



Utrecht University

# *Assessing and improving farm animal welfare: laying hens as a case study*



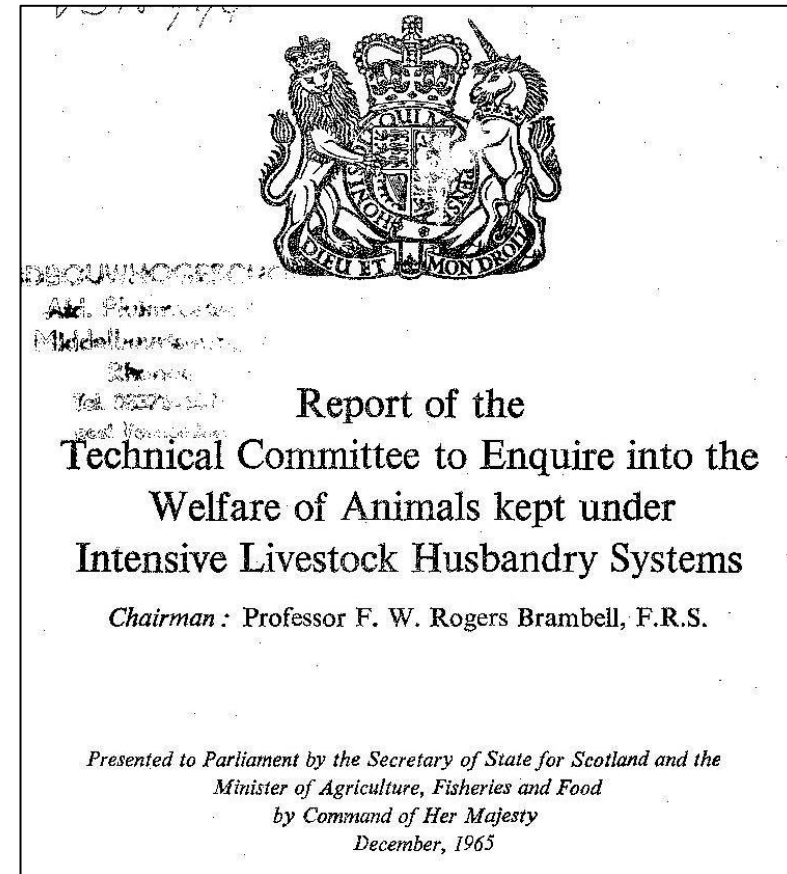
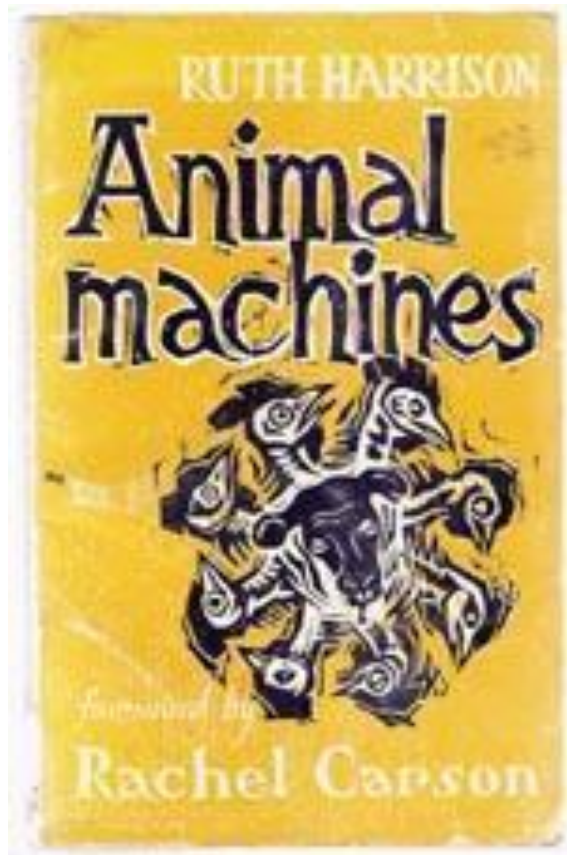
**Prof. T. Bas Rodenburg**

Animals in Science and Society, Faculty of Veterinary Medicine

**From the 1950's, intensive animal husbandry systems developed**



## 1960's: first animal welfare concerns raised (United Kingdom)





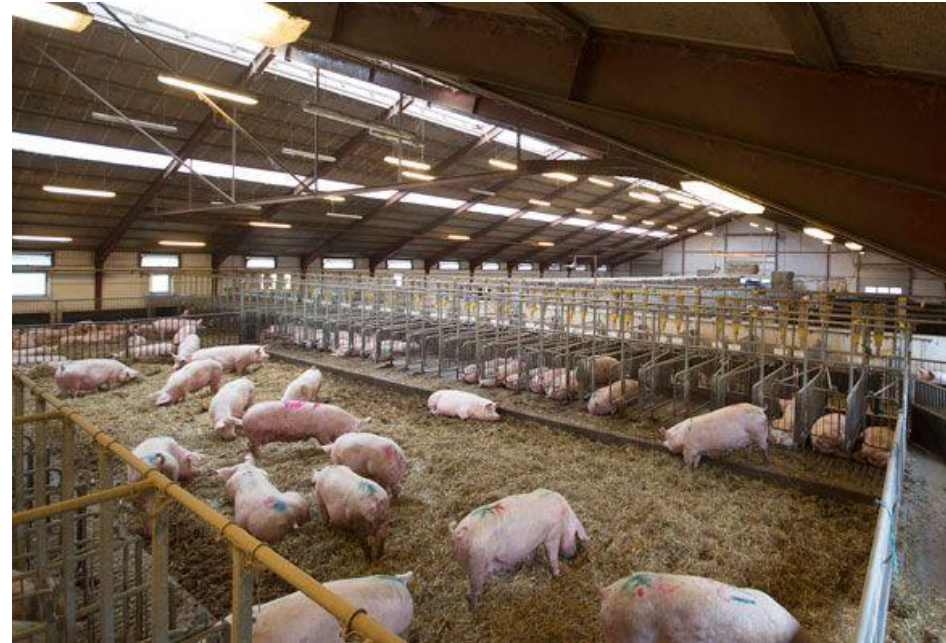
## Five Freedoms were formulated (legal basis animal welfare)

1. Freedom from hunger and thirst
2. Freedom from discomfort
3. Freedom from pain, injury and disease
4. Freedom from fear and stress
5. Freedom to display natural behaviour

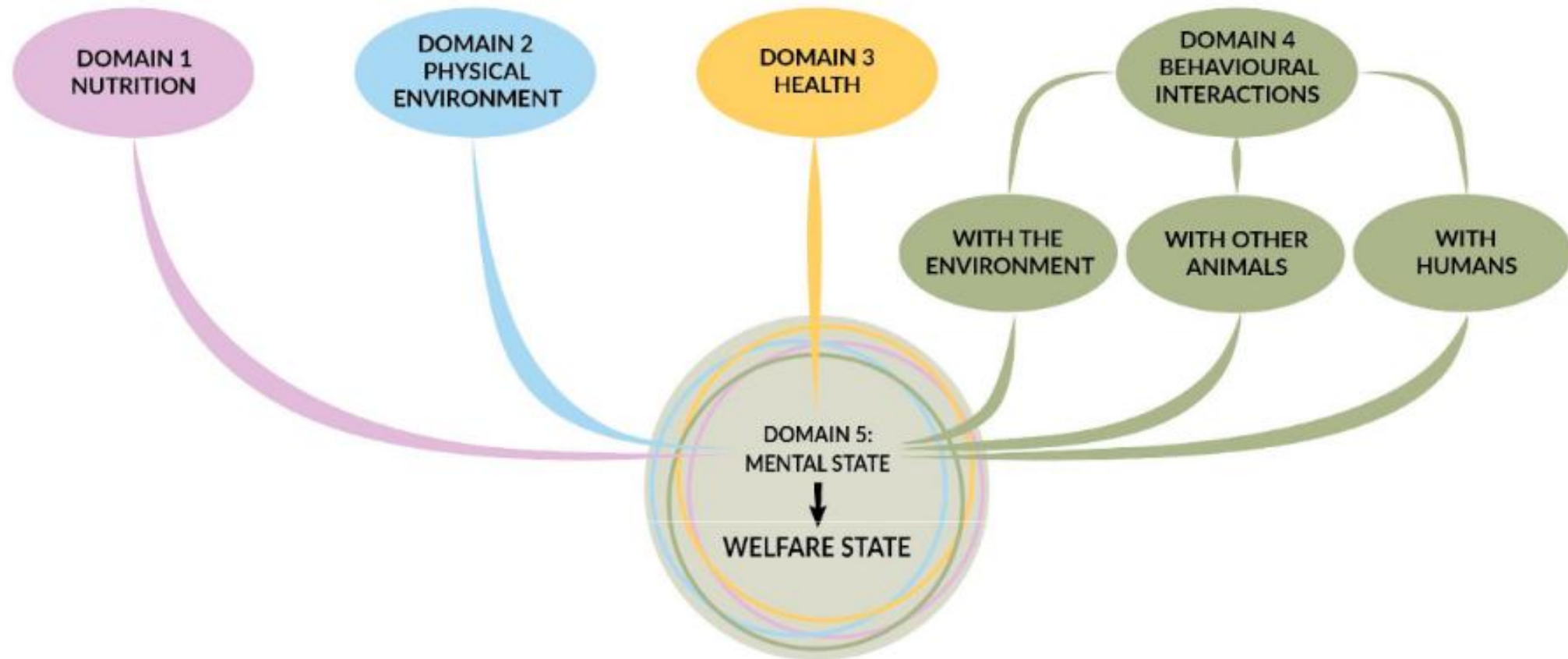


# Five Freedoms have helped to transform EU animal production

- Cage housing laying hens  
    > **cage-free systems**
- Sows in individual sow stalls  
    > **sows in group housing**
- Veal calves in individual crates  
    > **calves in group housing**
- Regulations around welfare during transport and slaughter

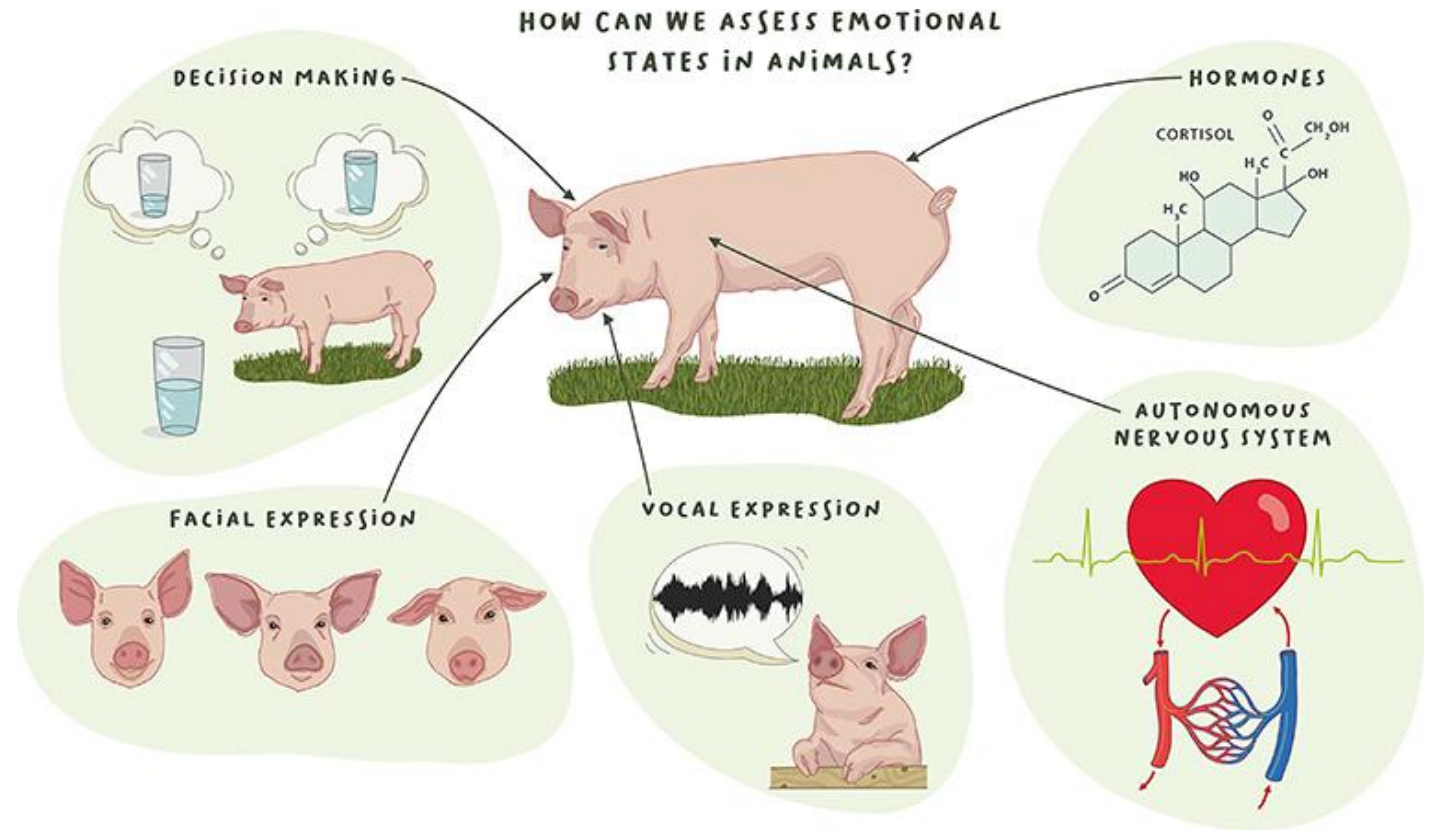


# Modern welfare concepts: focus more on positive experiences



# More focus on animal-based welfare indicators

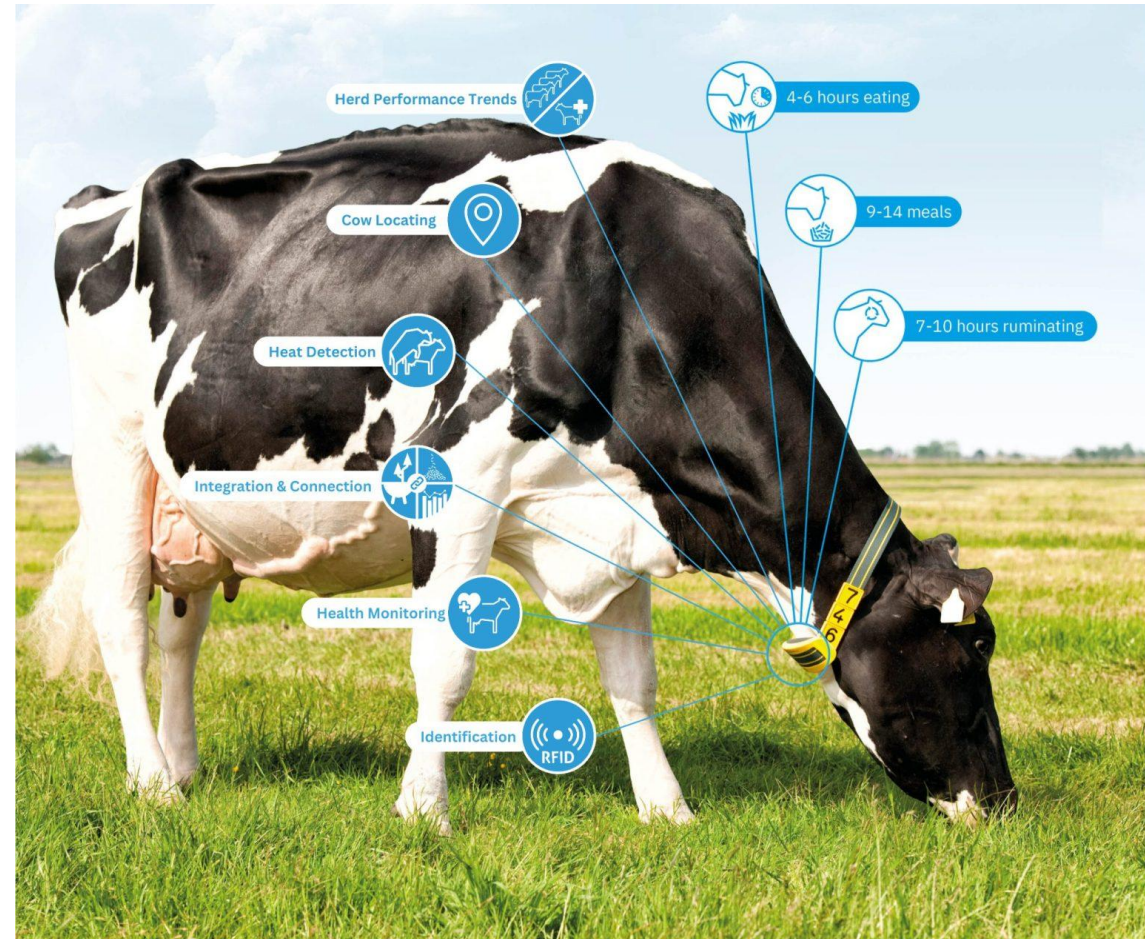
- Body condition
- Plumage / fur condition and wounds
- Animal behaviour (activity pattern)
- Response to humans
- Vocalisations





# Methods range from manual scoring to automatic monitoring

- Dairy cows
- Accelerometer collar that monitors time spent:
  - Resting
  - Feeding
  - Ruminating
  - Grazing
- Information on health, welfare (+ support practical management)



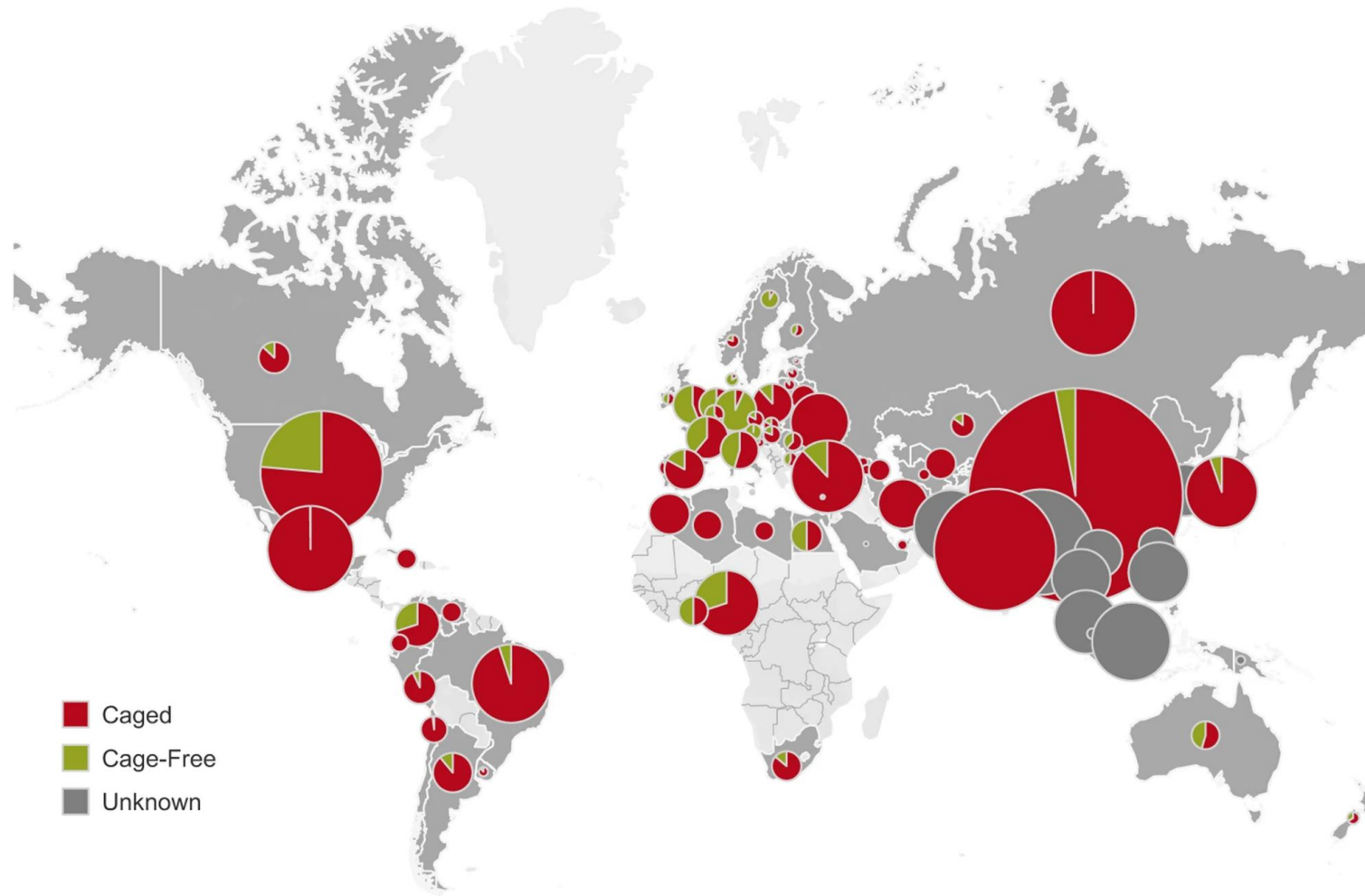


# Laying hens are increasingly kept in cage-free systems

- More space than in cages
- Access to:
  - Nests – egg laying
  - Perches – resting
  - Litter – foraging, dust bathing
- Can be combined with free range / veranda

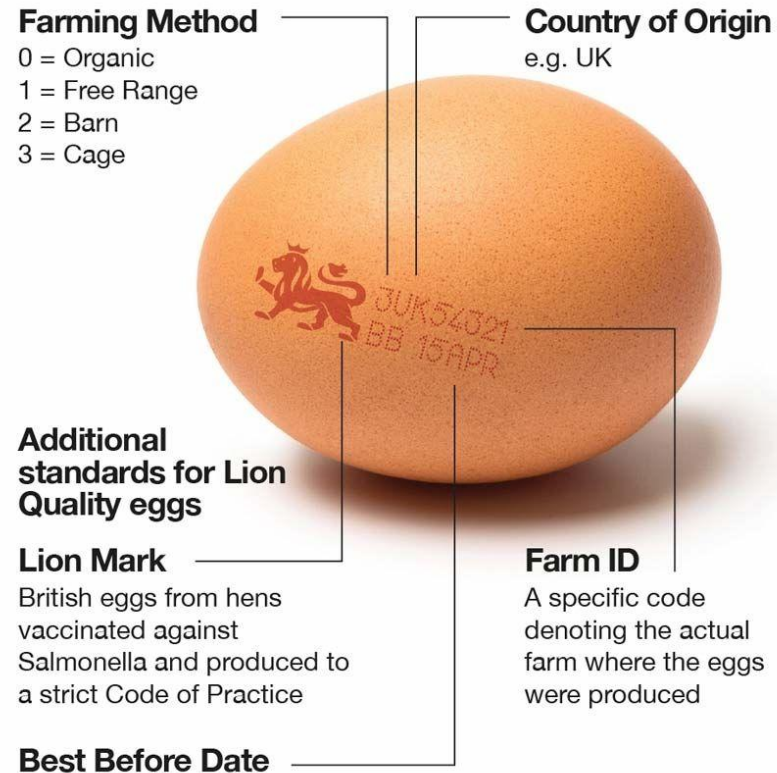


# Laying hens are increasingly housed in cage-free systems



# EU uses egg stamping: housing system can be seen on egg shell

- 0 Organic
- 1 Free range
- 2 Barn
- 3 Furnished cage



- Eggs can be sold at a premium price, depending on housing system



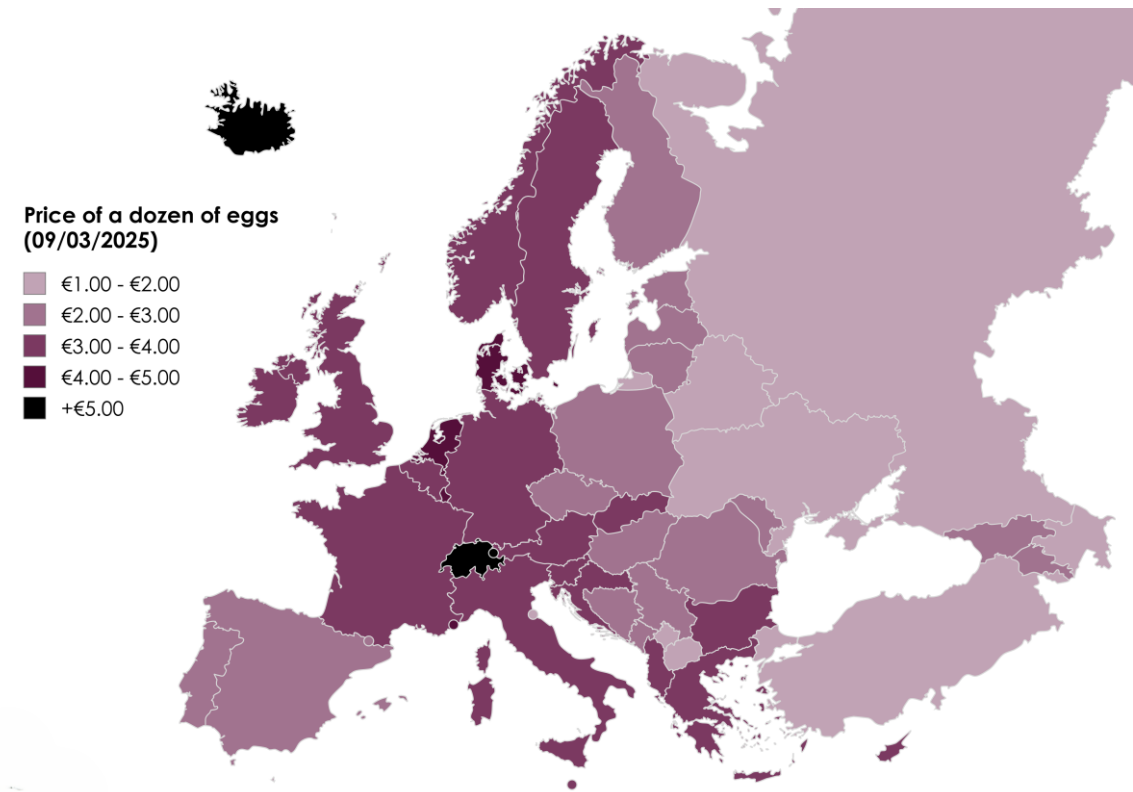
# Food companies are making the transition

Companies in foodservice, food processing and retail who will source only cage free eggs in coming years (examples):



## Situation in The Netherlands

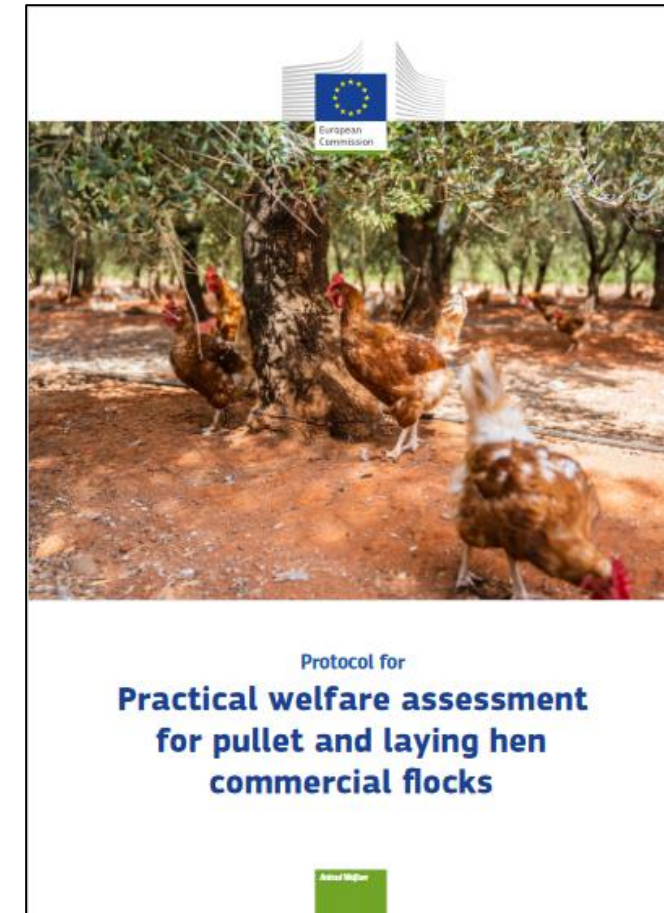
- Currently 95% egg production in cage-free systems (retail 100%)
- Production costs are 10-15% higher compared to cages (**0.15 Euro / kg egg**)
- Egg prices for cage-free eggs are also higher (**0.17 Euro / kg egg**)
- Cage-free farmers have a higher net income compared to farmers with cages (in NL)



# Transition to cage-free: sharing best practices



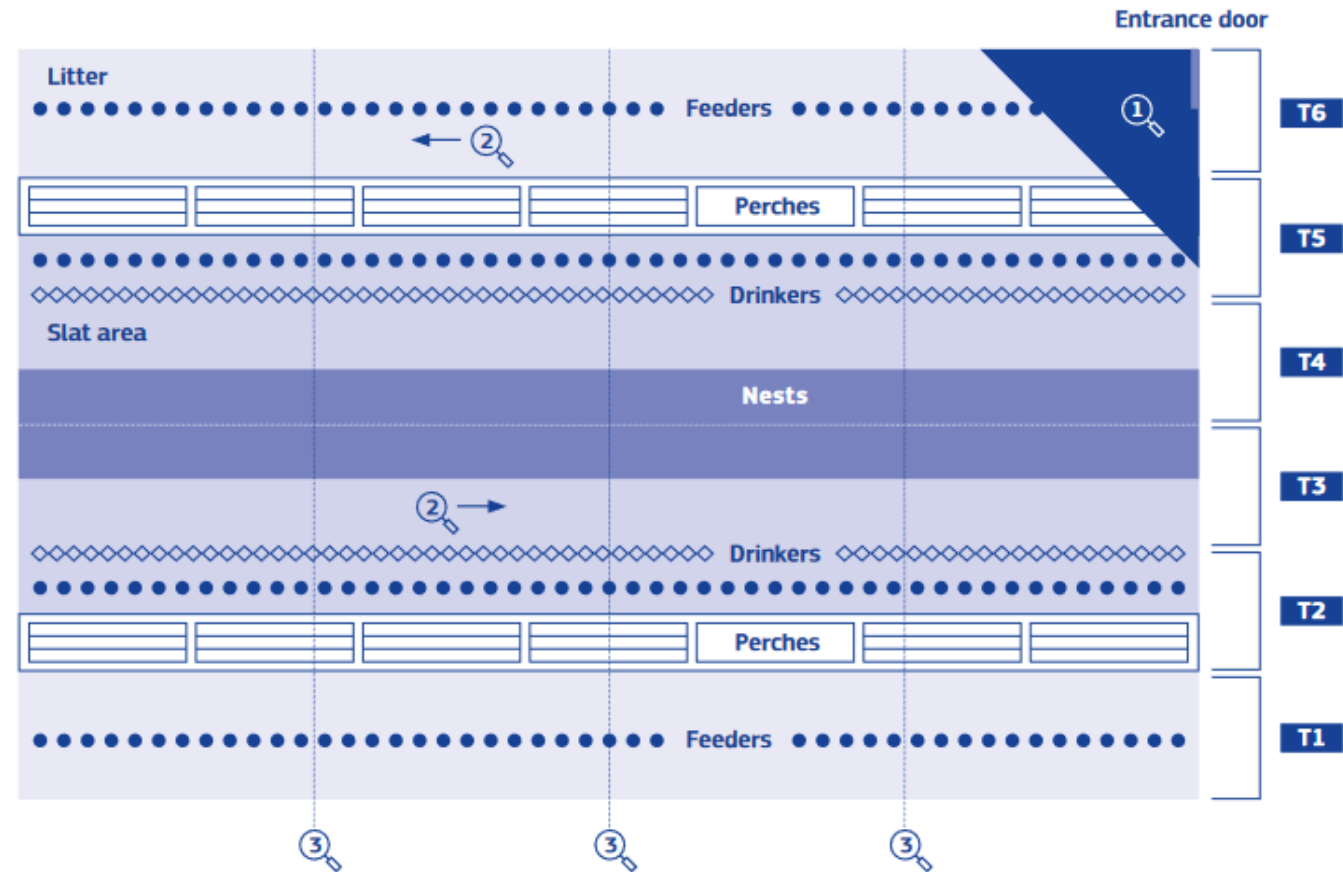
- To help the transition: Best Practice Hens ([www.bestpracticehens.eu](http://www.bestpracticehens.eu))
- Best practices for keeping hens in cage-free systems (33 factsheets)
- Scientific and practical knowledge
- Economic and market evaluation
- Protocol for inspection walk on farm





## Welfare protocol: observe different parts of the barn

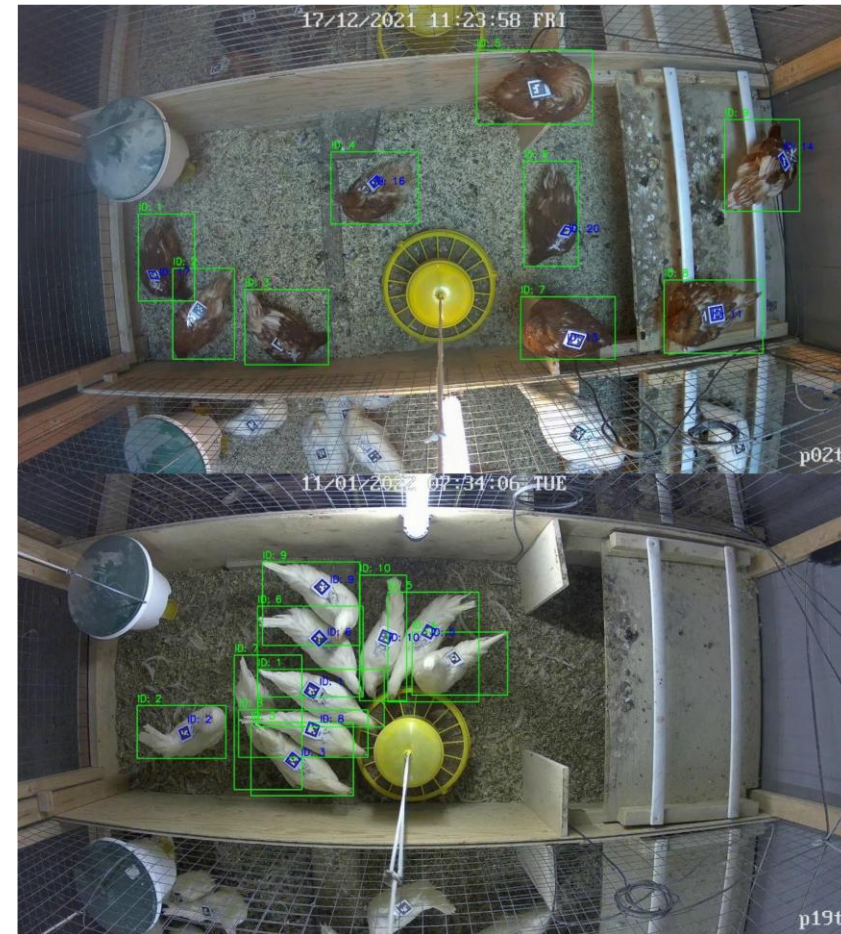
- Panic reaction
- Panting (hot)
- Huddling (cold)
- Feather loss
- Wounded birds
- Sick birds
- Dead birds
- Floor eggs
- Litter quality
- Red mites



**Figure 1.** Diagram of the assessment points for single tier house (T=transect 1 to 6). Magnifying glasses and numbers inside respectively represent an assessment location and the area that should be assessed in that location.

# Future: further development automatic monitoring systems

- Existing:
  - Feed intake
  - Water intake
  - Body weight
- Future:
  - Flock activity
  - Behaviour monitoring
  - Flock noise (vocalisations)



## Conclusion

- Animal welfare is taking a more prominent role in animal production in the EU
- Providing behaviour opportunities and allowing positive experiences is becoming more important
- Tools available for both manual and automatic assessment of animal welfare
- Laying hen case: best practices and monitoring tools available





# Thank you for your attention!

- Best Practice Hens materials (several EU languages):  
<https://bestpracticehens.eu/materials/>  
(available for translation in local languages)
- Best Practice Guidelines (Global Food Partners):  
<https://globalfoodpartners.com/wp-content/uploads/2023/04/BP-ENSXAU-0419.pdf>
- [E-mail: t.b.rodenburg@uu.nl](mailto:t.b.rodenburg@uu.nl)

