Abstracts

Presentation

Keel bone damage in layers – How do egg production, estrogens and UV irradiation influence the health of the skeleton?

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Keel fractures are one of the most important animal welfare issues facing the egg production industry. The aetiology of those keel fractures and deformities is not yet clear. Some of the possible reasons are genetic factors, the husbandry system and nutritional factors. We want to find out if the high egg production and the missing daylight are causes of keel bone problems and also investigate the link between estradiol and the bone metabolism in layers.

As my PhD-thesis is part of the interdisciplinary project "AdaptHuhn", which investigates whether high-performance chicken lines have more difficulties adapting to different environmental conditions, we work with 2 different lines: a high-performance white line (WLA) and a low-performance white line (R11). In our first experiment half of the 192 chickens are hysterectomized (group A) before the laying period, the other animals are sham hysterectomized (group B). Half of each group gets an estradiol implant (groups A1 and B1) and estradiol levels are measured repeatedly in plasma. In our second experiment we have the same groups but half of each group is kept with UV irradiation. We take X-rays of the chickens regularly. After 72 weeks the birds are euthanized and keel bones are examined with the aid of histopathology and the analysis of the mineral content.

We expect that animals kept with UV irradiation show less keel deformities and fractures as well as the hysterectomized animals. Also the hens of the R11 line are likely to have less deformities than those of the WLA line.