



Cow comfort and lameness in dairy cows

Dan Weary

Dairy Farmers
of Canada



NSERC
CRSNG



WESTGEN

zoetis



2-18-07 24H
1:06:14

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1:06:14

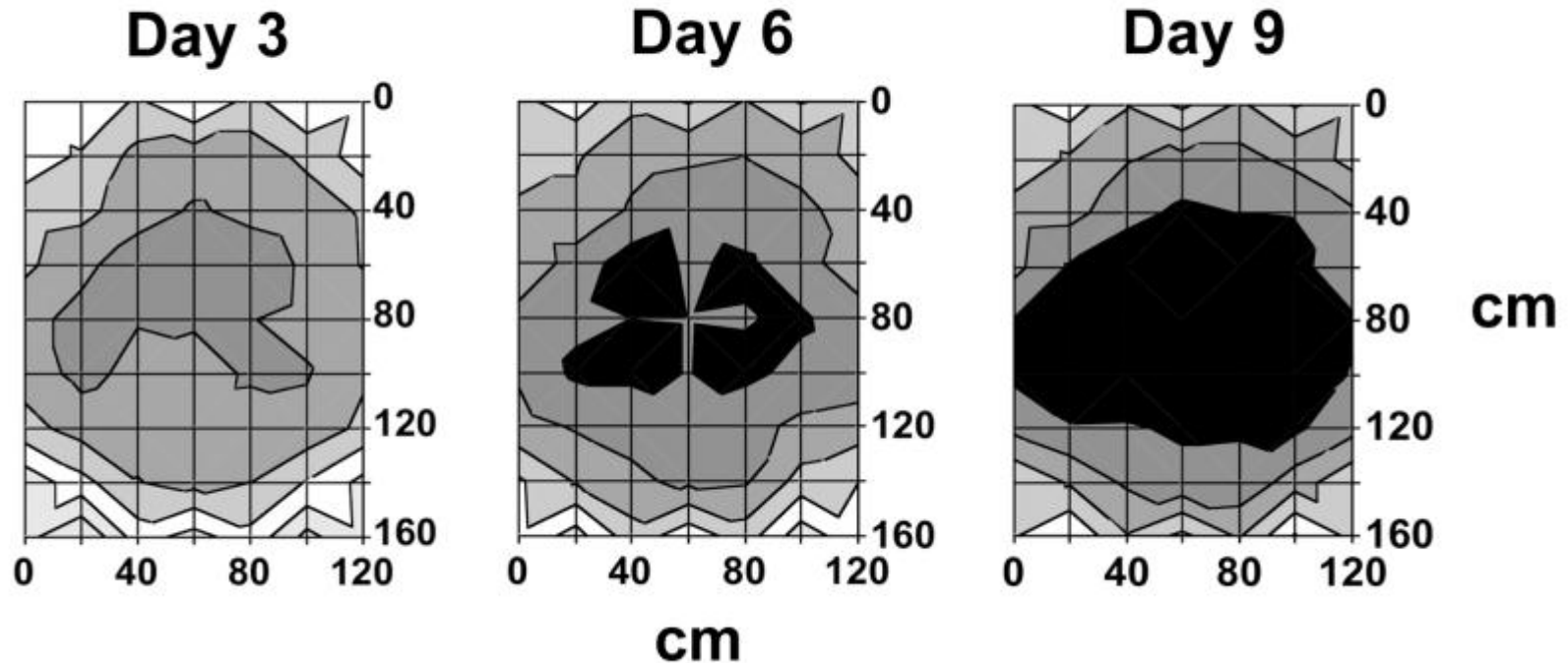
Effects of stall design and management on usage: bedding surface



Drissler et al., 2005. J. Dairy Sci. 88: 2381-2387.

Effects of stall design and management on usage: bedding surface

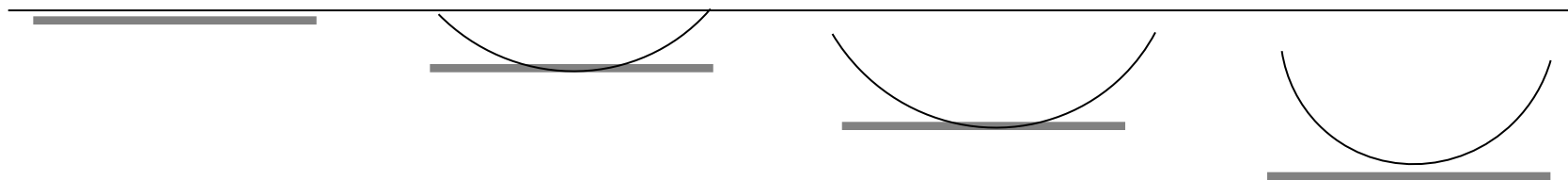
■ 8-10 cm ■ 6-8 cm ■ 4-6 cm ■ 2-4 cm □ 0-2 cm



Days after sand bedding was added and leveled

Effects of stall design and management on usage: bedding surface

curb



Day 0

Day 3

Day 6

Day 9

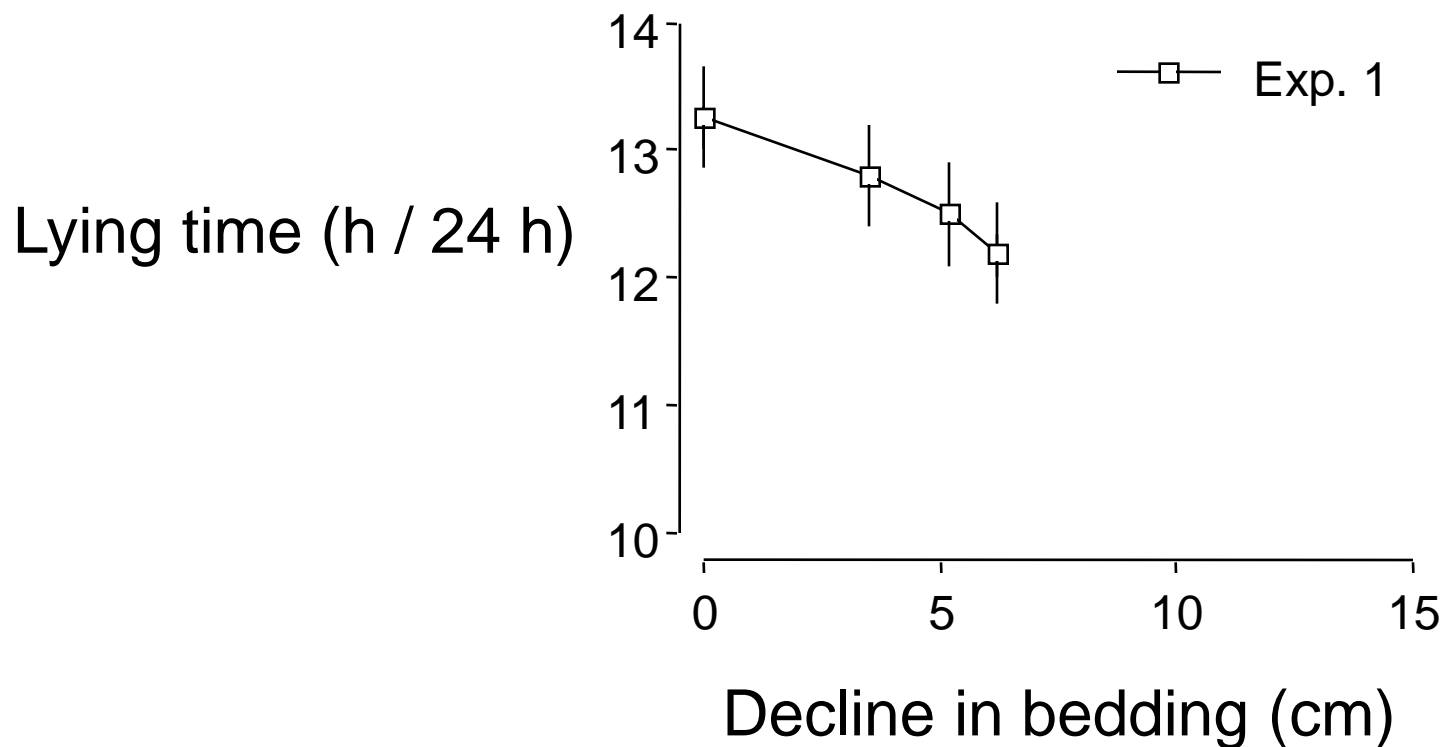
0 cm

3.5 cm

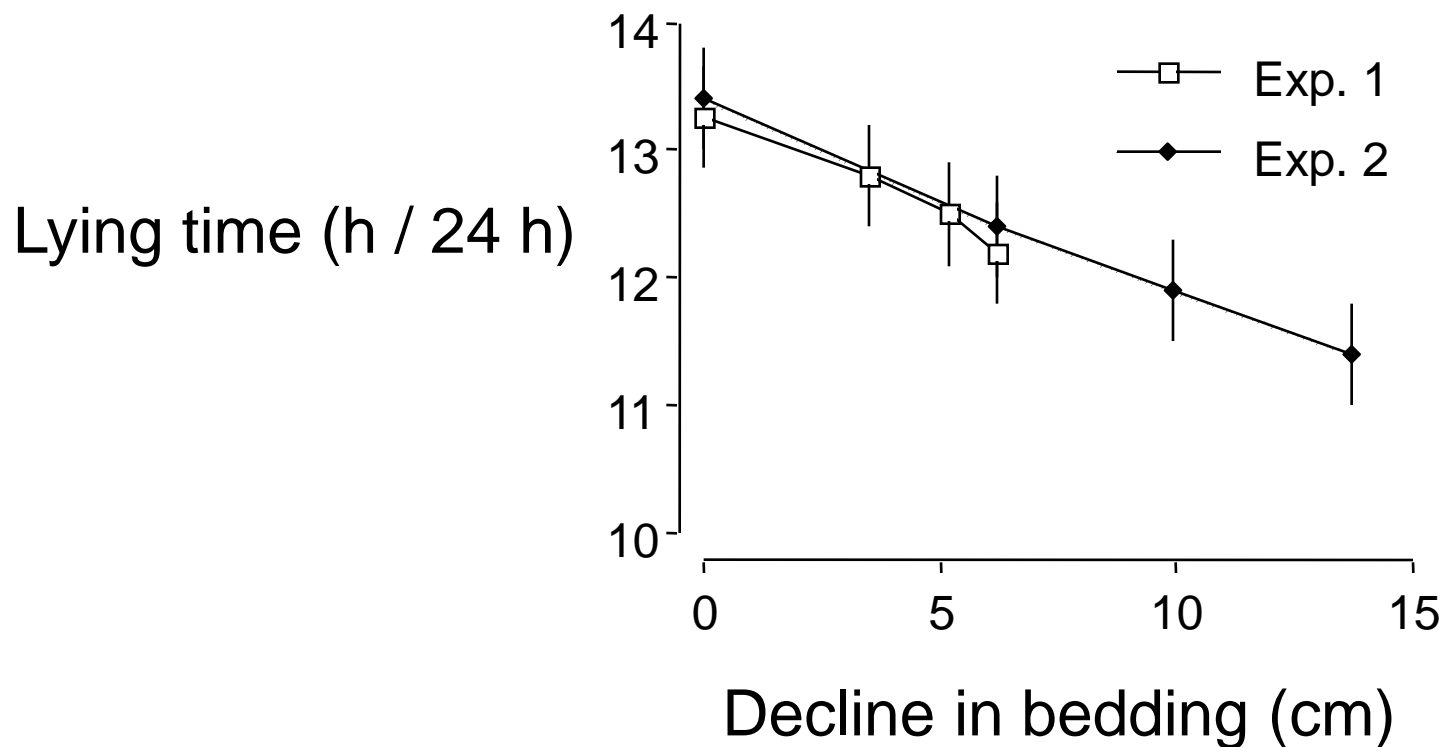
5.2 cm

6.2 cm

Effects of stall design and management on usage: bedding surface



Effects of stall design and management on usage: bedding surface



STALL MANAGEMENT

Drissler et al., 2005

Fregonesi et al., 2007a; 2007b

Tucker et al., 2009

Reich et al., 2010

Telezhenko et al., 2012

STALL DESIGN

Tucker et al., 2004; 2005; 2006

Bernardi et al., 2009

Fregonesi et al., 2009

STALL SURFACE

Tucker et al., 2003

Tucker and Weary, 2004

Drissler et al., 2005

Fregonesi et al., 2007

Ito et al., 2010

Benchmarking cow comfort on commercial farms







C.O.W.S. Individualized Report

Benchmarking Region:
New York, Vermont, Pennsylvania

Specifically designed for:
Example Dairy
Anytown, USA

Thank you for participating in the C.O.W.S. (Comfort • Oxidative Balance • Well-Being • Sustainability) benchmarking project. The data collected on your farm was combined with data from 39 other farms we visited and was used to develop the benchmarking information for your region.

In this report, you will be able to compare the data from your farm to the regional benchmarks. The report shows the summary of the benchmarking information from participating herds in New York, Vermont and Pennsylvania, and how your herd compares to the others in the region.

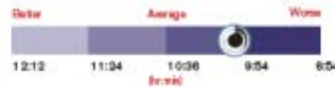
Please use the C.O.W.S. handbook for instructions on how to interpret your report. The handbook also provides information on factors known to affect cow comfort and lameness that may help improve the conditions on your farm and enhance the performance of your herd.

C.O.W.S. Benchmarking

Background of Benchmarking Segment
Region: New York, Vermont, Pennsylvania
Timing: July – October, 2010
Farms compared: 40 free stall dairy herds in the Northeastern United States

Measurements summarized in this report: lying time, prevalence of lameness, prevalence of hock and knee injuries, housing environment – freestall dimensions, bedding quality, stocking rates, etc.

Lying Time: On your dairy



Your Farm

Average: 9:58 hrs
Min: 5:02 hrs Max: 16:12 hrs

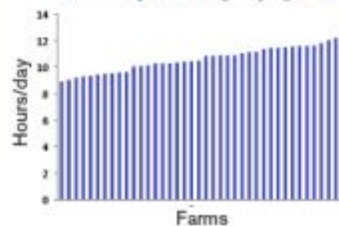
Comments from your dairy:

Increased time spent standing on concrete is a risk factor for lameness. The more time cows spend lying down in the stall, the less likely that they are standing on concrete. All cows should have the opportunity to lie down for 10-12 hours per day.

Lying Time: Summary of all herds

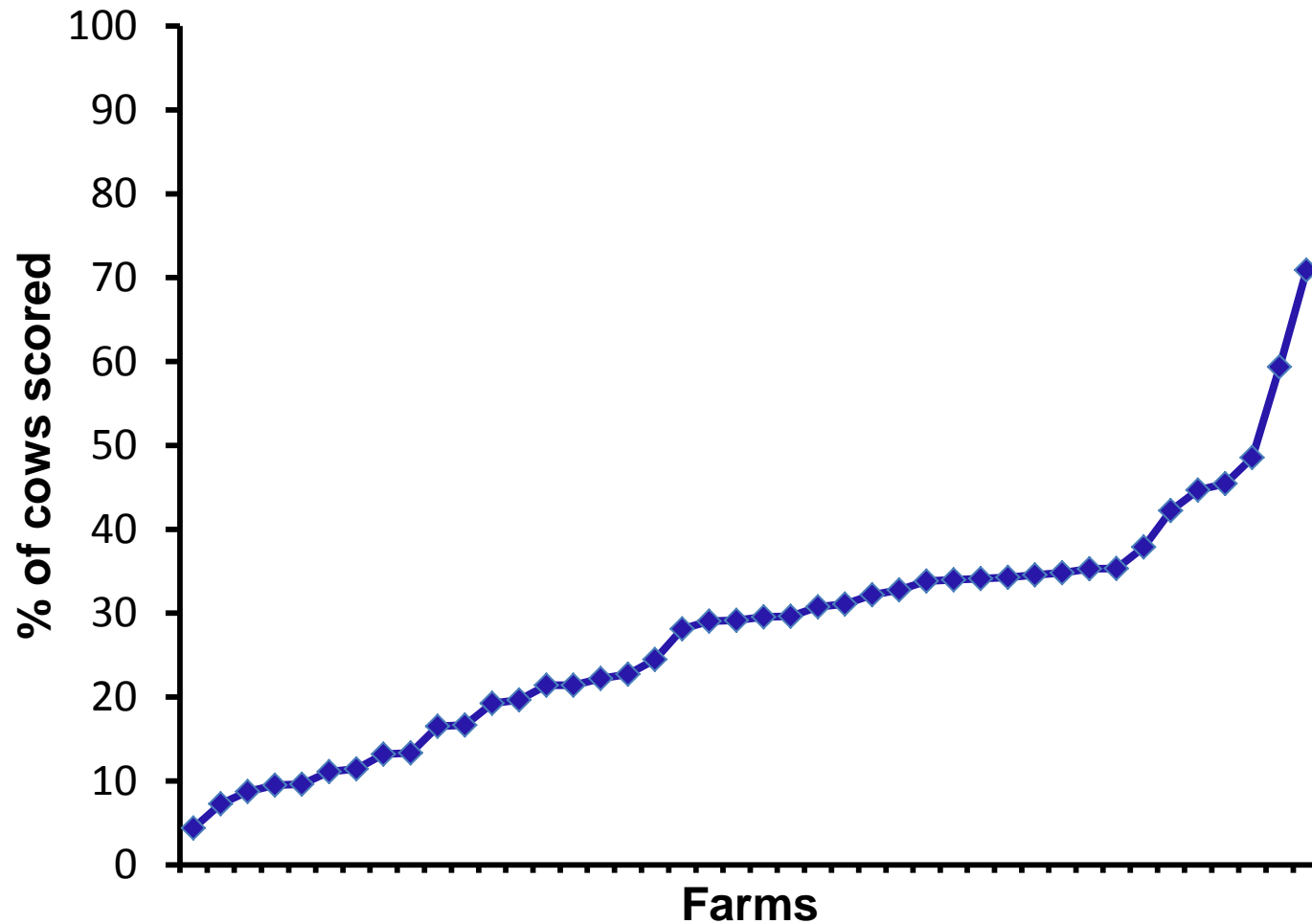
- On average, cows were lying down for approximately 10.5 hours per day.
- Herd average lying times ranged from 9 to 12 hours per day.
- Individual cows' lying times across all herds ranged from 3 to 20 hours per day.

Summary of Average Lying Time

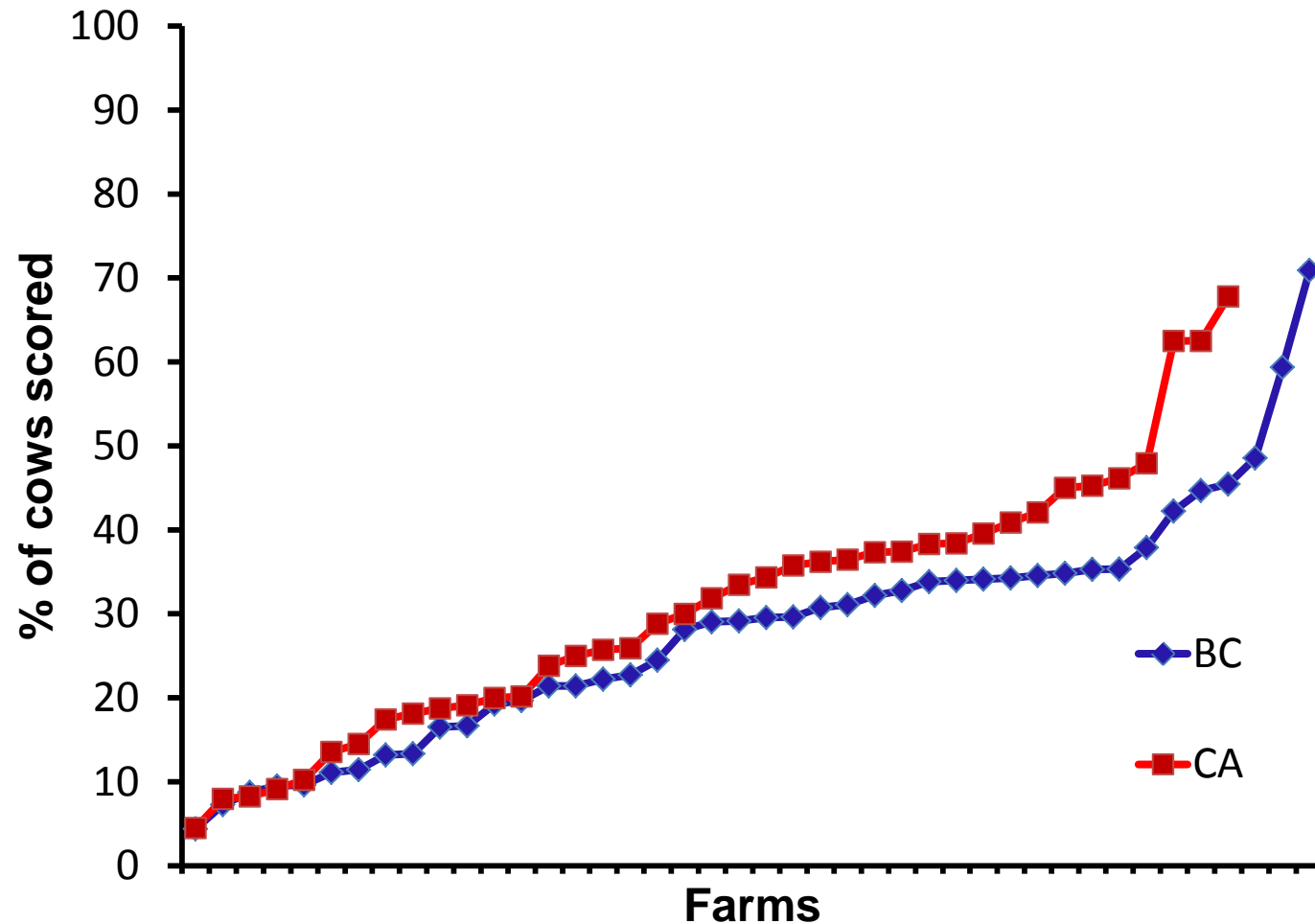


Individual reports help producers see where they rank among farms in their region

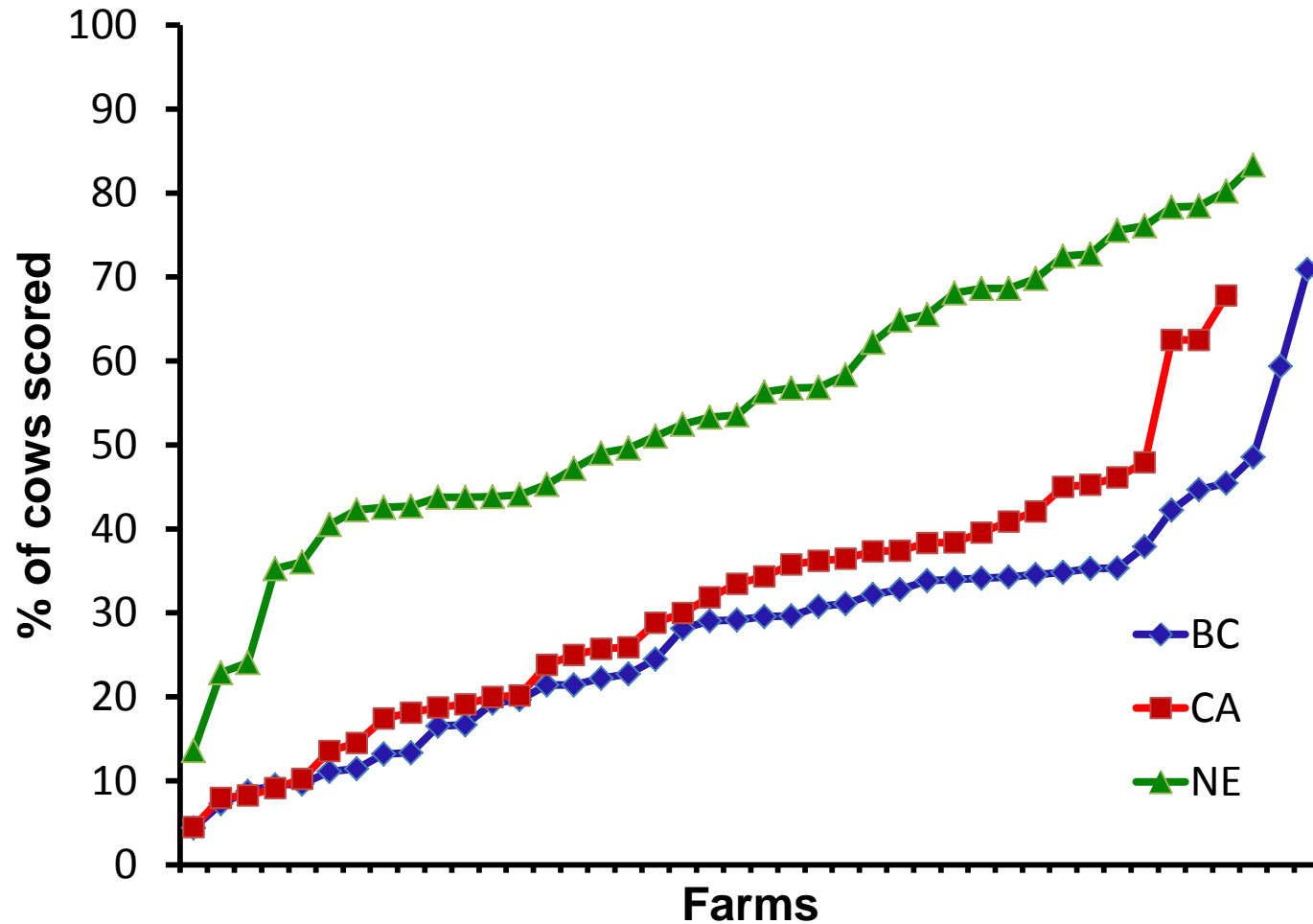
Lameness on BC Farms



Differences within and among regions



Differences within and among regions



Use of deep bedding = 50% fewer lame COWS



OR 0.48; CI 0.29 - 0.79; $P < 0.01$

Access to pasture at sometime during the dry period = 50% fewer lame cows



OR 0.52; CI 0.32 - 0.85; $P < 0.01$

Hock lesions



Hock Assessment Chart for Cattle



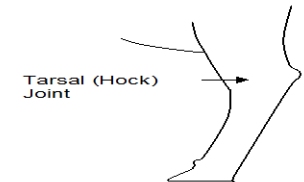
Score = 1
No swelling. No hair is missing.



Score = 2
No swelling. Bald area on the hock.



Score = 3
Swelling is evident or there is a lesion through the hide.



The normal, healthy hock is free from skin lesions and swelling. Ideally, the hair coat in that area is smooth and continuous with the rest of the leg.

Hock health is an important indicator of the abrasiveness of stall bedding and cow comfort. Injury is usually the result of prolonged exposure to an abrasive stall surface. Skin breakage provides an opportunity for infection to occur, which can lead to swelling, discomfort, and possibly lameness.

A consistent method of scoring hocks for swelling and hair loss allows you to assess the need to modify your stall management and can help you evaluate the effect of management changes.

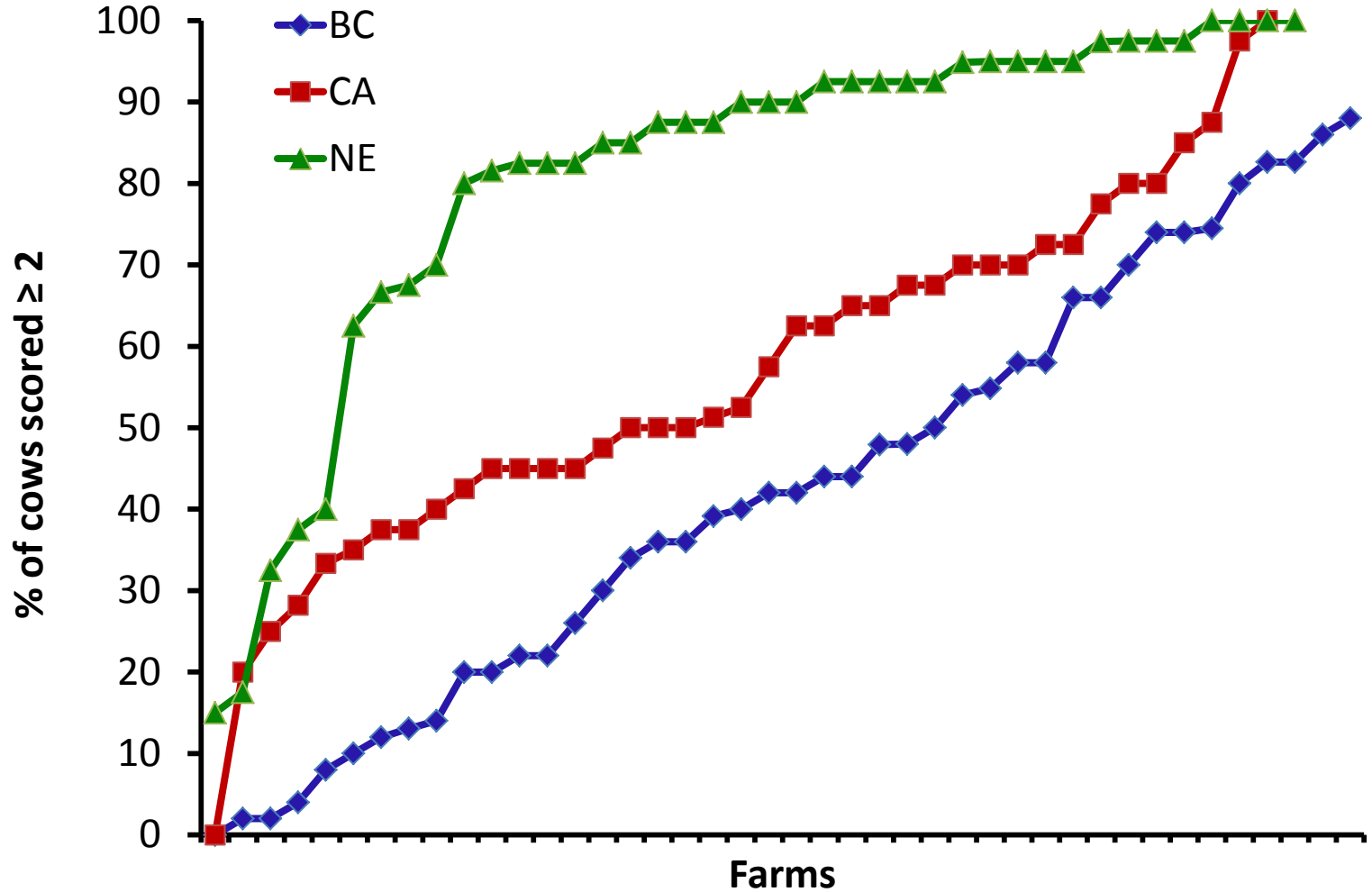
Herd Assessment Method

1. Score the rear hock (one or both) from at least 20 cows for each housing or management group.
2. For each score, enter a stroke in the appropriate box of the table.
3. Count the number of strokes for each score and enter in the "tally" box.
4. Enter the total number of hocks scored.
5. Divide "tally" by "total number" and multiply by 100. Enter as percent for each score.
6. Monitor monthly to assess a change in management or stall surface.
7. Note that in deep sand stalls that are well maintained, it is rare to find a hock with a score greater than 1.

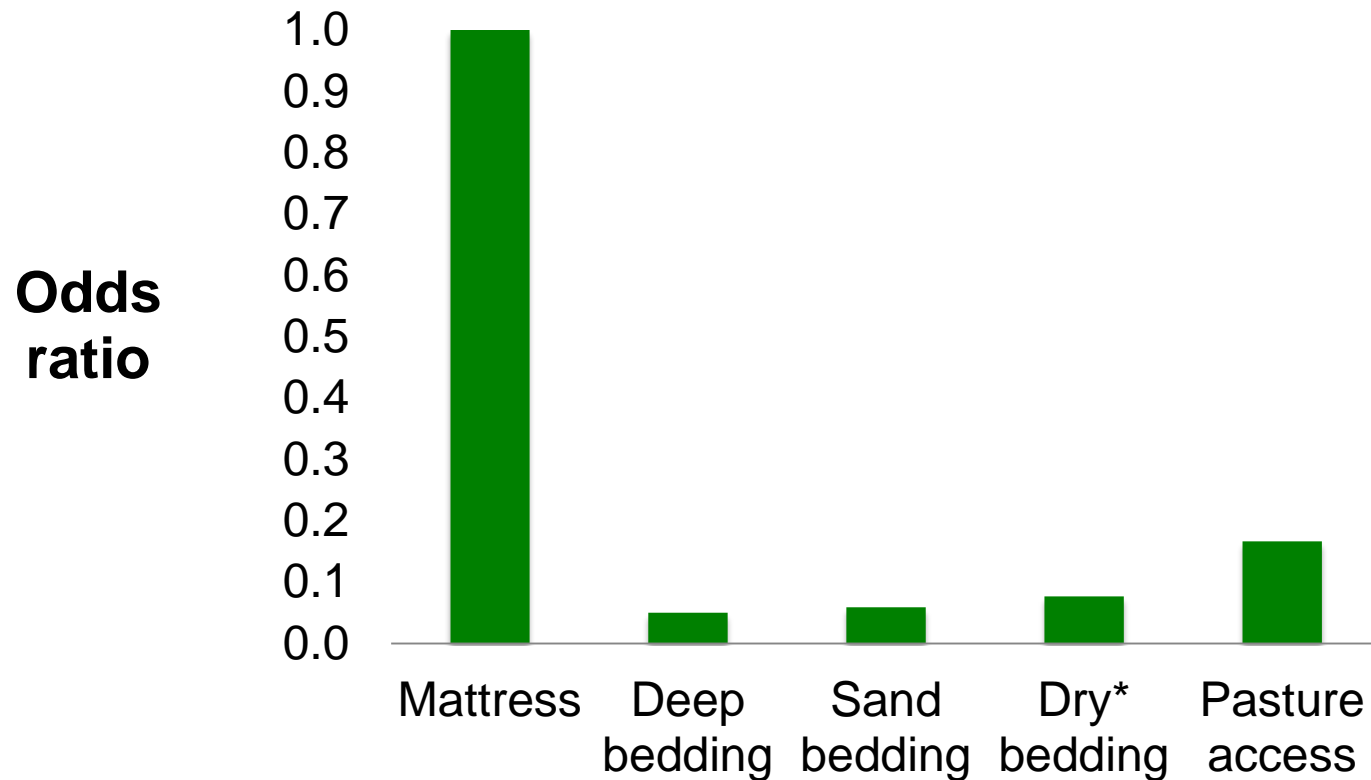
Adapted from James Nocek



Hock lesions



Hock lesions



* Bedding dry matter > 84%

Pick your choice from the comfort menu

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<i>Lying surface</i> (1 to 13)	Deep bedding; sand bedding; dry bedding	Mattresses, rubber mats or concrete with little or no bedding
<i>Stalls design</i> (14 to 19)	Open pack; large free stalls with no neck rail or brisket locator	Stalls that restrict free standing and lying movements
<i>Standing surface</i> (20 to 30)	Dry, soft surfaces; free choice access to well managed pasture	Wet concrete; contact with manure slurry; automatic scrapers

^{1 to 13}Andreasen & Forkman, 2012; Cook et al., 2004; 2008; Drissler et al., 2005; Espejo et al., 2006; Fregonesi et al., 2007; Fulwider et al., 2007; Husfeldt et al., 2012; Lombard et al., 2010; Mowbray et al., 2003; Reich et al., 2010; Wear & Taszkun, 2000; ^{14 to 19}Bernardi et al., 2009; Cook 2003; Dippel, et al., 2009; Espejo & Endres, 2007; Sogstad et al., 2005; Tucker et al., 2006; ^{20 to 30}Barker et al., 2010; Chapinal et al., 2013; Cramer et al., 2009; Flower et al., 2007; Haskell et al., 2006; Hernandez-Mendo et al., 2007; Keil et al., 2006; Loberg et al., 2004; Phillips & Morris, 2001; Rushen & de Passillé, 2006; Rutherford et al., 2008; Somers et al., 2003; Somers et al., 2005