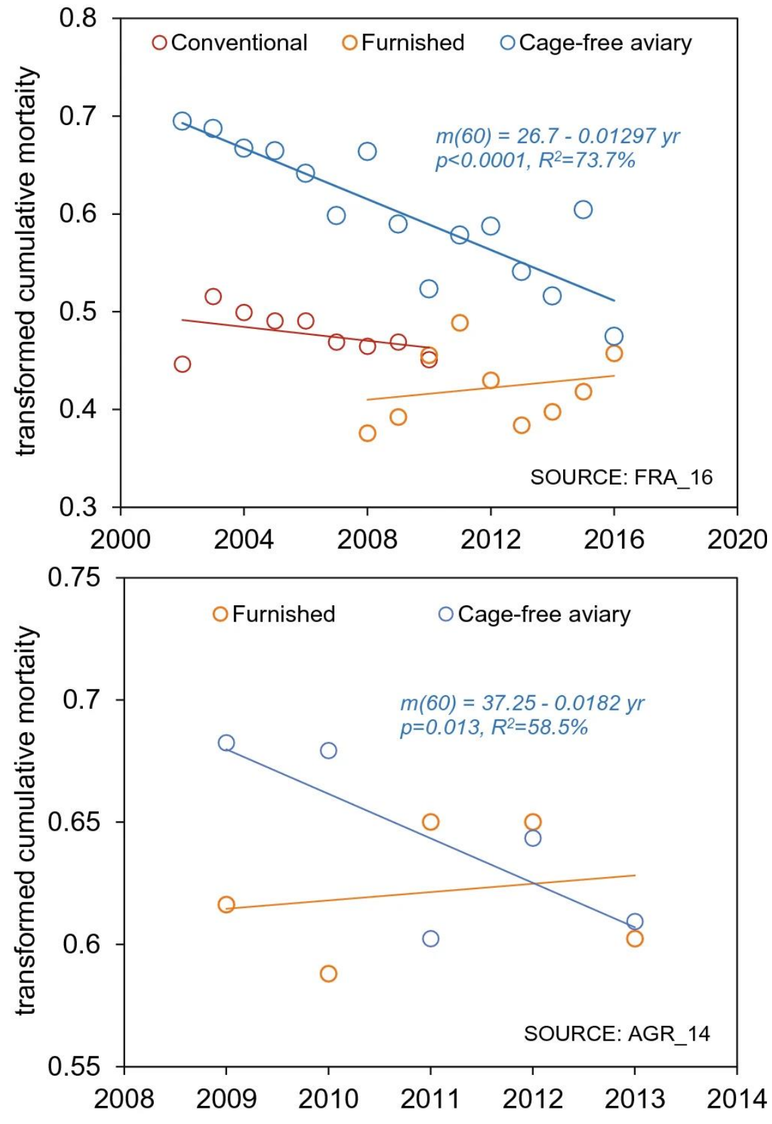
Experience with cage-free management is important!

- 6,040 flocks
  176 million hens
  16 countries



- Conventional cages, Furnished cages, Cage-free systems
- Mortality decreases with increasing farmer experience (0.35-0.65% / yr)
- No difference in mortality between systems countries with experience with cage-free



(Schuck-Paim et al., 2021)

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Market plays an important role

- In countries that already made the transition to cage-free, the market played an important role

- Netherlands: decision of retailers to stop selling cage eggs decisive step in transition

- Now: cage-free commitment – from 2025 eggs and egg products from cage-free systems

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Introduction to the various cage-free systems

- Floor housing system
  - Single-tier system
  - Multi-tier system

Indoor, free range or organic system

- Mobile housing system: free range or organic

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Laying hens: single-tier system

- Single tier provides nests, feeders, drinkers and resting area (may include perches)
- Litter area next to tier (may include foraging enrichments)

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Laying hens: multi-tier system

- Separate tiers provide nests, feeders, drinkers and (elevated) resting area

- Litter area on floor (may include foraging enrichments)

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Laying hens: free range and organic

- Single-tier or multi-tier system combined with free range access

- Often a covered veranda is used for transition to free range

- Extra opportunities for foraging (vegetation, insects)

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Pullet rearing: crucial

- Pullets reared for multi-tier systems need to learn how to navigate the system
- Early access to the system and ramps to move up and down help
- Continuous access to litter is important

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Match between rearing and laying environment important

- Floor housing / single-tier rearing system > Single-tier laying system
- Multi-tier rearing system > Multi-tier laying system
- Free range or organic flocks: early access to range, exposure to daylight

Smooth transition from rearing farm to laying farm

enhances the chance of a successful cage-free flock

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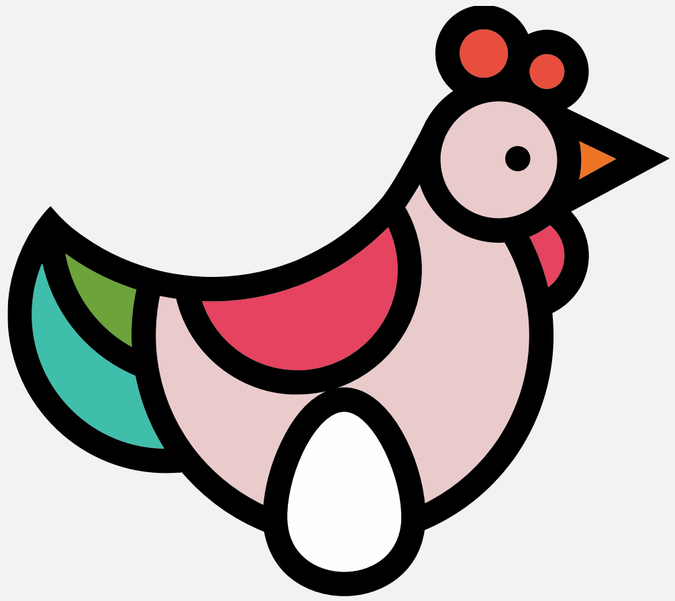

Best Practice Hens

www.bestpracticehens.eu

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Communication Coordinator: ecovalia.projects@ecovalia.org

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Economics and market

Transition towards cage-free systems for laying hens

Peter van Horne

Wageningen University and Research

Brussels, 3 May 2023

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Content

Current Situation housing systems

- EU and selected countries

Economics:

- Production costs alternative systems / Aviary

Market:

- Market shell eggs / egg products

Farm income

- Market / Farm egg prices

Conclusions and Discussion

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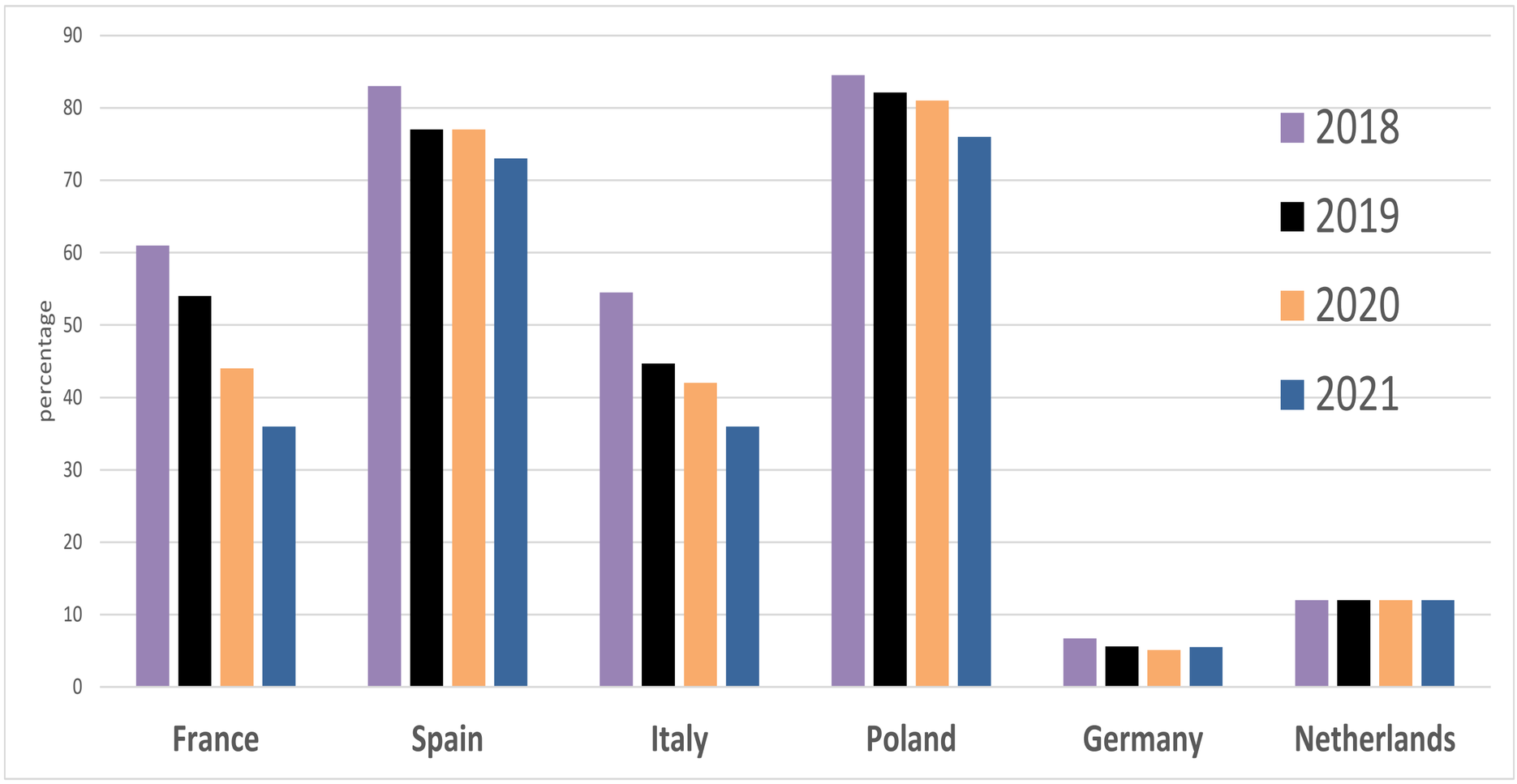
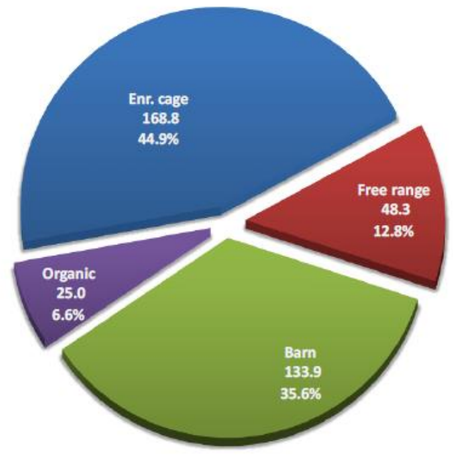
Share cage systems in main Egg producing countries EU



Below 10% in cage :

- Austria
- Sweden
- Germany
- Netherlands
- Denmark

EU-27 in 2021:
Total 376 million laying hens
Non cage is 55%, of which:
- Barn 36% - Free range 12% - Organic 7%



Source: IEC (figure) and European Commission (data EU-27)

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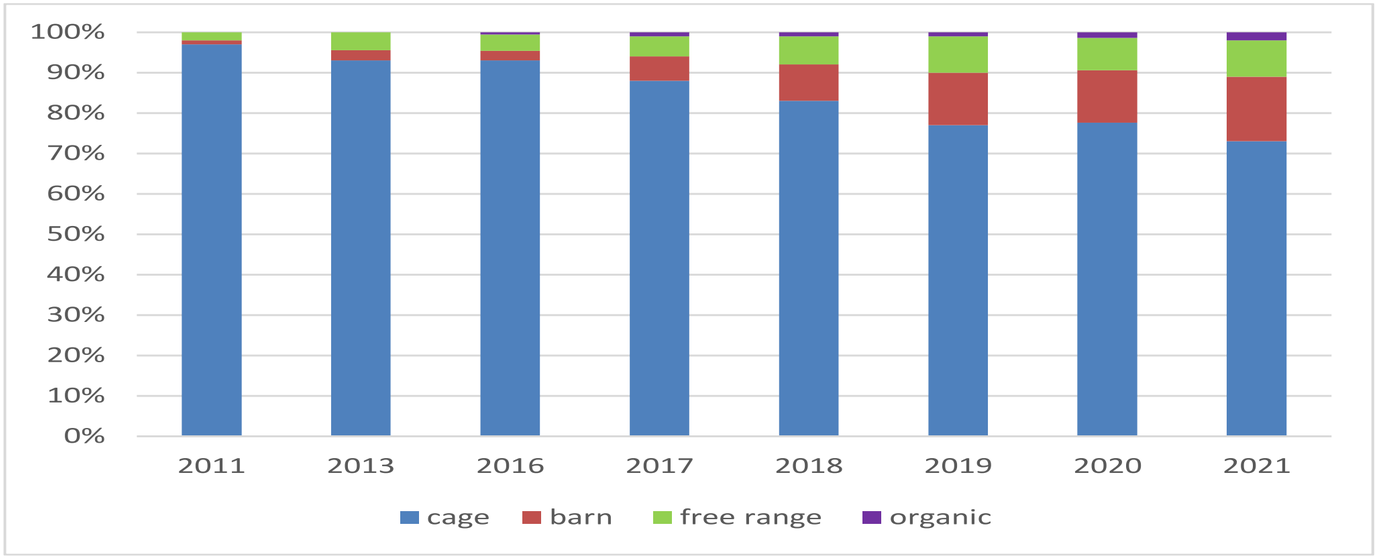
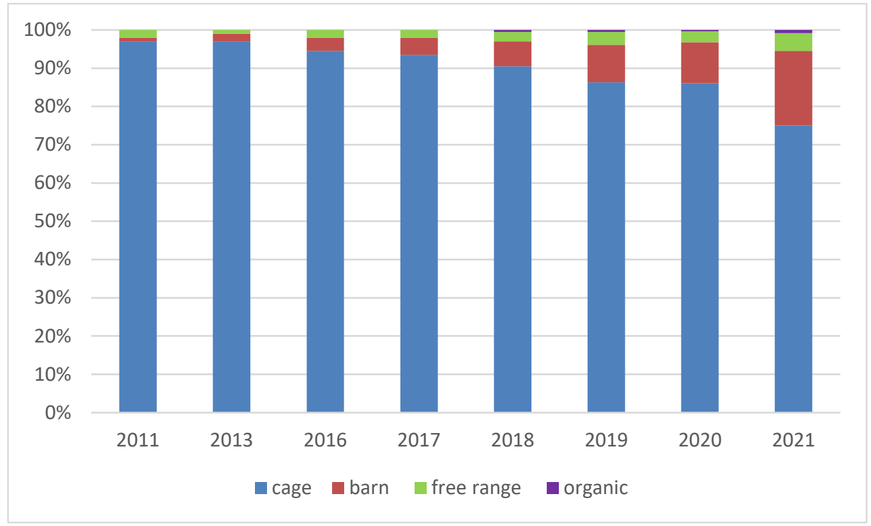
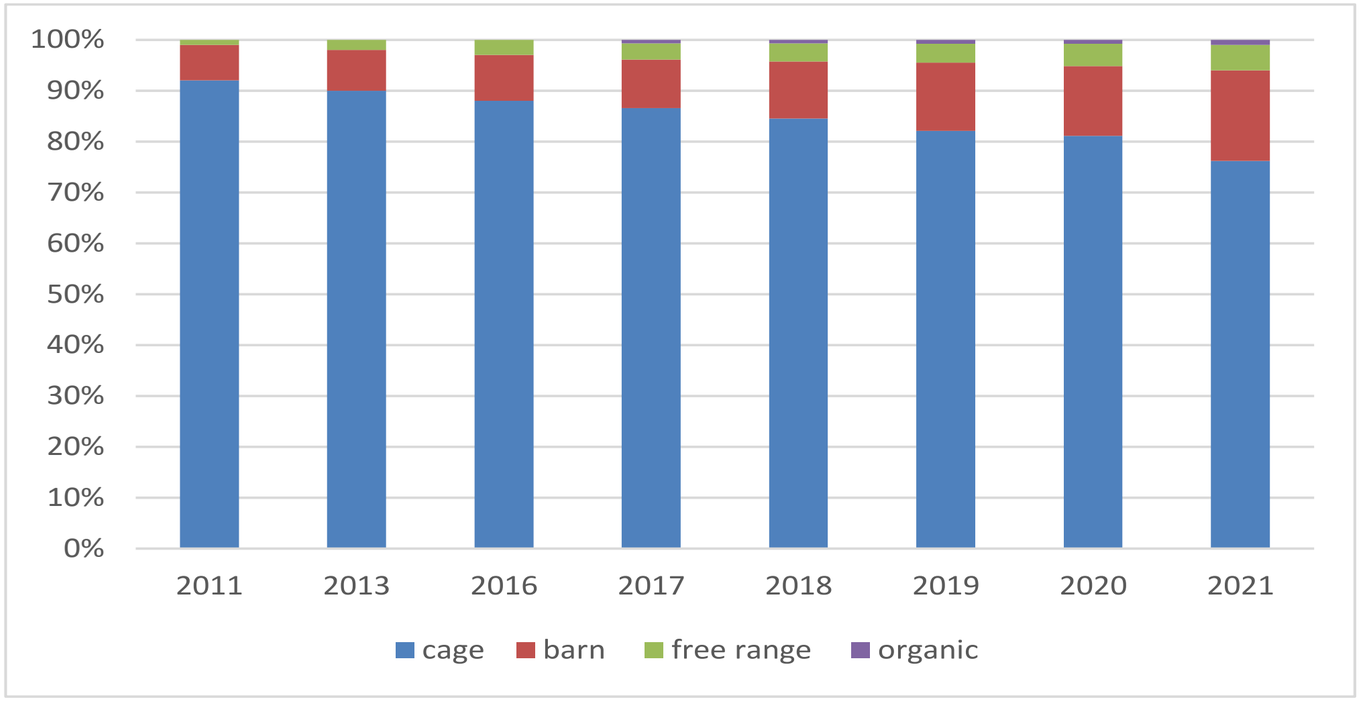
Development housing systems laying hens in Target countries



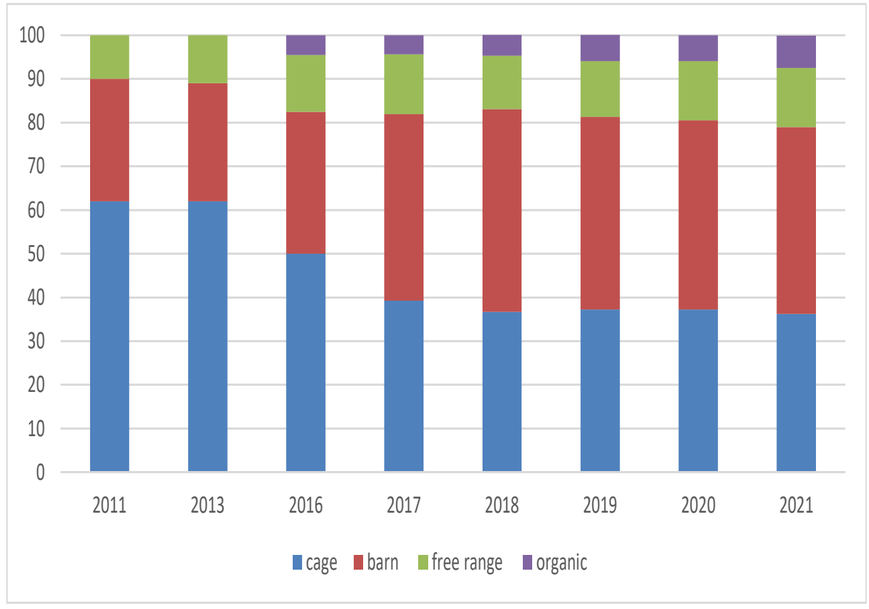
Spain 2021: 73% hens in cages



Portugal 2021: 75% hens in cages



Poland 2021: 76% hens in cages



Belgium 2021: 36% hens in cages

* Till 2015 IEC data, free range is including organic

Source: IEC and European Commission

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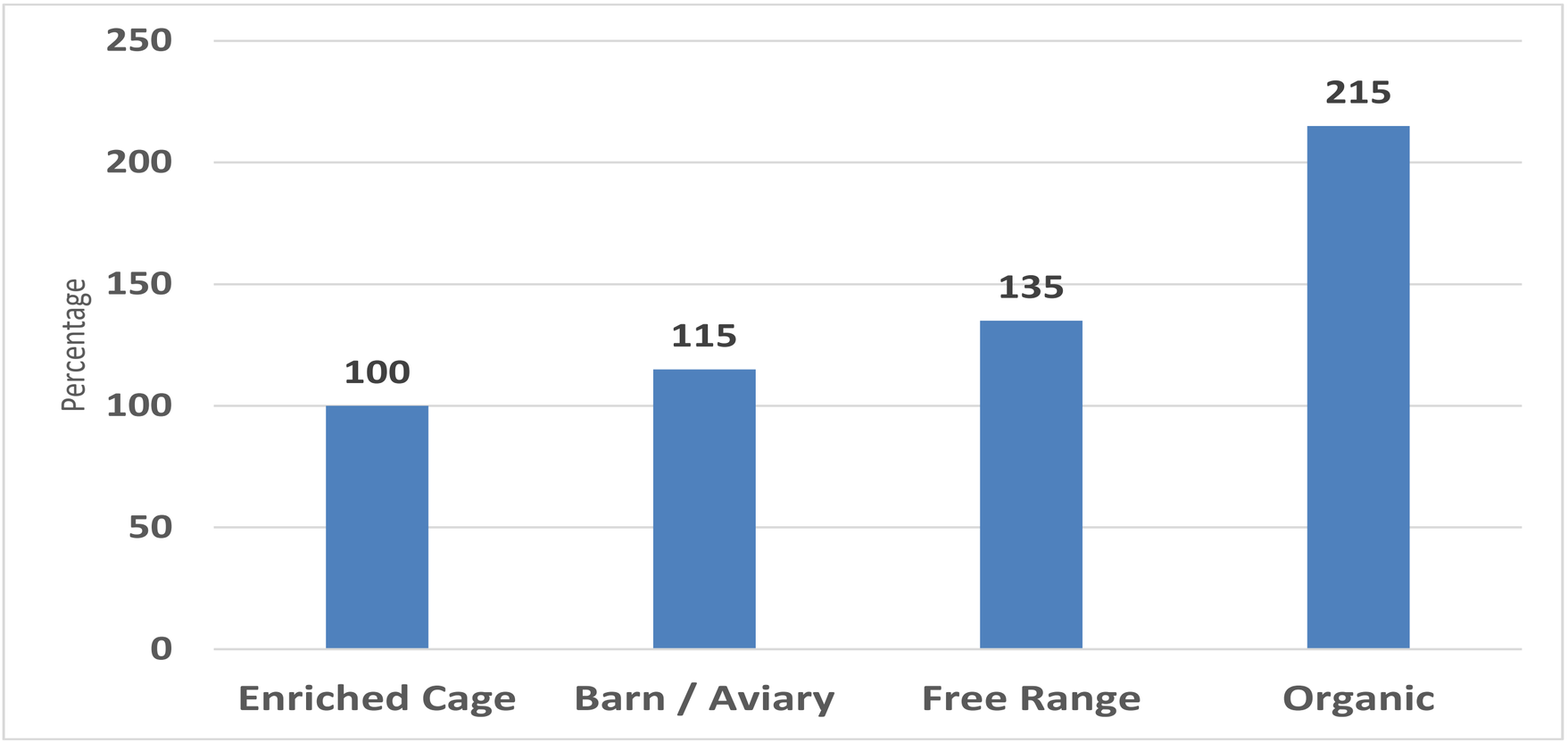
Production costs eggs: difference (%) with Enriched Cage.



Alternative is more expensive:

- **Young hen**
  (floor rearing)
- **Feed**
  Higher feed intake
- **Labour**
  More labour input
- **Poultry House**
  Lower Density

Increase in production costs: Netherlands/Germany

	Barn/Aviary	Free Range	Organic
Percentage	15	35	115
Per egg (eurocent)	0.85	1.95	6.75

Increase in production costs: Spain and Poland

Percentage	13	31
Per egg (eurocent)	0.72	1.70

Source: Wageningen Economic Research

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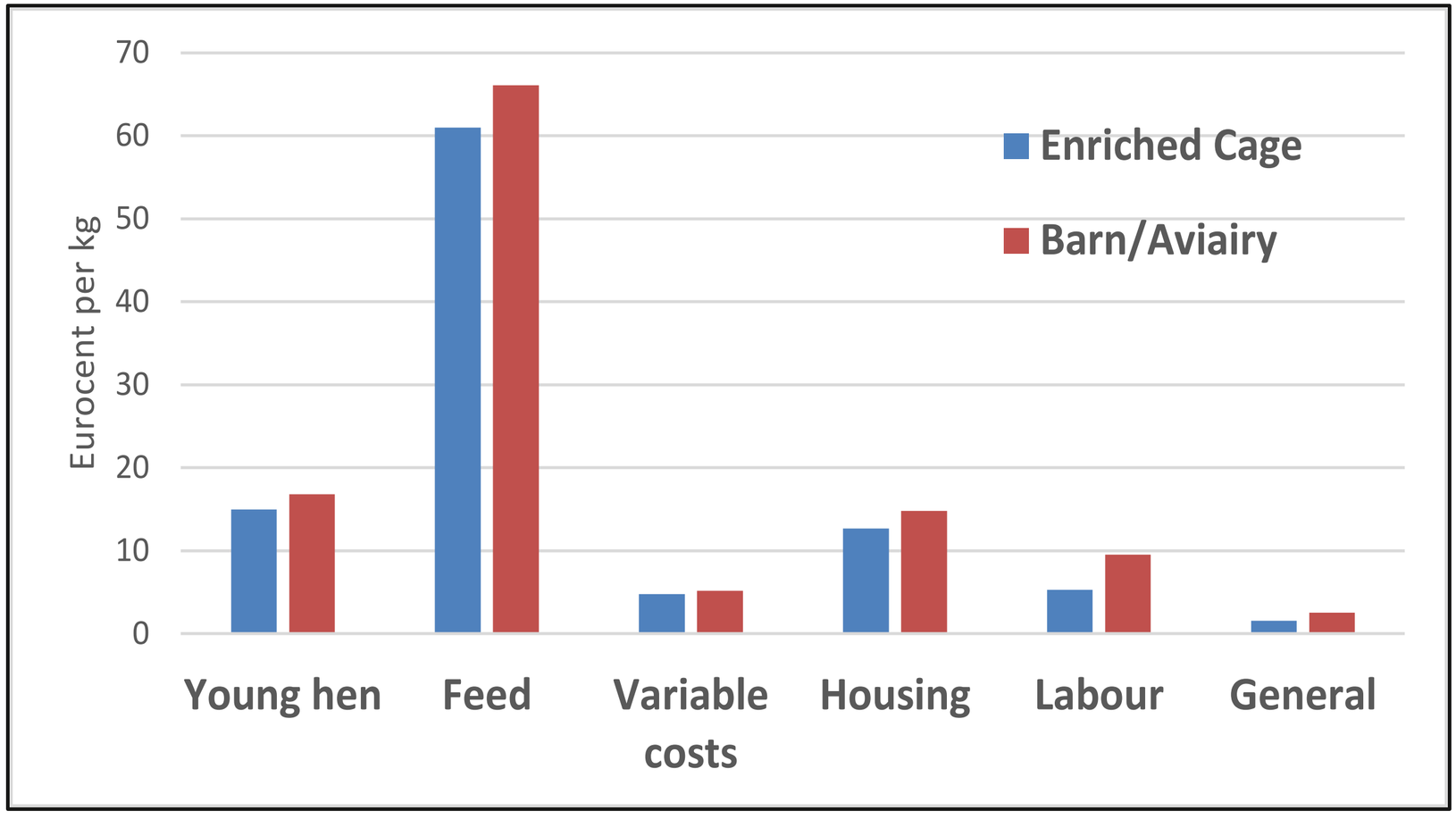
Production cost: details Barn/Aviary system

Production costs (euro ct/kg egg) in Enriched cage and Aviary.



Barn/ Aviary:

- **Young hen**
  + 45 a 50 cent, 17 wk hen
- **Feed costs**
  feed intake/day + 6 gr
- **Labour costs**
  Less hens / worker
- **House and equipment**
  higher Investment/hen

	Enriched cage	Barn/Aviary
Hens/worker (number)	70000	40000
Density (hens/m2 house)	30	18
Average rate of Lay (%)	93.6	91.9
Feed intake/hen/day (gram)	112	118
Investment house+equipment (Euro/m2)	25	31

Source: Wageningen Economic Research

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Mainstream of transition .....

From Enriched Cage (code 3) to Barn (code 2)

- Barn with Aviary system
- According EU regulations

Conditons:

- High Quality rearing of young hens
- Good Stockmanship

Good Performance is base for low Production costs

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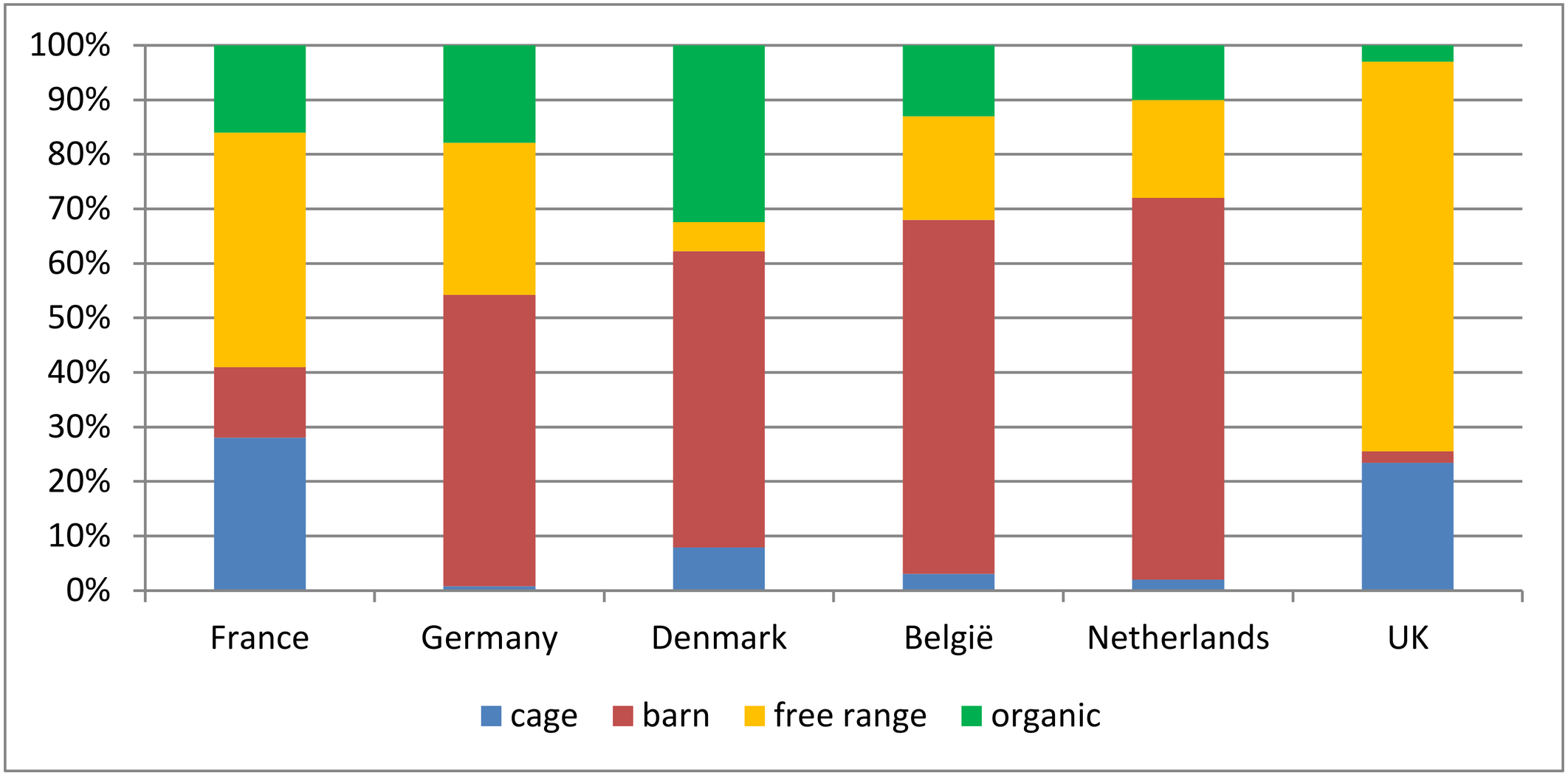
021 Best Practice Hens

Retail market of shell eggs

Differences between countries in North-West Europe



Netherlands, Germany and Belgium: cage eggs very low, mainly barn eggs
France. In transition. High share of free range eggs
Denmark: high share of organic
UK: Dominance of free range, barely any barn

Source: Gfk, Kantar en IRI data (volume data) of several countries, adapted by Wageningen UR

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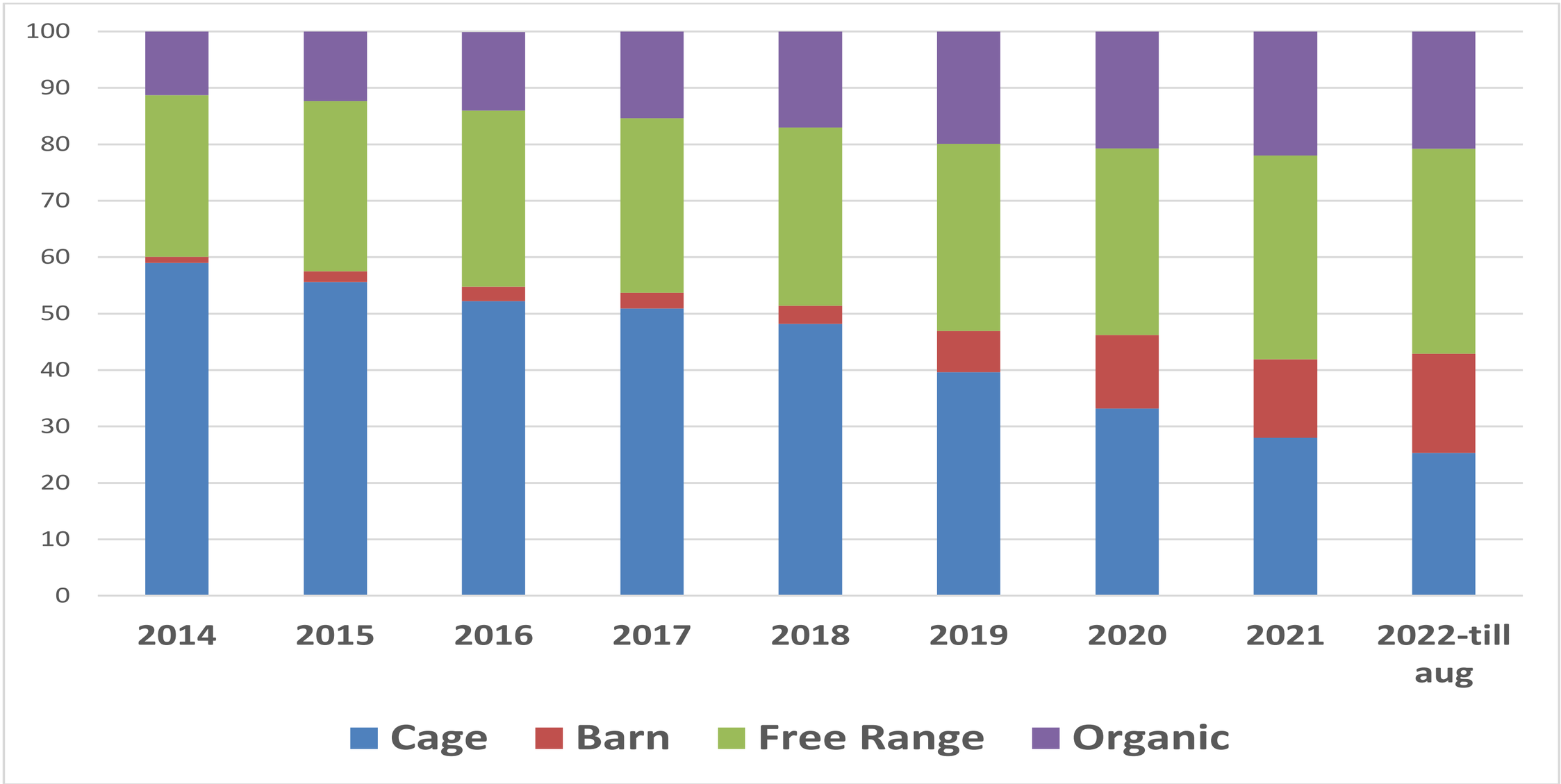
Focus on France

Market shell eggs is changing .....



France. In transition. Rapid decrease in share of cage eggs
Retail: Free range has highest share. Growing share of barn eggs

Bron: ITAVI, adapted from Kantar / IRI

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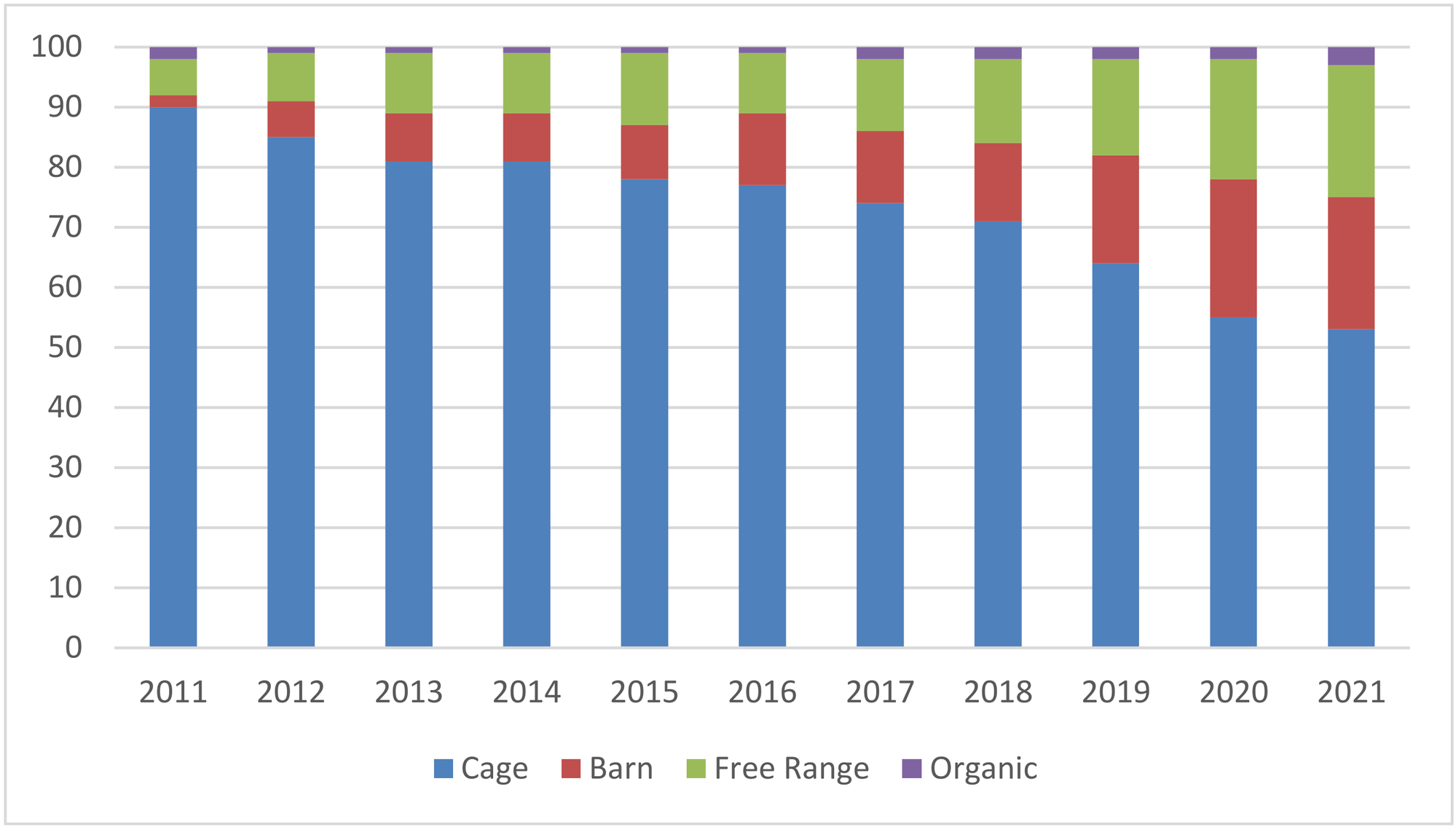
Focus on France

Market Egg processing is changing .....



France. In transition. decrease in share of cage eggs. Barn and Free Range are growing

ITAVI 2021: 35% of eggs go to processing, of which 47% non cage eggs.

Bron: ITAVI, adapted from Kantar / IRI

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Market Europa Foodservice and processing

Companies in foodservice, food processing and retail who will source only cage free eggs in coming years. Examples:

Source: o.a CIWF, Egg Track, 2021 report

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Production costs versus Market price (farm level)

Code	System	Cost increase vs Enriched Cage (%)	Market bonus
3.	Enriched cage	---	
2.	Barn	15-20	+
1.	Free Range	30-40	++
0.	Organic	200-250	+++++

Countries with mainly brown layers (Spain, Poland, France, Portugal) have an additional option:

- Production of white eggs are 6 to 8% lower compared to brown.
- Option: transition from Cage/Brown eggs to Barn/white eggs will have a lower increase in production costs to move from cage to Barn

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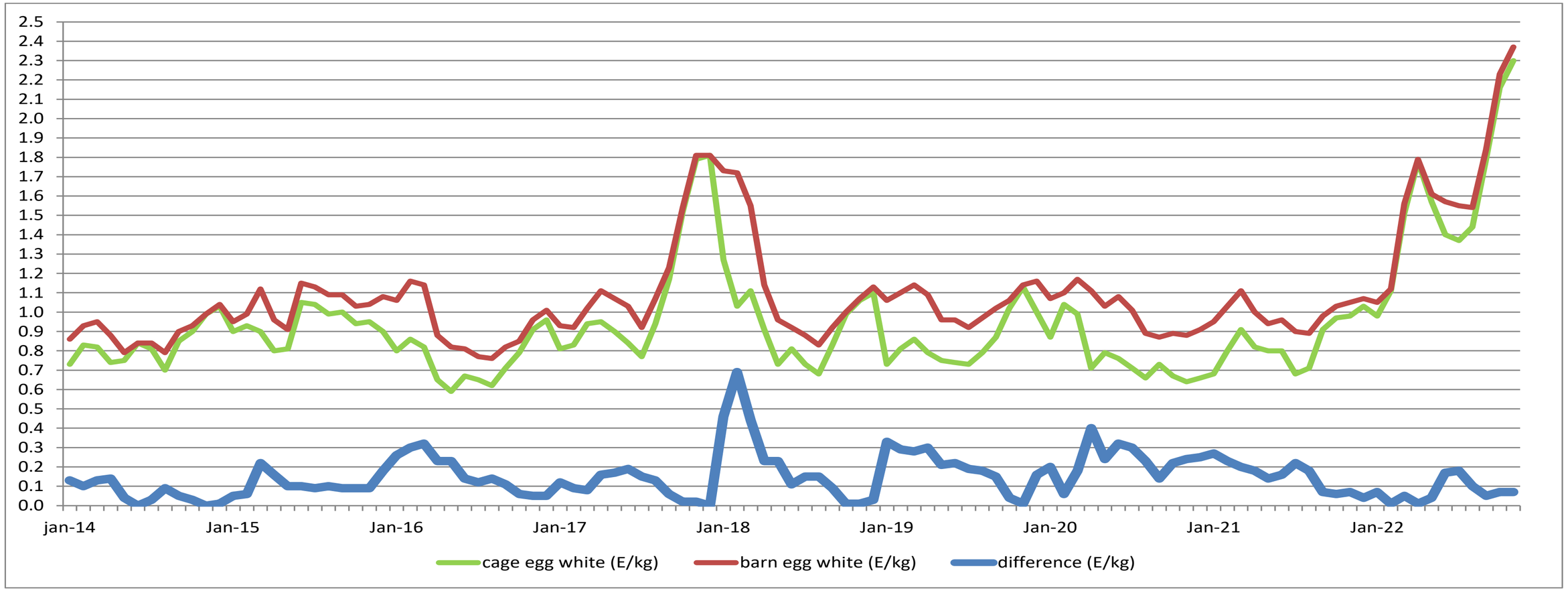
Market prices in the Netherlands 2014-2022

Market price Cage egg vs Barn egg (euro/kg eggs)



cage white – barn white - difference

Average 2016 till 2021: Cage egg = 0,88 Euro/kg / Barn egg = 1,05 Euro/kg
Difference 0,17 Euro/kg = Production costs difference (0,15 Euro/kg)

→ Higher income with Barn system in the Netherlands

Source: www.agrimatie.nl, Wageningen UR in the Netherlands

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Conclusions and Discussion

Conclusions:

- Large differences within the EU on share of production in cages
- Extra Production cost Barn +13 to 15% (= 0.72 to 0.85 ct per egg)
- Conditions: quality rearing and good stockmanship
- Market egg products (retail, food service en food processing) will grow in coming years and move towards sourcing barn eggs.

Remarks:

- Around 2026 is cage system depreciated (from 2011 is 15 years)
- Assumed use of existing poultry house.
- Environment: ammonia emission / permits?
- Current market with inflation and low purchasing power? Impact?
- Expected new Legislation in the EU?

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Thanks for your attention

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www.bestpracticehens.eu

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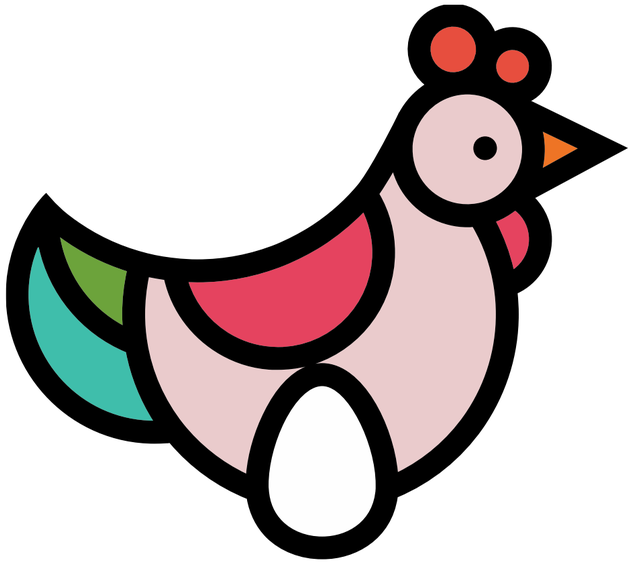

Best Practice Hens

Best Practices for pullet rearing

Anja Brinch Riber

Aarhus University

Brussels, 3 May 2023

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Why the rearing period of pullets is so important…

„ It is easy to make something good into crap, but difficult to make crap into something good."

- Danish egg producer, 1st Feb 2023

Source: Anja Brinch Riber, Aarhus University

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031 Best Practice Hens

Practice abstracts relevant for the rearing period

- The main output of this project is 31 Practice Abstracts on a wide range of topics providing practical guidelines on how to house and manage pullets and laying hens in cage-free systems.
- The practice abstracts combine knowledge from
  - scientific literature
  - management guides and other technical information
  - input gained during interviews and discussions with relevant stakeholders

https://bestpracticehens.eu/materials/

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Training of farmer and staff

Source: Fair Poultry

- Knowledge and skills to operate cage-free systems can be acquired and maintained by appropriate training
- Trainings should include:
- How to comply with relevant (local) legislation
- How to recognize normal behaviour and good health
- How to recognize abnormal behaviour and disease
- How to quickly take effective corrective measures
- How to seek additional help from experts (e.g. veterinarian, feed advisor) if necessary
- Contact local organizations which offer trainings (e.g. chambers of agriculture, farmers' associations, breeding and barn equipment companies)
- Keep records of own training and staff training
- Make sure everyone is up-to-date trained

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Inspection and stockmanship

Source: WUR

- By frequent and regular inspections, problems can be detected at an early stage
- Pullets become habituated and show less fear reactions towards humans
- Inspect pullets at least two times daily at different times of the day
- Inspections should include at least:
  - ✓ Functioning of automatic supply systems (feed, water, light, ventilation)
  - ✓ Condition of droppings and litter quality
  - ✓ Body condition and growth variation within the flock
  - ✓ Behavioural observations: distribution, activity, sounds
  - ✓ Identification of sick or injured birds
  - ✓ Removing dead birds and recording mortality
- See the Best Practice Hens website for an example of a detailed checklist!

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Welfare assessment

https://youtu.be/IGhqZhD9-Iw

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Pullet health

Source: Fair Poultry

- Disease prevention is better than treatment!
- Plan regular visits and consultation with a veterinarian specialized in poultry
- Aspects that need special attention:
  - ✓ Implementation of a proper vaccination program (e.g. against respiratory and intestinal infections)
  - ✓ Sufficient time (2 weeks) between re-vaccinations to allow for developing protective immunity
  - ✓ Efficiency of coccidiosis vaccination: increased by providing high quality chick paper

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Enrichment

Source: Tina Bøje Clausen, ØkologiRådgivning Danmark

- Provide pullets with appropriate (i.e. biological relevant) enrichment to encourage activity and natural behaviours, including foraging
- Enrichment during rearing reduces the risk of feather pecking during the laying phase
- Examples of suitable enrichment:
  - ✓ Pecking blocks
  - ✓ Bales or baskets of alfalfa, straw or hay
  - ✓ Provision of whole grain in the litter
  - ✓ Dark brooders

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037 Best Practice Hens

Dark brooders

- Brooders are low energy consuming hot plates surrounded with a curtain => dark and warm shelters.
- Chicks go under brooders to warm up or rest, exactly as they use the hen to thermoregulate behaviourally under natural conditions.
- Reduced room temperature 20-24 °C ensures good use and energy saving.
- Brooders reduce
  - ✓ fearfulness
  - ✓ disturbances during sleep
  - ✓ risk of development of feather pecking and cannibalism

Source: Tina Bøje Clausen,, ØkologiRådgivning Danmark

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038 Best Practice Hens

Litter

Source: Mona Giersberg, Utrecht University

- Provide constant access to litter substrate
- High-quality litter stimulates the pullets to scratch, forage and dustbathe, and reduces the risk of feather pecking
- Litter absorbs faeces on solid floor
- Examples of suitable litter material:
  - ✓ Wood shavings
  - ✓ Sand
  - ✓ Peat
  - ✓ Straw
  - ✓ Chick paper (when chicks are confined in the system)
- Monitor litter quality!
- Frequent scratching by the pullets, automatic litter scrapers and floor heating can improve litter quality

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039 Best Practice Hens

Perches

Source: Mona Giersberg, Utrecht University

- Pullets with early experience of perch use show high flexibility and skills in the use of multi-tier systems during lay
- Ensure perch access at an early age
- Providing ramps will help the pullets to access elevated structures
- It can be beneficial to use similar perches in the rearing system and during lay
  - ✓ Especially the use of round, metal perches requires skills that hens need to develop during rearing

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Stocking density

Source: WUR

- High stocking density during rearing is a risk factor for feather pecking during lay
- Each pullet should have sufficient space to express its natural behaviour: e.g. feeding and drinking, foraging, resting, dust bathing, preening and wing flapping
- Ideal stocking densities (at the end of rearing):
  - ✓ White hybrids: 10-15 birds/m2
  - ✓ Brown hybrids: 9-13 birds/m2

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Air quality and thermal environment

Source: Mona Giersberg, Utrecht University

- Avoid high levels of dust, NH3 (< 10-20 ppm) and CO2 (< 1500-3000 ppm)
- Ensure adequate ventilation
- House chicks at an appropriate temperature after arrival at the rearing farm
- Whole house heating or spot heating (e.g. with dark brooders)
- Check the floor temperature before adding litter
- Monitor chick behaviour:
  - ✓ Too warm: dispersal away from the heat source, panting
  - ✓ Too cold: huddling close to the heat source, emitting stress calls

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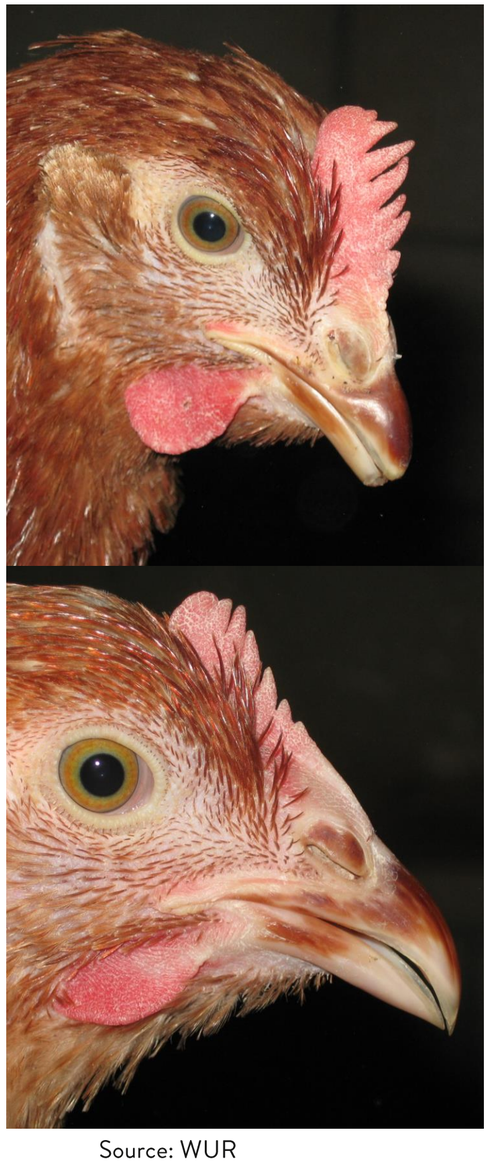
Beak trimming



Source: WUR

- Beak trimming causes acute and chronic pain and distress in chicks
- It needs to be phased out
- Providing optimal environmental conditions decreases the risk of feather pecking and renders beak trimming superfluous
- Factors that decrease the risk of feather pecking:
  - ✓ Good health; adequate feed (amount, ingredients, structure); adequate environmental enrichment; litter (availability, quality); adequate light (intensity, quality); adequate stocking density; adequate air quality
- Phasing out cages and beak trimming can be applied in parallel

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See the Best Practice Hens website for detailed information and useful links!

https://bestpracticehens.eu/materials/

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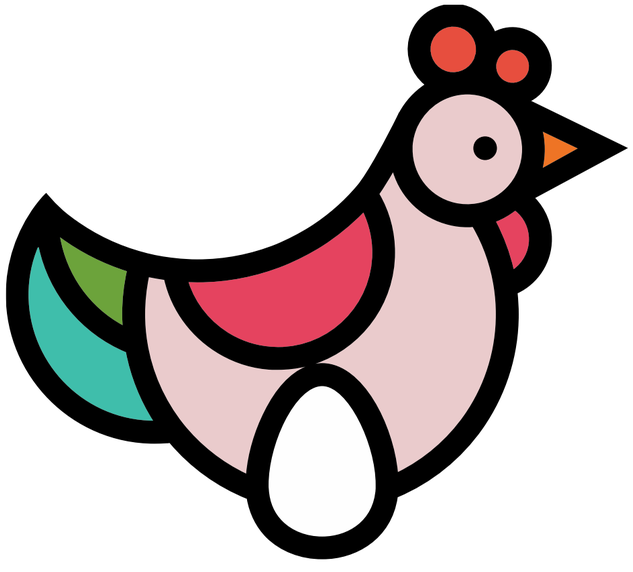

Best
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Best Practices for laying hens

Mona Giersberg

Utrecht University

Brussels, 3 May 2023

Funded by
the European Union

Inspection and stockmanship

Source: Vera Bavinck, Fair Poultry

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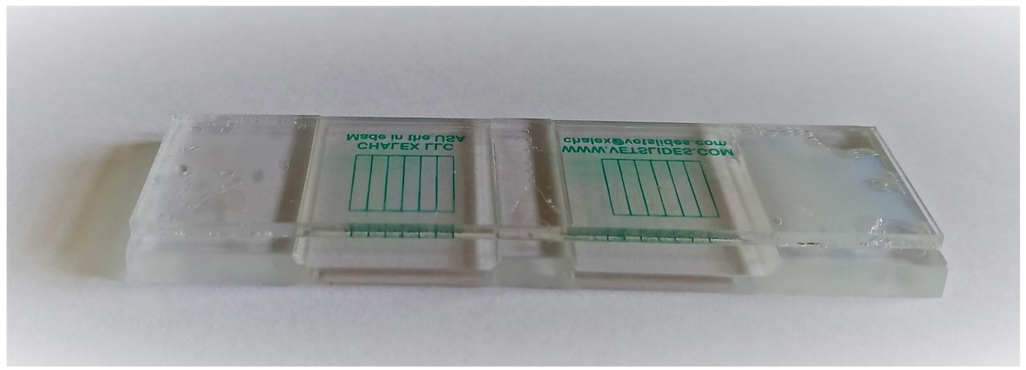
Laying hen health



Source: Fair Poultry

- Disease prevention is better than treatment!
- Plan regular visits and consultation with a veterinarian specialized in poultry
- Aspects that need special attention:
  - ✓ Apply an effective biosecurity protocol to prevent infections
  - ✓ Monitor and control red mites (prophylactic treatment of the equipment with silica powder is recommended)
  - ✓ Monitor and target infections with endoparasites (worms: Ascaridia, Heterakis, Capillaria)
- See the Best Practice Hens website for detailed information on endoparasites and faeces monitoring of worms!

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Feeding equipment and feeding

Source: WUR

- All hens must have access to the feeder and feed without competition (at least 10 cm feeding space/hen)
- 6-7 feeding times/day and block feeding are recommended
- No feeding times during the times hens lay their eggs (hens must not be attracted away from the nests)
- Change to another feed phase should be determined by body weight, feed intake, egg yield and egg weight (not by age)
- Provide mashed feed with sufficient protein of good quality to decrease the risk of feather pecking
- For specific advice on diet formulation, contact your feed supplier!

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Drinking equipment

Source: Mona Giersberg, Utrecht University

- Disinfect the drinker lines or other drinking sources at least 4 h prior to arrival of the hens
- Check drinkers regularly:
  - ✓ Test individual nipples for presence of water and absence of leaks
  - ✓ Check the water pressure of the drinking lines in the front and back of the house
- Nipple drinkers in front of a row of nest boxes stimulate hens to visit the nest boxes
- Light intensity near the drinking lines should be about 20 lux

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Enrichment

Source: Vera Bavinck, Fair Poultry

- Provide hens with appropriate (i.e. biological relevant) enrichment to encourage activity and natural behaviours, including foraging
- It is highly recommended to provide enrichment material routinely and preventively – not only as corrective measure when feather pecking is observed

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Enrichment – Smartphone video

https://youtu.be/3GQ8UgZdi5M

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Litter

Source: Mona Giersberg, Utrecht University

- Provide constant access to litter substrate
- Too much litter can lead to floor eggs
- Monitor litter quality!
- Frequent scratching by the hens, automatic litter scrapers and floor heating can improve litter quality

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Perches

Source: Vera Bavinck, Fair Poultry

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Nests

Source: Mona Giersberg, Utrecht University

- Provide hens with secluded nests (with curtains/nest flaps)
- Nests should be dark (about 1 lux inside)
- A platform of at least 30 cm width in front of the nests offers easy access to the nests
- An expel system allows for closing the nests during night (prevents hens from sleeping in the nest and soiling them)
- Consider opening seclusions of nest at the corners of a row and blocking corners when problems with smothering occur
- LED lights under the lowest tier of multi-tier system and an adequate amount of litter can prevent floor eggs

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Lighting

Source: Mona Giersberg, Utrecht University

- Spread light evenly throughout the different areas of the barn; warm white light (2700-3500K) is preferred
- Provide LED or a light source with a photo flicker frequency of 100Hz or higher
- Provide a light-dark schedule of 14-16 hours light and 6-8 hours dark to promote egg production
- The dark phase should be preceded and followed by a gradual reduction/increase of light over 15-30 min
- Provide a light intensity in the litter area of about 40 lux
- Dimming the lights should not be standard practice; it should only be considered when feather pecking or significant smothering start to develop

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Stocking density

Source: Fair Poultry

- Consider lower stocking densities than determined by law (9 birds/m2)
- Practical experiences indicate that lower stocking densities reduce the risk for feather pecking
- Adequate stocking densities always need to be combined with an adequate dimensioning of other resources (e.g. adequate feeder space, perch length or nest area)

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Air quality and thermal environment

Source: ILVO

- Keep the temperature in the house at about 18-22 C
- Avoid high levels of dust, NH3 (< 10-20 ppm) and CO2 (< 1500-3000 ppm)
- Ensure adequate ventilation (minimum air exchange rate: 0.7 m^3/h/kg)
- Changing specific climate settings is a specialist's job!

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See the Best Practice Hens website for detailed information and useful links!

https://bestpracticehens.eu/materials/

Best Practice Hens

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Round table

- Pekka Pesonen, Secretary General, COPA-COGECA
- Birthe Steenberg, Secretary General, Association of Poultry Processors and Poultry Trade in the EU (AVEC)
- Fabrizio Fabbri, Sustainability Policy Manager, European Community of Consumer Co-operatives (Euro Coop)
- Jørgen Nyberg Larsen, CEO, Danish Egg Association; Secretary General, European Egg Packers and Traders Association (EEPTA) and Board member, EU of Wholesale in Eggs, Egg-Products, Poultry and Game (EUWEP)
- Olga Kikou, Head of Compassion in World Farming EU
- Maya Cygańska, Programme Officer, Eurogroup for Animals

Moderator:

Frédéric Vincent,

DG SANTE, European Commission

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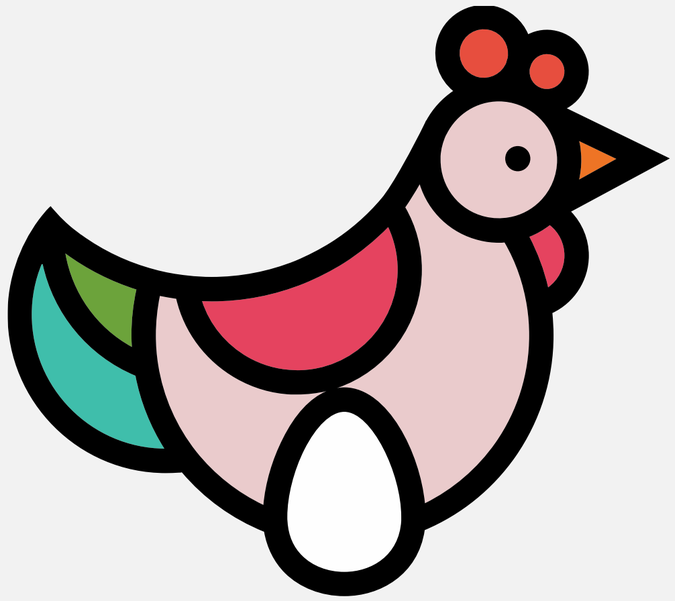

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