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R-MR-7: Optimization of Individual Prestimulation in Dairy Cows

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Abstract

The application of prestimulation results in enhanced milking performance compared with milking without prestimulation. In the present study oxytocin (OT) release and milking characteristics were investigated in 43 dairy cows after the application of various prestimulation routines by vibration stimulation lasting between 0 and 90 s. Additionally, different maximum pulsation vacuum settings during vibration stimulation were investigated. The actual degree of udder fill was calculated as a percentage of the estimated storage capacity. The amplitude of OT release, total milk yield, and stripping milk yield did not differ between prestimulation routines. Increased maximum pulsation vacuum during vibration stimulation resulted in milk flow during prestimulation, but did not negatively influence milking characteristics. The lag time from the start of teat stimulation until the start of milk ejection was negatively correlated with the degree of udder fill. This relationship was the reason for variations in optimal duration of prestimulation. The optimal duration of prestimulation to receive immediate and continuous milk flow at the start of milking was 90 s in udders containing small amounts of milk, whereas the optimal duration was only 20 s in well-filled udders. A short prestimulation enhances milking stall capacity when milking full udders, and a prolonged prestimulation reduces the total vacuum load on the teat when milking udders that are not full.

Key words: prestimulation, oxytocin, milk flow, cattle

Abbreviation key: AFR = average flow rate; MPV = maximum pulsation vacuum during vibration stimulation; PFR = peak flow rate; OT = oxytocin



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