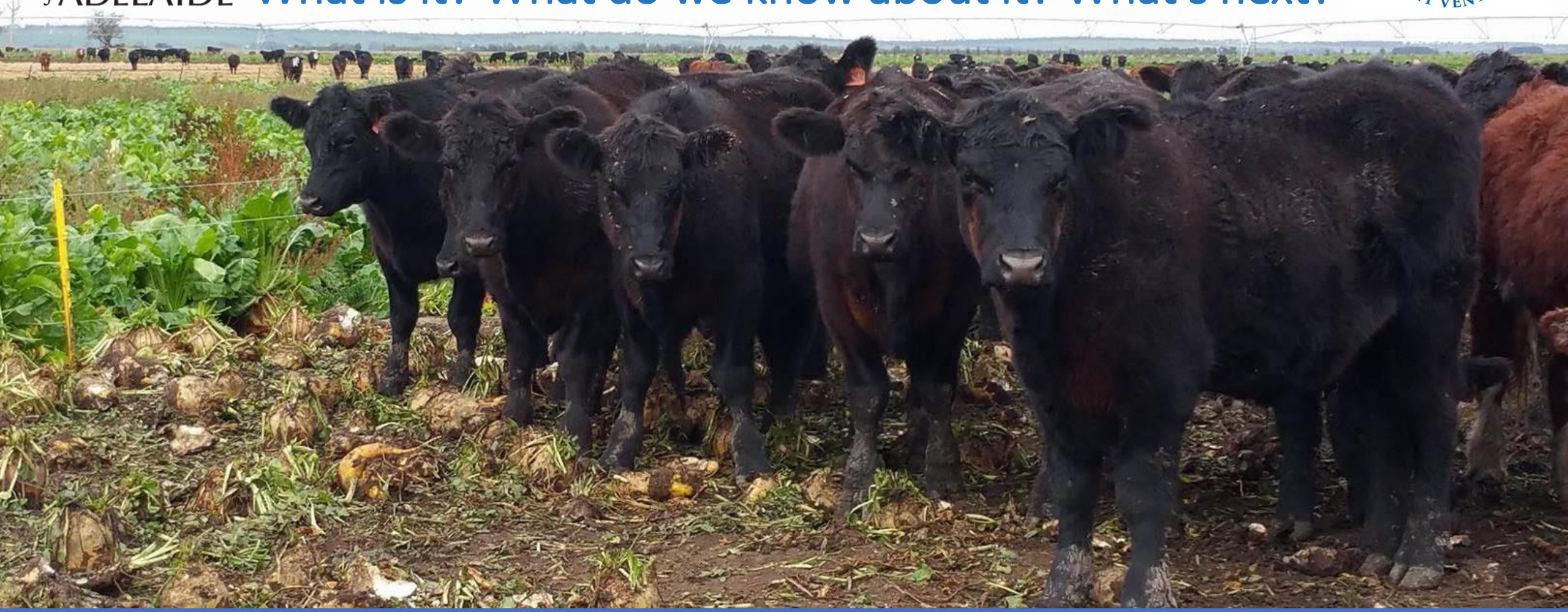
Pre-slaughter hide washing:

What is it? What do we know about it? What's next?

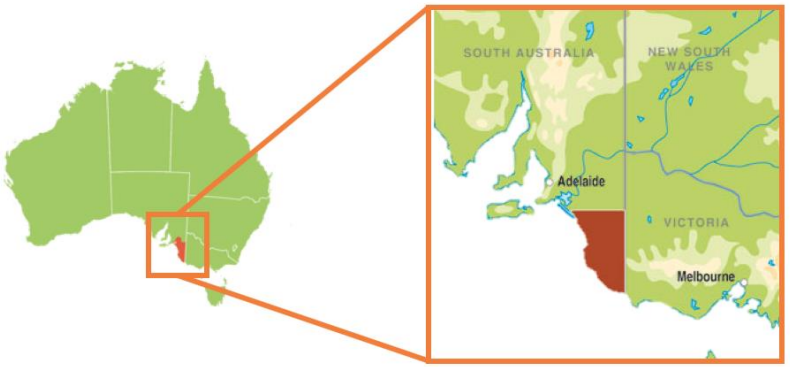


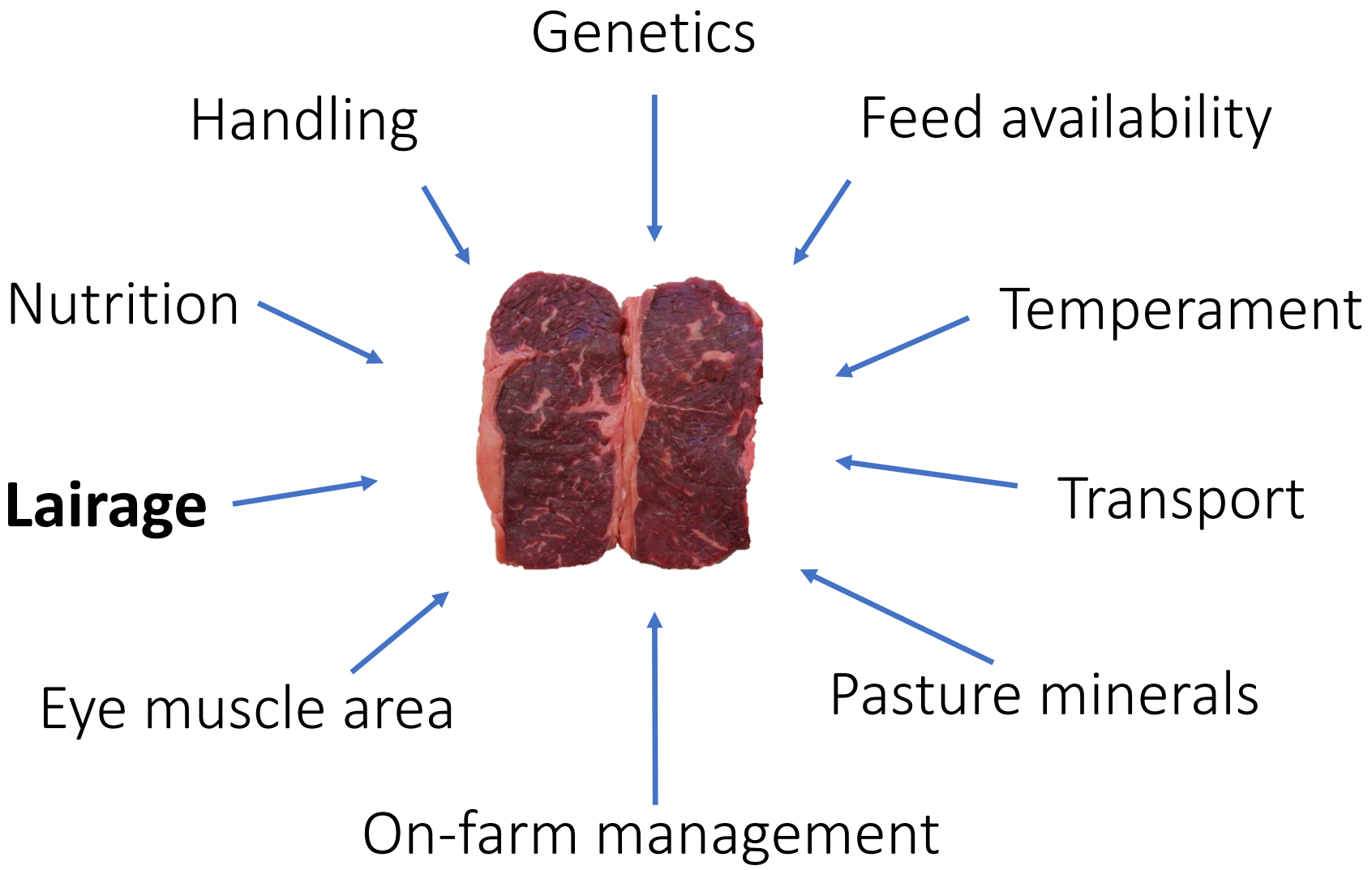
Farrah Preston BSc (Animal Science) Hons

Professor Wayne Pitchford | Dr Michael Wilkes | Dr Peter McGilchrist

Dark cutting beef

- pH >5.70
- Meat colour >3
- $8 million/annum South East South Australia
- Insufficient glycogen available at slaughter




Genetics
Handling
Feed availability
Nutrition
Temperament
Lairage
Transport
Eye muscle area
Pasture minerals
On-farm management

Methodology

- Observational cohort study
- Unloading
  - Truck type, time, behaviour
- Pre-slaughter washing
  - Type (lairage, high pressure-hose, belly), number and duration of washes
- Animal behaviour
  - Unloading, lairage (after arrival, morning before slaughter), during washing

Data summary

	Number
Kill days	21
Vendors	62
Mobs	86
Mob size	43 (7 - 103)
Total animals	2,969
Wash groups	164
Wash group size	19 (2 - 49)
Dark cutting carcasses	766
Dark cutting incidence	25.5%

Image: AMPC

Washing summary

	Mean	Min-Max	S.D.	CV
Total washes				
Number	6.1	2 – 13	2.0	33
Duration (mins)	75	5 – 136	30	40
Lairage washes				
Number	P = 0.029	6.6 ± 3.0%	1.4	39
Duration (mins)	P = 0.035	-0.3 ± 0.1%	29	46
High-pressure hose washes				
Number	2.0	0 – 7	1.2	74
Duration (mins)	8.3	0 – 32	5.8	70
Belly washes				
Number	1.0	0 – 2	0.4	42
Duration (mins)	0.9	0 – 10	1.3	147

Animal behaviour

- Can be measured as an outcome of animal management and environment
- Inexpensive, non-invasive measure
- Temple Grandin developed a behaviour based auditing system for slaughter plants

Summary statistics

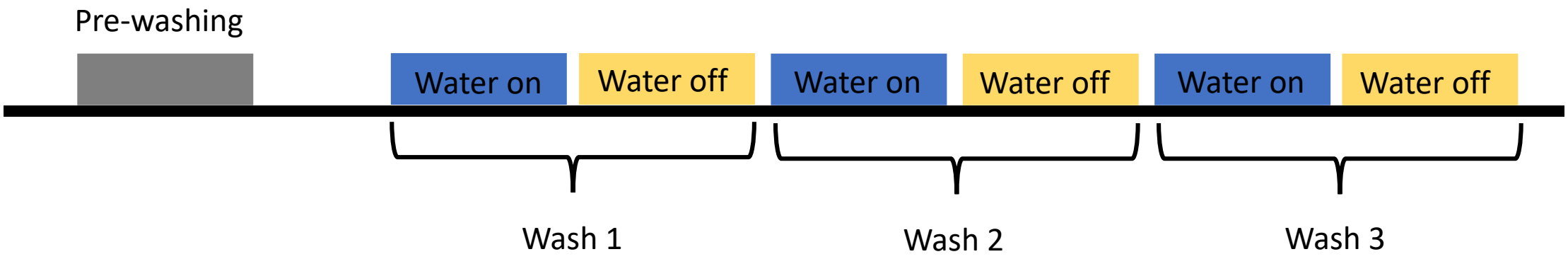
	Pasture	Grain	Total
Mobs	4	1	5
Animals	104	73	177
Wash groups	6	3	9

Lairage behaviours

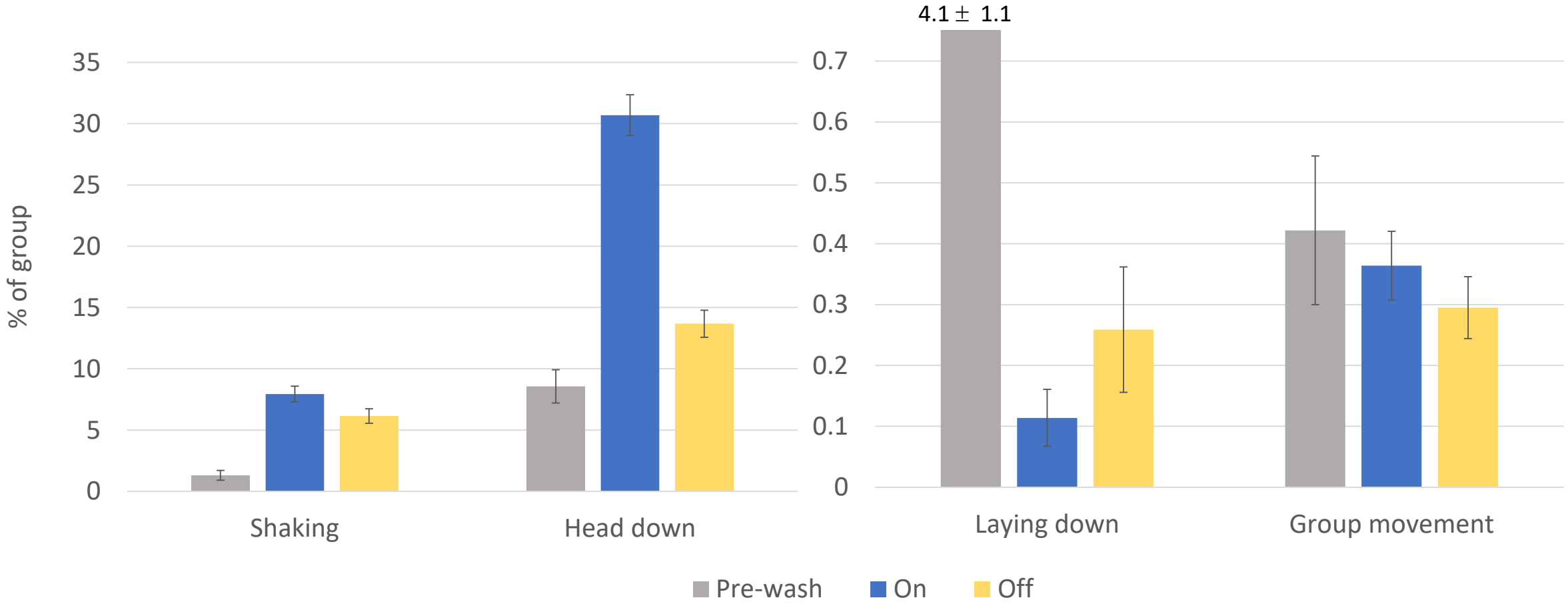
Lairage behaviours

Group movement score	Description
0	The majority of cattle were standing stationary and still
1	The majority of cattle were standing stationary, but shuffling their feet, swaying or fidgeting
2	The majority of cattle were moving around the pen in a 4 beat gait
3	The majority of cattle were moving around the pen in a 2 beat gait

Methodology



Washing effects on lairage behaviours



Summary of work to date

- Meat quality and behaviour indicate washing is a stressful event for cattle
- Washing affects animal behaviour, with behaviours indicative of stress increasing during washing

Why are we washing?

Why are we washing?

Australian requirements

- Australian Standard for the Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007)
- Australian Standard for the Construction of Premises Processing Animals for Human Consumption (AS 4465:2001)

International requirements

- CODEX Alimentarius Code of Hygienic Practice for Meat (2005)
- *United States of America* Federal Meat Inspection Act, United States Department of Agriculture Food Safety and Inspection Service
- *European Union* Corrigendum to Regulation (EC)

Why are we washing?

Australian Standard for the Hygienic Production and Transportion of Meat and Meat Products for Human Consumption (AS 4696:2007)

*8.4 "Reasonable steps are taken to present animals for inspection in a **clean condition**."*

*8.5 "Animals that are **not clean** are not passed for slaughter or are passed for slaughter subject to conditions that ensure they do not contaminate animals, carcases and carcase parts during slaughter, dressing, post-mortem inspection and disposition."*

Why are we washing?

CODEX Alimentarius - Code of Hygienic Practice for Meat (2005)

5.2 Hygiene of Slaughter Animals

*21. "Animals should not be loaded for transport to the abattoir when: the **degree of contamination** of the external surfaces of the animal is likely to compromise hygienic slaughter and dressing, and suitable interventions such as **washing** or shearing are not available,"*

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	Positive	Not significant	Negative
Visible cleanliness	Bell 1997 Biss & Hathaway Bryne *et al.* 2000 Walia *et al.* 2017		

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Why are we washing?

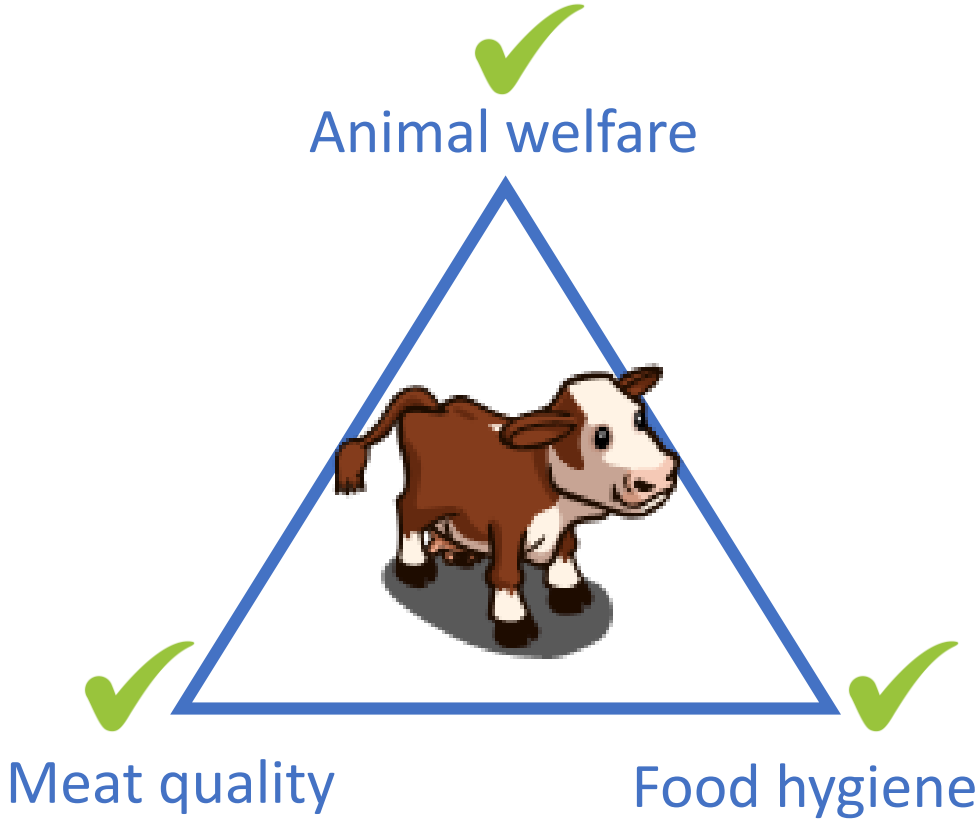
- To improve cleanliness
- Literature suggest as visual cleanliness improves, microbial cleanliness worsens
- Washing with water alone increased microbial carcass contamination

Trial aims

- To determine the most effective method for pre-slaughter hide washing, achieved by:
    1. Determining the effect of pre-slaughter hide washing on microbial carcass contamination
    2. Determining the effect of pre-slaughter hide washing on meat quality
    3. Determining the effect of pre-slaughter hide washing on animal behaviour and welfare

Trial outcome

- Determine an optimal method for pre-slaughter hide washing that controls or improves microbial carcass contamination, without having a negative effect on meat quality, or animal behaviour and welfare



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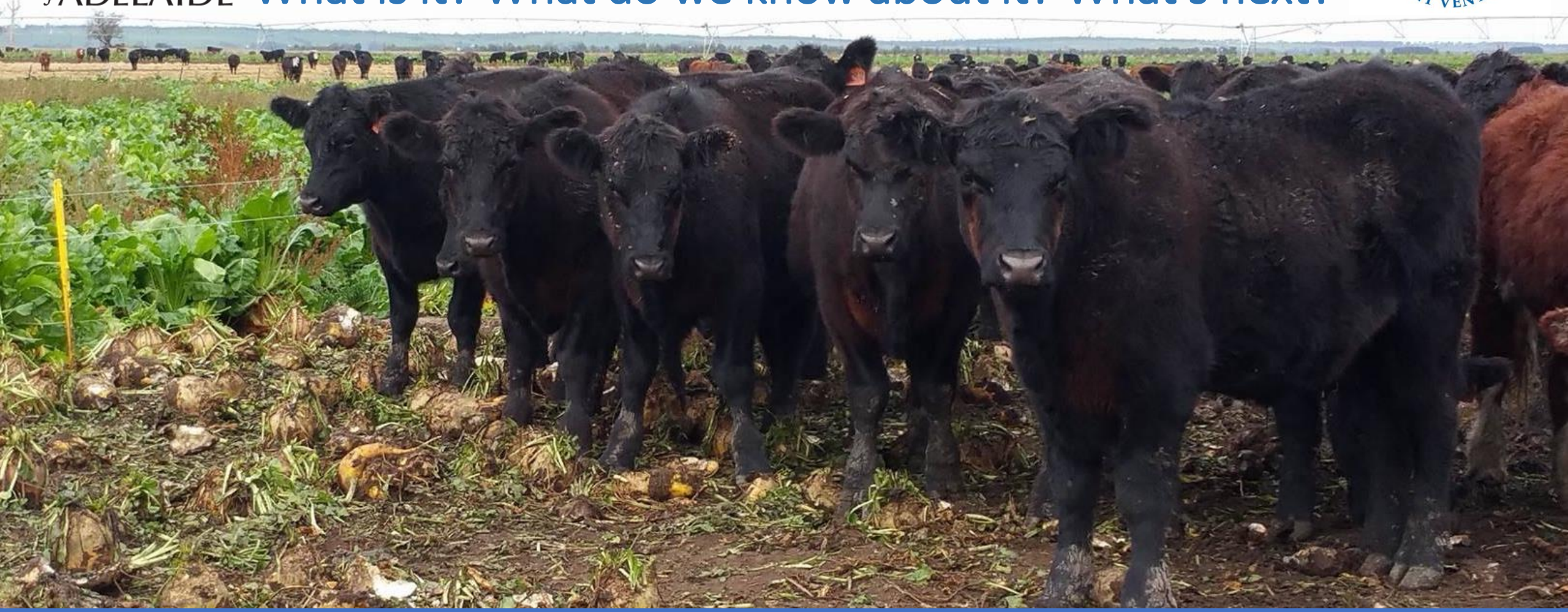

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