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Stall and Feed Bunk Stocking Rates Impact Cows' Diurnal Behavior and Activity in Automatic Milking Systems

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Abstract: High stall stocking rates have been shown to alter behavior of cows in parlor-milked systems; however, no studies have examined stocking rates for cows milked with automatic milking systems (AMS). Therefore, we examined the influence of stall and feed bunk overstocking on cows' behavior, displacements, cows' activity and rumination time in an AMS dairy farm. Each of two pens contained 60 cows/pen and 58 free-stalls and 60 headlocks. The effect of stocking rate was examined using three treatments applied separately to stalls and feed bunks (100% = 58 stalls or 60 headlocks available for 60 cows; 120% = 50 stalls or 50 headlocks available for 60 cows; 150% = 40 stalls or 40 headlocks available for 60 cows). Each stall or feed bunk treatment was applied separately for 1 week in a randomized order that was different for each pen, with a 1-week washout period between treatments. Data were collected during the last 2 days of each treatment week. Activity level, time spent ruminating and number of displacements were recorded for both feed bunk and lying stall treatments. The number of cows lying, perching or standing in lying stalls was recorded in response to stall stocking rate treatments and the number of cows eating or standing at the feed bunk was recorded for feed bunk stocking rate treatments. Statistical analyses were performed using R software (version 3.3.1). Overstocking stalls to 150% reduced the number of cows lying and standing in stalls but