

Development of Welfare Assessment Protocol for Dairy Cattle in New Zealand

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Layout



Research Background



Aims/Objectives



Methodology



Result



Further steps



Thank you

Research background

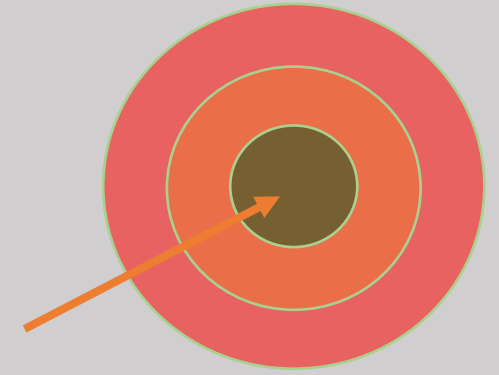
Increasing consumer awareness on food quality

Higher welfare standards set by the quality assurance schemes

No industry recognised dairy cattle welfare assessment protocol for New Zealand.

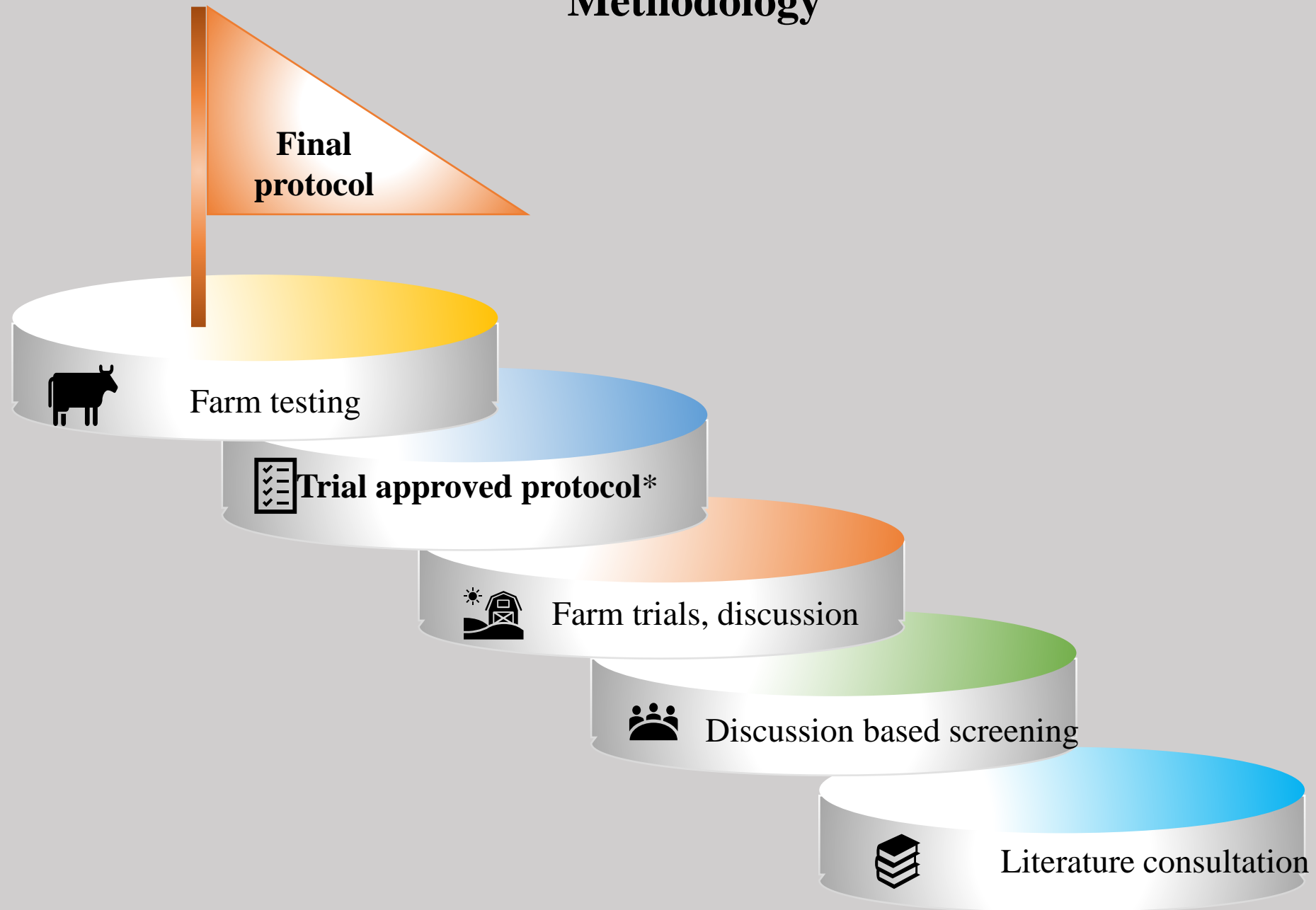
Welfare assessment protocol : Transparency among the national and international consumers

Aims/Objectives

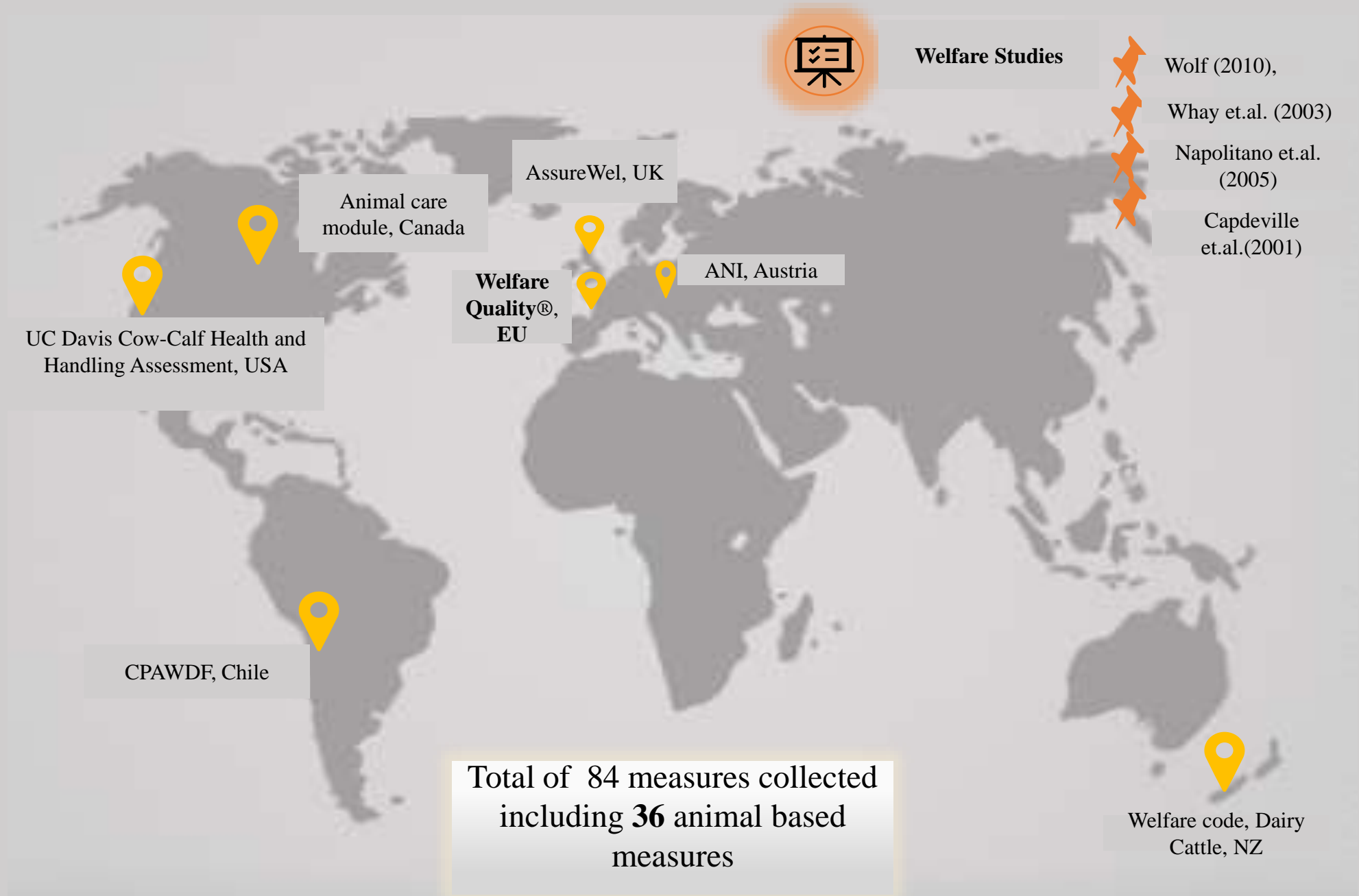


To develop simple yet practical welfare assessment protocol that could assess welfare of the pasture-based cows within single milking time.

Methodology



Methodology.....Literature consultation



Methodology.....Screening and farm trials



Author discussion: Possible measures for pasture-based system selected (20 animal based measures selected for trial).

Obvious irrelevant measures screened out after discussion.

Three farm trials(2 farms): Tested for feasibility, practicality, ease of scoring (efficient time)

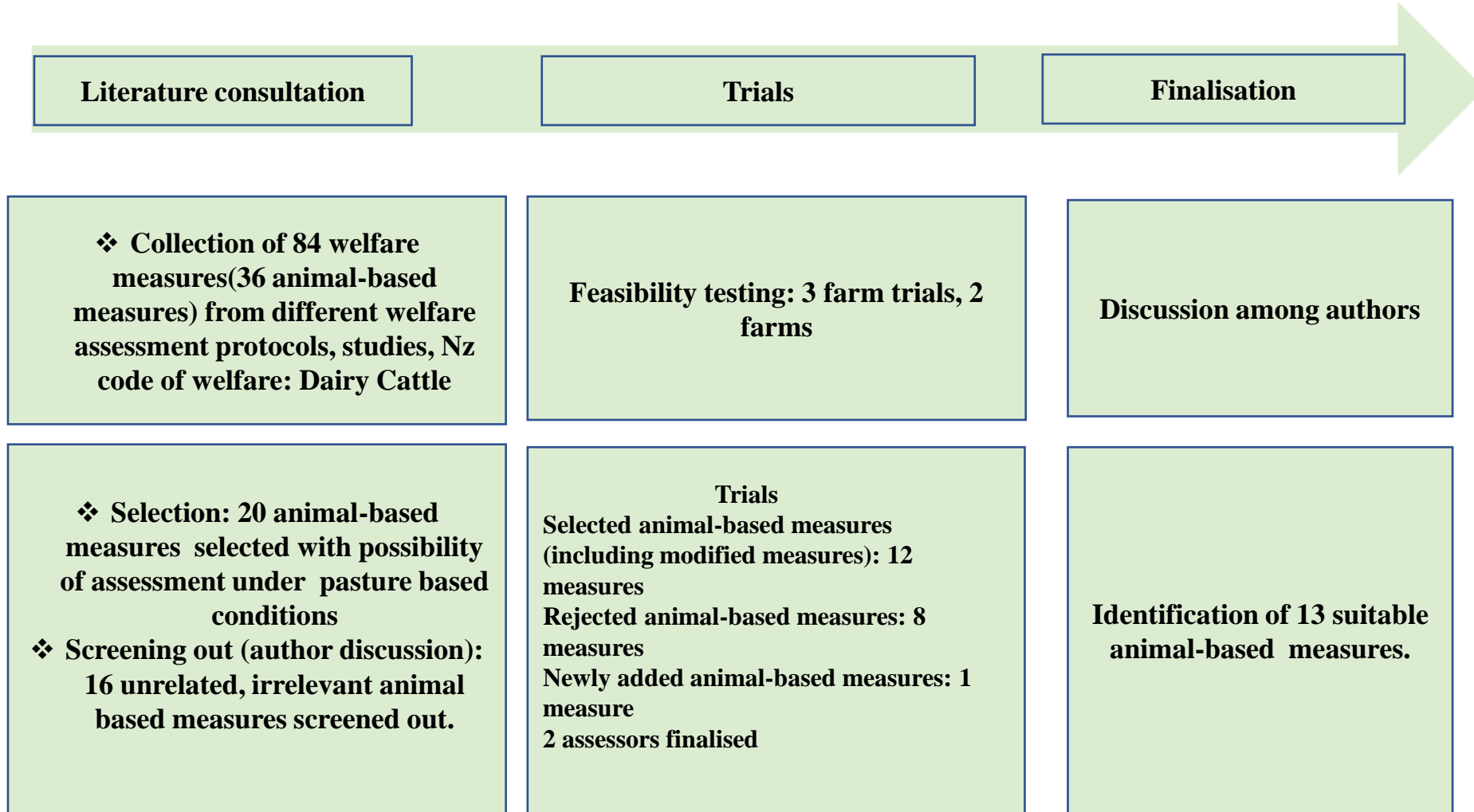
Discussion on trial findings and further selection, removal and addition

Finalization of trial approved protocol

Methodology.....Farm Visit



Result...



Result...Rejected measures from trial

Rejected measure	Reason for rejection	Rationale
Nasal and ocular discharge	Difficult to observe	Caudal positioning of an assessor inside the parlour.
Diarrhoea	Difficult to identify pathological diarrhoea	High fibre and moisture diet: Loose faecal consistency
Heat stress indicators (seeking shades, open mouth, panting)	Simpler and easier alternatives selected	Resource based measures selected, all year round assessment possible
Cold stress indicators (shivering, huddling, facing away from wind or rain).	Simpler and easier alternatives selected	Resource based measures selected, all year round assessment possible
Milking behaviour (restlessness, kicking and stepping).	Difficult to observe	Not possible from one point of observation.
Order of the cows in the milking yard (facing parlour from the front or back).	Not practicable in New Zealand context	Backing gate: changes direction each time,
Qualitative behaviour (Active, frustrated, irritable, relaxed, bored, uneasy, ...)	Difficult to assess	Difficult and time consuming

Result.. Measures selected with modification

Measures/assessment methods	Changes made	Reason for modification
Scoring system (animal-based measures)	Individual numbering to tally, only poor welfare category tallied	Body Condition scoring (BCS), locomotion scoring, cleanliness scoring of a cow, rumen fill scoring was quick and easy
Cleanliness of the cow	Wisconsin to AHDB hygiene scoring system, lower leg not considered, only worst case scenario recorded, only dried form of faeces considered	(0,1,2,3) scoring to (0,1,2), lower leg scoring not feasible, scoring the worst case save time, considering fresh faeces not practical in extensively pasture- based condition
Fear behaviour	Distance of aversion modified by just the response, site: paddocks to parlour, video recording also discontinued	Distance measuring was not possible during milking, video assessment was lengthy and adjusting camera was a problem.
BCS	Herringbone: inside parlour to immediate exit But assessed inside the rotary parlour.	Only 50% (one row) possible for assessment inside the parlour, all body parts visible at the immediate exit

Result.... Selected measures with respective assessment sites

• Nutrition

Body condition score
Rumen fill Score

• Environment

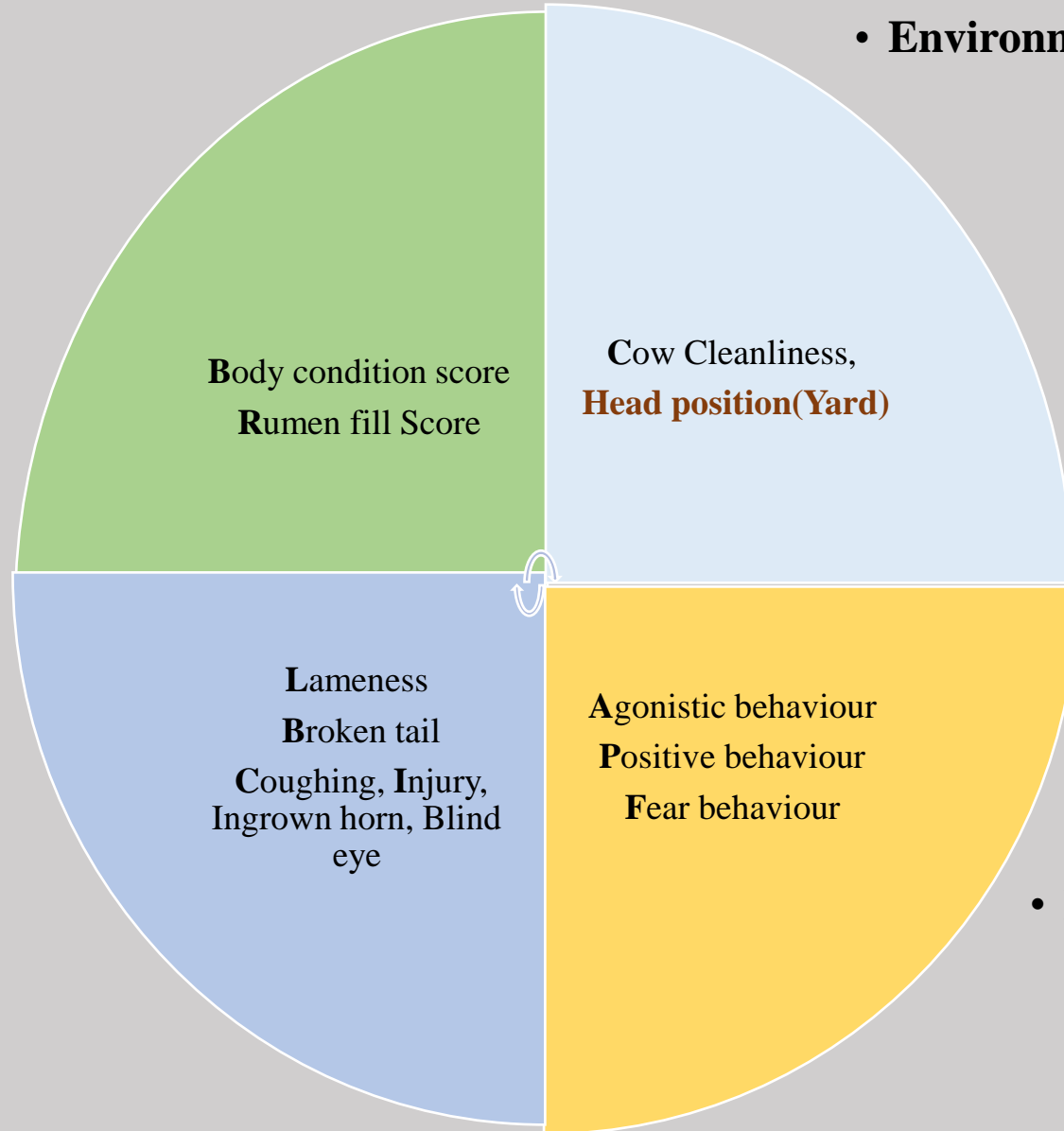
Cow Cleanliness,
Head position(Yard)

• Health

Lameness
Broken tail
Coughing, Injury,
Ingrown horn, Blind
eye

• Behaviour

Agonistic behaviour
Positive behaviour
Fear behaviour



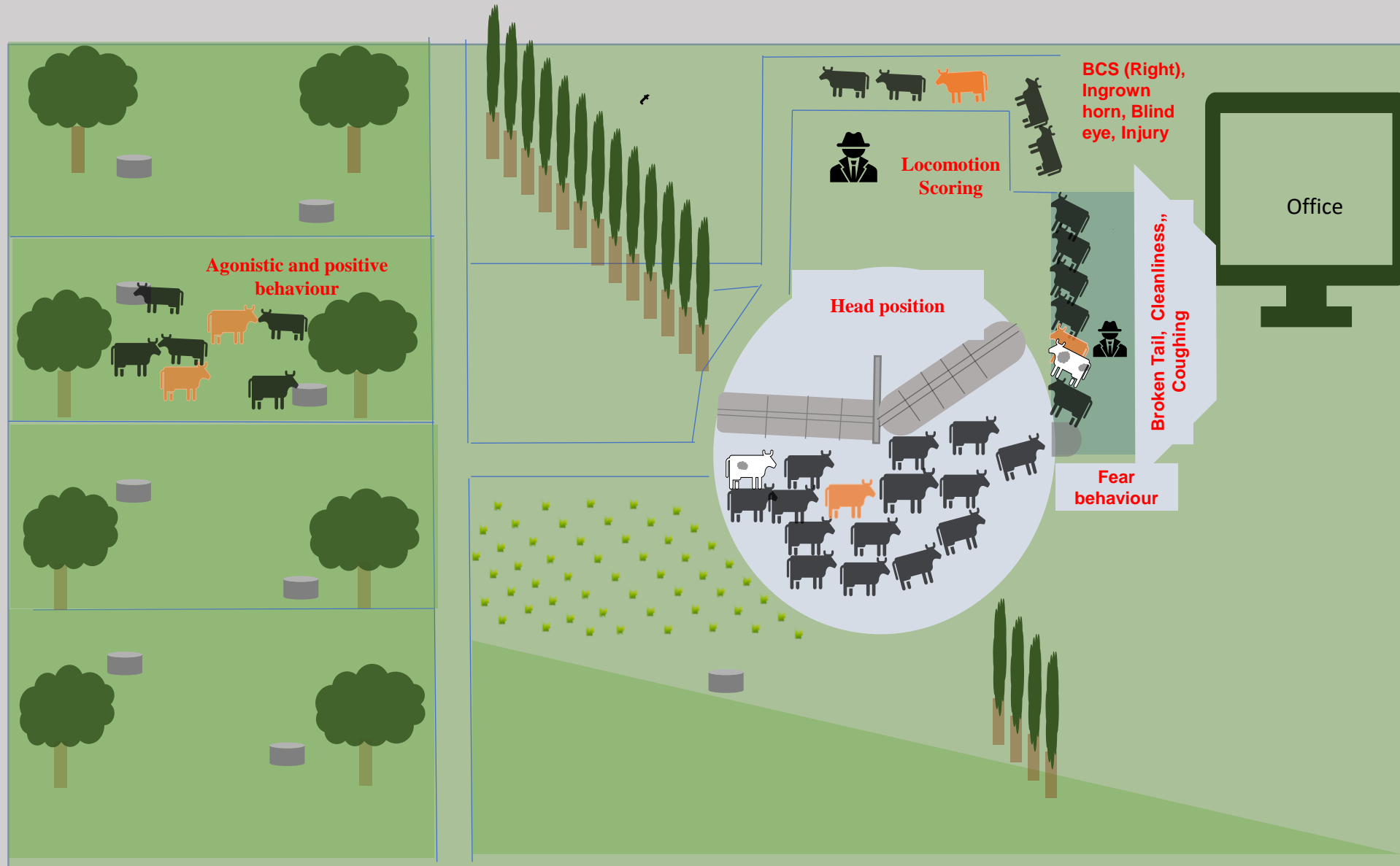
Result.... Details on approved animal-based measures

Measures	Site of assessment	Methodology	Number of animals assessed
BCS	Herringbone: Immediate exit(right hand side) Rotary: inside the parlour from caudal end.	Score thin cows ≤ 3 based on 1 to 10 scale. Later adjusted to ≤ 3.5 .	All milking cows
Rumen fill	Inside the parlour for both milking settings from caudal end.	Score cows with ≤ 2 rumen fill based on Dairy Veterinary Consultancy Ltd. Rumen Fill Scorecard.	Only one row (approx. 50%) in the herringbone, all cows in the rotary.
Cow Cleanliness	Inside the parlour for both milking settings from caudal end.	Dirty cows (Score ≥ 1) recorded based on AHDB cleanliness scoring system. Lower leg and fresh dirt/faeces not considered.	All milking cows
Head position(collecting yard)	Collecting yard	Cows with their heads up in absence of space after backing gate operation	Subjectively all milking cows

Result.... Details on approved animal-based measures

Measures	Site of assessment	Methodology	Number of animals assessed
Lameness	Outside the parlour post milking(second assessor)	Cows with the score of ≥ 2 will be Dairy NZ locomotion Scoring of (0-3 scale)	All cows
Broken Tail	Inside the parlour for both milking settings from caudal end	Visual assessment of broken tail (swelling and deviation)	All cows
Coughing	Inside the parlour for both milking settings from caudal end	Assessment of coughing symptoms	All cows
Injury	Inside the parlour for rotary and immediate exit for Herringbone	Abrasions, cuts, hairless patches and swellings will be recorded	All cows
Blind eye, ingrown horn	Outside the parlour (second assessor)	Assessment of cows with blind eyes and ingrown horns as	Not as a part of main assessment, scored when seen.

Result: Selected measures with respective assessment sites



Further steps: Farm visits

- Categorization of welfare levels for each measures.
- Further test of feasibility (Every farms are different).
- Assessment of welfare status of pasture-based dairy farms.
- Data useful for benchmarking.
- Future needs: Test of repeatability(inter and intra-observer).

Thank you



Best Wishes

Acknowledgements:

- **Organizers: ICAR/IDF workshop on animal-based indicators**
 - **School of Veterinary Science, Massey University**
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 - **Vetent, Waikato**