

## The Effects of Changes to the Freestall Area on Cow Comfort in Alberta Dairy Farms

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### Why is this important?

Cow comfort is of increasing importance in the dairy industry due to an increased focus on animal welfare. Some indicators of cow comfort on farm are the occurrence of lameness and leg injuries, as well as average lying time. Lameness reduces cow comfort and welfare because it causes pain, negatively affects lying time and is associated with a low BCS. Hock and knee injuries can also cause pain and discomfort and in a recent Canadian study, 47 % of cows had hock injuries and 24 % of cows had knee injuries. Lying time is a good indicator of comfort as restricted lying time, which can be due to sub-optimal stall design, is associated with decreased productivity, poor hoof health and poor overall health. In 2013, cow comfort assessments were developed to determine producer compliance with the recommendations and requirements in the Canadian Dairy Codes of Practice. The effects of freestall area changes on cow comfort have not yet been reported.

### What did we do?

A total of 44 freestall dairy farms in Alberta were visited; 30 farms that previously participated in cow comfort assessments and 14 farms that had no previous assessment (new farms, NF). Of the 30 previously assessed farms, 15 farms made changes to their freestall area (change, CH) and 15 farms did not make changes to their freestall area (no change, NC). Each farm was visited twice to take environmental and animal-based measures and to conduct a face-to-face questionnaire. On each farm, 60 cows were assessed for lameness, knee injury, hock injury, lying time, claw length, leg cleanliness and BCS. Environmental measures included measurements of pens, feed alleys, feeding area, watering area, stall dimensions, number of useable stalls, stocking density, cleanliness/slipperiness, as well as stall base and bedding type/depth. The questionnaire was used to capture cow comfort related management practices (i.e. bedding and cleaning frequency) and any changes made to the farm to increase cow comfort.

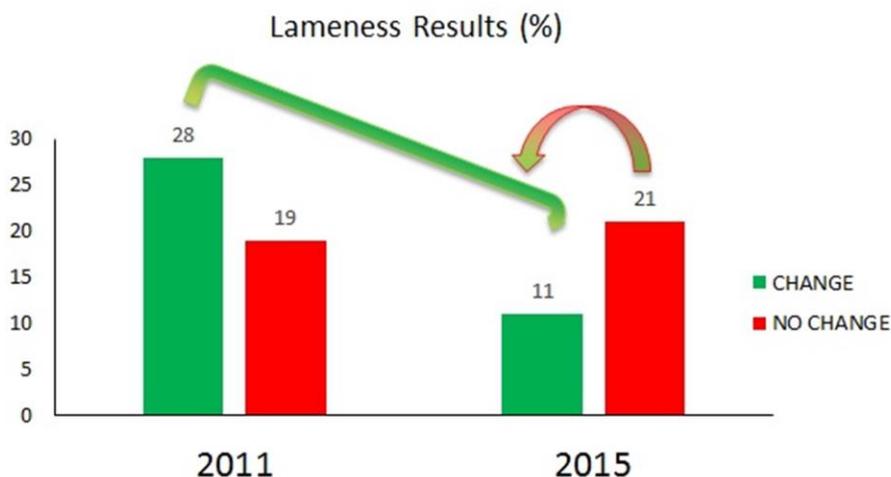


Figure 1. Lameness was significantly reduced in the change group (CH) between years and was significantly lower in change groups compared to no change (NC) in 2015.

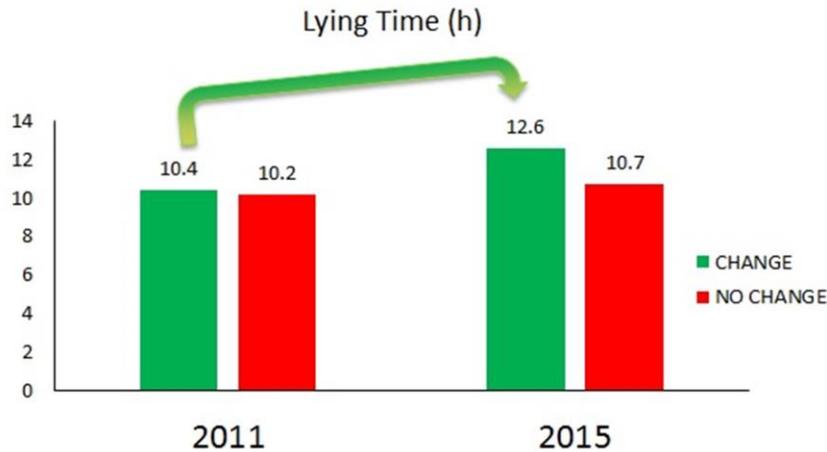


Figure 2. Lying time was significantly increased in the change group (CH) between years.

### What did we find?

Of the 15 CH farms, the most frequent changes were changing the stall base to geo-mattresses (7 farms), increasing the bedding quantity (7 farms) and grooving cross-over alleys (6 farms). The CH herds had cows with cleaner legs and fewer cows with a BCS  $\leq 2.5$  compared to the NC and NF herds. There was no difference in stall dimensions, stall bedding types or bedding cleanliness between study groups. The CH herds were more likely to have geo-mattresses, more likely to have stalls with  $\geq 2$ cm of bedding, and bedded more frequently and floors were less slippery than NC and NF farms. The CH herds had a lower occurrence of lameness and had a higher average lying time than NC and NF farms, with no difference in hock and knee injuries. Producers in the CHG group tended to score risk factors for reduced cow comfort as more important compared to producers in the NC group. However, all farmers that were previously assessed scored risk factors as more important during the most recent questionnaire.

### What does this mean?

This study indicates that producers who made changes to the freestall area had improved animal-based measures of cow comfort, as it resulted in reduced lameness and increased lying time. There was no effect of study group on hock and knee injuries, which suggests that the changes made were not the best suited for reducing leg injuries. Other environmental changes such as bedding type (using straw or sand) and increasing the length of stalls are associated with reducing leg injuries. This study also shows that producers who were involved in cow comfort assessment had increased perceived importance of risk factors associated with lameness.

Additionally, farms in the CH group had a lower occurrence of lameness compared to their previous assessment, which highlights the impact of freestall area changes to reduce lameness and producers willingness to make those changes.

#### Summary Points

- Lameness, leg injuries and lying time are important indicators of cow comfort
- Farms that made changes to the freestall area after a cow comfort assessment had reduced lameness and increased lying time
- The most common changes made were stall base, increasing bedding depth and grooving crossover alleys



**DRECA**

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