



On-farm assessment of footpad dermatitis in turkeys



Pixabay



Definition and risk factors

Footpad dermatitis (FPD) is a contact dermatitis of the plantar surface of birds' feet which can affect the skin but also subjacent tissue and show different severity grades (Stracke et al. 2021) (Figure 1). FPD is associated with abnormalities of the footpad, such as redness, swelling, hyperkeratosis, tissue necrosis, or ulcers. Painful to the birds and with a high prevalence in flocks, footpad dermatitis is a common welfare issue in commercially reared turkeys (Allain et al. 2013; Weber Wyneken et al., 2015).

There are several factors linked with FPD such as the age, sex as well as environmental and management factors. Wet, soiled litter is the main risk factor for FPD (Mayne et al., 2007; Krautwald-Junghanns et al., 2011; Wu and Hocking, 2011; Weber Wyneken et al., 2015). Hence, the litter moisture control is a main way to decrease the severity and prevalence of FPD in turkeys flocks. Attention should be paid to drinker design and maintenance (in order to avoid leaking), the choice of (absorbent) litter materials, and the management of litter quality (removal of soiled litter, addition of fresh dry litter), as well as to relative air humidity and ventilation efficiency. Regarding the age of the birds, although the severity of skin lesions is higher in older birds, notably due to the more degraded litter quality as the birds grow, a significant number of turkeys may show footpad surface alterations as early as 6 weeks of age (Krautwald-Junghanns et al., 2011). Mayne et al. (2006) even showed histopathological changes associated with FPD on footpads that show no visible skin alterations, from three weeks of age. Turkey hens may experience more footpad injuries and with greater severity compared to turkey toms (Krautwald-Junghanns et al., 2011). This may be due to the higher

density of hens per unit area (hens being lighter, their numbers are higher than those of toms on the same surface) and the amount of faeces being more numerous and downgrading the litter.



©Anses

Figure 1: Footpad dermatitis in a turkey.



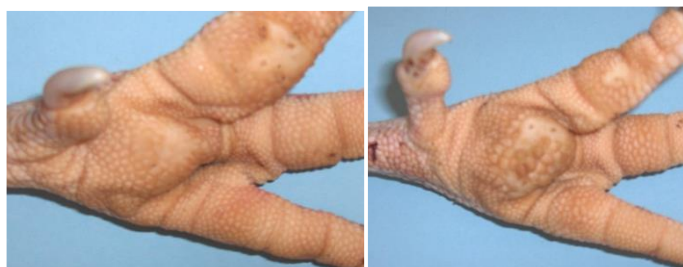
Methods of assessment

Several FPD scoring systems exist in turkeys, based on the surface of the foot affected and the nature of the lesions (Mayne et al., 2006; Mayne et al., 2007; Hocking et al., 2008; Allain et al., 2013). To perform the scoring of FPD in turkeys on farm, each assessed turkey should be caught (EURCAW-Poultry-SFA, 2024), gently held and the surface of the footpad examined. The adhering litter and excreta should be removed carefully, if necessary, with the help of water and a soft brush, not to confuse faecal staining with necrotic areas. Both bird feet should be scored and the most affected foot kept for final evaluation of each individual (Toppel et al., 2019). The scoring of each footpad is done according to the description in Figure 2, which is a scoring system developed by EURCAW-Poultry-SFA and adapted from Hocking et al. (2008), Michel et al. (2012), Allain et al. (2013) and Stracke et al. (2021).

On-farm assessment of footpad dermatitis in turkeys

The first stage of FPD is the hyperkeratosis (excessive growth of the scales on the footpad) corresponding to the score 1. The necrosis of the skin leads to a depression in the skin (ulceration) which is painful to

the birds. This corresponds to scores 2 and 3. The dark coloration of the skin is due to necrosis and/or adherent crust (Michel et al. 2012; Allain et al. 2013).



Score 0: No to minimal alteration of the central footpad. The skin of the footpad feels soft to the touch. No discolouration except for light reddening. Some enlargements of the scales may be seen.



Score 1: The central part of the footpad shows excessive growth of the scales with yellowish to brownish exudates. No ulcer (i.e. no depression with loss of substance) is seen.



Score 2: Depressed necrotic lesion with loss of substance (ulceration) with or without dark crust. Lesions cover in total <25% of the central footpad.



Score 3: Depressed necrotic lesion with loss of substance (ulceration) with or without dark crust. Lesions cover in total ≥25% of the central footpad.

Figure 2: Scoring system for footpad dermatitis in turkeys adapted from Hocking et al. (2008), Michel et al. (2012), Allain et al (2013) and Stracke et al. (2021). Photos from Michel et al. (2012) and Allain et al. (2013).

References

- ALLAIN, V., HUONNIC, D., ROUINA, M. & MICHEL, V. 2013. Prevalence of skin lesions in turkeys at slaughter. *British Poultry Science*, 54, 33-41.
- EURCAW-Poultry-SFA 2024. Manual handling and carrying a turkey. <https://zenodo.org/records/11487567>
- HOCKING, P. M., MAYNE, R. K., ELSE, R. W., FRENCH, N. A. & GATCLIFFE, J. 2008. Standard European footpad dermatitis scoring system for use in turkey processing plants. *World's Poultry Science Journal*, 64, 323-328.
- KRAUTWALD-JUNGHANN, M. E., ELLERICH, R., MITTERER-ISTYAGIN, H., LUDEWIG, M., FEHLHABER, K., SCHUSTER, E., BERK, J., PETERMANN, S. & BARTELS, T. 2011. Examinations on the prevalence of footpad lesions and breast skin lesions in British United Turkeys Big 6 fattening turkeys in Germany. Part I: prevalence of footpad lesions. *Poultry Science*, 90, 555-60.
- MAYNE, R. K., HOCKING, P. M. & ELSE, R. W. 2006. Foot pad dermatitis develops at an early age in commercial turkeys. *British Poultry Science*, 47, 36-42.
- MAYNE, R. K., ELSE, R. W. & HOCKING, P. M. 2007. High litter moisture alone is sufficient to cause footpad dermatitis in growing turkeys. *British Poultry Science*, 48, 538-545.
- MICHEL, V., E. PRAMPART, L. MIRABITO, V. ALLAIN, C. ARNOULD, D. HUONNIC, S. LE BOUQUIN, AND O. ALBARIC. 2012. Histologically-validated footpad dermatitis scoring system for use in chicken processing plants. *British Poultry Science*, 53 (3), 275-81. doi: 10.1080/00071668.2012.695336.
- STRACKE, J., VOLKMAN, N., MAY, F., DOHRING, S., KEMPER, N. & SPINDLER, B. 2021. Walking on Tiptoes: Digital Pads Deserve Increased Attention When Scoring Footpad Dermatitis as an Animal Welfare Indicator in Turkeys. *Frontiers in Veterinary Science*, 7, 613516.
- TOPPEL, K., SPINDLER, B., KAUFMANN, F., GAULY, M., KEMPER, N. & ANDERSSON, R. 2019. Foot Pad Health as Part of On-Farm-Monitoring in Turkey Flocks. *Frontiers in Veterinary Science*, 6, 25.
- WEBER WYNEKEN, C., SINCLAIR, A., VELDKAMP, T., VINCO, L. J. & HOCKING, P. M. 2015. Footpad dermatitis and pain assessment in turkey poults using analgesia and objective gait analysis. *British Poultry Science*, 56, 522-30.
- WU, K. & HOCKING, P. M. 2011. Turkeys are equally susceptible to foot pad dermatitis from 1 to 10 weeks of age and foot pad scores were minimized when litter moisture was less than 30%. *Poultry Science*, 90, 1170-8.



Co-funded by
the European Union



AARHUS UNIVERSITY



IZSLER