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Pork CRC
CRC for High Integrity Australian Pork

3A-103: *Effects of various eating quality pathway factors on pork quality*

Project Leader Professor Frank Dunshea

Potential Users of Information

Whole pork supply chain

Benefit to Industry

Outcomes of this study are being used to develop a non-prescriptive eating quality system for pork. This system, once implemented, will allow industry to improve consumer perceptions of pork as a quality meat and lead to a process of continuous improvement in pork eating quality.

Key Findings

Overall liking of pork was influenced, in order of importance, by flavour, tenderness, juiciness and aroma.

Juiciness, flavour, overall liking, quality grade and intramuscular fat content were influenced by sex of the pig, with lower scores obtained for pork from entire males than surgical castrates, with females intermediate. Fail rate (% of evaluations rated as unacceptable (1) or below average (2) for quality grade was higher for pork from entire males than from females and surgical castrates. The main effects of ageing period and cooking temperature did not result in significant improvements in sensory quality. However, across the seven cut x cooking method combinations, loin steaks and silverside roasts obtained the lowest scores for tenderness, juiciness, flavour, overall liking, quality grade and re-purchase intention and had higher fail rates for quality grade. Pork from the shoulder (blade and chuck tender) was more preferred than those from the loin and silverside. Fail rates of stir fried pork were lower than for roasts, for all three primals evaluated.

Positive effects of cooking to an endpoint temperature of 70°C were found for stir fry for tenderness, juiciness and overall liking, whilst steaks cooked to 70°C were also juicier and obtained higher scores for flavour, overall liking, quality grade and re-purchase intention than those cooked to 75°C.

This study is the most comprehensive sensory analysis ever conducted by the Australian pork industry.

Background

Previous research has determined and documented the importance of a number of pre- and post-slaughter management factors on pork eating quality, but this information has not been integrated into an eating quality system for pork. Also, few studies have reported effects of pathway interactions on pork eating quality, with the majority of data only available for the loin muscle. The objective of this study was to determine the influence and size of these factors, and their interactions, to improve pork consistency and reducing the fail rate of pork to less than 5%.

Methods

This study involved 60 (Large White x Landrace, PrimeGro™ Genetics) pigs of three sex groups (entire male, female and surgical castrates) with 20 pigs per sex. Three primal cuts (loin, silverside and shoulder) from both sides of the carcase and three cooking methods (roast and stir fry (all primals) and grilling as steaks (loin only)) were evaluated by untrained consumers who consumed pork at least monthly. Each cut was either aged for 2 or 7d post-slaughter and cooked to either a 70 or 75°C endpoint temperature. . This design of this study was a 3x2x2x7 factorial. Objective quality assessments conducted included pH, colour, drip loss, cook loss, shear force, intramuscular fat content. By way of magnitude, over 3360 samples were assessed at over 60 consumer sessions.