

EVALUATION OF MILKING PERFORMANCE OF COWS MILKED WITH A CONVENTIONAL PARLOR COMPARED TO AN AUTOMATIC MILKING SYSTEM

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Introduction and Objective

This study is a preliminary report on the changes in milking performance of the second robotic milking installation in the US. Past studies on robotic milking with a robot herd and control herd have found either significantly less daily milk yield with robotic milking (Kremer and Ordolff 1992) or no significant changes in milk yield (Svennerstein-Sjaunja et al. 2000, Ordolff and Artmann 2000). Ordolff and Artmann (2000) report no significant changes in machine-on time with robotic milking. The objective of this study was to examine changes in milking performance of cows milked first in a conventional milking parlor and then with a milking robot.

Materials and Methods

Records of daily milk yield and machine-on time were collected for 45 multiparous Holsteins in mid-lactation for a total of four weeks. All cows were milked in a double-six herringbone parlor during week 0; during weeks 1-3, approximately half of the cows were assigned to the milking robot herd and milked by the robot, the remaining cows continued to be milked twice daily in the parlor. The robot is a single-box system with voluntary cow traffic encouraged by two one-way gates at each end of the barn. Cows with milking intervals of more than 12 hours were forced through the robot, which ensured all cows were milked at least twice daily. Both control and robot cows were housed in the same 100-cow freestall barn within two pens.

Results and Discussion

The average daily milk yield for robot and control cows is shown in Table 1. During the first week of robotic milking, the 19 cows milked robotically averaged 5 kg less daily milk yield than the control group. No drop in yield was apparent in the second week when 10 more cows were added to the robotic milking group and there were no significant differences in daily milk yield between cows milked in the parlor and the robot during weeks 2 and 3. This finding agrees with previous work of Svennerstein-Sjaunja et al. (2000) and Ordolff and Artmann (2000).

Table 1. Average daily milk yield of control (parlor) and robot cows. All cows milked in parlor during week 0.

	Control		Robot	
	Yield (kg)	no. of cows	Yield (kg)	no. of cows
Week 0	32.3 ± 4.0	16	31.4 ± 1.7	29
Week 1	31.6 ± 4.1	16	26.8 ± 2.4	19
Week 2	32.0 ± 3.3	16	31.0 ± 1.8	29
Week 3	30.8 ± 3.3	16	31.3 ± 2.1	28

The average daily machine-on time is shown for robot and control cows in Figure 1. Contrary to Ordolff and Artmann (2000), average daily machine-on time increased significantly for the robot cows in weeks two and three. This finding seems logical as the robot cows were being milked more frequently than the control cows. Table 2 illustrates the visiting patterns of the robot herd.

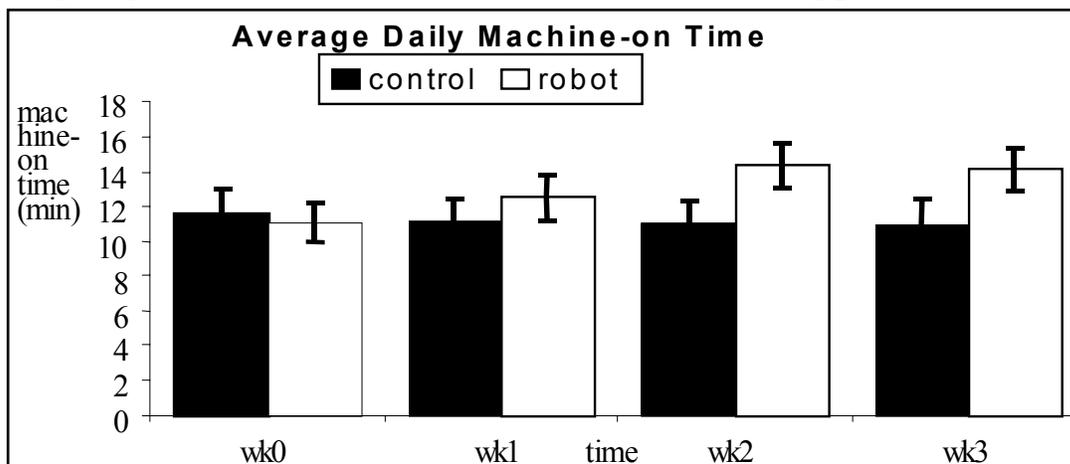


Figure 1. Average daily machine-on time for control and robot cows.

Table 2. Milking pattern of robot cows.

	Week 1	Week 2	Week 3
Herd size (no. of cows)	19	29	28
Average number of milkings	3.2	3.4	2.8
Percentage of cows visiting more than twice daily	63%	90%	64%

Since the robot cows were forced through the robot if they have not been milked in the past 12 hours, more than half of the herd was visiting at least once daily voluntarily for the entire three-week testing period.

References

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