Australian Government
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Business
Cooperative Research
Centres Programme

Pork CRC
CRC for High Integrity Australian Pork

3A 109: *Validation of pork eating quality pathways in three commercial supply chains*

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Aims and Objectives

To investigate the effects of gender (females and immunocastrated males) and four processing interventions (ageing period, electrical stimulation, hanging method and moisture infusion) on different pork cuts (loin steak, loin stir fry, loin roast, silverside roast and silverside stir fry) across three supply chains to improve eating quality consistency and reduce the fail rate of pork to less than 10%.

Key Findings

Eating quality of pork from immunocastrated males was comparable to females across all three supply chains involved. Fail rates (determined by the percentage of consumers who rated pork as either unacceptable (1) or below average (2) on a 1-5 scale) were reduced by electrical stimulation, aitchbone hanging as well as moisture infusion, but not ageing period. Ageing of pork for either 7 or 14 days post-slaughter neither markedly improved eating quality attributes nor lowered fail rates compared with pork aged for 2 days. Further understanding of factors influencing the ageing potential of pork are required to provide the Australian pork industry with the ability to implement ageing as a key intervention to improve eating quality consistency.

Moisture infusion was effective in reducing the fail rate of pork, particularly loin stir fry, however, its effect across all cuts and across supply chains was not consistent. Aitchbone hanging reduced the fail rate of loin stir fry to 9% compared with a fail rate of 21% for this cut from Achilles hung carcases. Across all three supply chains, fail rates of <10% were also achieved for moisture infused loin stir fry and loin roast.

Application to Industry

Eating quality of pork from females and immunocastrated males was comparable, highlighting that immunocastrated males can be successfully included in any pathway system to improve pork eating quality consistency.

The eating quality of Australian pork can also be improved by implementing processing interventions, including electrical stimulation, moisture infusion and hanging method, but the effects of these were shown to vary between different cuts and supply chains. Further work is needed to understand why extended ageing, for up to 14 days post-slaughter, did not improve eating quality or reduce fail rates of different pork cuts.

Overall, the response to different processing interventions imposed to improve pork eating quality consistency varied between supply chains and between cuts. Any system introduced to improve pork eating quality will therefore need to be non-prescriptive and flexible to allow individual supply chains to adopt different interventions to deliver high quality pork to their customers.