

CONSUMER PERCEPTION, WILLINGNESS TO PAY, TENDERNESS, AND RETAIL DISPLAY OF NONENHANCED, ENHANCED, AND HIGH-QUALITY PORK LOINS

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I. OBJECTIVES

The objective of this study was to evaluate the effects of 3 different commercially available pork loins on retail display, trained and consumer sensory perceptions, and consumer intent to purchase.

II. MATERIALS AND METHODS

Enhanced (E; $n = 10$), nonenhanced (NE; $n = 10$), and high-quality (HQ, $n = 10$) pork loins were selected from a commercial food distribution company. The E loins were labeled as containing up to a 12% solution of water and salt, and HQ loins contained a greater amount of intramuscular fat. Loins were wet aged for 21 d and cut into 2.54-cm-thick chops and randomly assigned to retail display, palatability analysis, or Warner-Bratzler shear (WBS) force analysis. For retail display, chops ($n = 27$) were randomly assigned to 1 of 3 packaging treatments: polyvinyl chloride overwrap (PVC), carbon monoxide modified atmospheric packaging, and high-oxygen modified atmospheric packaging. Visual color for muscle color (MC) and surface discoloration were recorded on day 0, 2, and 4 of retail display. Additionally, instrumental color was taken using a Hunterlab Miniscan XE Plus spectrophotometer for L^* and a^* values on day 0–4. For trained sensory panel and WBS force ($n = 90$), chops were evaluated at 3 different degrees of doneness (63°C, 68°C, and 74°C). Trained panelists evaluated overall tenderness, juiciness, and pork flavor. A consumer retail survey ($n = 129$) was conducted to determine consumer perception of pork color, marbling, and degree of doneness. Consumer sensory panelists ($n = 50$) evaluated overall, flavor, juiciness, and tenderness like for chops cooked to 68°C. A split-plot design with repeated measures was utilized. Pork loin treatment was the whole-plot and packaging type was the split-plot factor with retail display as the repeated measure. For WBS force and sensory evaluation, a completely randomized design was utilized. Data were analyzed using the PROC GLM procedure of SAS (version 9.4; SAS Institute Inc., Cary, NC).

III. RESULTS

HQ chops packaged in PVC had among the highest L^* and the lowest a^* values indicative of a brighter, less red color. Chops packaged in carbon monoxide- and high-oxygen modified atmospheric packaging had similar MC and surface discoloration scores on day 2 and 4 of retail display along with a lower MC score compared to chops packaged in PVC. For the consumer retail survey, a higher percent (17.8) of consumers chose HQ pork chops first over E and NE chops based on the pictures provided in the survey. Of participants that consume beef at medium-rare, only 19.2% would consume pork at medium-rare, with the majority of participants (59.6%) consuming pork at a medium degree of doneness. The E loins had lower ($P < 0.05$) shear values compared to NE loins. In addition, there was no difference ($P > 0.05$) between HQ and E, or HQ and NE, loins for WBS force values. Trained panelists

found no difference ($P > 0.05$) in tenderness for E chops when cooked at 3 different degrees of doneness. Consumer panelists ranked the E chops the highest for overall like, tenderness like, and juiciness like, compared to HQ and NE loins.

IV. CONCLUSION

In conclusion, HQ chops possessed a brighter, less red color with a higher consumer acceptability compared to E and NE chops. Lastly, E pork chops were more tender with less variation when cooking at various endpoint temperatures. The results suggest that E, NE, and HQ pork loins available in the market have different quality parameters at retail and as a cooked product on consumer acceptability.

Keywords: color, consumer perception, enhanced, marbling, pork loins