

# **Carcase weight is not a reliable tool to minimize consumer acceptance risk of boar taint in pork**

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R.J. van Barneveld<sup>3</sup> and H.A. Channon<sup>1,2</sup>**

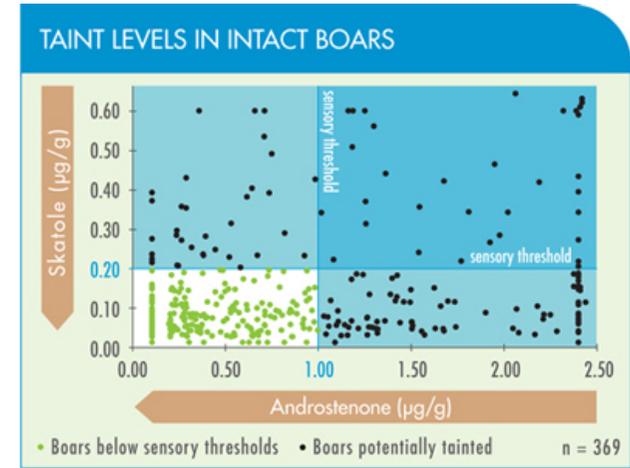
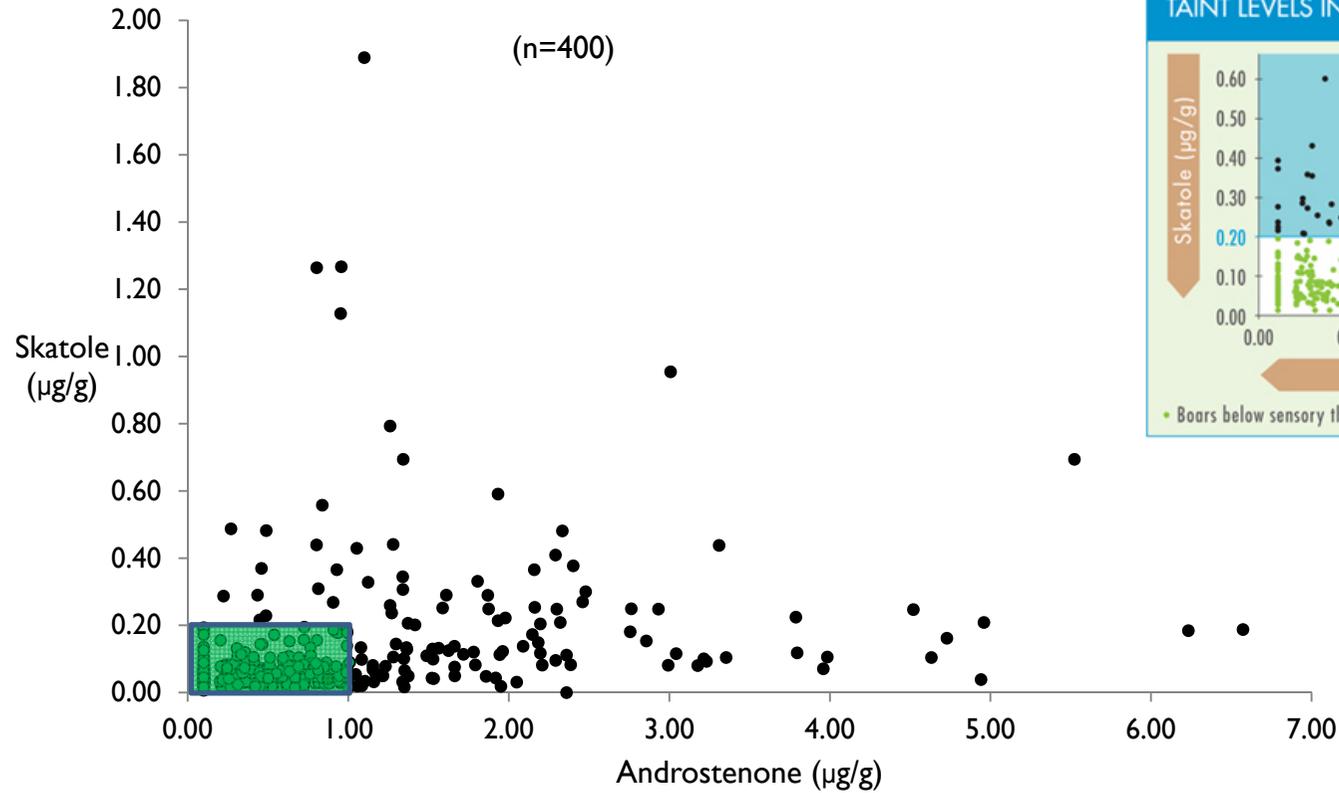
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## Background: Boar taint

- Australia stopped castrating entire male pigs in the 1980s
  - Lighter slaughter weights (<80kg liveweight)
- Recent increase in consumer complaints relating to boar taint
  - Heavier slaughter weights (105 to 120kg liveweight)
- Boar taint is an off-odour/flavour in pork from entire male carcasses
- Main boar taint compounds are androstenone and skatole
- Generally accepted international consumer sensory threshold for;
  - Androstenone is 1 µg/g;
  - Skatole is 0.2 µg/g

Caution: Consumer thresholds use an absolute cut-off to describe a subjective experience

# Background: Boar taint in entire male pigs



(Hennessy et al. 1997)

(D'Souza et al., 2011)

Low risk (below sensory threshold)

- Approximately 25% of fat samples were above the androstenone and skatole sensory thresholds

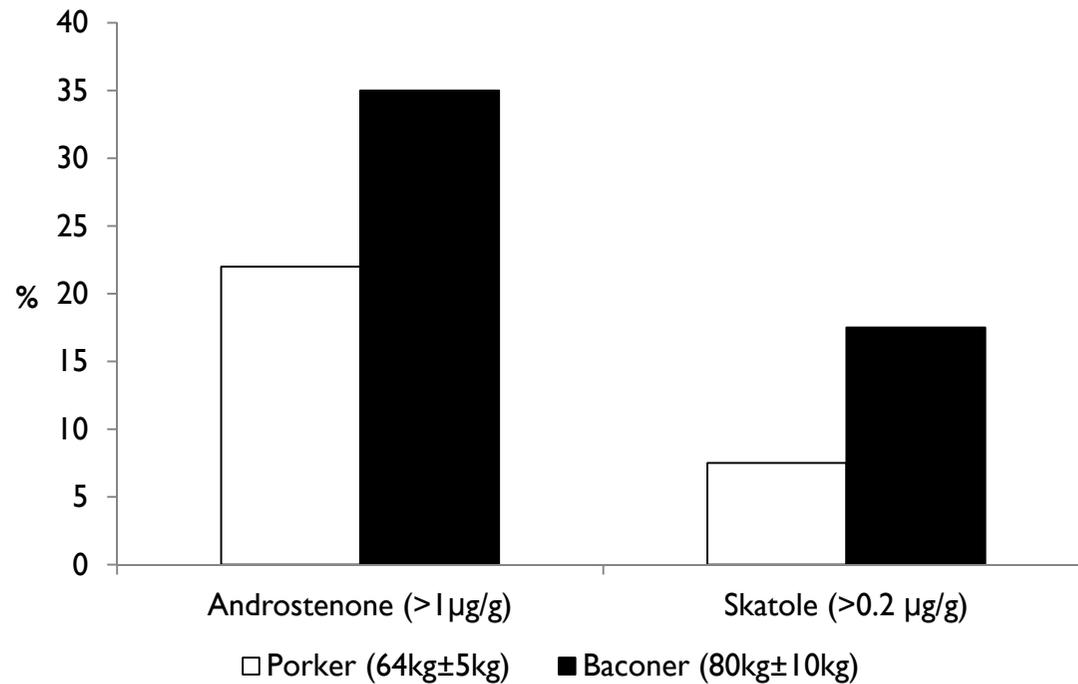
# Issue

- Australia stopped castrating entire male pigs in the 1980s
  - Lighter slaughter weights (<80kg liveweight)



Commercial supply chains are currently using slaughter weight strategies to minimise risk of boar taint

# Background: Minimising boar taint risk



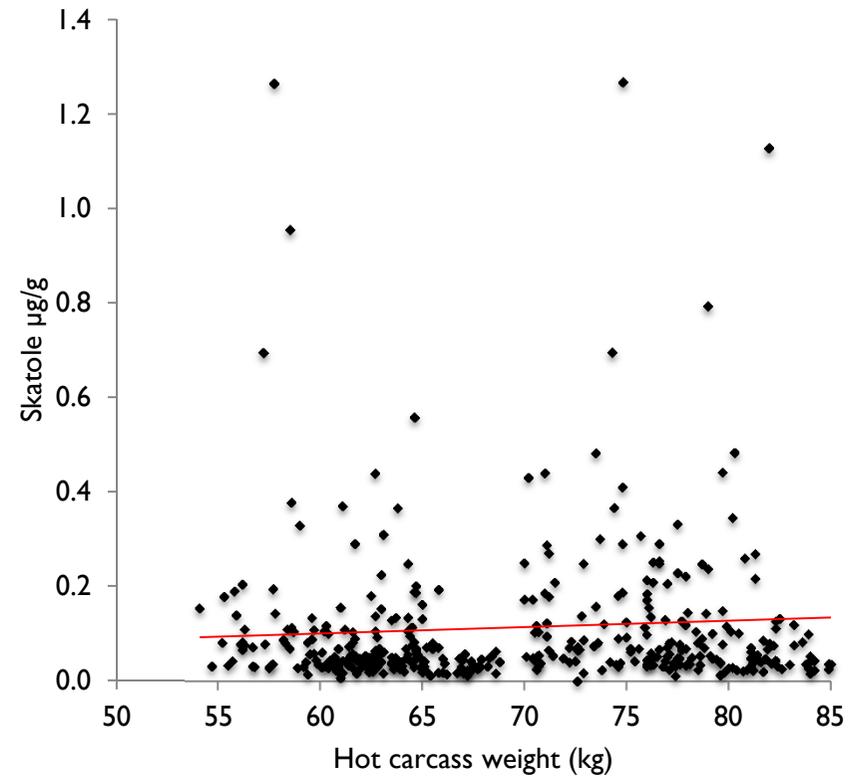
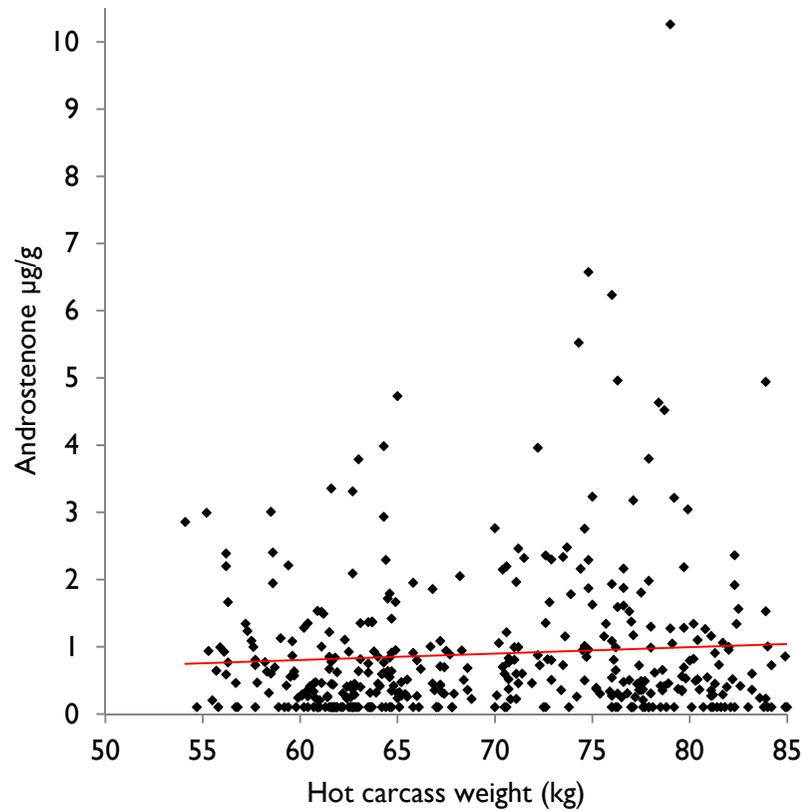
(n=400)

(D'Souza et al., 2011)

- Boar taint risk (%) greater for baconer pigs
- But risk in porker pigs still considerable

# Background:

## Correlation between boar taint risk & carcass weight



- Poor correlations found between carcass weight and androstenone and skatole levels in fat

# Hypothesis

Carcase weight is not a reliable tool to minimise the consumer acceptance risk of inferior eating quality for pork from entire male pigs.

## Question:

Are Australian consumers able to discern between pork from different carcass weight ranges with different levels of boar taint compounds in fat?

# Experimental design

- A total of 10 pigs/treatment were used in a 2 x 2 factorial study
- The main treatments were;

Carcase weight	Porker (62kg) Baconer (80kg)
Boar taint level	Low; 0.1 µg/g androstenone (0.14µg/g), <0.2 µg/g skatole (0.04µg/g) High; >1 µg/g androstenone (2.08µg/g), >0.2 µg/g skatole (0.24µg/g)

- Objective and sensory quality assessments conducted on *M.Longissimus thoracis*
- Pork steaks were cooked to 70°C internal temperature (flat-plate grill)

# Results: Average sensory scores (main effects only)

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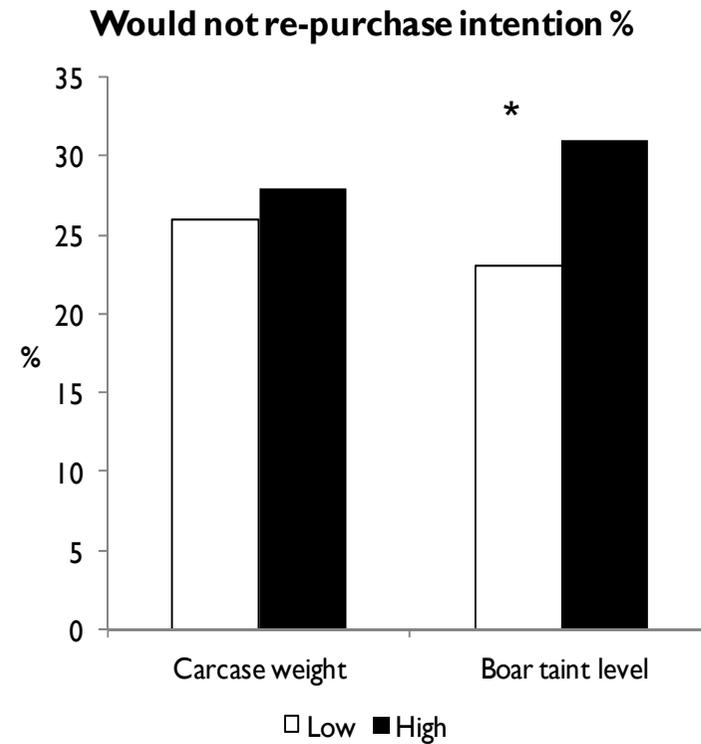
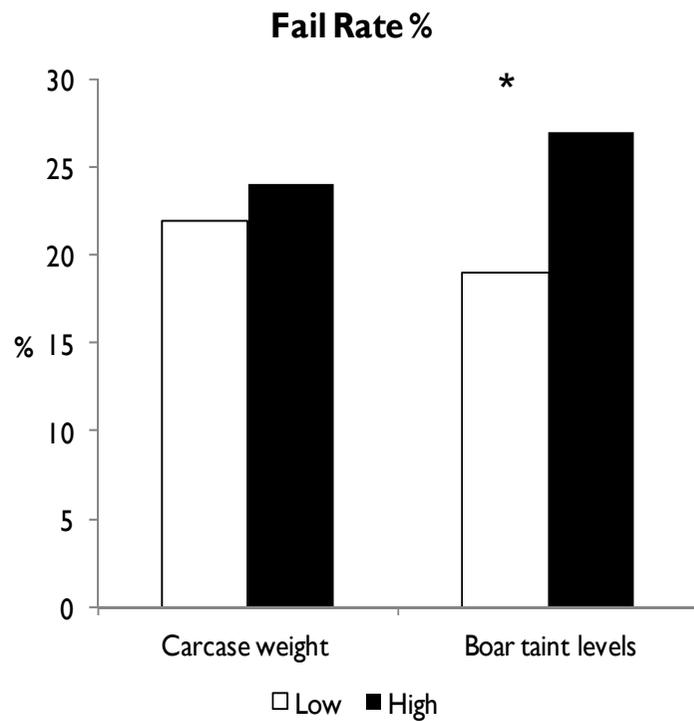
	Carcase weight		Boar taint levels		s.e.d.	P value
	Porker	Baconer	Low	High		
	Overall liking <sup>1</sup>	56.4	54.7	56.3		
Quality score <sup>2</sup>	3.18	3.10	3.15	3.10	0.129	n.s.

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<sup>1</sup>0 = Dislike extremely; 100 = Like extremely

<sup>2</sup>1 = Unsatisfactory; 2 = Below average; 3 = Average; 4 = Above average; 5 = Excellent

# Results: Fail rate% and would not re-purchase %



\* P<0.05

Fail rate: % of steaks quality graded <3

# Conclusion

- Carcase weight had a minimal effect on fail rate % and re-purchase intention %
  - Boar taint levels had a significant effect on fail rate % and the 'would not re-purchase intention'
- Based on these data, carcase weight is not a reliable tool to minimise the consumer acceptance risk of boar taint

# Acknowledgements



CRC for High Integrity Australian Pork

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