



ASPA 25th Congress Book of Abstract

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ASPA 26th Congress

Turin (ITALY), June 17 -20, 2025

Guest Editors

**Giustino Gaspa, Joana Maria Venda Da Graca Nery,
Laura Gasco & Manuela Renna***

Table of Contents

MAIN LECTURES

XX

POSTERS

XX

ORAL COMMUNICATIONS

XX

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ASPA 26th Congress

Turin (ITALY), June 17-20, 2025

#ASPA2025

ASPA 26th Congress Book of Abstract

The 26th Congress of the Animal Science and Production Association

“Innovations in animal sciences: shaping the way for a sustainable future” is under patronage of Loghi Patrocini

**Turin (ITALY),
June 17 -20, 2025**

Venue

**Campus SAMEV (Scuola di Agraria e medicina Veterinaria)
Largo Braccini 2, Grugliasco (TO)– ITALY**

O086

Proximate composition and fatty acid profile of eggs laid by two Italian chicken breeds, their crossbreeds, and a commercial hen hybrid reared both in enriched cages and free-range system

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and rearing system on egg yolk composition and FA profile, providing information that might be useful to enhance the valorisation of local chicken breeds and exploitation of derived foods.

Research supported by PRIN National Grant 2017 (Prot. 2017S229WC).

The growing focus on sustainability and animal welfare has boosted interest in local chicken breeds, valued for their resilience, adaptability, and contribution to biodiversity. These breeds, well-suited to alternative rearing systems, also offer great potential for valorisation of cultural animal foods. This study was aimed to analyze the proximate composition and fatty acid (FA) profile of egg yolk from two Italian breeds, Bionda Piemontese (BP) and Robusta Maculata (RM), their crossbreeds with the Sassò strain (BPxS and RMxS), and a commercial hybrid, Lohmann Brown (LB), reared both in enriched cages and free-range pens (3 replicates of 10 birds/genotype/system; 300 hens total). All birds were fed the same commercial diet from 25 to 66 weeks of age. Eggs ($n = 100/\text{group}/\text{sampling point}$) were collected three times at 32, 47, and 66 weeks, and yolks ($n = 6 \text{ pools}/\text{group}$) were analyzed for moisture, crude protein, lipid, ash, and FA composition. FA were analyzed using a Carlo Erba HRCG 6150 gas chromatograph equipped with a FID detector. Data were analyzed using two-way ANOVA to evaluate the effects of genotype, rearing system and their interaction. The results showed that the genotype but not the rearing system significantly influenced yolk proximate composition. RMxS and LB presented higher moisture content than BP and BPxS (48.8 and 48.7 vs. 47.5 and 47.4%, respectively; $p < 0.001$). Protein content peaked in BPxS, while RM exhibited the lowest value (17.2 vs. 16.5%, respectively; $p < 0.05$). Ash content was greater in LB, BP and RM than in RMxS raised in free-range (2.43, 2.45 and 2.37 vs. 1.69%, respectively; $p < 0.05$). Genotype also affected total FA profile. BP yolks contained the highest amount of total saturated FA, while RM ones showed the lowest value (35.5 and 33.8%, respectively; $p < 0.05$). Total monounsaturated FA were more abundant in LB and RMxS yolks compared to RM ones (39.9 and 39.9 vs. 37.6%, respectively; $p < 0.01$). Both the genotype and the rearing system significantly influenced total polyunsaturated FA (PUFA) content. Indeed, while RM eggs displayed the highest PUFA content among all genotypes (28.5%; $p < 0.01$), free-range eggs exhibited higher yolk PUFA levels compared to cage ones (27.1 vs. 26.1%, respectively; $p < 0.01$). This study highlights the impact of genotype