



SPATIAL DISTRIBUTION OF MANURE ON A VOLUNTARY MILKING PARLOR AND EFFICIENCY OF WASHING BY FLUSHING

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Knowledge of the distribution of manure from lactating cows on the floor of the milking parlor is essential for optimizing the washing routine and proposing best practices aimed at efficient use of water and the time spent by the operator in carrying out the washing practice. In recent years, the voluntary (robotized) milking system has been used in Brazilian feedlots, but its use in pasture systems is still an exception. This study aimed to evaluate the spatial distribution of manure on the floor of a robotic milking parlor in an integrated crop-livestock-forest system. The Delaval VMS™ V300 was installed at Embrapa Pecuária Sudeste, Sao Carlos-SP, where the animals have voluntary access at any time of the day to the milking system. The milking parlor floor was divided into five sections of equal area (A1, A2, A3, A4 and A5) and left and right sides. The manure was classified according to the form: whole (mass as it was mucked by the animal), partial (mass presented some alteration in its form as trampling, dragging, etc.), mud (demobilized mass in solid/liquid form), and, dirt (small amounts of manure spread on the floor). 30 events were monitored, where the distribution of manure in each section and side was recorded in a spreadsheet. The annotation was performed before and immediately after the “flushing” to evaluate the washing efficiency. The flushing water outlets were located on the A1. Sections A1 and A2 showed the highest concentrations of manure in whole and partial forms for both sides before and after washing. A1 is the area where the robot is located, with its entry on the right and exit on the left side, so due to this position there is a large concentration of animals in areas A1 and A2 that are waiting for their turn to access the equipment. A5 is the farthest from the robot and has the lowest concentrations of manure. Considering the whole manure, the maximum washing efficiency of the flushing was 75% for both sides in sections A3 and A4, respectively. In sections A1 and A2, with the highest concentrations of manure, the maximum efficiency of flushing was 56% (A1-left side), and the minimum 20% (A2-right side). Therefore, in these sections, even after flushing, a significant part of the manure remained, either in whole, partial, or mud form. The results show that for the washing parlor to be more efficient, other routines should be considered, such as scraping the floor before flushing or demobilizing the mass of whole manure in sections A1 and A2 before washing. The option of increasing the daily frequency and time of flushing would result in higher water consumption and effluent production, both not recommended.