

The impact of nutrition on foot pad dermatitis in broilers

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Directive 2007/43/EC, regarding minimum rules for the protection of chickens kept for meat production, sets limits for parameters affecting animal husbandry. Although foot pad dermatitis (FPD) is not included in the current Directive, FPD might be an additional tool in 2012. FPD is very common in meat-type poultry. FPD is a contact dermatitis and wet litter is the most likely factor affecting it (Berg, 1998; Mayne, 2005). Nutrition is one of the major factors affecting litter quality. Adverse effects of nutrition on litter quality are suggested in literature, e.g. energy/protein ratio, crude protein content, amino acid balance, crude fat content, type of fat, and dietary electrolyte balance. In current feeding programs in practice, dietary crude protein content remains constant within each phase. The excess of protein at the end of each phase needs to be degraded and excreted. Protein degradation requires a lot of water and as a consequence litter quality decreased. The effect of adjusting crude protein content daily (dynamic feeding) on prevalence and severity of FPD in broilers was studied (Veldkamp, unpublished data). Dietary protein content was adjusted daily by adding whole wheat to the diet based on body weight gain and protein requirement curves. Prevalence and severity of FPD in broilers fed the dynamic feeding program were lower ($P < 0.05$) than in broilers fed the standard feeding program. The scores for FPD in broilers fed the dynamic vs. standard feeding program were: no lesions 65.5 vs. 36.4%, mild lesions 22.8 vs. 32.8%, moderate lesions 11.8 vs. 30.8%, respectively. No difference in severe lesions was observed. Performance of the broilers was adversely affected by the dynamic feeding program, although the margin over feed was better due to lower feed costs. This experiment demonstrates that nutrition might play a role of importance to reduce FPD. Dynamic feeding programs should be optimised further in order to meet the requirements of broilers and to improve animal welfare.

Keywords: broiler welfare, crude protein, dynamic feeding program, foot pad dermatitis, litter quality