Australasian Pork Research Institute Ltd APRIL

Project Number & Title: 5A-108 What sensory attributes are most critical for consumer evaluation within an Australian Pork eating quality program

Project Leader: Professor Frank Dunshea

Project Participants Frank R. Dunshea, Xiying Li, Robyn D. Warner, Robert JE Hewitt, Minh Ha, Darryl N. D'Souza (The University if Melbourne and The Sunpork Group)

Aims and Objectives:
1) compare the carcass traits, chemical properties, and eating quality of pork from different lines and muscles;
2) determine the effects of pH, collagen characteristics, and IMF on pork eating quality; d
3) find the most important sensory attributes contributing to consumer evaluation of Australian pork

Key Findings
These studies found that genetic lines and muscle can impact pH, collagen characteristics, IMF and eating quality of pork. These studies confirmed that flavour was the most important sensory attribute in consumer evaluation of Australian pork, followed by tenderness. A maternal Duroc line exhibited the highest IMF content; however, consumers preferred pork from a pure terminal Large-White type line. The Landrace line received the lowest sensory scores. In the first study, IMF was positively related to objective measures of eating quality. However, relationships with sensory eating quality, while positive, were less pronounced in the second study. The small effects may be due to the low range in IMF encountered in this study, and further work is needed with a wider range in IMF. In the first objective meat quality study, total muscle collagen was positively correlated with chewiness, hardness, and shear force. However, in the second study conducted three years later, collagen characteristics had little influence on pork sensory eating quality. Nevertheless, the sensory scores for the SM were higher than those for LTL, possibly due to its higher pH and collagen solubility. The check-all-that-apply (CATA) method effectively differentiated between muscle and line, but the biometric approach had limited performance. Future studies can focus on breeding strategies or nutrition interventions to improve pork flavour.

Application to Industry
The following recommendations have been made:
1/ Genetic selection should include measures of eating quality to improve the eating quality of Australian pork. These may include increasing pH, improving flavour, reducing muscle collagen and increasing IMF,
2/ Nutritional strategies to improve pork eating quality need to be investigated. These may include increasing pH, improving flavour, reducing muscle collagen and increasing IMF,
3/ On-farm and off-farm practices to reduce low pH should be employed to pork improve eating quality,
4/Characteristics of optimal pork flavour need to be determined to maximise pork eating quality, and
5/The check-all-that-apply (CATA) method should be incorporated in future pork sensory studies