

Effects of environment and breed on growth performance and meat quality of fattening pigs

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Abstract

Meat quality is not only influenced by breed but also rearing environment. The aim of this study was to evaluate the influence of different housing environments on growth performance, carcass traits, meat quality, physiological response pre-slaughter and fatty acid composition in two pig breeds. A total of 120 growing pigs at 60–70 days of age were arranged in a 2 × 2 factorial design with the breeds (Duroc × Landrace × Large White [D × L × LW] and Duroc × Landrace × Min pig [D × L × M]) and environmental enrichment (barren concrete floor or enriched with straw bedding) as factors. Each treatment was performed in triplicate with ten pigs per replicate. The pigs housed in the enriched environment exhibited a higher average daily gain, average daily feed intake, saturated fatty acid percentage and backfat depth than the pigs reared in the barren environment. Plasma cortisol levels were lower and growth hormone higher in enriched compared to barren pens. The D × L × M pigs showed lower cooking loss compared with the D × L × LW pigs. Moreover, the D × L × M pigs exhibited poor growth performance but had a better water-holding capacity. Only carcass traits and meat quality interaction effects were observed. We concluded that an enriched environment can reduce pre-slaughter stress and improve the growth performance of pigs and modulate the fatty acid composition of pork products.

Keywords: animal welfare, environment, growth performance, meat quality, pig breed, pigs