



ASPA 25th Congress Book of Abstract

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ASPA 25th Congress

Monopoli (BARI - ITALY), June 13-16, 2023

Guest Editors

**Angela Gabriella D'Alessandro, Pasquale De Palo, Aristide Maggiolino,
and Marcello Mele**

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ASPA 25th Congress
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#ASPA2023

ASPA 25th Congress Book of Abstract

The 25th congress of the Animal Science and Production Association

**“Animal Production Science: Innovations and sustainability for future generation” is
under patronage of Loghi patrocini**

**Monopoli (BARI – ITALY),
June 13–16, 2023**

Venue

Torre Cintola Natural Sea Emotions

Località Capitolo – Monopoli (BARI – ITALY)

nutritional point of view, the PUFA n-6/n-3 ratio was favorably lower ($p < 0.01$) and the PUFA/SFA ratio was higher in FR (0.63) group as compared to C (0.45) one. On the contrary, hens age did not affect ($p > 0.05$) the fatty acid composition of yolk, except for the PUFA n-6/n-3 ratio ($p = 0.052$). Significant interactions ($p < 0.01$) were found between factors for both n-3 and n-6 PUFA and their ratio n-6/n-3. In conclusion, FR system produced a better FA profile from the nutritional point of view, while age is of little importance in terms of egg quality in hens over 68 weeks of age.

O359

Comparison of productive traits and egg quality characteristics of two Italian chicken breeds and their crossbreeds reared in enriched-cage and free-range systems

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Egg production is essentially based on the use of highly selected commercial hybrids, which show greater laying performance and feed efficiency than local breeds (LB). However, the reduced diffusion and interest in LB has led to a progressive decrease in poultry biodiversity besides increasing the risk of their extinction. Crossbreeding with more productive genotypes could be considered as a potential strategy to improve the LB utilization allow the preservation of genetic variability while achieving acceptable levels of efficiency. This study aimed to evaluate the productivity and egg quality traits of two Italian LB (Bionda Piemontese and Robusta Maculata) and their respective crossbreeds (CB) with a hybrid strain (Sassò) compared to Lohmann brown as well as the effect of the housing system (enriched-cage *vs.* free-range). A total of 300 laying hens (18 wks of age) were raised in enriched cages (EC) and free-range (FR) pens (3 replicates of 10 birds/genotype/housing system) and fed the same commercial feed. Individual body weight (BW) was recorded at 25, 34, 50 and 66 wks of age, while egg deposition, egg mass, feed intake and feed conversion ratio (FCR) were evaluated every fourteen days from 25 to 66 wks of age. Also, 100 eggs/genotype/housing system were collected at 32, 47 and 66 wks of age and used for assessing Haugh index (HI), eggshell breaking strength (EBS) and eggshell-yolk-albumen/egg proportions. Lohmann brown showed higher egg deposition, egg mass and better FCR than other genotypes ($p < 0.01$). CB increased BW compared to LB ($p < 0.01$), improving parameters related to productivity (egg

deposition, egg weight, egg mass) and FCR ($p < 0.01$). Considering the housing system, hens kept in EC showed better performance than those raised in FR. At 66 wks, hens in EC had greater BW than those in FR (2649 *vs.* 2517 g, respectively; $p < 0.01$). Eggs from LB had a lower weight and albumen proportion compared to others, whereas CB showed a lower eggshell to egg ratio ($p < 0.01$). LB and CB laid eggs with a higher yolk to egg ratio and a lower EBS than the commercial hybrid ($p < 0.01$). In addition, Lohmann brown's eggs showed the highest HI ($p < 0.01$). Surprisingly, EBS was higher in eggs obtained in FR (4.17 *vs.* 3.93 kg, respectively; $p < 0.01$). Further investigations are ongoing to detect the content of vitamin D and related metabolites in plasma and yolk to establish if sunlight exposure in FR boosted vitamin D synthesis, thereby positively affecting calcium metabolism.

O397

Egg production and egg quality in free-range laying hens as affected by dietary polyphenols from olive mill wastewaters

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Among plant secondary metabolites, phenols and polyphenols are known for their antimicrobial and antioxidant activities. Olive mill wastewaters (OMWW), produced in massive quantities by olive mills in many Mediterranean countries, are rich in several phenolic compounds. A phenolic extract obtained from OMWW was used as dietary supplement (60 mg/kg feed) in an experiment conducted with a total of 96 Barrata Italiana hens aged 18 months. Hens were allocated into 2 treatment groups (control and OMWW-enriched feed) with 4 replicates and each replicate containing 12 hens. The trial lasted 54 days and included an adaptation period of 21 days. Hens were housed in outdoor paddocks (10 m²/hen) and had access to wooden houses with nests (1 per 3 hens). Egg production was recorded daily. Egg characteristics, feed intake and feed conversion ratio were measured weekly. All measurements were repeated after a follow-up period of 21 days, during which both groups received the control diet. Dietary supplementation with OMWW improved ($p < 0.05$) laying performance (+10.2%) and decreased feed conversion ratio (4.09 *vs.* 4.34 for treated and control groups, respectively). Egg weight was increased ($p < 0.05$) in the treated group (53.0 *vs.* 49.1 g) and egg components followed a similar trend. At the end of follow-up, production performances decreased in both groups, but those