

Effect of genotype on welfare conditions of broilers reared under organic conditions

A. MELUZZI¹, F. SIRRI¹, C. MUGNAI², A. DAL BOSCO²

¹Department of Food Science, University of Bologna, Via del Florio, 2 - 40064 Ozzano Emilia, Italy

²Department of Applied Biology, University of Perugia, Borgo XX Giugno 74 - 06121 Perugia, Italy

E-mail: adele.meluzzi@unibo.it

In organic broiler chicken production the European regulation suggests the use of indigenous breeds with slow-growing profile, high liveability, resistance to diseases and adaptability to outdoor local conditions. However in practice mostly fast-growing chickens are utilised due to their higher efficiency although they were selected for indoor rearing condition. This study aimed to compare the foot pad and carcass lesions as well as the behaviour and plumage conditions of one egg-type slow-growing (SG) genotype (Brown Classic Lohman) and two meat-type strains, medium- (MG) (Naked neck Kabir) and fast-growing (FG) (Cobb 700), reared under organic conditions. A total of 360 1-d-old male chicks, equally divided into 3 experimental groups, were reared at a density of 10 birds/m² in 3 poultry houses with outdoor pens (10 m²/bird) and fed the same organic diets. Birds from FG and MG were raised for 81 days and SG for 96 days. One week before slaughter, birds were evaluated for kinetic activity, tonic immobility and plumage conditions. At slaughtering, food-pad dermatitis (FPD) of all birds of each group were assessed by assigning them to one of 3 different classes: 0 = no remark (no lesion), 1 = mild lesions, 2 = severe lesions. The FPD score was obtained applying the formula reported in the EU proposal COM (2005) 221 final. Qualitative traits of carcass, such as skin damage and incidence of breast blisters were recorded. FG birds, in respect to MG and SG, performed the lowest kinetic activity, the highest percentage of laying behavior (90 vs. 34 and 3%, respectively) and showed the higher value of tonic immobility (176 vs. 114 and 77 sec). This finding indicated a scarce adaptation of FG to organic housing system also confirmed by their bad plumage conditions: total plumage score (15 vs. 21 and 23) in particular for breast (1 vs. 3 and 4), vent (2 vs. 3 and 4), wings (2 vs. 3 and 4) and tail (2 vs. 3 and 3); respectively in FG, MG and SG birds. The incidence of foot pad lesion was dramatically higher in FG in comparison with MG and SG (Class 0= 3 vs. 93 and 99%; class 1= 29 vs. 7 and 1%; class 2= 68 vs. 0 and 0% respectively). The FPD score was 151 for FG birds and less than 1 for the other genotypes. The occurrence of breast blisters of FG birds resulted noticeably higher (66%) than both MG (2%) and SG (0%). This trial confirms that genotype has a great effect on behavior and welfare conditions of birds and that MG and SG chickens are more suitable for organic rearing system.

Keywords: chicken genotype, organic rearing, foot pad dermatitis, plumage condition, behavior