

Abstracts for UK Animal Science conference, York 2010

For oral presentation:

The effect of husbandry system on calcium and vitamin D concentrations in eggs from commercial laying hen systems.

In the EU, eggs must be labelled according to their husbandry system and there is an indirect association between the husbandry system and the hen's welfare. This study looks at the concentrations of calcium and vitamin D metabolites in egg yolk as potential indicators of the husbandry system of the laying hen as a possible solution to the problem of international welfare labelling and provenance. Yolks from unprocessed eggs (n=24 per farm) from farms (n=6) of each husbandry system (n=4) were pooled according to farm origin and diluted to 1:10 yolk:H₂O for calcium assay using quantitative colorimetric calcium determination at 570nm. Concentration of vitamin D₂ and D₃ was determined using normal phase HPLC. There was a positive correlation between calcium and vitamin D₂ (P=0.0088) and D₃ (P=0.0165) concentration in egg yolk. Mean calcium concentration was significantly higher (p<0.05) in eggs from hens in free range and organic systems and similar results were found for mean vitamin D₂ and D₃ concentration. Our results show that calcium, vitamin D₂ and vitamin D₃ concentrations in egg yolks are significantly affected by the husbandry system, and could therefore be developed as a test to identify the higher welfare potential eggs.