RESEARCHABSTRACT

PORK QUALITY

Title: Characterization of the Quality Attributes of Fresh, Pumped Pork Loins
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ABSTRACT

Barrows (n=347) from a commercial crossbred line were harvested on two separate occasions to evaluate the effects of pump level, raw material quality (pH), and pump solution ingredients on pork quality. Boneless, paired pork loins (n=120) were selected based on 14 h pH and transported to the University of Illinois. Ultimate pH, drip loss, instrumental color (L*, a*, b*), and proximate analysis were evaluated prior to pumping. Paired loins were cut into four sections and randomly assigned to one of four pump levels (0, 6, 12, or 18%). Loin sections were pumped to result in a product containing 0.4% sodium tripolyphosphate (STP) for experiment one (Exp. 1) and 0.4% STP and 0.4% salt for experiment two (Exp. 2). Pump retention, vacuum package purge loss, sensory characteristics, Warner Bratzler Shear (WBS), retail purge loss, and instrumental color (L*, a*, b*) were evaluated. In Exp.1, increasing pump level increased ($P \leq 0.05$) retention and purge. Increased pH significantly increased pump retention and reduced purge loss. A pump level by pH interaction was observed for cook loss at 70° C. In Exp. 2, increasing pump level increased pump retention ($P \leq 0.05$). Purge loss from the 18% pump level was higher ($P \leq 0.05$) than controls. Increased muscle pH consistently reduced purge loss and resulted in juicier, more tender pork. Pumped pork had higher tenderness, juiciness, and saltiness scores than controls. Pump level and pH had limited effects on WBS and cook loss. The results suggest that pump level and pH impact retention and purge but have limited effects on WBS, cook loss, and palatability attributes.