Effect of yolk ratio in hen's eggs on the slaughter weight and slaughter characteristics of hatched chicks

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Abstract

Altogether 7,000 hen’s eggs - originated from two different genotypes (TETRA-H and a new cock line developed by the Bábolna Tetra Ltd.) were involved in the examination. The yolk ratio of the eggs - 3,500 per genotype - was determined in vivo by means of computer tomography using a SIEMENS Somatom Emotion 6 multislice CT scanner. Based on the measured values eggs were separated into three groups: eggs with extreme high, eggs with average and eggs with extreme low yolk content (10-10% in each group per genotype). All of these eggs (n=350 per group per genotype) were incubated thereafter. After hatching chicks were reared in a closed building - using ad libitum feeding - till 11 weeks of age. Thirty chicks per group per genotype were slaughtered thereafter. It was found that the liveweight of the chicks at 11 weeks of age was highest in the case of chicks hatched from eggs with low yolk ratio and lowest in the case of chicks hatched from eggs with average yolk ratio (TETRA-H: 2689±548g, 2633±494g and 2648±510g; new cock line: 3633±701g, 3281±606g and 3467±728g in the case of chicks hatched from eggs with low, average and high yolk ratio, respectively). The same tendency was observed also in the case of the weight of the valuable meat parts. The ratio of the thigh muscle to the slaughter weight was very similar in all groups in both genotype, while the ratio of the breast muscle to the slaughter weight decreased with increasing the yolk ratio in the breeding eggs (TETRA-H: 20.7±1.3%, 19.8±1.3% and 19.8±1.4%; new cock line: 21.5±1.1%, 21.3±1.7% and 20.9±1.3% in the case of chicks hatched from eggs with low, average and high yolk ratio, respectively). The ratio of the abdominal fat to the slaughter weight did not differ significantly in the TETRA-H genotype, but it increased with increasing the yolk ratio in the eggs in the new cock line (1.09±0.78%, 1.21±0.73% and 1.56±0.55%). Based on the results it was concluded that the low yolk content of the breeding eggs - i. e. the high albumen content - favourably affects the slaughter weight and the ratio of breast muscle and abdominal fat in the body of the hatched chicks.

Key words: egg yolk content, computer tomography, chicken, slaughter weight, slaughter characteristics

This research project was supported by the Norwegian Financial Mechanism (Norway Grant) and the Hungarian Scientific Research Fund (OTKA NNF 78840).