

Dairy cow preferences for different types of outdoor access

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More than 70% of the lactating dairy cows in Canada are housed indoors, year-round. Canadian citizens, however, emphasize the importance of outdoor access for the welfare of dairy cows, and cows are highly motivated to access pasture, especially during the night time. Pasture is not always feasible, however, in part because some farms lack adequate land. An alternative to pasture is a deep-bedded outdoor open pack; an alternative that requires less space than pasture. However, little is known about the preference of dairy cows for alternative outdoor areas, and how outdoor space allowance influences cow preference to be outdoors.

To address these issues, we have run a series of studies to determine: 1) the preference of dairy cows to access a deep-bedded outdoor open pack during summer and winter, and 2) how space allowances on a deep-bedded outdoor open pack affects the time cows spent outdoors. For both experiments, wood shavings were used as bedding on the outdoor pack. For the first experiment, groups of 12 lactating Holstein cows were used for summer ($n = 8$ groups) and winter ($n = 7$ groups) phases. Cows spent on average 25.3% (± 4.3 ; range: 8.0 - 44.5%) of the time outside in the summer and 1.8% (± 0.6 ; range: 0.1 - 4.1%) in the winter. In the summer, cows spent more time outdoors at night (50.0 ± 8.4 % between 20:00 and 06:00 h) than during the day (3.3 ± 1.3 % between 06:00 h and 20:00 h). In the winter, there was no effect of time of day on time spent outside (day: $1.7 \pm 0.7\%$; night: $2.1 \pm 1.0\%$). In the second experiment, 3 groups of 24 lactating Holstein cows were used. After cows were habituated to the bedded pack, every day, space allowance was varied randomly without repetition in 1 m^2 increments from 4 - 16 m^2 per cow. Cows spent on average 4.7 (± 0.8) h/d outside, and this time increased with increasing space allowance (3.3 ± 1.2 min/ m^2 increase).

In summary, cows displayed a partial preference for access to an outdoor pack in the summer, especially during the night; cows rarely used the outdoor pack during the winter months. Cows spent an increasing amount of time outside with increasing outdoor space allowance on an outdoor pack.

Implications: Cows use of an outdoor-bedded pack varies with environmental conditions and management. Pack use is highest on summer nights and increases with the amount of space provided.