

Influence of Pasture Intake on the Fatty Acid Composition, and Cholesterol, Tocopherols, and Tocotrienols Content in Meat from Free-Range Broilers

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ABSTRACT Over the last centuries, Western diets acquired a dramatic imbalance in the ratio of polyunsaturated fatty acids (PUFA) to saturated fatty acids (SFA) with a concomitant reduction in the dietary proportion of n-3 PUFA. Pastures are a good source of n-3 fatty acids, although the effect of forage intake in the fatty acid profile of meat from free-range chicken remains to be evaluated. In addition, it is unknown if consumer interest in specialty poultry products derived from free-range or organic production systems is accompanied by a greater nutritional quality of these products. In this study, broilers of the RedBro Cou Nu × RedBro M genotype were fed on a cereal-based diet in portable floorless pens located either on subterranean clover (*Trifolium subterraneum*) or white clover (*Trifolium repens*) pastures. Control birds were maintained at the same site in identical pens but had no access to pasture. The capacity of ingested forage to modulate broiler meat fatty acid profiles and the meat

content of total cholesterol, tocopherols, and tocotrienols was investigated in broiler chicks slaughtered at d 56. The results suggested that pasture intake (<5% DM) had a low impact on the fatty acid and vitamin E homologue profiles of meat from free-range broilers. However, breast meat from birds with free access to pasture presented lower levels of the n-6 and n-3 fatty acid precursors linoleic acid (18:2n-6) and α -linolenic acid (18:3n-3), respectively. In spring the levels of eicosapentaenoic acid (20:5n-3) in breast meat were significantly greater in birds consuming pastures, which suggests greater conversion of α -linolenic acid into eicosapentaenoic acid in these birds. Finally, when compared with meat from slower-growing genotypes obtained under the conventional European free-range production systems with slaughtering at d 81, meat from birds of the Ross genotype raised intensively and slaughtered at d 35 seemed to have greater nutritional quality.

Key words: free-range broiler, pasture intake, fatty acid profile, polyunsaturated fatty acid, saturated fatty acid

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