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## Correlation Comparisons among Early Postmortem Loin Quality and Aged Loin and Pork Chop Quality Characteristics between Finishing Pigs from either Duroc or Pietrain Ancestry

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### Objectives

Due to economic value, pork quality traits are now integrated into breeding objectives. Early postmortem loin quality is correlated with aged loin quality. However, it is unclear if those correlations differ between pigs raised for lean growth and pigs raised for quality where compositional and fiber type differences likely exist.

The objective was to compare correlations among early postmortem loin quality characteristics and aged loin and chop quality characteristics between pigs sired by boars of either Duroc (D, meat quality) or Pietrain (P, lean growth) ancestry.

### Materials and Methods

Early and aged loin quality traits were measured on 80 barrows and 80 gilts, slaughtered over 4 d. Pigs were held in lairage for approximately 16 h and immobilized using head-to-heart electrical stunning. Carcasses were chilled at 4°C for a minimum of 20 h. Early (1 d postmortem) quality measures included ultimate pH, instrumental color (L\*, a\*, b\*), and visual color, marbling, and subjective firmness on the ventral surface of boneless loins. Loins were vacuum-packaged and aged at 4°C for 14 d. Loins were removed from packaging, exposed to oxygen, and reevaluated on the ventral surface for the same loin quality traits (aged quality). Aged loins were sliced into 2.54 cm thick chops, and exposed to oxygen. Quality measurements were measured on the chop-face. Chops were cooked to an internal temperature of 63°C for Warner-Bratzler shear force (WBSF) and cook loss. Data were grouped into 2 data sets based on sire line. Pearson correlation coefficients were calculated and transformed using Fisher's *r* to *z* transformation in the CORR procedure in SAS (SAS Inst. Inc., Cary, NC) to compare correlations between sire lines. Correlations

between traits were considered moderately correlated at  $|r| \geq 0.36$ . Correlation comparisons between sire lines were considered different at  $P \leq 0.05$ .

### Results

Early ultimate pH was correlated with aged ventral L\*, chop L\*, and chop color (D,  $|r| \geq 0.43$ ; P,  $|r| \geq 0.33$ ). However, correlations did not differ ( $P \geq 0.10$ ) between the Duroc and Pietrain sired pigs. Early ventral L\* was correlated with aged ventral pH, aged ventral L\*, aged ventral color, and chop color (D,  $|r| \geq 0.52$ ; P,  $|r| \geq 0.28$ ), but not WBSF or cook loss (D,  $|r| \leq 0.09$ ; P,  $|r| \leq 0.06$ ). Early ventral a\* was correlated with aged ventral a\* and chop a\* (D,  $|r| \geq 0.33$ ; P,  $|r| \geq 0.44$ ), but not with WBSF or cook loss (D,  $|r| \leq 0.03$ ; P,  $|r| \leq 0.06$ ). None of these correlation comparisons differed ( $P \geq 0.06$ ) between the Duroc and Pietrain sired pigs, with the exception of early ventral L\*. Early ventral L\* was strongly correlated with chop L\* in Duroc pigs ( $|r| = 0.64$ ), but was only weakly correlated in Pietrain pigs ( $|r| = 0.35$ ,  $P = 0.02$ ).

### Conclusion

Early loin pH was correlated with color and water-holding capacity regardless of sire line. Early ventral color measurements were correlated with aged ventral and chop color measurements, but not with tenderness. Early ultimate pH, L\*, and a\* could be used as indicators of aged color. With the exception of early ventral L\*, there were no differences in early and aged postmortem correlations between Duroc and Pietrain sired pigs, indicating that sire line does not need to be accounted for when using early quality traits to predict aged quality.