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## SUSTAINABILITY OF POULTRY MEAT PRODUCTION: GROWTH PERFORMANCE AND CARCASS TRAITS OF SLOW-GROWING GENOTYPES FED LOW INPUT DIETS

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The development of alternative and sustainable poultry meat production, consistently with the objectives of the European Green Deal and the F2F strategy, requires the use of resilient chicken breeds and low input diets (based on national and local raw materials). Thus, the present study compared performance and carcass traits of a fast-growth genotype (Ross 308) with those of two local breeds (Bionda Piemontese, BP; Robusta Maculata, RM) and their crosses with a moderate-growth genotype (Sasso, Sa). A total of 441 chickens were housed in 40 pens with 2 pens/genotype/sex, i.e. Ross (51 females and 52 males), BP (37 and 38), RM (25 and 47), BP×Sa (49 and 48), and RM×Sa (47 and 47). Within genotype, half of the pens received a standard diet (diet S: ME 3,050 kcal/kg; CP 18.5%) and half a low input diet (diet LI: ME 2,921 kcal/kg; CP 17.5%) from 20 d of age until slaughtering (47 d for Ross and 105 d for other genotypes). Data were submitted to ANOVA with genotype, diet, and sex as main effects with interactions and pen as random effect. At the end of the trial, BP showed the lowest live weight followed by RM and BP×Sa, RM×Sa, and Ross (1620 g vs. 2024 g and 2037 g vs. 2376 g vs. 2643 g, respectively;  $P < 0.001$ ). Daily weight gain and feed intake changed accordingly which affected feed conversion (3.37 and 3.28 for BP and BP×Sa vs. 3.09 and 3.01 for RM and RM×SA vs. 1.85 for Ross;  $P < 0.001$ ). At slaughtering, BP showed the lowest dressing out percentage followed by BP×Sa, RM, RM×Sa and Ross chickens (58.3% vs. 64.7% vs. 70.1%, 68.8% and 71.1%;  $P < 0.001$ ) with corresponding changes of breast proportion (24.3% and 25.5% in BP and BP×Sa vs. 26.7% and 26.9% in RM and RM×Sa vs. 33.6% in Ross;  $P < 0.001$ ). Chickens fed diet S presented a higher growth rate (28.5 g/d vs. 23.8 g/d;  $P < 0.001$ ) and feed intake (69.4 g/d vs. 65.7 g/d;  $P < 0.001$ ) compared to those fed diet LI, and a lower feed conversion ratio (2.80 vs. 3.03;  $P < 0.001$ ). Differences in growth rate and feed conversion between chickens fed the two diets were small in the case of BP and BP×Sa and larger in the case of RM, RM×Sa and, especially, Ross chickens. In conclusion, growth results and carcass traits of local breeds were far lower compared to those of Ross chickens. As for pure breeds, RM performed better than BP especially when crossed with Sa. In addition, most performant chickens (Ross, RM and RM×Sa) suffered the use of a low input diet, whereas BP and BP×Sa chickens were more resilient to dietary changes.