

Institute for Animal Welfare and Animal Husbandry  
Friedrich-Loeffler-Institut  
Celle, Germany

# **Celle Plumage and Integument Condition Scoring System for Welfare and Health in Laying Hens**

based on LayWel\*

\*[www.laywel.eu](http://www.laywel.eu)

Anna Lea Bühring  
Britta Scholz

## Neck, back, breast, belly, tail, wings (cover feathers and wing feathers)

### Scores 4, 3, 2, 1

Score 4 = intact plumage with no or only mild wear, i.e. damaged or deformed feathers  
wings:  $\leq 5$  damaged\* feathers

Score 3 = skin still completely or almost completely covered with feathers  
featherless area  $< 5 \text{ cm}^2$  (approx.  $< 2.2 \times 2.3 \text{ cm}$ )  
wings: approx. 6 - 10 damaged\* feathers

Score 2 = severely damaged feathers and/or featherless areas  
featherless area  $\geq 5 \text{ cm}^2$   
wings: approx. 11 - 15 damaged\* feathers

Score 1 = very severe plumage damage with no or only few feathered areas  
featherless area  $> 5 \text{ cm}^2$  AND predominantly featherless or completely featherless  
wings: approx.  $\geq 16$  damaged\* feathers or almost completely featherless

\*Definition of "damaged": broken feathers or at least 1 cm featherless spots on both sides of the quill.

**Scores wings:** The wing with the more severe damage is used for the evaluation. The assessment is either made on the basis of the cover feathers or wing feathers depending on which are most severely damaged.

## Head

### Scores 0, 1

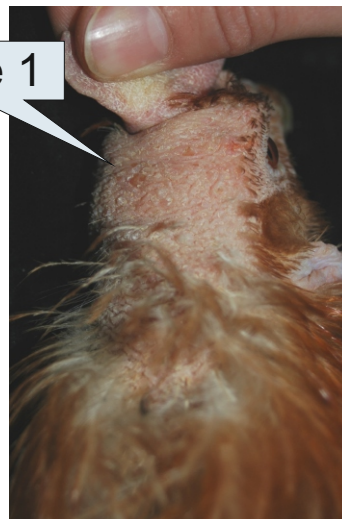
Score 0 = completely feathered

Score 1 = damaged feathers, featherless areas or completely featherless

Score 0



Score 1



# Plumage Condition

## Neck



Score 4

intact plumage with no or only a few damaged or deformed feathers



Score 3

skin still completely or almost completely covered with feathers  
featherless area  $< 5 \text{ cm}^2$  (approx.  $< 2.2 \times 2.3 \text{ cm}$ )



Score 2

severely damaged feathers and/or featherless areas  
featherless area  $\geq 5 \text{ cm}^2$



Score 1

very severe plumage damages with no or only few feathered areas  
featherless area  $> 5 \text{ cm}^2$  AND predominantly featherless or completely featherless

# Plumage Condition

## Back



Score 4

intact plumage with no or only a few damaged or deformed feathers



Score 3

skin still completely or almost completely covered with feathers  
featherless area  $< 5 \text{ cm}^2$  (approx.  $< 2.2 \times 2.3 \text{ cm}$ )



Score 2

severely damaged feathers and/or featherless areas  
featherless area  $\geq 5 \text{ cm}^2$



Score 1

very severe plumage damage with no or only few feathered areas  
featherless area  $> 5 \text{ cm}^2$  AND predominantly featherless or completely featherless

# Plumage Condition

## Wing



### Score 4

intact plumage with no or only a few damaged or deformed feathers  
wings:  $\leq 5$  damaged\* feathers



### Score 3

skin still completely or almost completely covered with feathers  
featherless area  $< 5 \text{ cm}^2$  (approx.  $< 2.2 \text{ cm} \times 2.3 \text{ cm}$ )  
wings: approx. 6 - 10 damaged\* feathers



### Score 2

severely damaged feathers and/or featherless areas featherless area  $\geq 5 \text{ cm}^2$ .  
wings: approx. 11 - 15 damaged\* feathers



### Score 1

very severe plumage damage with no or only a few feathered areas  
featherless area  $> 5 \text{ cm}^2$  AND predominantly or completely featherless  
wings: approx.  $\geq 16$  damaged\* feathers or almost completely featherless

\*Definition of "damaged": broken feathers or at least 1 cm bare spots on both sides of the quill.

# Plumage Condition

## Tail



Score 4

intact plumage with no or only a few damaged or deformed feathers,  $\leq 5$  feathers damaged



Score 3

6 - 8 damaged\* feathers



Score 2

9 - 12 severely damaged\* feathers



Score 1

$\geq 13$  severely damaged\* feathers or almost completely featherless

\* Definition of "damaged": broken feathers or at least 1 cm bare spots on both sides of the quill.

# Plumage Condition

## Breast



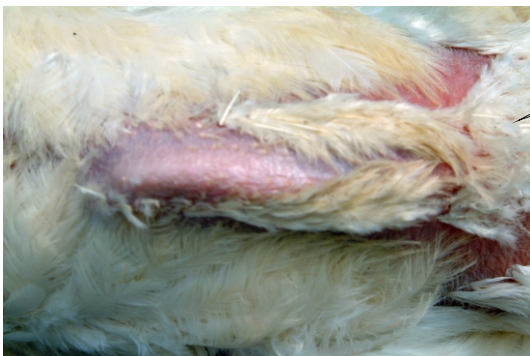
Score 4

intact plumage with no or only a few damaged or deformed feathers



Score 3

skin completely or almost completely covered with feathers  
featherless area  $< 5 \text{ cm}^2$  (approx.  $< 2.2 \times 2.3 \text{ cm}$ )



Score 2

severely damaged\* feathers and/or featherless areas  
featherless area  $\geq 5 \text{ cm}^2$



Score 1

very severe plumage damage with no or only few feathered areas  
featherless area  $> 5 \text{ cm}^2$  AND predominantly or completely featherless

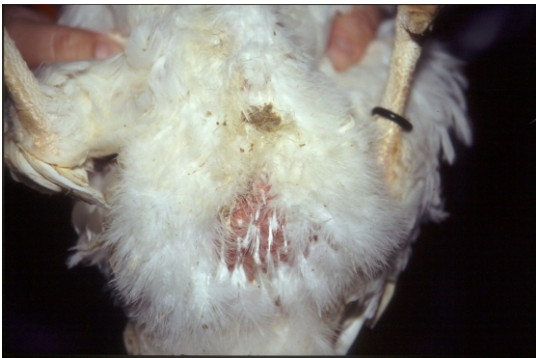
# Plumage Condition

## Belly



Score 4

intact plumage with no or only a few damaged or deformed feathers



Score 3

skin still completely or almost completely covered with feathers  
featherless area  $< 5 \text{ cm}^2$  (approx.  $< 2.2 \times 2.3 \text{ cm}$ )



Score 2

severely damaged feathers and/or featherless areas  
featherless area  $\geq 5 \text{ cm}^2$



Score 1

very severe plumage damage with no or only few feathered areas  
featherless area  $> 5 \text{ cm}^2$  AND predominantly or completely featherless



# Keelbone damage

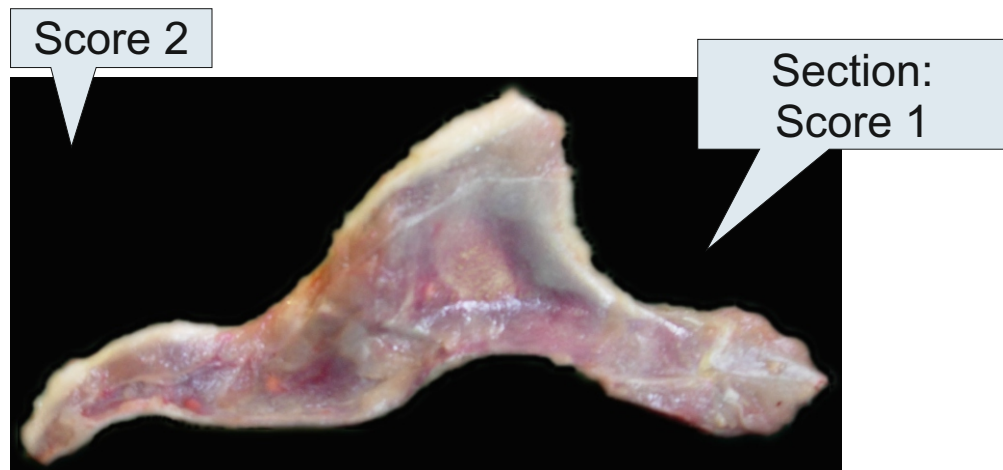
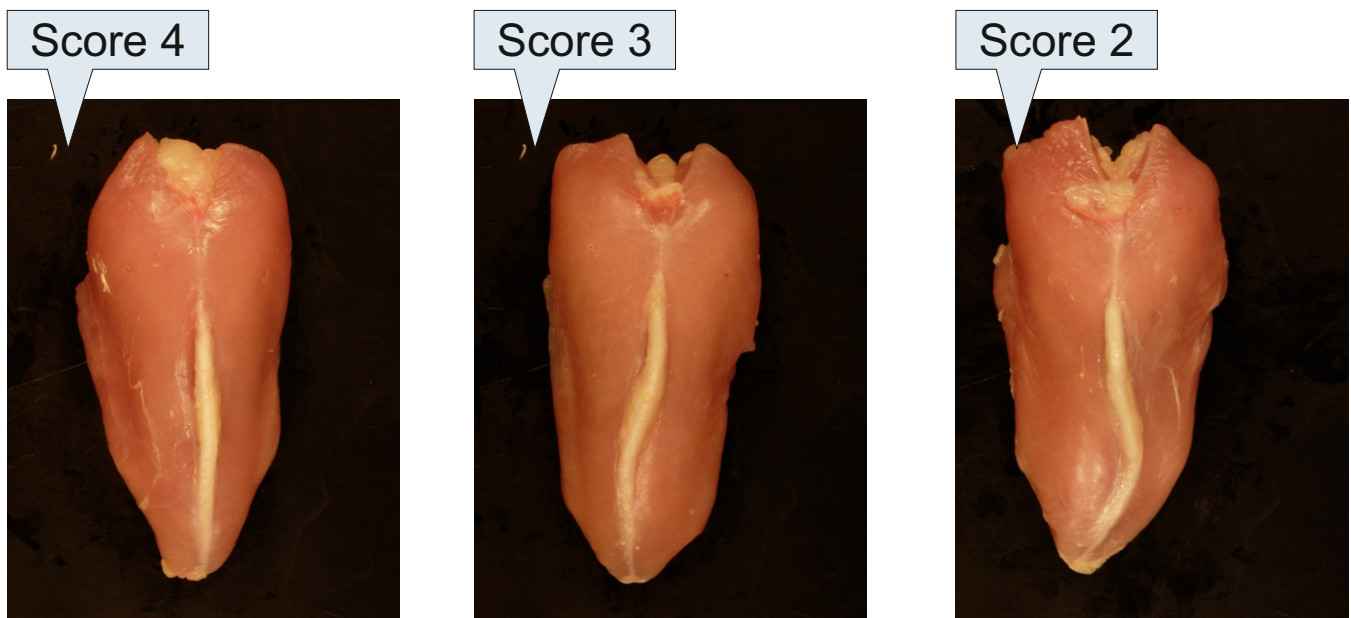
**Inspection and palpation on living\* animals.**

**Scores 4, 3, 2**

Score 4 = without any particular findings

Score 3 = minor deviations palpable (slightly S-shaped and/or dorsoventral compression and/or slight irregularities in the structure)

Score 2 = strong deviations in shape and/or structure, palpable bone formations (indication of fracture)



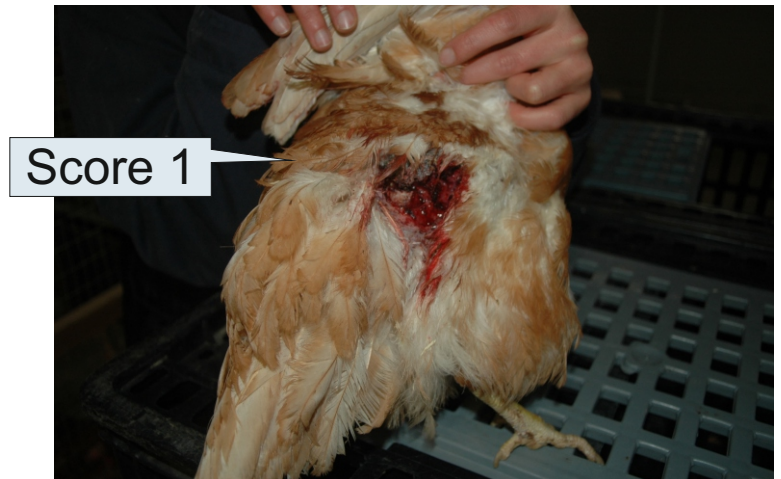
\* For better documentation, pictures were taken after the skin had been removed.

# Cannibalism / Injury / Comb (Pecks)

## Cannibalism:

### Scores 0, 1

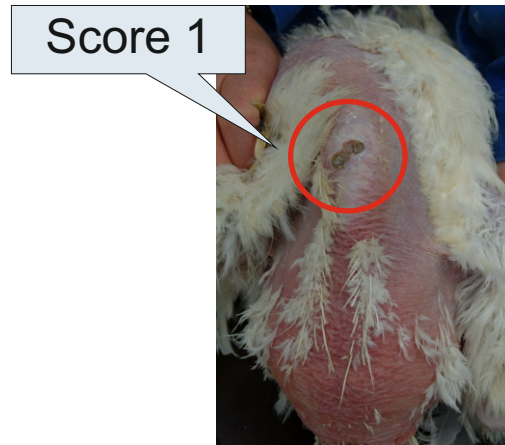
- Score 0 = not present
- Score 1 = present, bloody injury



## Injuries:

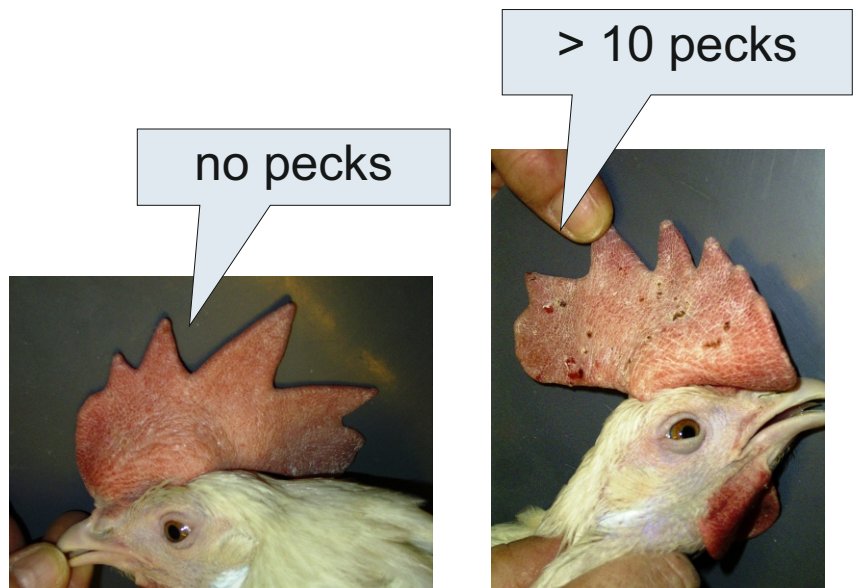
### Scores 0, 1

- Score 0 = not present
- Score 1 = present



## Pecks:

The pecks are counted from both sides of the comb and summed up.



# Foot pad / digital pads

## Hyperkeratosis

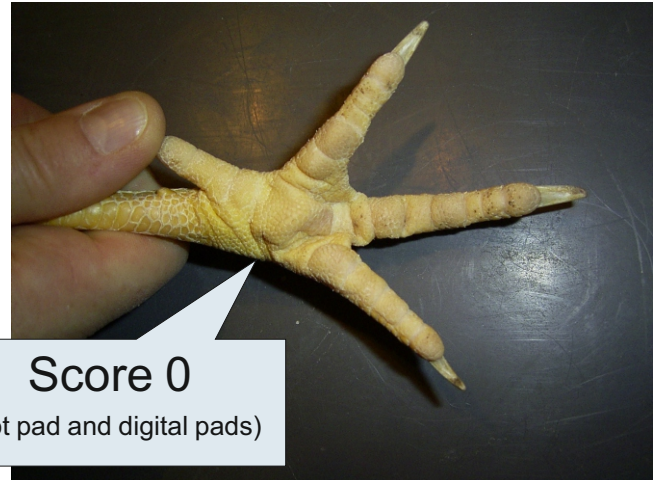
### Hyperkeratosis:

Independent scoring of foot pad and digital pads on both feet

### Scores 0, 1

Score 0 = no or minor hyperkeratosis

Score 1 = medium to severe hyperkeratosis



# Foot pad / digital pads

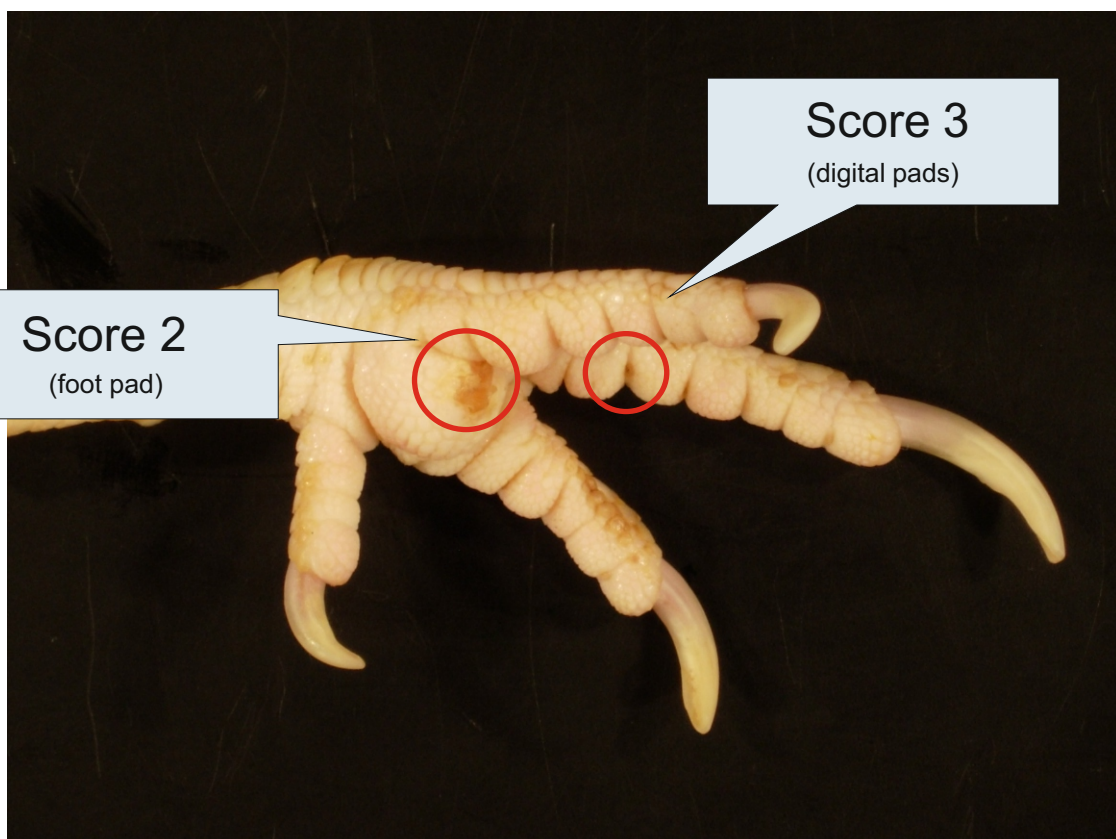
## Epithelial lesions

### Epithelial lesions:

Independent scoring of foot pad and digital pads at both feet

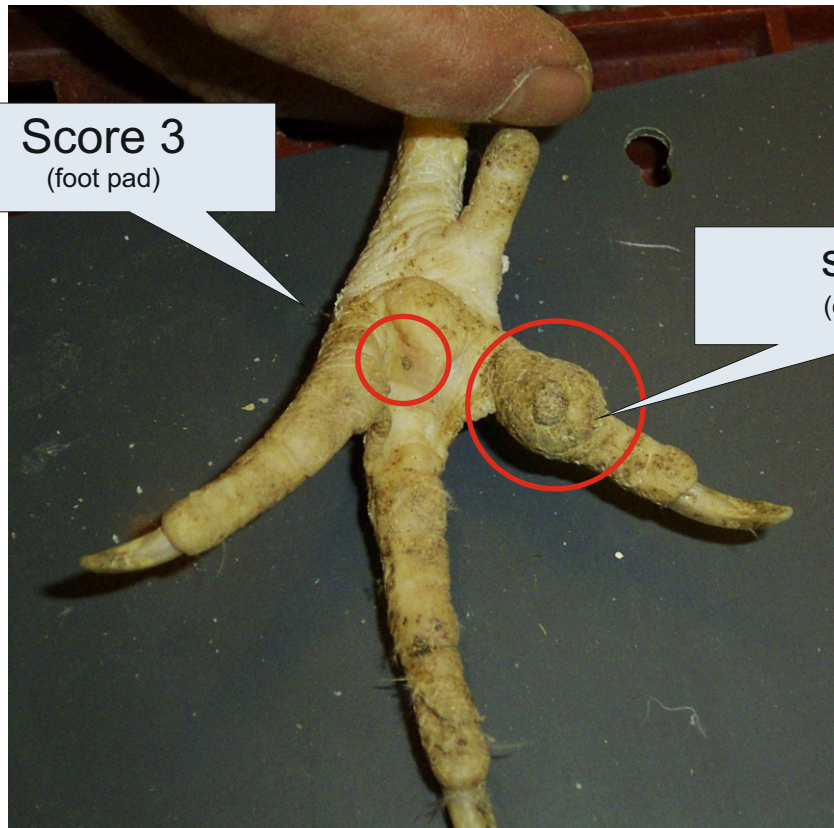
### Scores 4, 3, 2, 1

- Score 4 = no lesions
- Score 3 = minor, superficial lesion, max. 2 mm, no swelling
- Score 2 = lesion but no swelling visible from dorsal side,  $\geq 2$  mm, possibly thickened
- Score 1 = severe lesion, swelling visible from dorsal side (acutely inflamed)



# Foot pad / digital pads

## Epithelial lesions



**Score 3**  
(foot pad)

minor, superficial lesion, max. 2 mm, no swelling

**score 1**  
(digital pads)

severe lesion, swelling visible from the dorsal side (acutely inflamed)



**Score 1**  
(digital pad)

severe lesion, swelling visible from the dorsal side (acutely inflamed)

# Claw length / claws broken off

## Claw length:

For claw length, the right, middle toe is measured along the dorsal surface with a flexible measuring tape.



## Claws broken off:

All toes are checked for broken claws.

Scores 0, 1

Score 0 = no (no broken claw)

Score 1 = yes ( $\geq 1$  broken claws)

