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ASPA 24th Congress Book of Abstract

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11 Copy Number Variations were found in the Cases 6, 7, 8 and 9 and one of them seems to be included in SOX9 promoter region that could therefore be the genetic cause of the DSD observed in these cases.

SESSION 33 ANIMAL EFFICIENCY – II

O159

Production and egg quality in brown hens kept in a cage-free system: effects of hen age and nest lighting

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The study evaluated the effects of hen age and nest lighting on egg production and quality, and oviposition pattern from 26 to 45 weeks of age in 1800 Lohmann Brown-Classic hens housed in 8 pens of an aviary system. From 17 to 26 weeks of age, half pens had the nest opened with the inner led light turned on 1.5 h before turning on the installation light (5:30); the other half had the nests closed until turning on the installation light and without any inner led light. Measurements were taken weekly and monthly.
As hen age increased, the oviposition rate ($p < .001$) increased from 89.1% housed hens (on average of 26–34 weeks) to 92.8% (34–45 weeks). Both the oviposition rate of broken and dirty eggs decreased from the first period (5.13% and 7.65% on average, respectively) to the second period (2.28% and 4.21%) ($p < .001$). The weight and width of the eggs increased and the shape index decreased as age increased ($p < .001$). As for oviposition pattern from 26 to 45 weeks, eggs laid in the first hours (5:30–7:30) decreased (76.4–45.8% of eggs laid in 24 h), whereas eggs laid in the rest of the day increased ($p < .001$). Moreover, eggs laid in the nest (as % eggs laid in each time interval) between 5:30 and 7:30 (77.9–86.4%) and between 7:30 and 9:30 (68.3–84.7%) increased from 26 to 45 weeks ($p < .001$). A significant decrease of broken eggs (% eggs laid in each time interval) was also recorded for the eggs laid within 9:30 when the hen age increased. The use of nest lighting from 17 to 26 weeks increased oviposition rate in the following period (26–45 weeks) from 90.1% to 92.3% ($p < .001$), decreased egg weight, width, and surface ($p < .001$) as well as the rate of broken (4.22–3.43%; $p < .001$) and dirty eggs (5.98–5.65%; $p = .10$), whereas the rate of defective eggs was not affected. The oviposition pattern (i.e. distribution of eggs laid in the different daily time intervals) did not change. In the first time interval (5:50–7:30), eggs laid in the nest were higher (83.2% vs. 80.2% eggs laid in the time interval; $p < .01$) and broken eggs lower (4.83% vs. 7.01%; $p < .01$) in the case of the presence of nest lighting.
Based on the above results, changes in the oviposition during the day according to hen age must be considered in cage-free systems to assure a correct use of nests. As for early nest lighting, further investigation is worth in view of the positive effects on egg production and quality, and on nest use.

O160

In vitro protein degradability in fish: a tool to evaluate novel protein sources

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Sustainability issues drove the interest towards alternative protein-rich raw or processed feed materials to include in aquafeeds. Besides chemical composition, digestibility is a basic parameter to be considered. It is usually determined through in vivo methods. Anyway these novel ingredients are characterized by high variability due to their origin and the technological process applied. To overcome these issues, in vitro methods are widely used in the evaluation of the nutritional quality of feeds in land-animals but, recently, their application for aquafeeds has increased. These methods have been useful for ranking ingredients according to their potential digestibility, but also to establish the ability of different fish species to utilise them.
This study was aimed at estimating the nutritive value of a range of novel protein-rich ingredients to explore their suitability as protein sources in the diet for rainbow trout (*Oncorhynchus mykiss*): (i) poultry by product meal composed by chicken and turkey leftovers (PBM), (ii) *Hermetia illucens* pupae meal (HM), (iii) three dried biomasses of *Tetrasemis suecica* (TETRA), *Tisochrysis lutea* (TISO) and *Arthrosphira platensis* (ART). The ingredients were characterized for their chemical composition, in vivo protein digestibility (ADC) and in vitro enzymatic protein hydrolysis based on an assay that used rainbow trout digestive enzyme extract. Protein degradation was monitored after 120 min by electrophoretic techniques using sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE) to obtain a quantitative coefficient of protein degradation (CPD).
Protein ADCs were higher for PBM, HM and TISO (92.0–96.5%) than ART and TETRA (83.1–86.2%) ($p < .05$). Despite CPD values