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Evaluation of the Danish surveillance of footpad lesions in organic and conventional broilers

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BACKGROUND
Footpad dermatitis (FPD) as an indicator of on-farm broiler welfare — Danish official surveillance system since 2002 with payment and enforcement implications. As originally developed for conventional broilers, the usability for organic broilers has not yet been investigated.

OBJECTIVES
Evaluation of performance of the official Danish FPD surveillance system with respect to potential sources of misclassification and the effect of the sampling strategy in both organic and conventional broiler feet.

MATERIALS & METHODS
Comparison of official FPD scores of 1,799 broiler feet (~100 per flock, from 9 organic and 9 conventional flocks) and scores by a laboratory reference method, based on predefined visual and invasive scoring criteria derived from the official system.

RESULTS
Wide range of severity

Differences between organic and conventional broiler feet
- Shape, colour and skin quality — less characteristic lesions in organic feet
- Higher degree of hyperkeratosis and hypertrophy of papillae in organic feet
An association between lesion size and depth was observed.

Marked differences between official and laboratory scores
- Disagreement highly restricted to scores 1 and 2 — evidence of underestimation of lesion severity in organic and conventional feet
- Disagreement more pronounced in organic feet compared to conventional, which was attributed to the organic lesions being more difficult to score

Distribution of FPD scores in conventional broiler feet, n=902

Score 0: 41.1% Score 1: 30.9% Score 2: 13.1%

Distribution of FPD scores in organic broiler feet, n=897

Score 0: 29.0% Score 1: 23.4% Score 2: 14.4%

Evidence of some degree of selection bias, especially in flocks with middle range flock scores, possibly due to insufficient randomisation.

Focus for future improvements to FPD surveillance systems

- Objectivity: Objective criteria to minimise room for interpretation by describing the full range of lesion severity
- Randomisation: Sampling of feet for scoring needs to be representative of the flock
- Feasibility: Criteria needs to be feasible to evaluate under time constraints in commercial conditions

Sampling strategy

Cut-off point?

Strictly visual examination had reduced sensitivity (0.73-0.75) for detection of severe lesions compared to adding an incision of the footpad during scoring.

Sampling strategy

The Danish FPD surveillance system: 2 x 50 feet per broiler flock
Score 0: No or very minor lesions
Score 1: Less severe lesions
Score 2: Severe lesions
FPD flock score = 0.5 * (number of feet scored 1) + 2 * (number of feet scored 2)

MATERIALS & METHODS
Comparison of official FPD flock scores of paired samples of feet (2 x 50 feet from the first and last third of every flock processed) of 11,628 conventional broiler flocks processed during a 2.5 year period (~99.6% of Danish production).

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