

# Comparison of milking liner performance with Lely robotic milking machines

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**Product:** Lauren Liners

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**Abstract** The goal of this study was to determine the difference across a variety of parameters for one brand of liner versus another when used with Lely milking machines. Over a period of 73 days and with roughly 60 cows, the two brands were compared in similar conditions. General observations at the dairy were considered to be highly impactful for judging liner effectiveness. Specific results for analysis were observed and achieved through the amount of milk collected under set time frames across a consistent number of cows. It was observed that one brand (Lauren) achieved higher milk speed (average flow rate) and milk speed maximum rates, in addition to better refusal rates. Collectively, these results showed one brand achieved more milk extracted in less time with greater cow comfort.

**Analysis** The study was conducted at Thompson SeconDairy, located in Ohio. Parameters studied included: milk rate per cow, time spent milking, time free, milkings per cow, milk speed, milk speed maximum, total milkings, failures and refusals. For analysis, a statistical test (t-test) was used to compare the mean values for each parameter at the dairy.

Brand A (Spaggiari Liners) parameter performance was observed over 31 consecutive days. Brand B (Lauren Liners) parameter performance was observed over 32 consecutive days. The same Lely robotic milking machines, staff and liner configurations were used for the duration of the study.

**Results** There were statistically significant results across numerous parameters of the study (milk speed or flow rate, milk speed max, refusal rates and free time) for which the Lauren Liner performed better in each case.

Milk speed, which calculated average flow rate in terms of pounds per minute, was found to be 5.32 for Brand A and 5.99 for Lauren Liners. Milk speed maximum, which calculated the peak flow rate in pounds per minute, was found to be 8.06 for Brand A and 10.56 for Lauren Liners. Refusals increased by 20 per day with Lauren Liners, 81.97 to 61.47 for Brand A, indicating that cows wanting to be milked are being milked more comfortably. Free time as a percentage was higher with Lauren Liners as well, 14.28% to 12.09%. Other parameters remained consistent across both brands or gave a slight edge to Lauren Liners. Overall, milk per cow per milking increased by 0.89 pounds after 30 days with the Lauren Liner.



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**Discussion** Significant differences were detected, and these differences were consistent per cow across the daily tally for the dairy location used. No outliers on a particular day or time frame appeared to affect the results. Cows, machines, staff and liner configuration were consistent throughout the study. One difference was the time of year each brand was observed, as Brand A was studied first, followed by Lauren Liners. To create a study where both brands were observed at the same time, factors such as different machines, dairies and staff would need to be considered. At this the time of its publishing, this study and its results had not been replicated. Nevertheless, the results of the study do lead to a significant conclusion. A more holistic comparison can be achieved by evaluating this study alongside additional studies against different brands.

**Conclusion** The conclusion of this study does point to a clear advantage for one liner over the other. The resulting judgment is that Lauren Liners outperformed in four main interconnected parameters. Overall, with those liners, more milk was obtained in less time, and milking was faster with more comfort for cows. Milk speed (flow rate) increased significantly with Lauren Liners, as well as milk speed maximum (see charts below). These differences alone, while significant, could come at the cost of cow comfort. The refusal rates captured by the ID tracker during the study show this wasn't the case and indicated the cow with Lauren Liners was more likely to come back to get milked more often because she was finding it to be a more pleasant experience. The significant difference in the refusal rate (see chart below) indicated cows get milked when they're most ready. The slight increase in milk produced per cow is an indicator of overall effectiveness.

2 brands of liners | ~30 days each | ~60 cows observed

