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Effects of selection for rapid growth on fresh pork quality

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It has been hypothesized that selection for improved growth rate can result in a reduction in fresh pork quality. The objective of this study was to investigate the contribution of selection for improved growth rate to variation in fresh pork quality. A pig population derived from the cross between a commercial line of Duroc sires and white line dams was subdivided according to the sires' estimated breeding value (EBV) for age at 125 kg. The first slaughter group included the most rapid growing pigs sired by High EBV growth boars (n=48) and a control group (n=16). The second slaughter group consisted of the slowest growing pigs sired by Low EBV growth boars (n=48), and a control group (n=16). Loin pH and temperature decline were monitored on each carcass. Fresh pork quality characteristics and water holding capacity were monitored at 2 d postmortem. Sensory traits (juiciness, tenderness, chewiness, flavor, and off-flavor) and star probe texture were measured 10 d postmortem. Pork quality data were analyzed using a mixed linear model including EBV group, sire within EBV group, harvest day, EBV group x harvest day interaction and gender as fixed effects. Dam was considered in the initial analysis, but was removed from final analysis because it did not contribute to the variation of quality traits. Pigs sired by High EBV growth boars were younger at 125 kg (153 d vs. 177 d). Loins from pigs sired by high EBV growth rate boars had higher subjective marbling scores and higher lipid content than loins from pigs sired by slow growth boars. Sire EBV group did not affect pH decline in the longissimus dorsi, however, loin temperature at 6 h postmortem was significantly lower in carcasses from pigs sired by Low EBV growth boars. Loin color, drip loss, instrumental tenderness and sensory panel tenderness were not affected by EBV group. Use of sires with different genetic merit for growth significantly changed growth performance of progeny, but did not significantly affect the quality of fresh pork loin.