

## The effect of sex and rearing system on carcass composition and cut yields of broiler chickens

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**ABSTRACT:** The objective of this study is an analysis of meat quality in broilers of standard fast-growing hybrid Hybro G, reared in two different non-industrial systems (extensive rearing in a poultry house or “extensive indoor” system and rearing in a poultry house using a free range or “free-range” system). Quality parameters, i.e. proportions of basic carcass parts (breasts, drumsticks and thighs), abdominal fat, and proportions of basic tissues (muscles, bones and skin) in more valuable carcass parts, were investigated. The aim of the investigation was to analyse the effect of the two non-industrial rearing systems and broiler sex on the above-mentioned traits of broiler meat quality. The used rearing systems (free-range and extensive indoor ones) did not have a statistically significant effect on the proportions of major basic carcass parts and of abdominal fat in broiler chickens ( $P > 0.05$ ). Heavier carcasses at slaughter (on the 56<sup>th</sup> day of fattening) were recorded in the male broilers compared to the female ones, the differences being statistically significant ( $P < 0.01$ ). The drumstick proportion in the male broiler carcasses was statistically significantly higher ( $P < 0.05$ ) than the proportion in the female broilers. The interaction between the investigated effects (of sex and rearing system) did not exert a statistically significant effect on the proportions of major basic carcass parts and abdominal fat in broiler chickens ( $P > 0.05$ ). The rearing system (free-range and extensive indoor) and the interaction between the investigated effects (of sex and rearing system) did not affect statistically significantly the differences expressed in the meat, skin and bone proportions in breasts, drumsticks and thighs of the broilers ( $P > 0.05$ ). The sex effect on the skin proportions in breasts, drumsticks and thighs was not statistically significant ( $P > 0.05$ ). Average muscle proportions in drumsticks and thighs of the female broilers were statistically highly significantly ( $P < 0.01$ ) and significantly ( $P < 0.05$ ) higher compared to those in the male broilers. Average bone proportions in the breasts of the male broilers were statistically significantly higher ( $P < 0.05$ ) than those in the female ones, and statistically highly significantly higher ( $P < 0.01$ ) in drumsticks and thighs.

**Keywords:** broiler; fattening; rearing system; carcass composition

As generally known, broiler meat quality is a very complex issue that can be looked at from several aspects. In terms of the meat processing industry and consumers' interests, fattened chicks should be characterised by good dressing percentage, desired conformation, as much meat on the carcass as possible, optimal distribution of fat tissues, appropriate skin colour and least damage possible occurring during fattening, loading and unloading. With respect to that, the proportions of major basic carcass parts (breast, drumstick and thigh) as well as the presence of certain tissues in them are regarded as vital parameters determining broiler meat quality

(Lewis et al., 1997; Sütö et al., 1998; Holcman et al., 2003; Ristic, 2003). The above-mentioned quality traits depend on a number of factors. Of the biological ones, the greatest impact is produced by genotype, sex and age (Lewis et al., 1997; Bokkers and Koene, 2003; Hellmeister et al., 2003).

Among numerous non-genetic factors that may have a considerable effect on meat quality, a broiler rearing system has been recognised over the past years by a large number of authors as being particularly important (Lewis et al., 1997; Bokkers and Koene, 2003; Hellmeister et al., 2003; Ristic, 2003).













