



BTSF Better Training for Safer Food *Initiative*

Animal welfare in poultry production (chickens kept for meat production) – IV Session

Rome 22-24 November, 2023

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Animal Based Measures for on-farm evaluation of broiler welfare and for ante-mortem inspection

Stefan Gunnarsson

Swed. Univ. of Agric. Sci. (SLU)

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BTSF Layout of this presentation

- Welfare measurements according to Directive 2007/43
- Resource-based and/or animal-based measurements
- Welfare Quality® - animal-based measurements
 - Background
 - Clinical scoring
- Summary

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BTSF Welfare measurements according to Directive 2007/43

Scoring/measuring the environment

Housing system

- Space allowance
- Feeding and drinking space
- Management procedures

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Directive 1998/58, concerning the protection of animals kept for farming purposes

“Member States shall make provision to ensure that the owners or keepers take all reasonable steps to ensure the welfare of animals under their care and to ensure that those animals are not caused any unnecessary pain, suffering or injury.”

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Resource-based

- Measure indirect bird welfare
- More robust measures
- Calibrations more stable
 - *area, number of nipples, design of house*
- Can evaluate building in advance

Animal-based

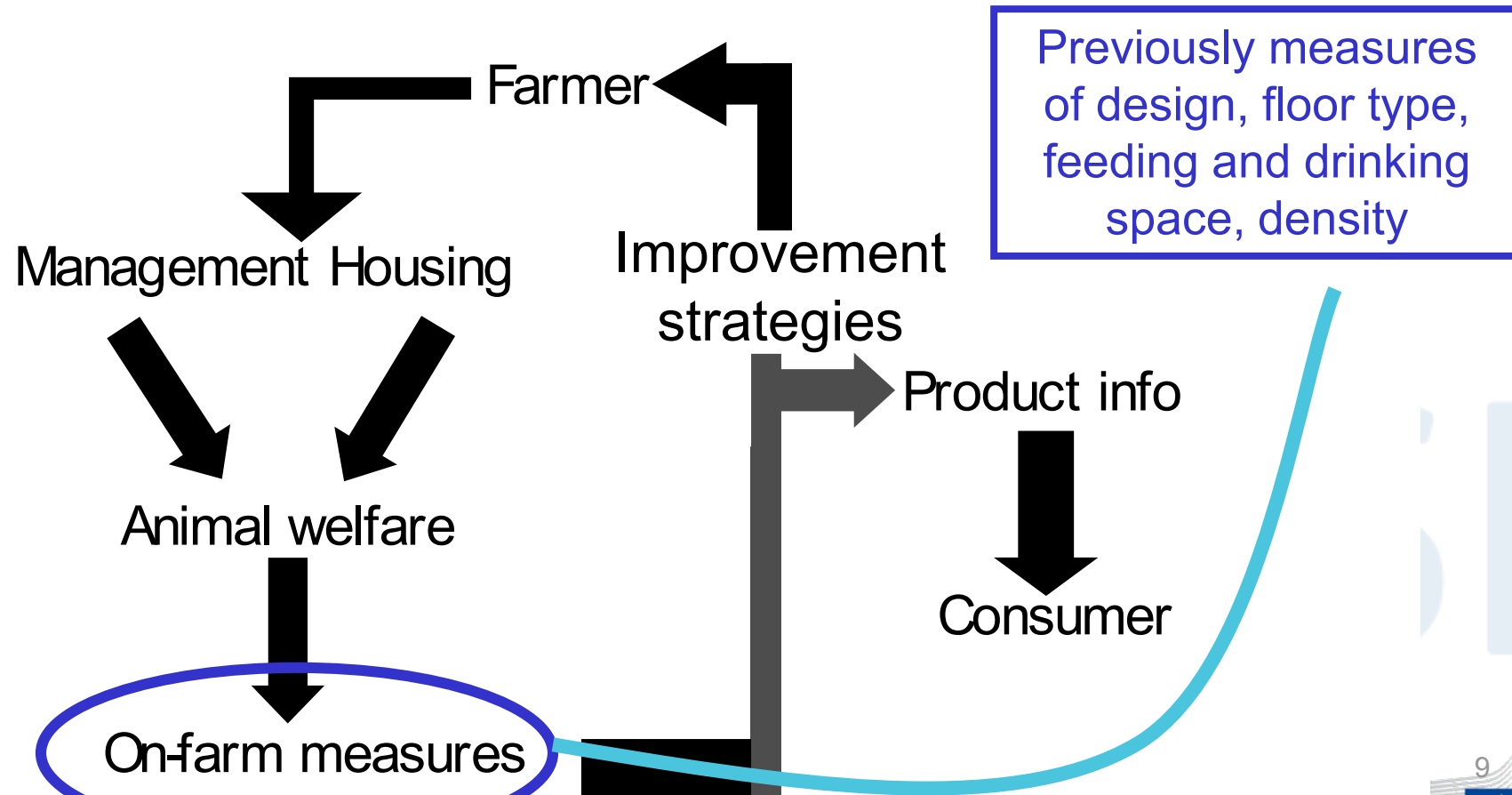
- More biological
- Measure direct bird welfare
- Needs more thorough definitions
- More training and thorough evaluation of inter-rater agreement

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**On farm assessment of animal welfare:
the 'Welfare Quality®'**

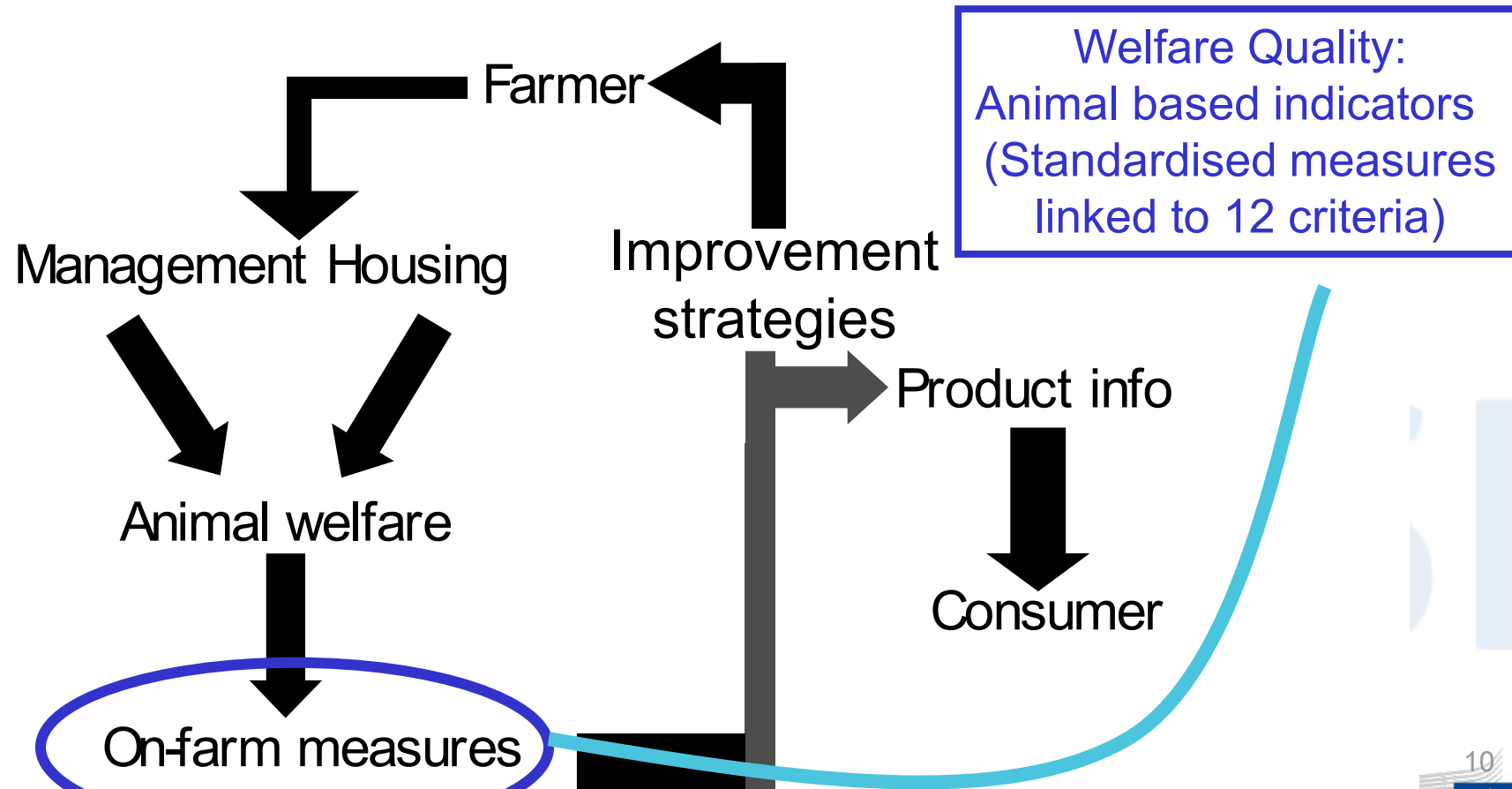
The Welfare Quality® approach



After Blokhuis et al., 2003

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The Welfare Quality® approach



After Blokhuis et al., 2003

Principle	Welfare criteria	Examples of measures
Good feeding	1 Absence of prolonged hunger	Body condition score at slaughter
	2 Absence of prolonged thirst	Drinker space
Good housing	3 Comfort around resting	Plumage cleanliness, litter quality, dust sheet test
	4 Thermal comfort	Panting, huddling
	5 Ease of Movement	Stocking density
Good health	6 Absence of injuries	Lameness, hock burn , foot pad dermatitis
	7 Absence of diseases	On farm mortality, culls on farm
	8 Absence of pain induced by management procedures	<i>Beak trimming</i>
Appropriate behaviour	9 Expression of social behaviours	<i>Not developed in WQ Broilers</i>
	10 Expression of other behaviours	Cover of the range, free range
	11 Good human-animal relationship	Avoidance distance tests (ADT)
	12 Absence of general fear a Positive emotional state	Novel object test Qualitative behaviour assessment (QBA)

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Welfare assessment animal-based measures

- Valid and science based
Actual reflect the animal's individual welfare
- Reliable
Repeatable between different people and on different occasions
- Feasible
Must be possible to implement in practice at a reasonable cost

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How can Animal Based Measures be used at farm visits ?

- Directive 1998/58
protection of animals kept
for farming purposes
- ...to ensure that those animals are
not caused any unnecessary pain,
suffering or injury. (Art. 4)
- Directive 2007/43
- chickens kept for meat
production
- National regulations

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How can it be done

Documentation of bird health

- ✓ Describe the general impression as thorough as possible
- ✓ Mortality records
- ✓ Production records

- Quantify your findings
- Routine checks based on walks through the house to screen health status of the flock, method developed by V. Ferrante et al.

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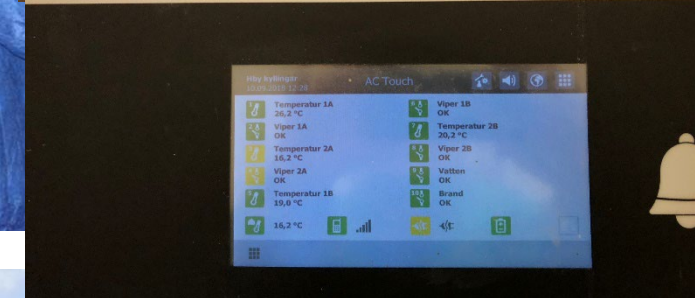
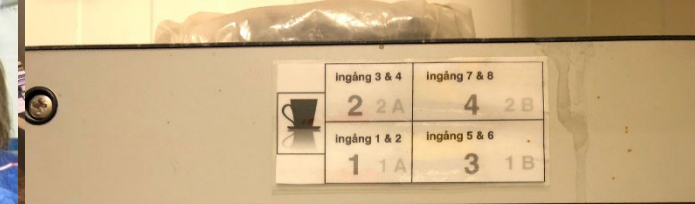


Photo: Dept of Animal health and Environment, SLU

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How to prioritise?

Focus on lesions that have the greatest effect on bird health and welfare

Frequency and severity

Most concern

- Bird that can not walk at all
- Runt bird, small un-developed

- Concern

- Foot pad lesions
- Breast blisters
- Lameness
- Hock burns
- Dirty birds
- Other diseases (e.g. Ascites)

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Impaired walking ability and poor leg health associated with:

- rate of growth
- age of the bird (older birds)
- bird genotype
- feeding whole pellets
- a shorter dark period
- higher stocking density

(Knowles et al., 2008)



Photo: Dept of Animal health and Environment, SLU



Knowles et al. 2008



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	Gait Score					
	0	1	2	3	4	5
Mean	2.2	26.6	43.5	24.3	3.1	0.2
SD	4.8	21.1	15.9	21.3	7.0	0.5
Min	0.0	0.0	1.6	0.0	0.0	0.0
Max	34.7	82.7	74.6	83.7	45.9	3.2

Mean, SD, minimum and maximum for flocks are shown. The values are calculated from flock averages weighted by birds placed and include first and second visits. Total birds placed $n = 4,845,962$. Total birds gait scored-206 flocks \times minimum of 250 birds per flock- n is approximately 51,000.

doi:10.1371/journal.pone.0001545.t001

Knowles et al. 2008

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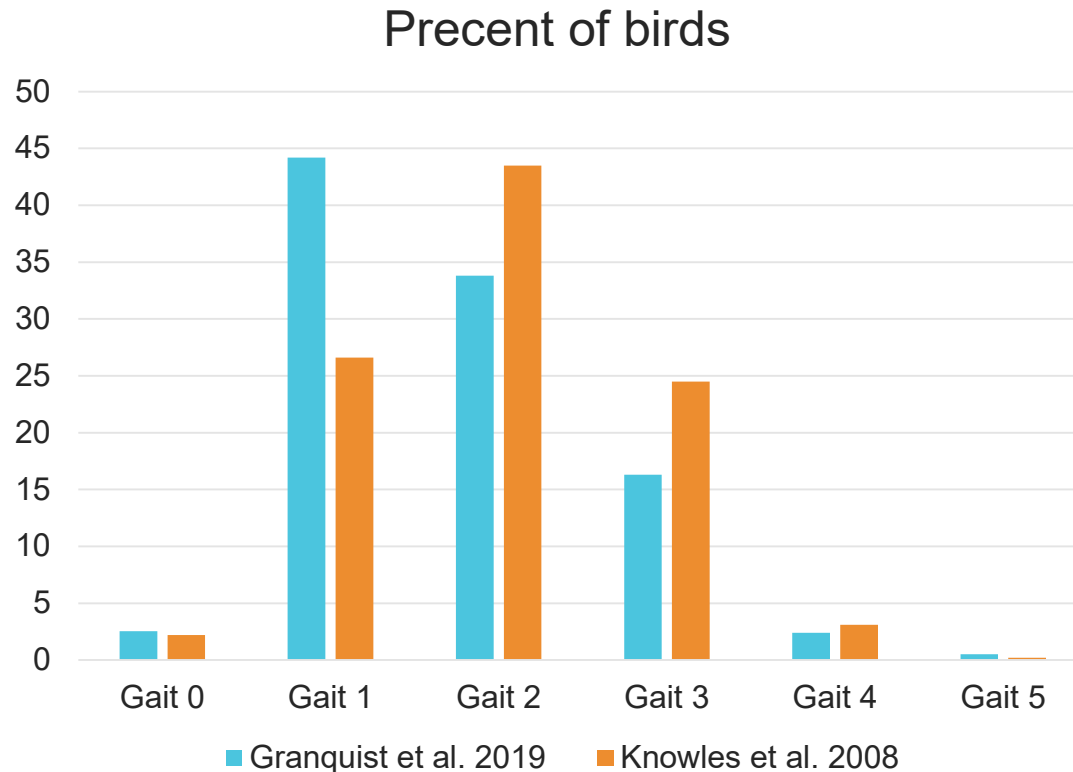
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Slaughter 40 d, 15.9-44.8 kg/m²

Knowles et al. 2008



Norway, 50 flocks, ~29 d, 15-33kg/m²

Higher gait score →

More hock burns ($P < 0.02$)

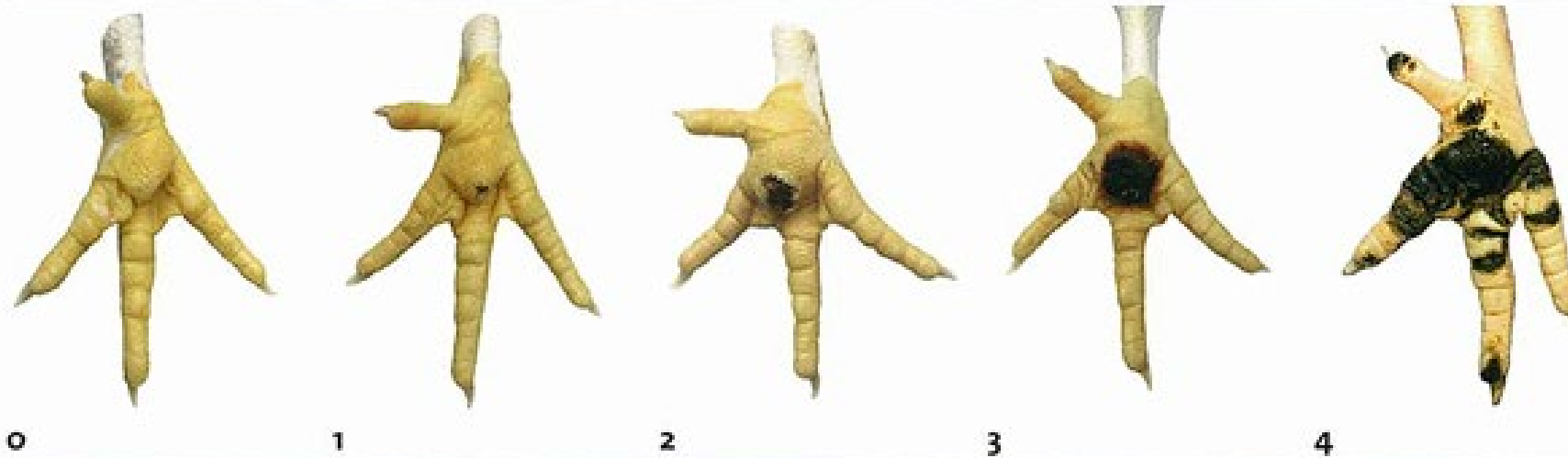
More footpad dermatitis ($P < 0.01$)

Reduced bird cleanliness ($P < 0.01$)

Peat litter ($P < 0.01$)

Wet litter ($P = 0.07$)

BTSF Foot pad dermatitis WQ[®]



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Level

a=0

b=1 & 2

c=3 & 4



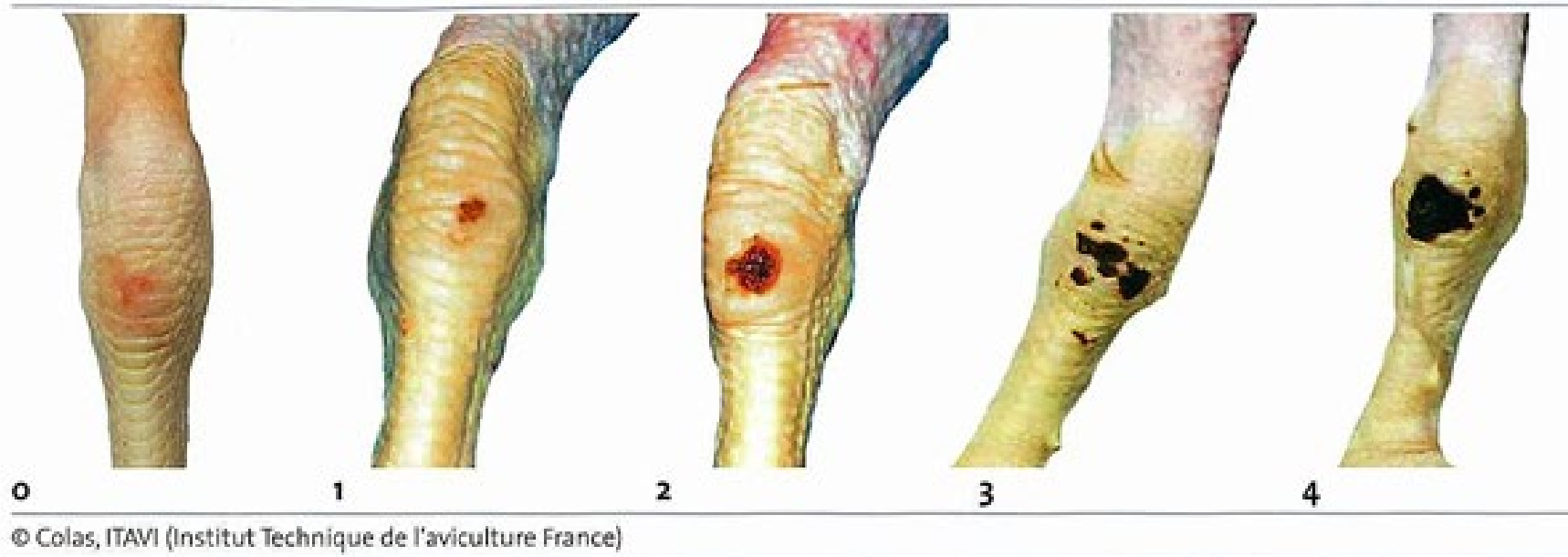
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Photo: S. Gunnarsson

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Hock burns WQ®

Causes: impaired walking abilities
litter quality



Level

a=0

b=1 & 2

c=3 & 4

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Breast blisters

Causes: impaired walking abilities litter quality



o No breast blister



1 Breast blister



Breast blister
before incision



Breast blister
after incision

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Dirty breast WQ[®]

Causes: litter quality, impaired walking abilities



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Litter quality is crucial !

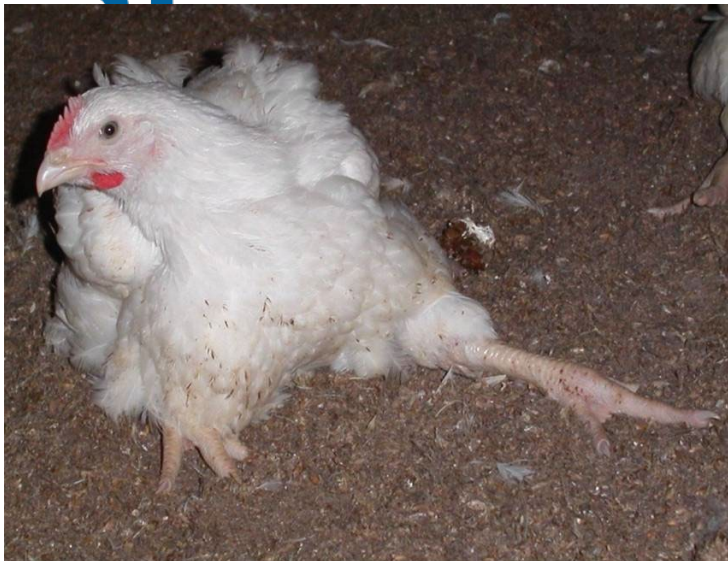
- Promote litter-related behaviours !
 - Litter type
 - Stocking
 - Ventilation
 - Seasonal variation
- Why chickens are not scratching?
 - Litter too deep
 - Overcrowding
 - Leg problems

BTSF Dirty due to coccidiosis



Photo: Dept of Animal health and Environment, SLU

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Severe lameness birds that can not walk



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Photo: Dept of Animal health and Environment, SLU

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Runt birds



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Considering making records of clinical health at a farm

- What need do you have to make documentation?
 - Focus on main health concerns
 - Try to make a comprehensive documentation
 - Score some birds to determine how common a lesion is
 - Priority in regard to issues and time available
-
- **Be careful if you handle broiler chickens, as their joints may be damaged !**



Photo: Dept of Animal health and Environment, SLU

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Biosecurity



Photo: Dept of Animal health and Environment, SLU

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Thank you

European Commission
Health and Digital Executive Agency (HaDEA)
COV2 02/183
B-1049 Brussels/Belgium

Istituto Zooprofilattico Sperimentale
dell'Abruzzo e del Molise – IZSAM
Campo Boario, Teramo, Italy
Phone: +39 0861 332723 – 332732
Email: 20169606aw@izs.it
Website: www.izs.it

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