# On-farm Assessment of Cow Comfort and Lameness on Canadian Dairy Farms



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## **Background: Improving longevity**

Longevity 

defined as the length of productive life
Cow comfort and lameness highly impact longevity



## Improving longevity

Quality vs. duration of life

 Cow comfort associated to lameness and injuries

The Dairy Code of Practice





## **Dairy Farmers of Canada Cluster Project**

AnneMarie de Passile, Jeff Rushen, Elsa Vasseur, Jenny Gibbons, Stephen Le Blanc, Trevor De Vries and Derek Haley, Daniel Weary, Marina von Keyserlingk, Daniel Lefebvre and Jean Durocher, Doris Pellerin and the Alberta team



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## **DFC cluster project objectives**

- 1. identify the most important risk 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.



## **Longevity and Lameness Project in Alberta**

- 81 free-stall farms
- 3,250 Holstein-Friesian
- No grazing during lactation
- Farm size: ≥60 milking cows

 Enroll in CanWest DHI & in Alberta Hoof Health Project

www.hoofhealth.ca



## **Alberta Hoof Health Project**

#### **Claw Lesion scoring**

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









#### **Data collection**



#### **Data collection**



#### Three important gait behaviours



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



#### Lameness percentage in Canada

25% of farms with		Average	25% of farms with	
Inosi lumen	C33		1033	Interiess
66%	<mark>27</mark> %	<mark>2</mark> 0%	13%	0%



## Variation in lameness across farms



#### **Knee injuries**

SCORE 0





SCORE 2



SCORE 3





### **Hock injuries**

SCORE 0



#### SCORE 1



#### SCORE 2



SCORE 3





#### **Neck injuries**

SCORE 0



**SCORE 1** 



SCORE 2





### Data collection: Cow measures

#### Body Injuries: Percentage of major injuries in Canada

HOCK				
25% of farms with more injuries		Average	25% of Ie	farms with ess injuries
82%	<mark>4</mark> 7%	<mark>3</mark> 2%	16%	0%
KNEE				
25% of farms with more injuries		Average	25% of	farms with ess injuries
78%	<mark>2</mark> 2%	<mark>11</mark> %	<mark>4</mark> %	0%
<b>NECK</b> 25% of farms with more injuries		Average	25% of	farms with ess injuries
65%	10%	<mark>0</mark> %	0%	0%
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#### Measuring lying time with hobo's



## Lying time results

25% of farms	with	25% c		f farms with	
Shortest Lying Time		Average	Longes	Longest Lying Time	
<b>82</b> %	<mark>4</mark> 7%	<mark>3</mark> 2%	1 <mark>6%</mark>	0%	



#### Association between lying time and lameness



#### Data collection: Cow measures

#### **Claw Lesions**

Percentages of claw lesions found by hoof trimmers

- Alberta  $\rightarrow 51\%$
- British Columbia  $\rightarrow 60\%$
- Ontario  $\rightarrow 38\%$









## **Claw lesions**

Type of Lesion	Frequency	Percentage
None	692	74.1
Digital dermatitis (DD)	89	9.5
Sole ulcer (SU)	46	4.9
White line (WL)	31	3.3
Sole hemorrhage (SH)	21	2.2
Toe ulcer (TU)	19	2.0
Others	36	3.8



## Data collection: Cow measures

#### **Claw Lesions**

Association between gait scoring and digital dermatitis (DD), sole ulcers (SU), white line (WL), and sole haemorrhage (SH)



#### **DHI information**



#### •Parity

- •Days in Milk
- •Milk Production



## **Relationship between milk production**



There is no relationship between milk production and lying time





#### Stall base and bedding



# Knee Injuries: Percentage of cows with knee injuries depending on stall base



# Hock Injuries: percentage of cows with hock injuries depending on stall bedding



#### Feeder type and its effect on neck injuries



#### **Stall dimensions**









#### % Cows fit the width on the farm

25% of farms that			25% of	25% of farms that fit	
did not fit width		Average		the width	
0%	0%	0%	2 <mark>0%</mark>	100%	

#### % Cows fit length on the farm

25% of farms that		25% of farmsth		isthat did not
ala not fit length		Average		in me lengin
0%	<mark>9</mark> %	<mark>53</mark> %	100%	100%



## Data collection: Cow measures

#### Stocking Density (cows/stall)



- 96% of pens in AB met the Code of Practice criteria
- Lying time not influenced by stocking density



## **Data collection: Environment**

#### **Flooring & Slipperiness**

- 77% solid concrete
- 12% slatted concrete
- 7% with rubber

Cows standing on slatted concrete were more prone to be lame than cows standing on solid concrete, whereas cows standing on rubber were less frequently lame than cows standing on solid concrete

Slipperiness??



#### **Data collection**



#### Standardized questionnaire:

- Cleaning & bedding routine
- Nutrition
- Herd health issues
- Perception, monitoring and treatment of lameness
- Footbath
- Claw health & hooftrimming routine and records





- 80% farmers reported monitoring of lame cows as part of their daily routine, immediate treatment of lame cows and keeping records
- Hoof trimming schedule varied from every 3 weeks to once a year and 76% of the farms trimmed hooves two months before calving to prevent and minimize lameness
- 80% of the farms cleaned their stalls twice a day before milking
- 85% of the farms cleaned the alleys two or more times daily



#### The Footbath puzzle







#### The Footbath puzzle

- Wide variability of on-farm practices
- 2.8% of the farms in the study met all the criteria from literature on footbath dimensions
- 22 different product combinations (range 1-4 used by farm)
- 95% of farms used a footbath (not a single one with the exact same protocol)



#### The Footbath puzzle

	Average Length of the Footbath (cm)	Average Width of the Footbath (cm)	Average Depth of the Footbath (cm)
AB footbaths	207 (SD± 45.15)	82 (SD± 27.3)	16 (SD± 4.05)
Lit. Recommendation (Cook, 2012)	300-370	50-60	28
(Merck Manual)	304.8	91.4	Max. 15.2



If you want to manage lameness and cow comfort:

1. Measure it

2. Identify your strengths and weaknesses Discuss with experts where needed

3. Implement it as part of your herd health management



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