Associations of milk production and quality with management and housing of Canadian robotic milking farms

Robert Matson¹, Meagan King¹, Todd Duffield¹, Débora Santschi², Karin Orsel³, Ed Pajor³, Greg Penner⁴, Tim Mutsvangwa⁴, and Trevor DeVries¹*

¹Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, ²Lactanet, Sainte-Anne-de-Bellevue, QC, Canada, ³Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, ⁴Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.

Research Question: What housing and management factors are associated with milk production and quality in Canadian robotic milking herds?

Methods:
- Visited 197 robotic dairy farms from April to September 2019 and collected data on barn design and farm management.
- Milk recording data for the 6 months prior to farm visits were collected from Lactanet.
- Results below include herd averages with their associated effect on milk production and milk quality (P<0.05).

Herd Average Milk Production
36.6 ± 4.9 kg/cow/d

Cows Per Robot
47.3 ± 9.1 (36 to 62)

↑ 10 / Robot = ↓ 0.76 kg/cow/d

Push-up Frequency (x/d)
1 to 5  17%
>24  19%
6 to 11  16%
12 to 24  48%

↑ 2.6 kg/cow/d vs 1 to 5 x/d
↑ 1.8 kg/cow/d vs 1 to 5 x/d
↑ 2.8 kg/cow/d vs QC
↑ 2.1 kg/cow/d vs ON

Region
Ontario 36%
Québec 30%
Western 28%
Atlantic 6%

↑ 86,276 cells/mL vs Sand
↑ 143,079 cells/mL vs Sand
↑ 80,492 cells/mL vs Sand

Bedding Type
Wood 35%
Sand 28%
Straw 22%
Other 15%

↑ 86,276 cells/mL vs Sand
↑ 143,079 cells/mL vs Sand
↑ 80,492 cells/mL vs Sand

Herd Average SCC
200,882 ± 94,276 cells/mL

↑ 86,276 cells/mL vs Sand
↑ 143,079 cells/mL vs Sand
↑ 80,492 cells/mL vs Sand

↓ 1.5 kg/cow/d vs Sand

≥ 10                /  Robot = 0.76 kg/cow/d

Take Home Message:
Greater milk production and quality are being achieved on Canadian robotic milking herds by increasing feed push-up frequency, reducing the stocking density of cows per robot, and using sand to bed their free stalls.

*Contact: tdevries@uoguelph.ca