

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

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The objective of this study was to identify factors associated with milk production and quality on Canadian robotic milking farms. We visited 197 robot farms (Western Canada: n=50, Ontario: n=77, Quebec: n=59, Atlantic Canada: n=11) from April to September 2019 and collected details of barn design and herd management practices through an on-farm survey. Milk recording data for the 6 mo prior to farm visits were collected from Lactanet. Farms averaged 111±101 lactating cows, 2.4±1.9 robot units/farm, 47.3±9.1 cows/robot, 36.6±4.9 kg/d of milk, and a herd-level SCC of 200,882±94,276 cells/mL. Cow traffic system was associated with milk production; on farms with guided systems (n=24) cows tended to produce 1.5 kg/d less ($P=0.08$) milk than in free cow traffic farms (n=173). A greater number of cows per robot was associated with lesser milk yield; every 10 additional cows was associated with 0.77 kg/d lesser production per cow ($P=0.01$). The predominant bedding type used was wood products (n=64; sand=52; straw=41; Other=28); farms with sand bedding tended ($P=0.07$) to have a 1.3 kg/cow/d greater milk production compared farms with wood products. SCC was positively associated ($P=0.05$) with cows per robot; for every 10 additional cows per robot, SCC increased by 9,932 cells/mL. Additionally, every 10-d increase in herd average DIM was associated with a 10,060 cells/mL increase in herd average SCC ($P<0.001$). The results of this study demonstrate that greater milk production and milk quality are being achieved on Canadian robotic milking farms by using free flow cow traffic systems, keeping the stocking density of cows per robot lower, and using sand as the predominant bedding type for their free stalls.