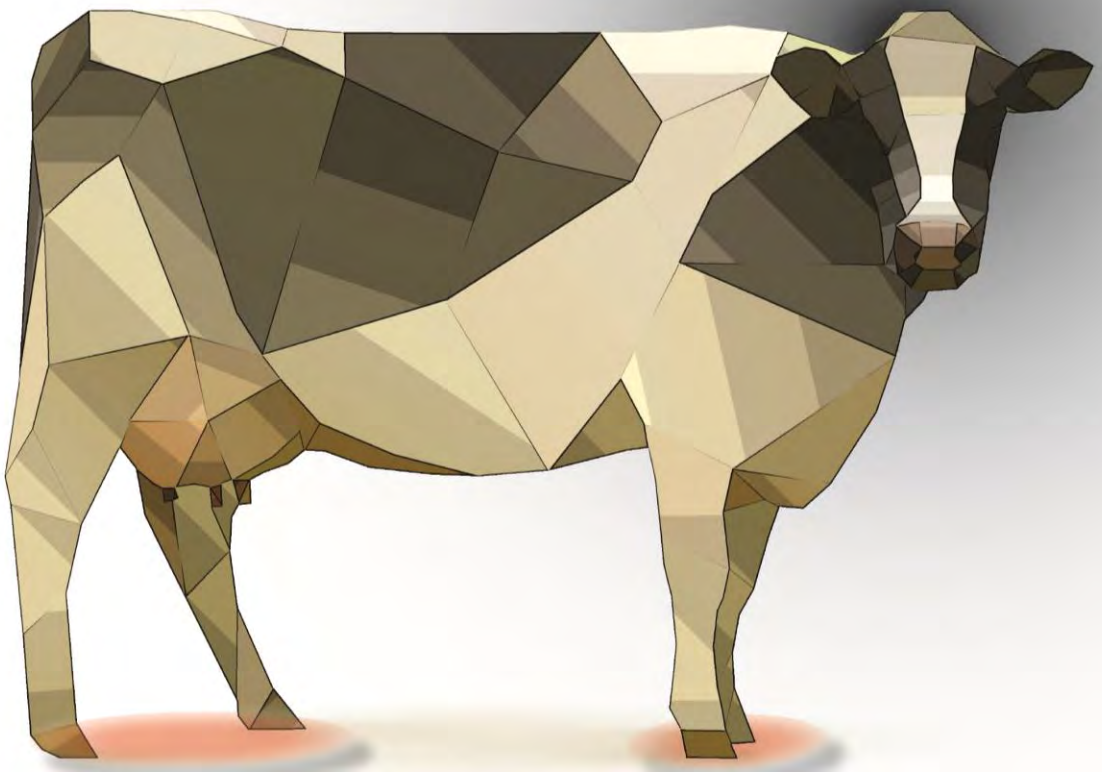
Boiterie et confort du bâtiment :
Facteurs de risques et impacts sur la longévité des vaches



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Professeur
Université de Calgary
Canada

Synthèse élevage

Faculty of Veterinary Medicine
Department of Production Animal Health

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Lameness and comfort of the housing: risk factors and impacts on the longevity of cows.

Karin Orsel
Calgary Lameness Team

Rencontres BOV'Idée Rennes June 2017

Who am I

DVM
MSc
PhD
ECBHM

Dairy cow longevity study

Canadian wide collaboration

Agriculture and Agri-Food Canada
Agriculture et Agroalimentaire Canada

Université Laval
University of Calgary
UBC
University of Guelph

Multiple funders

CANWEST DHI
valacta
NOVALAIT
ALBERTA milk
ALMA Alberta Livestock and Meat Agency Ltd.

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Canadian participating provinces

DFC cluster project objectives

1. identify the most important factors on Canadian dairy farms that lead to poor cow comfort and welfare and reduced longevity;
2. develop outcome-based measures of cow comfort and welfare that can predict cow longevity, and which can be used in an advisory tool to monitor improvements in housing and management techniques that increase cow longevity;
3. develop intervention tools that aid producers adopt new technology to improve cow comfort and longevity.

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Longevity

Environment

Management

Nutrition

Infection

Housing

Pain & $$

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Facility types

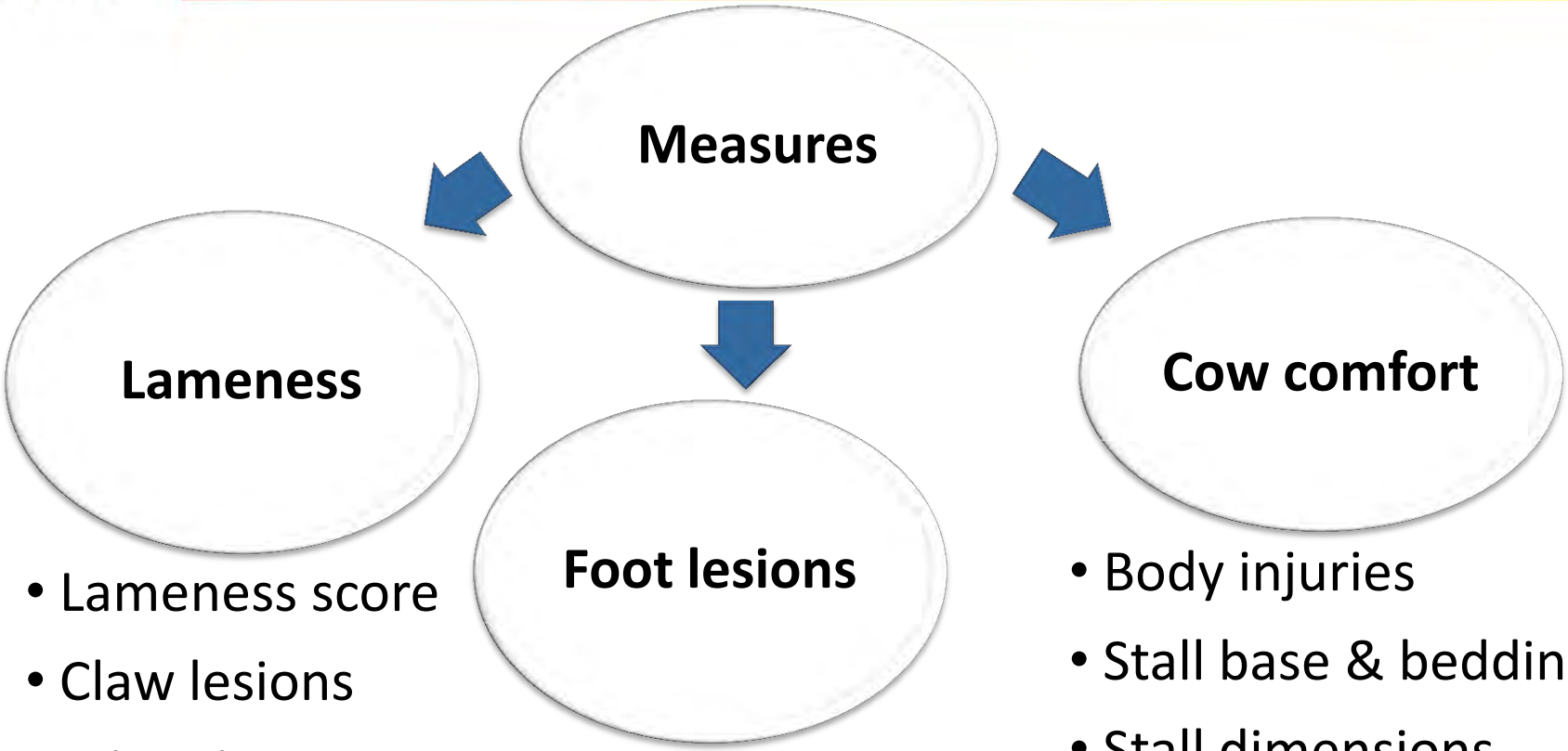
Improve cow comfort to increase longevity

- Quebec, Ontario, Alberta and British Colombia
- Free-stall, tie-stall and AMS

- 240 farms were visited twice
- At each farm 40 cows were selected

=> 81 free-stall farms AB
40 ON, 20 QC
=> 3,250 HF cows
5,500 Canada wide

Data collection



- Lameness score
- Claw lesions
- Lying time
- Footbath
- Cleanliness
- Body condition

Lesions recorded of cows presented for hooftrimming

- Body injuries
- Stall base & bedding
- Stall dimensions
- Flooring
- Slipperiness
- Stocking density

Alberta Hoof Health Project

- Training of 7 hoof trimmers to identify lesions and their record location in a uniform manner
- Hoof Supervisor® lesion recording system
- Development of a claw lesion database

Foot lesions

Claw Lesions

Results from the Alberta Hoof Health Project

Percentages of claw lesions found by hoof trimmers in AB from 20,644 cows (51%)

Type of Lesion	(%)
Digital dermatitis (DD)	43
Sole ulcer (SU)	17
White line (WL)	16
Sole hemorrhage (SH)	6
Others	17

DD:

Present on 98% of the farms

Affecting an average of 28% of cows per herd (range 1-81%)

Claw Lesions

Results from the Ontario Hoof Health and biosecurity Project

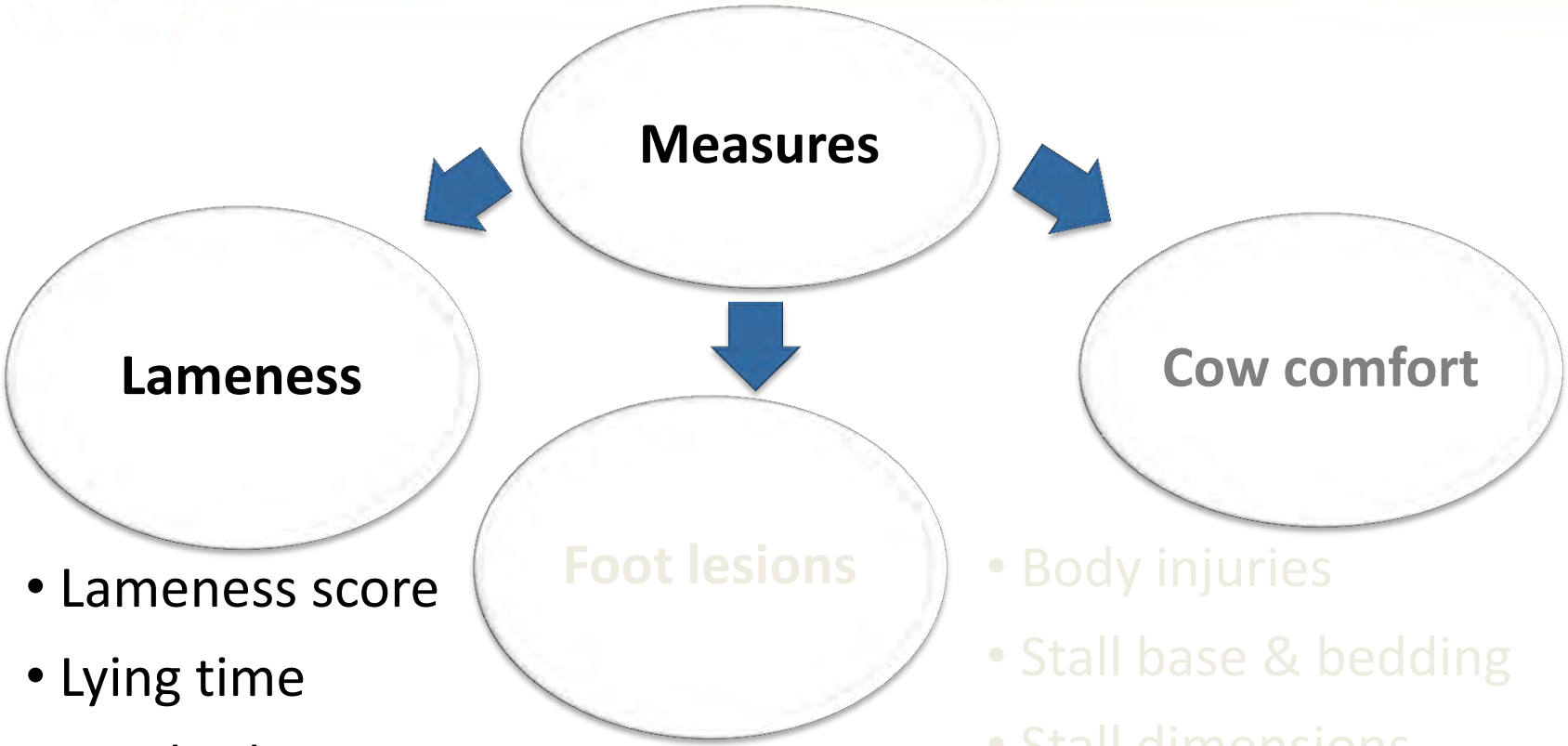
www.hoofhealth.ca

Percentages of claw lesions found by hoof trimmers in ON from 24,045 cows (38%)

Type of Lesion	(%)
Digital dermatitis (DD)	35
Sole ulcer (SU)	14
White line (WL)	9
Sole hemorrhage (SH)	22
Others	30

DD: Affecting an average of 13.7 % of cows per herd (0-62%)

Data collection



- Lameness score
- Lying time
- Footbath
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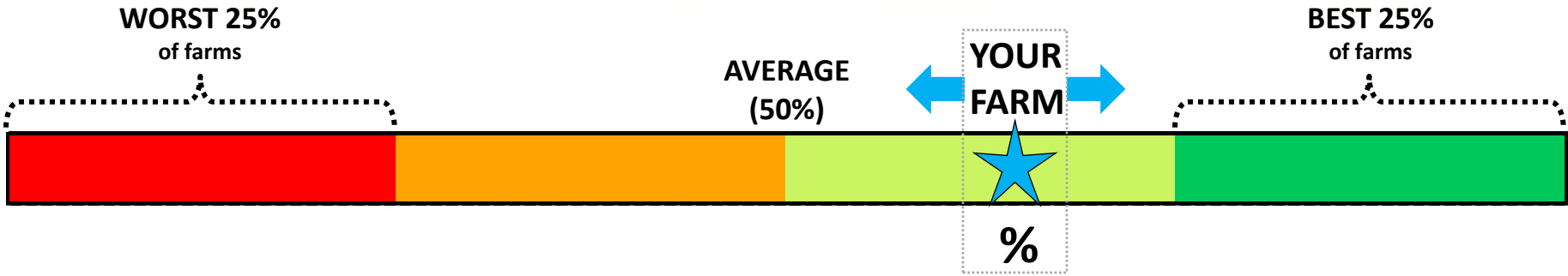
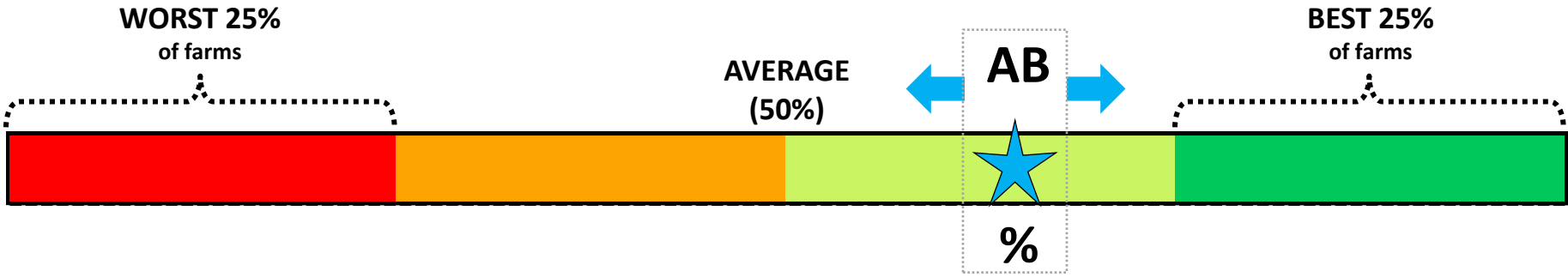
Lameness

Head b

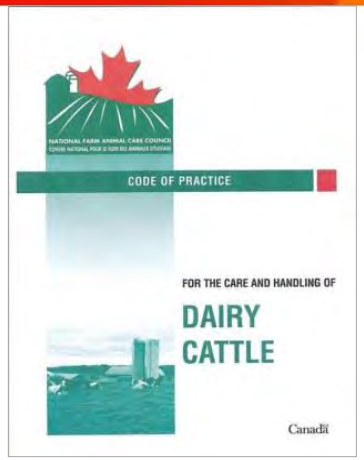
Source: 'Gait Scoring' – Animal Welfare Program, UBC

Benchmarking free stall dairies

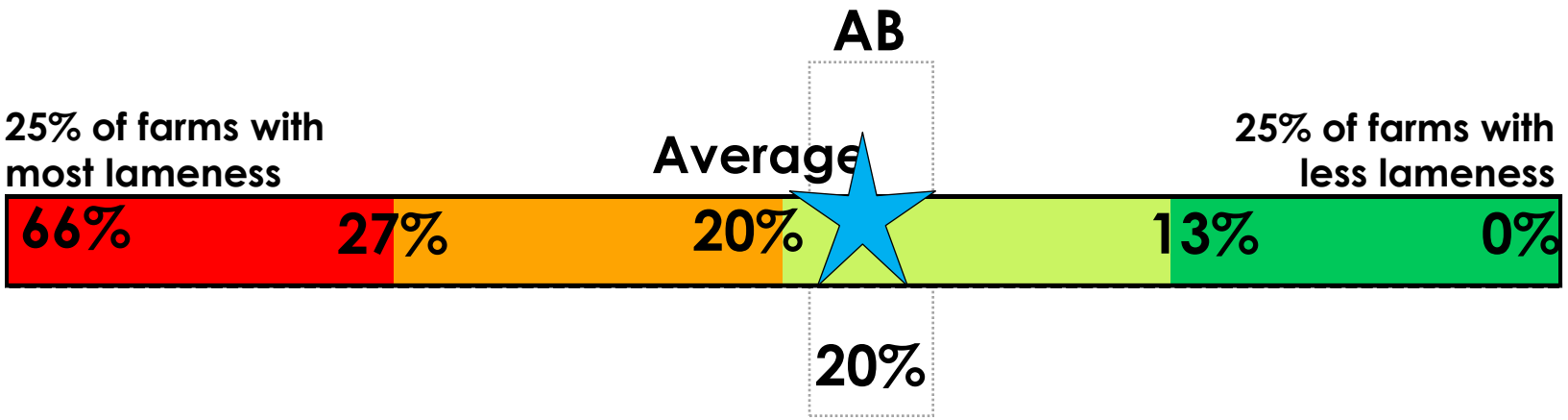




Benchmarking lameness



According to the ***Dairy Code of Practice***, producers must **routinely observe cows for lameness** and aim for a prevalence of
<10% obviously lame



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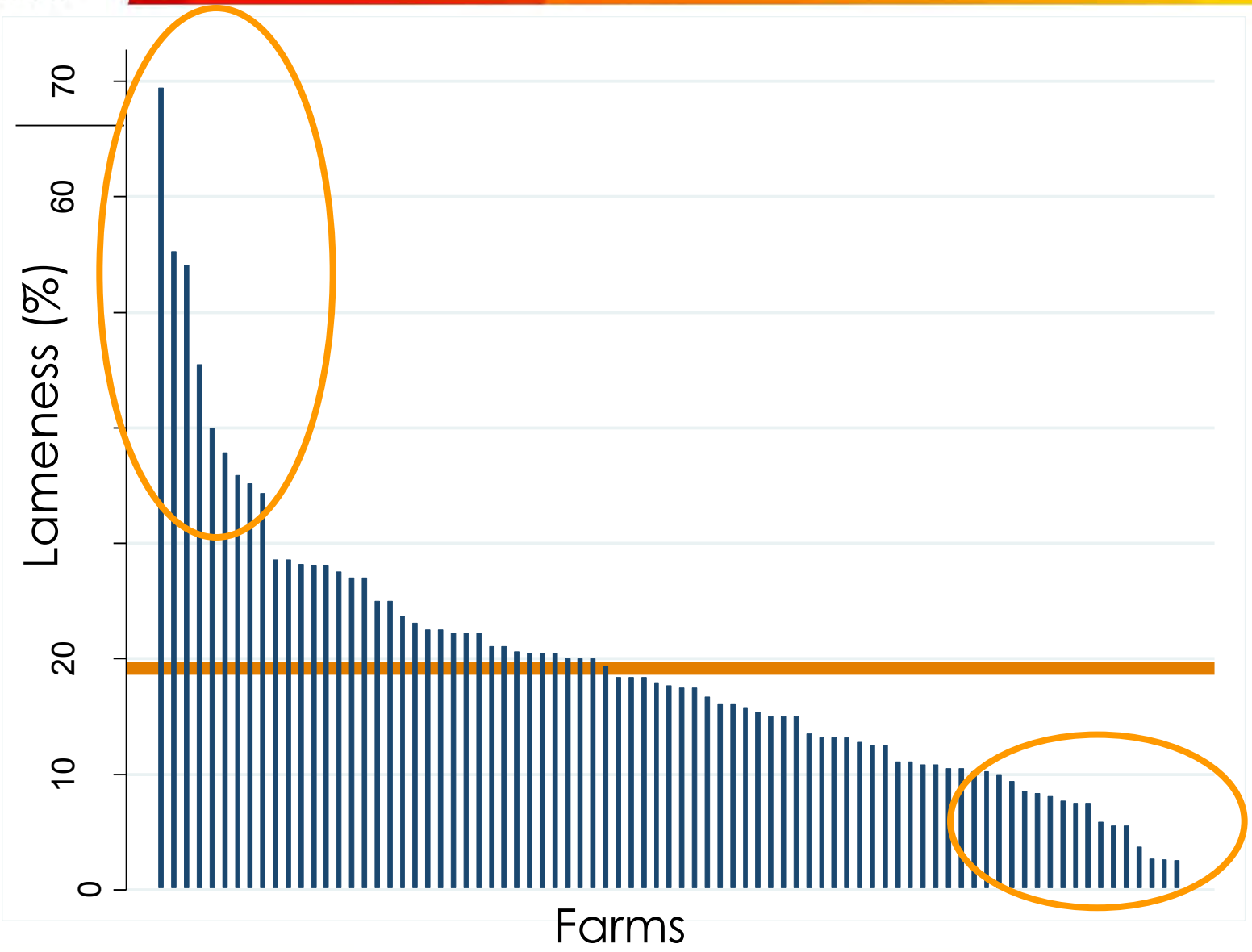
Variation in lameness across farms



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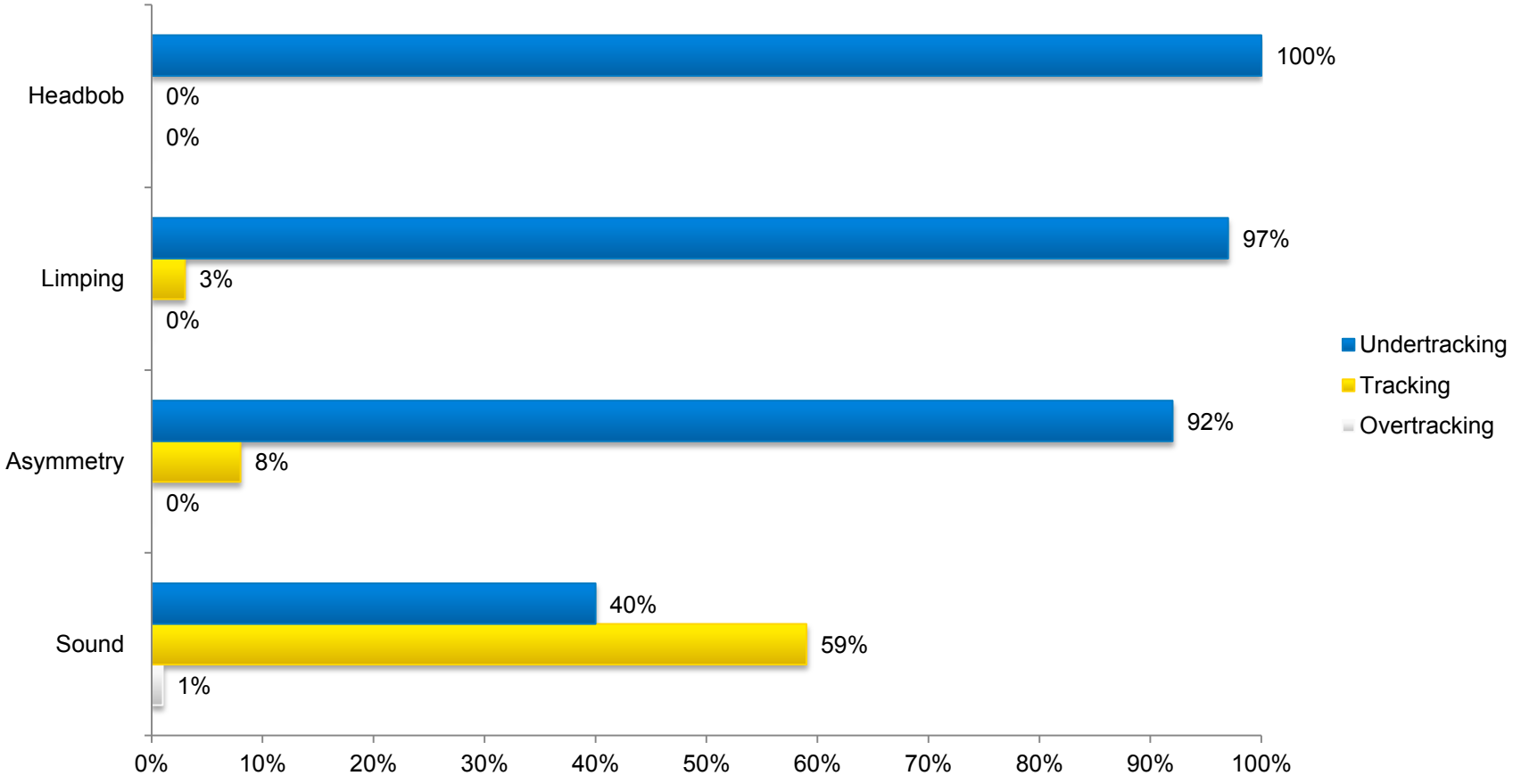
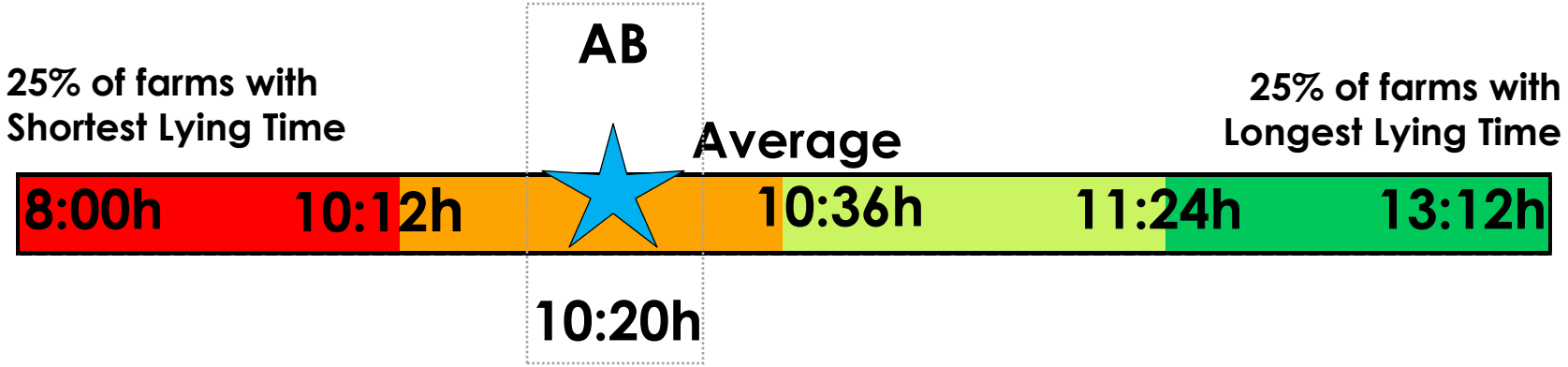
Results

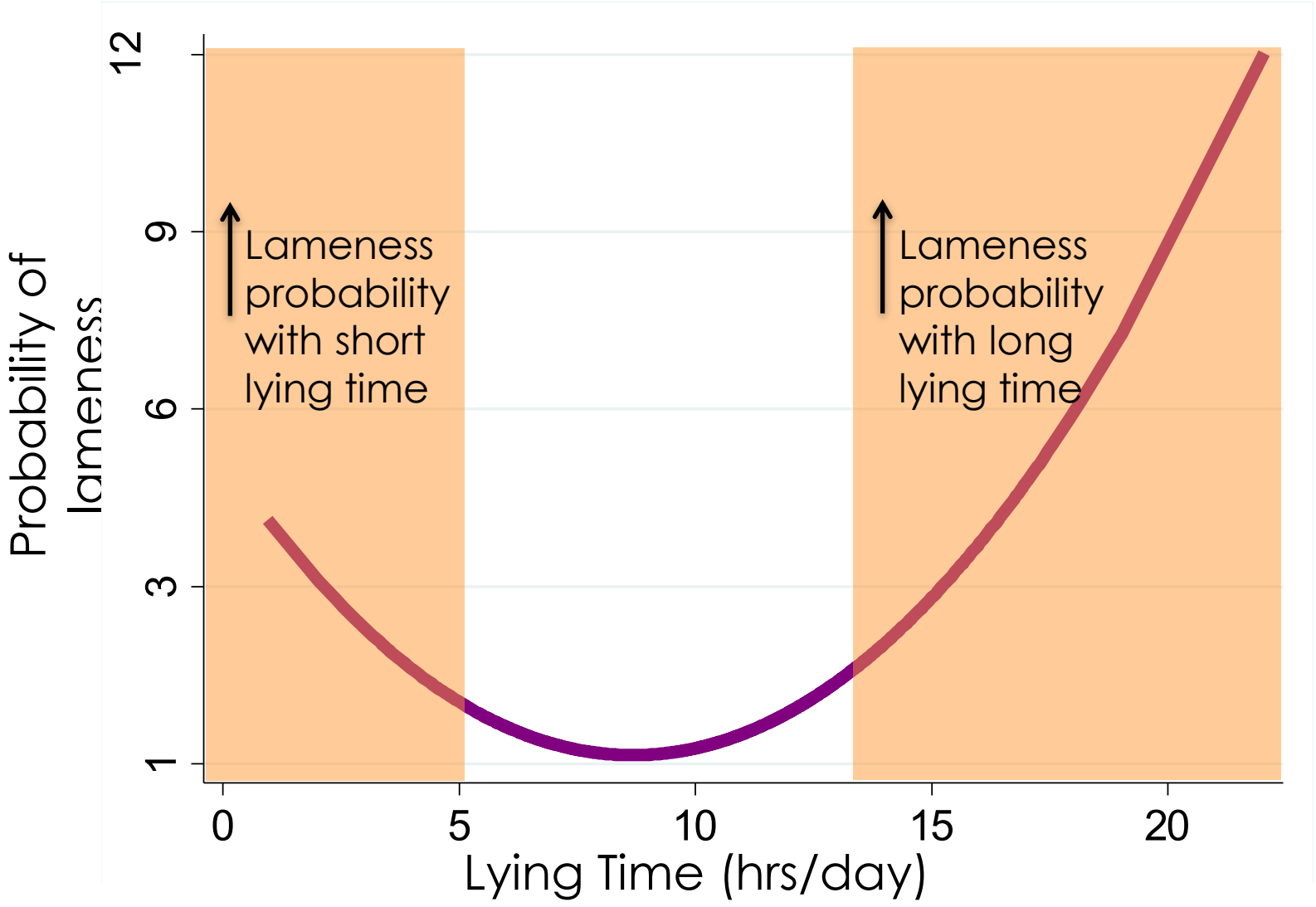
The effect of tracking



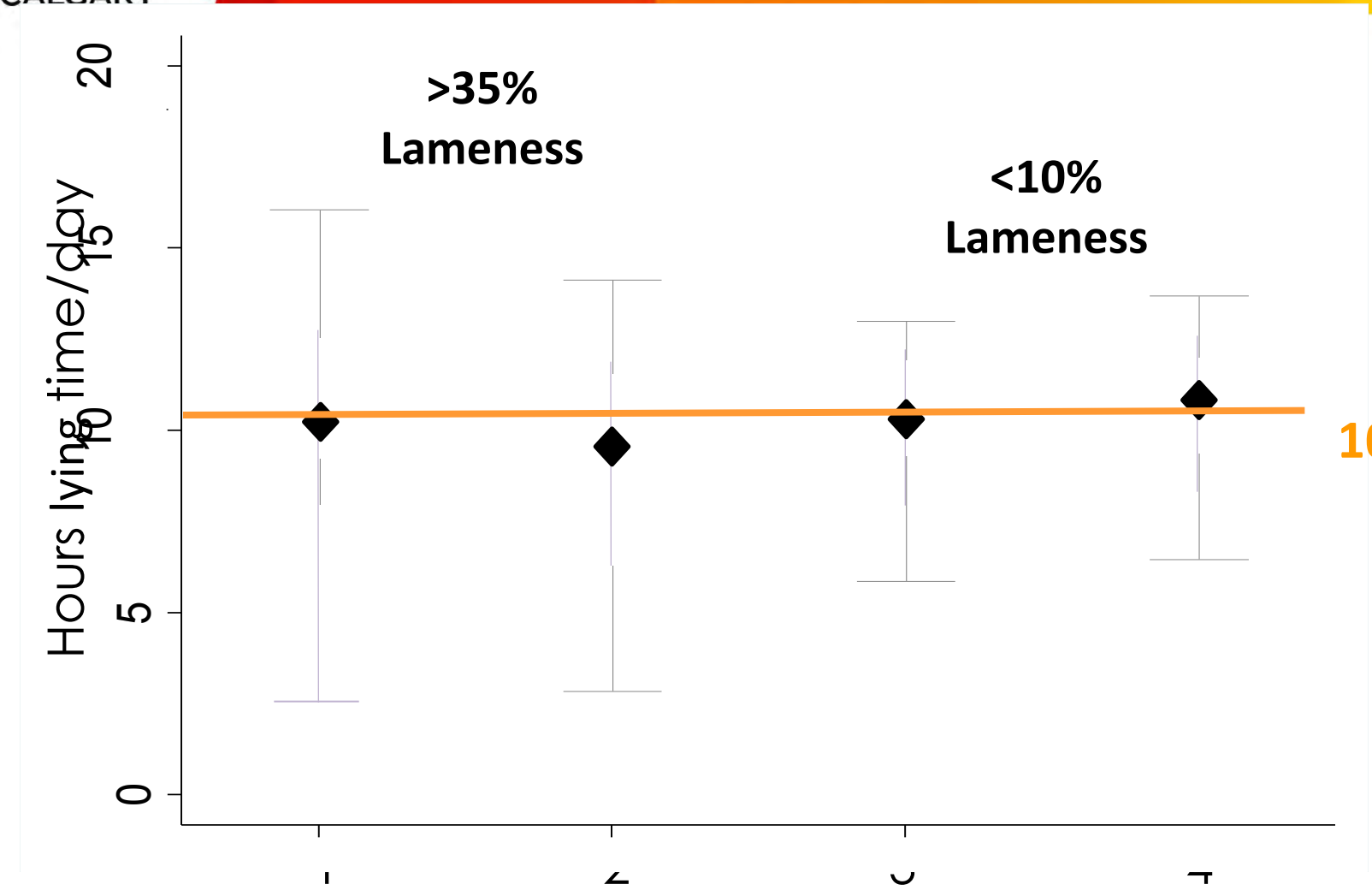
Benchmarking lying time



Association between lying time and lameness



Within herd variation in lying time



The Footbath puzzle

- 22 different product combinations
- 1-4 products used by farm from 0-7 days/week
- No consistency in the frequency of use and refreshing solutions nor the type and concentration of the products
- 2.8% of the farms in the study met all the criteria from literature on footbath dimensions

Footbath dimensions (cm)

	Avg. Length	Avg. Width	Avg. Depth
AB footbaths	207 (SD± 45)	82 (SD± 27)	16 (SD± 4)
Lit. Recommendation (Cook, 2012)	300-370	50-60	28

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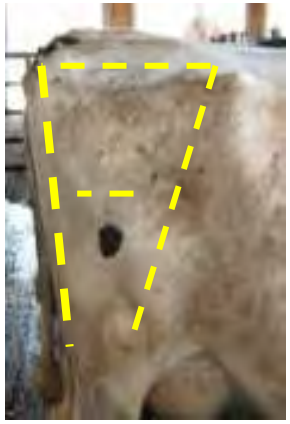
The Footbath: witch craft?

Cow cleanliness

Score 3	Score 2	Score 1	Score 0
			
VERY HEAVY contamination of **entire flank area and belly with dried caked manure**	**HEAVY** contamination of **dried caked manure for >50%** of the area	**MODERATE** contamination of **fresh splashes of manure for >50%** of the area (may have some caked spots)	**LIGHT** contamination of fresh **splashes of manure for <50%** of the area

Udder cleanliness

Score 3	Score 2	Score 1	Score 0
			
VERY HEAVY contamination of **entire area with dried caked manure**	**HEAVY** contamination of **dried caked and fresh manure for >50%** of the area	**MODERATE** contamination of **fresh splashes of manure for >50%** of the area	**LIGHT** contamination of fresh **splashes of manure for <50%** of the area

Let's give it a try

Not a 0:
not fresh manure splashes

Not a 1:
As it is not fresh manure splashes

Not a 3:
as it is not heavily contaminated

This is a score 2

In udder cleanliness we add up the % of cows with a score 2 and 3

Let's give it a try

Not a 1:
As it is not fresh manure splashes

Not a 2:
No caked manure

Not a 3:
as it is not heavily contaminated

This is a score 0

In cleanliness we add up the % of cows with a score 2 and 3

Let's give it a try

Not a 0:
Not just fresh splashes

Not a 1:
As it is not fresh manure splashes

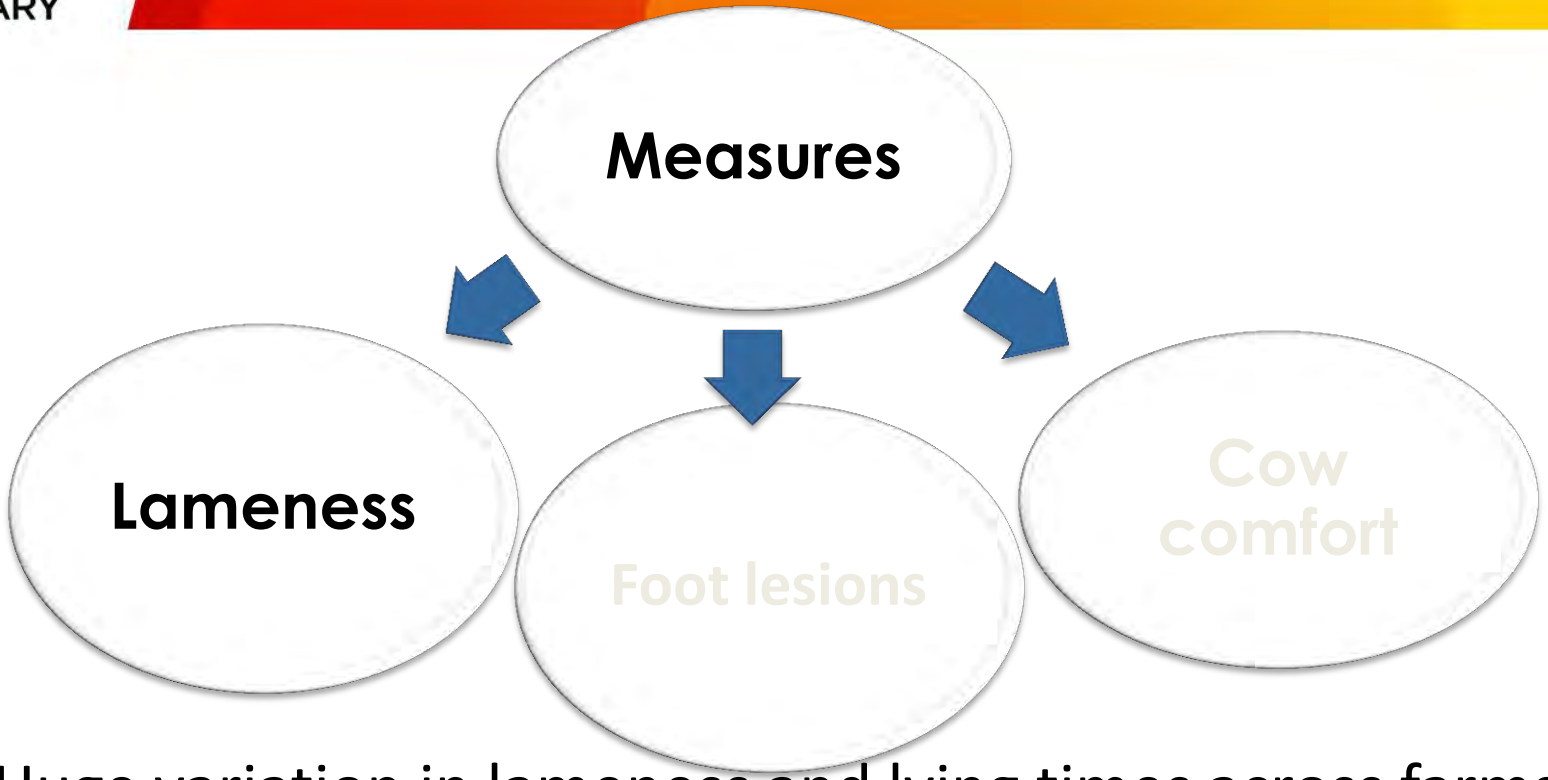
Not a 3:
as it is not heavily contaminated

This is a score 2

Score 2
contamination of dried caked and fresh manure for >50% of the area

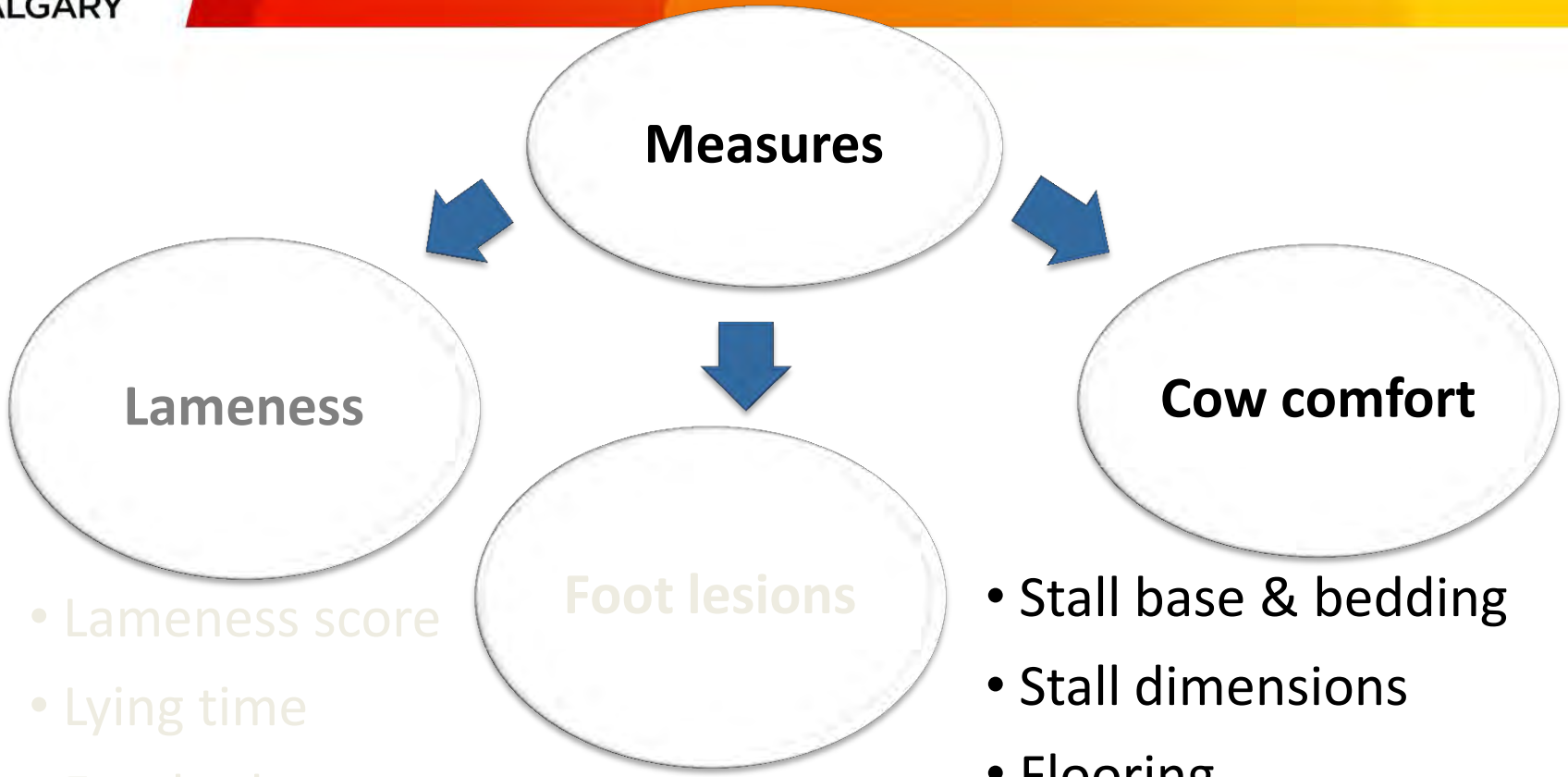
In cleanliness we add up the % of cows with a score 2 and 3

Summary Lameness

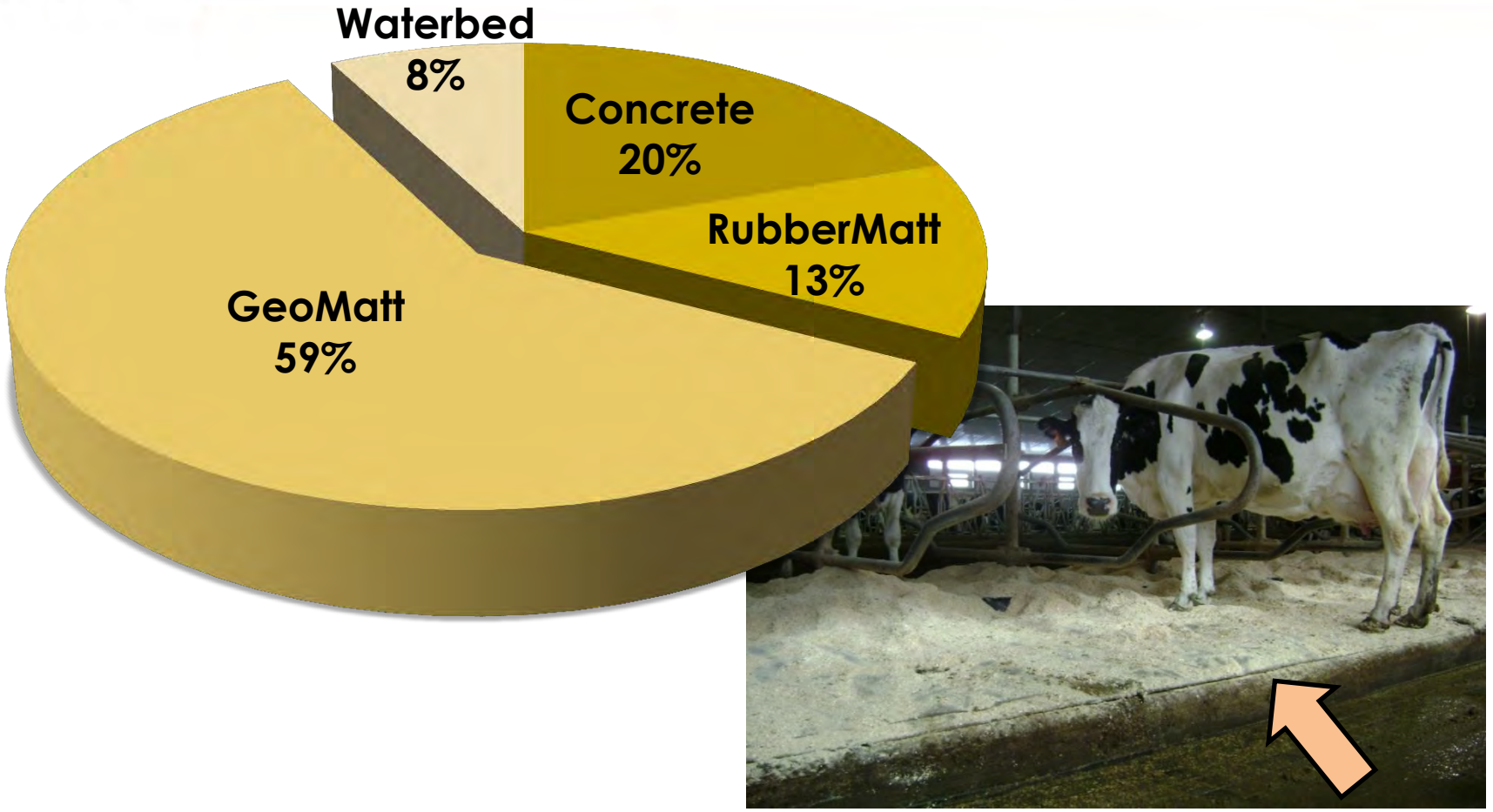


- Huge variation in lameness and lying times across farms
- Extreme lying times are associated with lameness
- Lameness is underestimated
- Digital Dermatitis is important in Canada

Data collection



Stall base

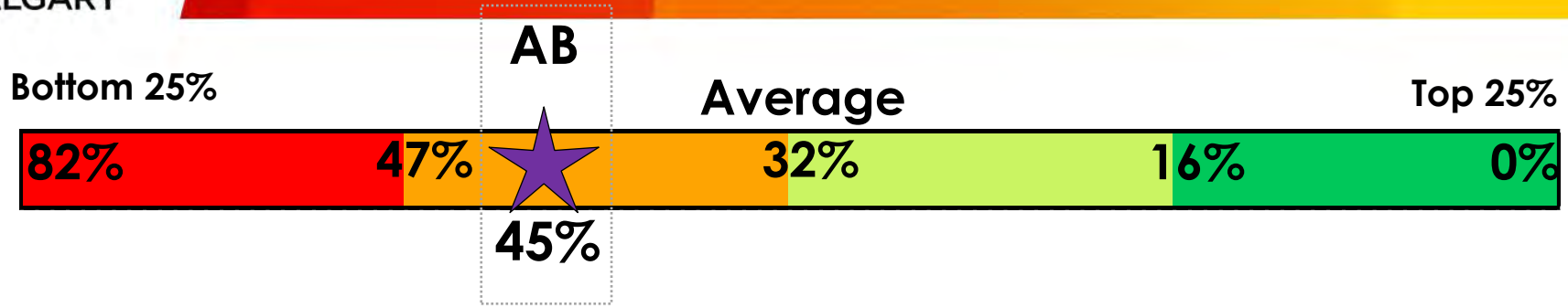


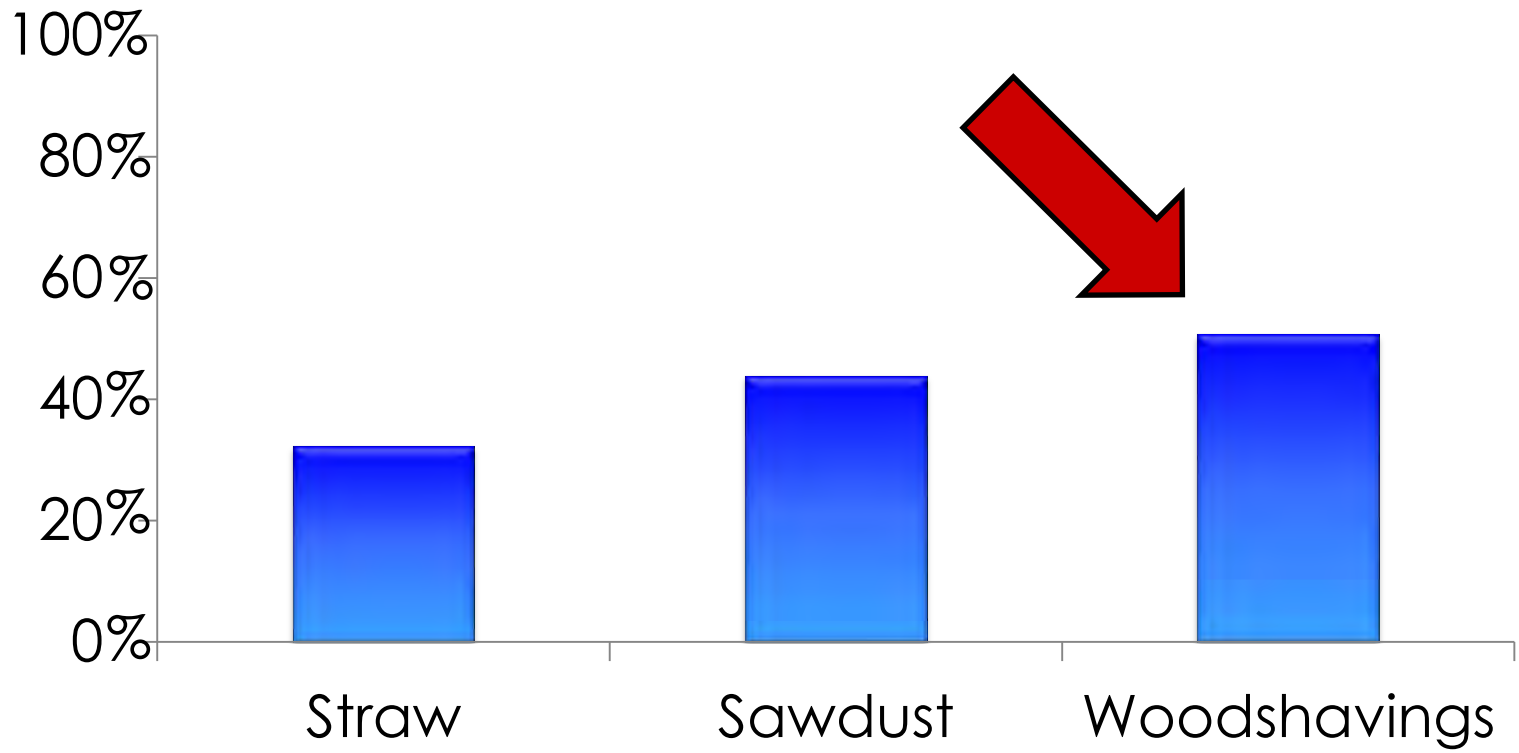
Cows lying down in rubber, geomatt & waterbeds are LESS prone to be lame than cows lying down on concrete stall bases

Hock injuries

Score 3	Score 2	Score 1	Score 0
			
Major swelling (> 2.5 cm). May have **bald area/lesion**	**Medium swelling** (1-2.5 cm) and/or **lesion** on bald area	No Swelling or minor swelling (< 1 cm). Bald area on hock	No Swelling or hair loss. Possibly some broken hair

Hock injuries associated with stall bedding





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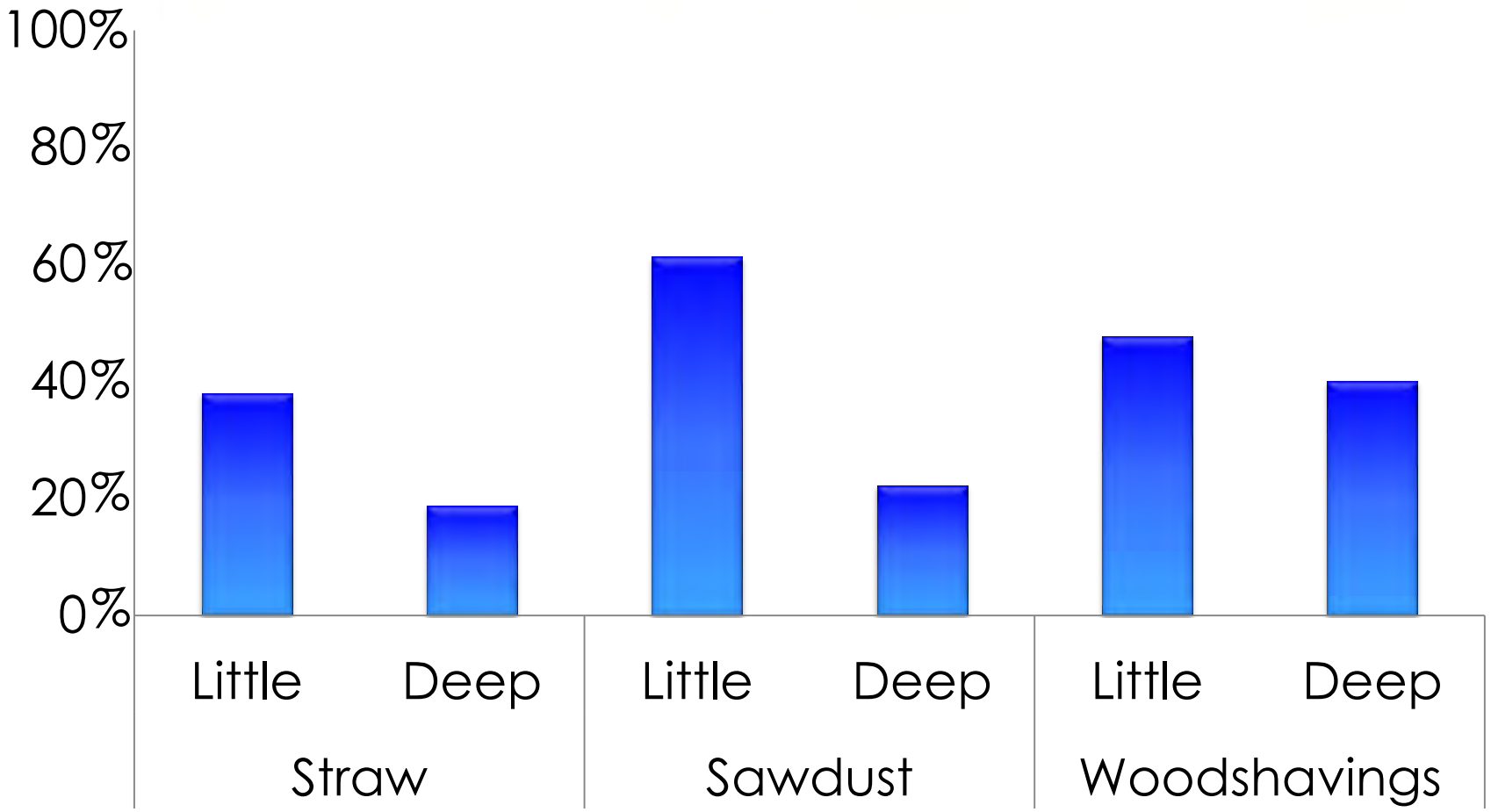
Hock associated with the amount of bedding



Deep bedding results in less hock injuries

Benchmarking stall dimensions

50 % Cows fit length on the farm

0 % Cows fit the width on the farm

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What is the challenge here?

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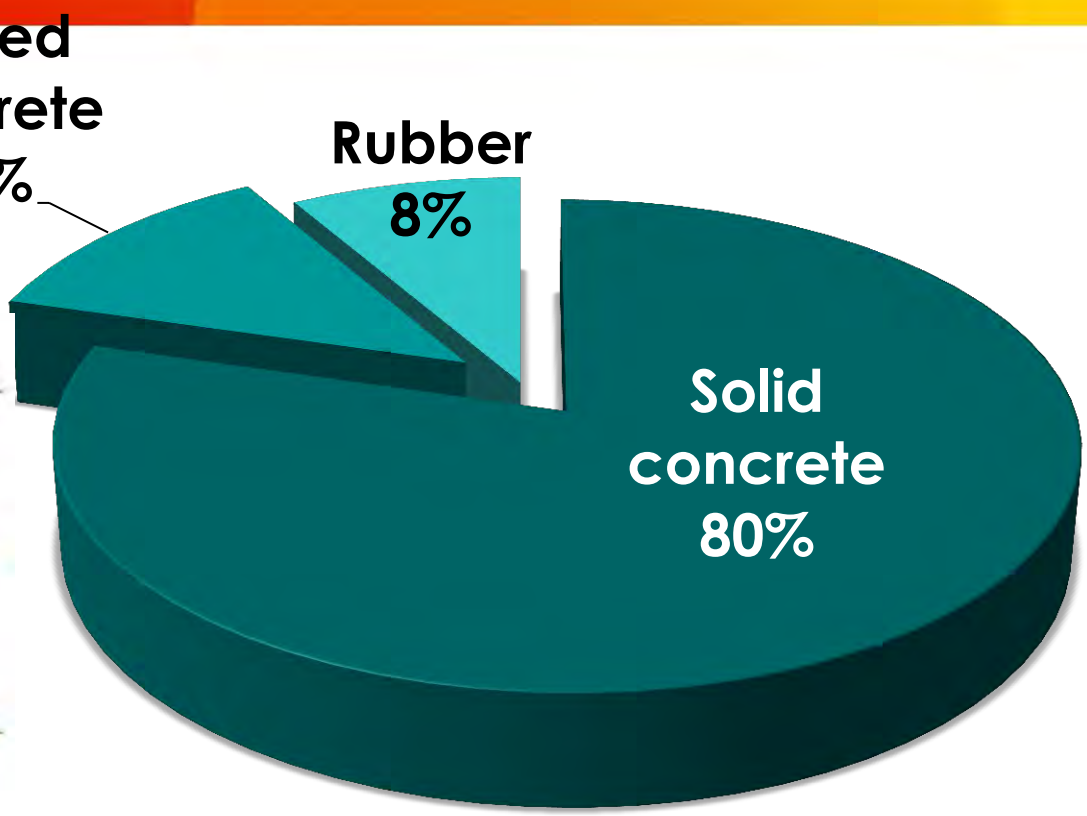
What is the challenge here?

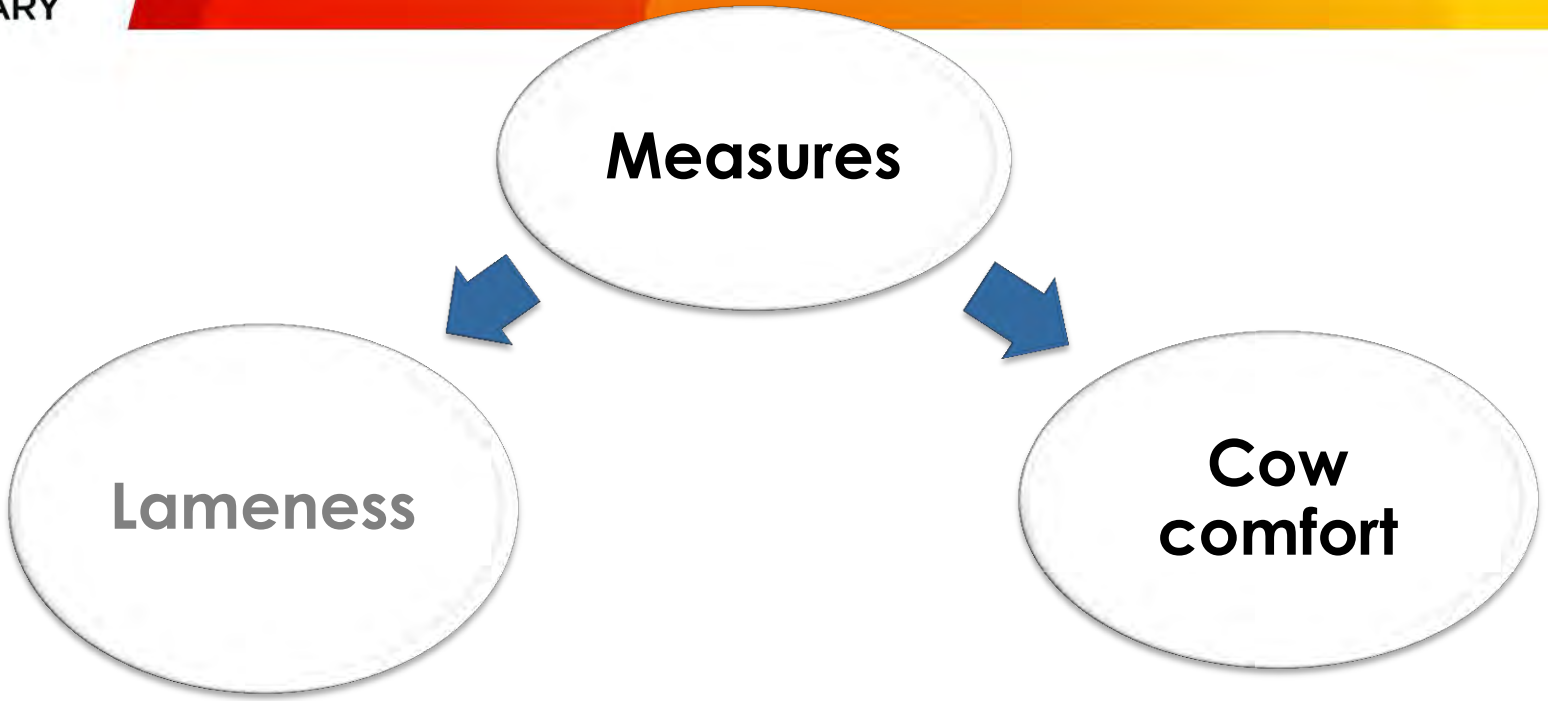
Describing flooring



- Cows standing on **slatted concrete** are MORE prone to be lame than cows standing on **solid concrete**

- Cows standing on rubber are LESS prone to be lame than cows standing on concrete

Summary Cow Comfort



- Enough space results in comfortable cows
- Flooring and stall base matters in presence of lameness
- Injuries are common but can be prevented with deep bedding

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Using our tools to evaluate the impact of a change

shallow bedded wood shavings on concrete

deep bedded composted manure

	Before	After
Lying Time (hrs/day)	10:42	11:08
Cows limping	39%	14%

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Impacts of changing free-stall area on prevalence of lameness, leg injuries and lying time on dairy farms in Alberta

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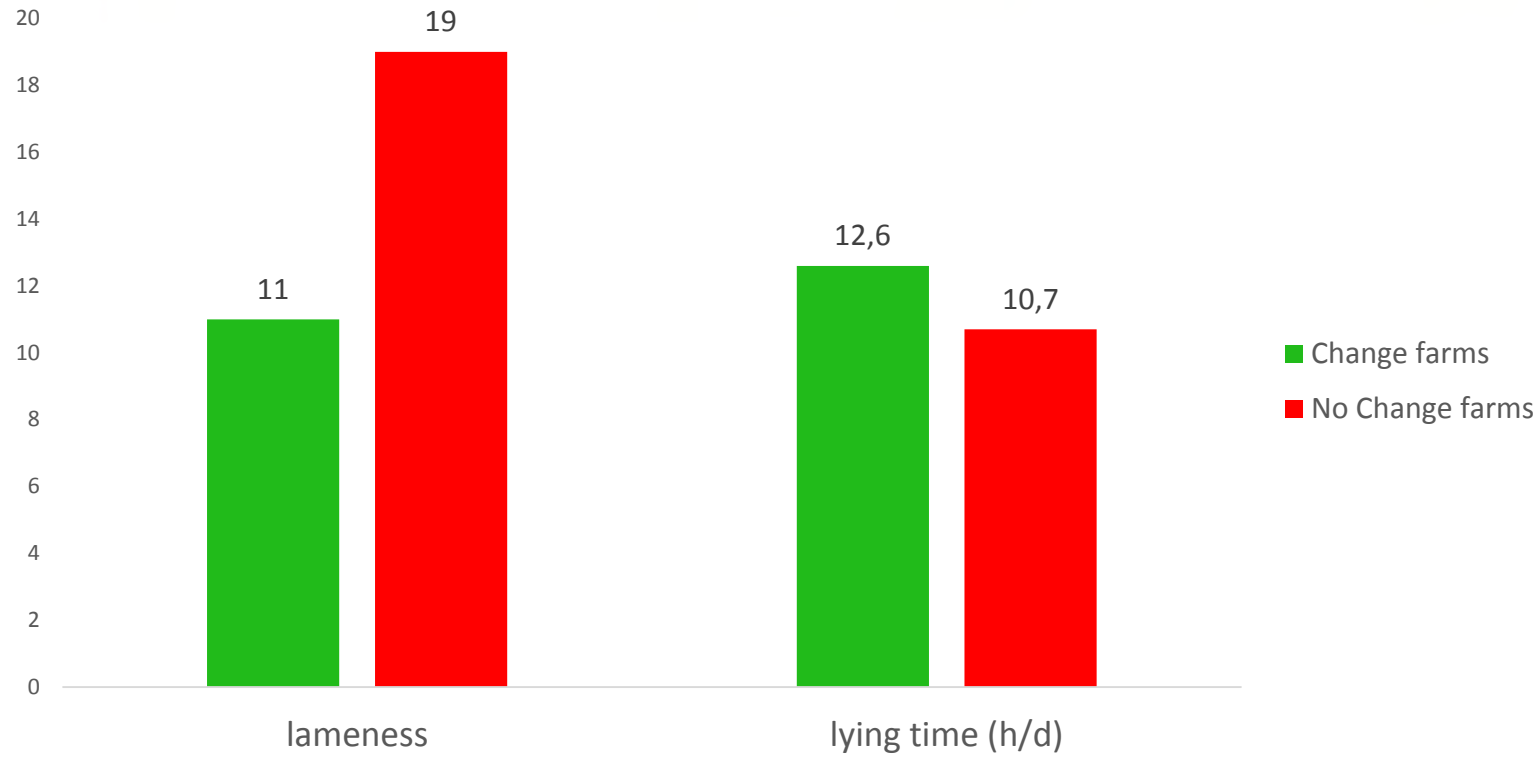
Emily Morabito


2011
30 farms
Changed freestalls
2015
15 farms
Made no changes to freestalls
2015
15 farms

Impact of changes



CHANGE farms had a lower prevalence of lameness than NOCHANGE

Improved cow comfort in terms of lameness

CHANGE farms had a higher average daily lying time than NOCHANGE

Improved cow comfort in terms of lying time

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Conclusions

- No differences between CHANGE, NOCHANGE farms for hock and knee injuries
  - Cow comfort not improved in terms of leg injuries
    - High variation of herd-level risk factors associated with leg injuries

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Summary

1. Identify the most important risk factors on Canadian dairy farms that lead to poor cow comfort and welfare and reduced longevity;

   Poor surfaces for standing and lying

2. Develop outcome-based measures of cow comfort and welfare that can predict cow longevity, and which can be used in an advisory tool to monitor improvements in housing and management techniques that increase cow longevity;

   Stall base and bedding have a major impact on lameness. We need to measure

3. Develop intervention tools that aid producers adopt new technology to improve cow comfort and longevity.

   Benchmarking and quantify the impact of changes

Acknowledgements

- **All the participating farmers**
- **Hoof trimmers AB**: Elbert, Philip, Rob, Taco, Darren, Matthew, Eric
- **UofC team**: Laura (for the slides), Ed, Steve, Herman, Guilherme
- **Collaborating partners**: Anne Marie de Pasillé, Jeff Rushen, Doris Pellerin, Derek Haley, Stephen LeBlanc and their teams
- **Students involved**

Funders

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ALMA Alberta Livestock and Meat Agency Ltd.

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