

# Evaluation of Teat Cleanliness after Use of a Powered Mechanical Teat Scrubber

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## Introduction

This study compared teat cleanliness between two methods of udder preparation: a manual prep routine or a powered mechanical teat scrubber (CLIN-TEAT System, Westfalia, Surge Inc, Naperville, IL).

## Materials and Methods

Teat cleanliness was evaluated during a two-day study of a 1000-cow Holstein herd in western Wisconsin. Cows were milked three times in a double-15 parallel parlor staffed by two milkers at a time. Cows entering the west side of the parlor underwent the farm's normal udder preparation procedure (Protocol A): 1) dry wipe each teat and immediately apply pre-dip, 2) manually manipulate each teat for 3 seconds followed by forestripping, removing three streams of milk, 3) reapply pre-dip, 4) after waiting 20-30 seconds, dry the teats using an individual cloth towel, and 5) apply the milking unit. Cows entering the east side of the parlor underwent preparation using the powered mechanical teat scrubber (Protocol B): 1) apply the mechanical teat scrubber to each teat for 3 seconds, 2) manually forestrip, removing three streams of milk from each teat, 3) after waiting 20-30 seconds, dry the teats using an individual cloth towel, and 4) apply the milking unit. A sequential udder prep and attachment system was used so that both milkers participated equally in prepping and attaching units on both sides of the parlor.

Immediately prior to unit attachment, each teat was wiped with a cotton ball soaked in 70% isopropyl alcohol. Teats were consistently wiped once down the

right side of the teat wall and then once across the teat end. A new cotton ball was used for each teat. A systematic approach to sampling was used, with two of every three sequential cows sampled and all functional teats evaluated for each cow sampled.

Teat cleanliness was evaluated using the following scoring system: Score 1 - cotton ball completely clean; Score 2 - some teat dip evident on cotton ball; Score 3 - small amount of fecal material evident on cotton ball (+/- teat dip); Score 4 - large amount of fecal material evident on cotton ball. The sampling procedure was repeated for three different milking crews over a two-day period.

## Results and Conclusions

A total of 604 cows and 2,394 individual teats were evaluated in the study, with 1,196 and 1,198 teats evaluated for protocols A and B, respectively. Score distribution for Protocol A was: Score 1 - 52.3%; Score 2 - 37.5%; Score 3 - 9.8%; and Score 4 - 0.5%. Score distribution for Protocol B was: Score 1 - 33.4%; Score 2 - 41.4%; Score 3 - 23.1%; and Score 4 - 2.2%. Simple chi-squared analysis showed that teats were significantly cleaner using Protocol A, with 89.8% and 74.8% of teats scoring 2 or less for protocols A and B, respectively ( $p < 0.001$ ). A second, modified chi-squared approach that considered all four levels of scoring and the natural order and severity of the scoring system (1 = clean; 4 = grossly contaminated) also concluded that teats were significantly cleaner using Protocol A ( $p < 0.0001$ ). It was concluded that the manual udder preparation protocol routinely used on this dairy produced cleaner teats than a powered mechanical teat scrubber.