

ISSUE 3

Managing Footpad Dermatitis in NZ

The cool wet weather of winter and spring conditions in New Zealand are a major challenge with respect to Footpad Dermatitis (FPD), which is the focus of this issue.

Key Points:

1. Footpad Dermatitis (FPD) importance; Productivity, welfare, and social licence implications
2. How is FPD measured? Footpad score accuracy - overseas case study
3. Risk factors for high (and low) FPD scores
4. Five ways to improve FPD scores in NZ

Footpad Dermatitis is an important issue of the modern chicken meat industry. FPD negatively affects bird health and welfare and reduces performance. High FPD scores adversely affect profitability and can undermine social license and ultimately sustainability of chicken production. Wet litter is the primary cause of footpad lesions, with winter a particularly challenging period in New Zealand. These cooler months require clear focus on managing the key FPD risk factors.



Footpads are scored in all plants of NZ as every farm is processed and reported through to the Ministry of Primary Industries. How accurate is the scoring?

Footpad Dermatitis (FPD)



External

Footpad dermatitis is characterized by skin alterations of the footpads, caused by an inflammatory reaction, evolving from redness to hard, scaly, swollen and necrotic lesions. Footpads are scored from 0 to 2, according to the scoring described by Lotta Berg (1998).

Scores

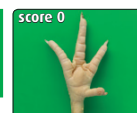
Evaluate both footpads and in case of different scores between the two footpads, note down the highest score.

0 ⇒	No lesion or very small superficial lesions, slight discoloration on limited area of the footpad, mild hyperkeratosis or healed skin.
1 ⇒	Mild lesion. Substantial discoloration of the footpad, superficial lesion, dark papillae.
2 ⇒	Severe lesion. Ulcers or scabs of significant size, signs of haemorrhages or severely swollen footpad.

IN ORDER TO CALCULATE THE FOOTPAD LESION SCORE:

- Count scores 1 and 2
- Multiply scores 1 with 0.5 and scores 2 with 2
- Make a sum of the outcome
- Multiply this number by 100 and divide by the number of footpads scored

Score below 80: GOOD
Scores between 80-120: MODERATE
Scores >120: BAD



Here is a snapshot of an extensive study done in Denmark (iii)

Evaluation of the Danish footpad lesion surveillance in conventional and organic broilers: Misclassification of scoring

V.P. Lund, L. R. Nielsen, A. R. S. Oliveira, and J. P. Christensen

The Official score was done in the processing plant by QA staff and the Reference method in a laboratory by pathologist trained laboratory staff. In this study a comparison between the scoring of Conventional raised broilers and Organic broilers was also sought.

There was low agreement of score 2 between Official and Reference methods. This significant difference between the Official and Reference methods further highlighted when these scores are weighted in the industry accepted way – (score 1 weighted at 0.5 and score 2 weighted at 2 - as described by Lotta Berg, 1998). For the Conventional Flocks; Official score is $(13.1 \times 2 + 43.6 \times 0.5) = 48$ and the Reference Method $(41.1 \times 2 + 17.4 \times 0.5) = 91$, a vast discrepancy!?!

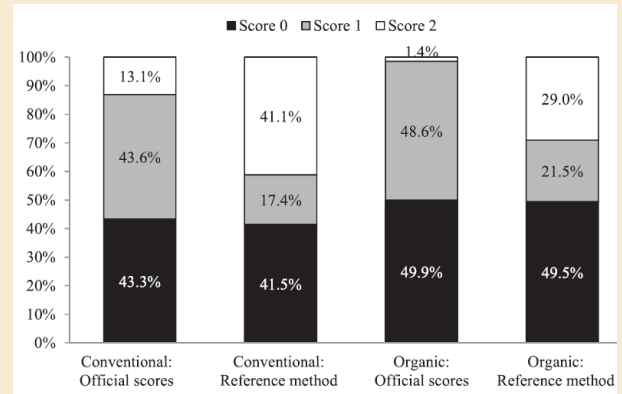


Figure 1. Percentage based stacked barplot of the distribution of the official and reference method footpad lesion scores in Danish conventional (n = 902) and organic (n = 897) broiler feet.

Is our problem in New Zealand bigger than we believe? Is there a difference between different plants? Do we need better collaboration between plants and officials and livestock staff?

In Finland they have minimal issues with Footpad Dermatitis

Hanna Hamina from the Poultry Association of Finland commented in regards to the low levels of FPD in their country. She mentioned the Finns have extreme weather ranging from minus 35 to plus 35 Degrees C in summer. Broilers are housed in insulated barns mainly heated by hot water pipes along the inside walls. Peat is used for litter, and this remains friable throughout the cycle. The feed contains whole grain, and gut health is generally good. Temperatures of minus 35°C in winter implies very low relative humidity, which contrasts with New Zealand.

They operate within the EU recommendation with respect to density max 42kg/m² - this amounts to 16-18 birds /m², they also do not have any cuts from a barn. Slaughter age is 35-36 days at a liveweight of 2.3kg/bird.

Year	Flocks % score < 20	Flocks % score < 40	Flocks % score 40-80	Flocks % score > 80	% of Finnish broiler production included
2012	79.2	94.46	4.91	0.62	90
2013	80.68	95.09	4.65	0.27	90
2014	91.42	98.09	1.76	0.15	97
2015	91.05	98.13	1.55	0.32	97
2016	92.79	98.46	1.38	0.16	>99

Table 1: Distribution of the slaughtered broiler flocks (n_{total} ~3500 flocks /yr) in different footpad scores 2012-2016 (iv)

The key to keeping the litter in good condition and hence low FPD incidence is; excellent ventilation and keeping the barn warm, a costly exercise but the results speak for themselves, not to mention the “right attitude of the Grower”.



Wet litter is a major cause of footpad lesions

Seven causes of wet litter: (v, vi)

1. (Subclinical) coccidiosis is the most common cause of bacterial enteritis, which often leads to wet litter issues
2. Other health problems can cause very loose droppings, e.g. infectious bronchitis (IB); strains affect the kidneys, resulting in wet litter
3. Poorly maintained (leaky) drinking water systems
4. Inadequate water absorption caused by damp litter, poor choice of litter material and /or flawed litter management
5. Improper ventilation or inadequate heating: cold air settling too quickly or damp air not being removed effectively
6. Differences in light intensity. You often find poor quality litter in places with a higher light intensity. The broilers are more active there and defecate more in that area, causing the litter to become wet and compacted
7. Too high mineral or salt content in the drinking water and/or feed causes broilers to drink more, which automatically makes the litter wetter

Shed and equipment maintenance and design needs to be continually assessed.

Biosecurity is essential for reducing pathogens affecting general bird health (as well as for food borne pathogens and exotic disease).

Monitoring of litter quality and farm management (ventilation, drinker management, lighting) and hence ongoing education and training is essential.

Regular monitoring and evaluation of gut health is essential to allow good decisions on diets over the long term.

Aviapp is an increasingly popular tool for monitoring health and performance of flocks.

References

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- (iv) Pohjola et al. Footpad dermatitis is infrequent in Finnish broilers. Abstract in European Symposium of Poultry Welfare, Ploufragan, France 19–22 June 2017
- (v) Taira K *et al.* Effect of litter moisture on the development of footpad dermatitis in broiler chickens. J Vet Med Sci, 2014 Apr;76(4):583-6
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