

# Factors affecting foot pad dermatitis in broilers and turkeys

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During the last decades welfare is becoming a more and more important issue in poultry production. In June 2007, EU Council Directive 2007/43/EC was adopted laying down minimum requirements for the protection of welfare of chickens kept for meat production. On June 30, 2010 this Council Directive was implemented in national legislation in EU member states. In this Directive mortality is included as welfare parameter and additionally in some Western European countries foot pad dermatitis (FPD) is already or will be included in national legislation as a welfare parameter. It is expected that a Council Directive will also be developed for turkeys. Foot pad dermatitis (FPD) is very common in broiler and turkey flocks and is a potential economic and welfare problem in intensive production systems. Although there are various estimates of its prevalence, it is difficult to compare findings because scoring systems used in different experiments are not similar. Martland (1985) observed that broilers grown on wet litter rapidly became dirty, and developed foot pad lesions within a week. Foot pad dermatitis was induced in pens of turkeys at low stocking density that were clean but wet suggesting that wet litter alone may be the cause of FPD in turkeys (Mayne et al., 2007). There is an urgent need to gain more scientific knowledge on the development and causal factors of FPD in commercial flocks and on the relationship between FPD and health, welfare and performance. From literature and practical experience it is clear that FPD is related to litter quality. Litter condition is affected by many variables such as e.g. type of bedding material, humidity, season, type of drinker, nutrition, amount and consistency of faeces, and stocking density. The severity of foot pad lesions increased in broilers and turkeys reared in pens containing wet and sticky litter. Housing birds on wet litter increases the chance of faecal adhesion to the feet, which has been hypothesised to induce FPD. Wet litter may also cause soft tissue on the foot pad. Soft foot pad tissue in combination with the presence of irritating substances (ammonia) in the litter may result in the development of FPD. The moisture content of the litter is affected by the consistency of the faeces and this in turn is affected by diet composition. Various feedstuffs, such as soybean meal, contain high levels of potassium which may adversely affect the consistency of the excreta. High dietary sodium and potassium contents may result in excessive water intake resulting in wet litter (Tucker and Walker, 1999; Murakami et al., 2000). Diets with a high crude protein content also may cause an increase in water intake and wet litter. In addition, diet composition has been changed since the ban on animal protein and antimicrobial growth promoters, which could have resulted in diets resulting in a higher water/feed ratio.

Foot pad dermatitis is a multifactorial problem which is mainly caused by contact with wet litter. All factors that improve litter condition in poultry houses may contribute to a better foot pad quality. Nutrition, bedding material, ventilation, temperature scheme, light scheme and light distribution, type of drinkers and management of water supply could be important tools to improve litter quality and as a result improving foot pad quality in broilers and turkeys.

## References

- Martland, M.F. 1985. Ulcerative dermatitis in broiler chickens: the effects of wet litter. *Avian Pathology* 14: 353-364.
- Mayne, R.K., R.W. Else, P.M. Hocking. 2007. High litter moisture alone is sufficient to cause foot pad dermatitis in growing turkeys *British Poultry Science* 48: 538 - 545.
- Murakami, A.E., E.A. Saleh, S.E. Watkins, P.W. Waldroup. 2000. Sodium source and level in broiler diets with and without high levels of animal protein. *Journal of applied Poultry Research* 9: 53-61.
- Tucker, S.A., A.W. Walker. 1999. Hock Burn in Broilers. In *Recent Developments in Poultry Nutrition* 2. Wiseman, J and Garnsworthy, P C. (Eds). Nottingham University Press, Nottingham. pp 107-122.