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What is a commercial setting? 

Industrial scale transport of animals?
European annual production is approximately 6 billion birds, with an average consumption of poultry of about 23 kilos per capita per year (EU, 2014). The European poultry industry employs 300,000 people across Europe and has an annual turnover of 30 billion Euros (AVEC, Association of Poultry Producers and Poultry Trade in the EU, 2014).
Animal Resource
(environmental conditions)
The Broiler Directive (2007/43/EC) is unique amongst current EUDirectives

a) It uses outcome data, collected at abattoirs and on farm to monitor on farm broiler welfare. 

b) To - vary the maximum permitted stocking density on farm.
REQUIREMENTS APPLICABLE TO HOLDINGS

In addition to the relevant provisions of other relevant Community legislation, the following requirements shall apply:

Light

6. All buildings shall have lighting with an intensity of at least 20 lux during the lighting periods, measured at bird eye level and illuminating at least 80% of the useable area. A temporary reduction in the lighting level may be allowed when necessary following veterinary advice.
ANNEX I

REQUIREMENTS APPLICABLE TO HOLDINGS

In addition to the relevant provisions of other relevant Community legislation, the following requirements shall apply:

Drinkers

1. Drinkers shall be positioned and maintained in such a way that spillage is minimised.
Proportion of MS where welfare indicators are measured

- Ascites
- Breast lesions
- Cellulitis
- Emaciation
- Foot pad dermatitis
- Hock burn
- Joint lesions
- Number of birds dead on arrival
- Respiratory problems
- Scratches
- Total rejections
- Wing fractures

Percentage of MS who measure welfare indicator:
Who actually makes the measure?

- No answer
- Other
- Farmer
- Slaughterhouse staff
- Government vet
- Meat hygiene inspector
<table>
<thead>
<tr>
<th>Measures</th>
<th>Degree of harmonisation between MS</th>
<th>Variability in reference and guidance material to MS</th>
<th>Training and KT priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot pad dermatitis, Hick burn, Dead on Arrival, Total rejections</td>
<td>High</td>
<td>Some variability</td>
<td>Medium to low (quite well accepted technical methods by MS)</td>
</tr>
<tr>
<td>Ascites, Cumulative daily mortality</td>
<td>Medium</td>
<td>Significant variability in methods used to assess and professional judgements</td>
<td>Medium</td>
</tr>
<tr>
<td>Breast lesions, Cellulitis, Emaciation, Joint lesions, Respiratory problems, Scratches, Wing fractures</td>
<td>Low</td>
<td>Very variable methods and guidance on data collection</td>
<td>High</td>
</tr>
<tr>
<td>Environmental measures</td>
<td>Low</td>
<td></td>
<td>High</td>
</tr>
</tbody>
</table>
Manually assessed animal outcome measures for broiler chickens have started to be used alongside the use automated on farm measurements of climate, feed intake, animal growth and camera and sound based automated precision livestock (PLF) farming methods (eYeNamic) in our pilot studies.
Manual Assessment
Precision Livestock Farming (PLF) represents the potential for use of continuously automated measurements made directly on the animal or of its environment. PLF data may be translated into key indicators for animal welfare, animal health, productivity and environmental impact, thus allowing the farmer to better manage his farm process.
REQUIREMENTS APPLICABLE TO HOLDINGS

In addition to the relevant provisions of other relevant Community legislation, the following requirements shall apply:

Litter

3. All chickens shall have permanent access to litter which is dry and friable on the surface.
<table>
<thead>
<tr>
<th>Title</th>
<th>Foot pad dermatitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope</td>
<td>Animal-based measure: Broiler chicken</td>
</tr>
<tr>
<td>Sample size</td>
<td>Sample size according to § 5.1A.5</td>
</tr>
<tr>
<td>Method description</td>
<td>Foot pad dermatitis is a contact dermatitis found on the skin of the foot, most commonly on the central pad, but sometimes also on the toes. The skin is turned dark by contact with litter and consequently deep skin lesions can result. The scoring scale allows an assessment of the severity of these lesions (see photographic reference). Assess the presence of hock burns with regard to the severity scale, scoring categories 0/1/2/3/4 as photographic illustration. Assess the number of animals in each scoring category and combine the categories for classification.</td>
</tr>
<tr>
<td>Classification</td>
<td>Individual level:</td>
</tr>
<tr>
<td></td>
<td>a – No evidence of foot pad dermatitis (score ‘0’)</td>
</tr>
<tr>
<td></td>
<td>b – Minimal evidence of foot pad dermatitis (score ‘1’ and ‘2’)</td>
</tr>
<tr>
<td></td>
<td>c – Evidence of foot pad dermatitis (score ‘3’ and ‘4’)</td>
</tr>
</tbody>
</table>

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Smart Farming for Europe
Value creation through Precision Livestock Farming

© EU Grant Agreement no.: 311825
FOOT PAD DERMATITIS IN POULTRY (FPD)

Disease Card and Key Facts

**CAUSE**
A number of factors have been shown to influence the occurrence of FPD such as litter type and quality, litter depth, water drinker type, bad eggs, ventilation and drinker management, breed, sex and its quality, rearing systems, and breed (genotype) used among others. Genetic disease may be a predisposing factor.

**AFFECTS**
All poultry species are affected by FPD although the scoring system below relates specifically to meat chickens.

**GEOGRAPHICAL LOCATION**
Worldwide, this condition appears in all poultry rearing systems with higher prevalence when outdoor access is supplied.

**SURVEILLANCE**
This assessment of the two following scores is to be taken into account when assessing FPD. Percentage of birds in the flock that show evidence of FPD. Severity: Focuses on the seriousness of the FPD lesions.

**LESIONS**

**Acute Affected:**
- None or very small
- Lesion description:
  - very small superficial lesions
  - slight discoloration in a limited area
  - mild hyperkeratosis
  - completely healed scar

- Does not extend over entire plantar pad.
- Lesion description:
  - partial or complete discoloration of the footpad
  - superficial lesions, no ulceration
  - dark papules with no ulceration

- Does not involve whole surface or solanage escaped, sometimes with lesions on toes.
- Lesion description:
  - deeper lesions with abnormal, sometimes hemorrhagic shape
  - spots of significant size
  - severely swollen footpad

**Score 0**
Healthy Foot

**Score 1**
Mild Lesion

**Score 2**
Severe Lesion

Scoring is based on the size of the lesion, the number of lesions, and the number of feet in each category C1, C2, and C3. It should be noted that the FPD scoring system is not a formalized diagnostic tool but a guide to help assess the condition. It is recommended that veterinarians and poultry health experts use this tool in conjunction with other diagnostic methods to make a comprehensive assessment of FPD in poultry.
Footpads

<table>
<thead>
<tr>
<th>Total</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Scored</td>
<td>0</td>
</tr>
<tr>
<td>Total Scored</td>
<td>15</td>
</tr>
</tbody>
</table>

Score 0 | 3 | Score 1 | 3 | Score 2 | 9 |

Flock Score (1.0 - 2.0) | 140

Poultry Processing Solutions

Smart Farming for Europe
Value creation through Precision Livestock Farming

EU - PLF
EU Grant Agreement no.: 311825
Manual Assessment

PLF
• Some measures are already required to be collected by the competent authority to comply with the requirements of the Broiler Directive (2007/43/EC) - and at the farm, it is apparent from that automated (PLF) measures are potentially highly applicable;

• On farm measurement of; **Space Allowance**

• At slaughter measurement of; **Ascites, Oedema, Cellulitis, Dermatitis, Dead on Arrival, Emaciation, Joint Lesions, Respiratory Disease, Foot Pad Dermatitis.**
PLF measures may be ‘partially’ applicable in other areas that are required as part of the Broiler Directive;

• On farm measurement of; Litter Quality, Bird Thermal Behaviours, Bird Cleanliness, Water use.
It is apparent that PLF measures may be highly applicable in other areas that are not (currently) required as part of the Broiler Directive;

- On farm measurement of: **Walking ability (gait score), Resting Behaviour, General Activity Levels, Human Animal Interaction, Growth/Performance, Body Condition.**
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