

**Project Number & Title**

**3B-101: *Determining the variability in eating quality of Australian Fresh Pork***

**Project Leader**

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**Project Participants**

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**Aims and Objectives**

To quantify and redefine the inconsistencies in eating quality occurring in fresh Australian pork. The association of pH of pork in relation to consumer acceptance was investigated in the loins of female and male pigs across two supply chains.

**Key Findings**

- Of all the samples tested, 21% of loin steaks were considered to fail in eating quality, while consumers would not purchase 29% of samples based on the eating quality experience. On the other hand, 38% of samples were graded as either 'above average' or 'excellent' for quality grade.
- Consumers preferred loin steaks with a higher pHu, favoring samples that were towards the higher end of the pH range. This increased linearly across the range of pHu sampled. The largest effect of pHu was observed for tenderness in female carcasses, a 22% improvement in tenderness scores across the range.
- Consumers were discriminate against samples with poor objective meat quality measurements. In particular shear force influenced quality grade and re-purchase intention the most, with consumers favoring samples with lower shear force. Shear force correlated highly with tenderness, thus highlighting the importance of tenderness in consumer acceptance.
- Objective measures, shear force, drip loss, cook loss and L value (darkness) were all influenced positively by pHu and pH24. The fact that pH24 correlated with these measures reinforces the importance of the rate of pH decline on meat quality.
- Glycogen concentration at slaughter correlated strongly with pHu, however lactate concentration did not. This suggests that glycogen concentration at slaughter is a driver of pHu and pH decline and could be manipulated nutritionally pre-slaughter.
- Drip loss percentage was different between supply chains. This may be a result of differences in processing factors influencing early post mortem decline or different rates of chilling.
- The pHu and rate of pH decline are likely to be the biggest drivers of meat quality variations. Optimizing muscle fibre types to favour less stored glycogen is likely to be an effective way to decrease variations in pH and meat quality when coupled with technologies during processing.

**Application to Industry**

The application of strategies to manage the variability in pH and pH declines need to be applied across all sectors of the supply chain. This issue may be genetics related and investigation of fibre types across genotypes would seem warranted. Managing pH declines through the addition of technologies along the slaughter floor and in chillers will likely aid in minimizing variation and improving meat quality. Such strategies need further investigation.