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The behaviour and health of dairy lambs reared artificially with and without early access to meal

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Abstract

Many large-scale dairy sheep producers use lamb-rearing systems and provide lambs with milk replacer (MR) *ad libitum* and grain-based meal to accelerate rumen development to support early weaning methods. Lambs are raised inside for three weeks before being relocated to a pasture paddock and weaned off MR, followed by weaning off meal 3-4 weeks later onto a pasture-only diet. The potential to replace the early provision of meal with early access to good quality pasture before weaning has not been evaluated and may have effects on the development of feeding behaviour. Studies on feeding behaviour in lambs have focused on differences between restricted and *ad libitum* quantities of MR, with little research on differences in use of solid feed before weaning. Sixty East Friesian crossbred ewe lambs aged 3-4 days were randomly allocated to one of two treatment groups; MR *ad libitum* with access to meal (M) or MR *ad libitum* without meal (NM). Both groups had access to pasture at the beginning of week 4, and were abruptly weaned off MR at week 6 and gradually weaned off meal (M lambs only) beginning in the middle of week 8 until the end of week 10. It was hypothesised that; (1) while lambs were being reared inside, M lambs would initiate rumination earlier due to their early access to meal. (2) There would be no difference in the milk feeding behaviour between lambs on the two diets. (3) There would be no difference in the health of the lambs and lastly (4), once outside, M lambs would spend more time grazing and subsequently ruminating as a result of their earlier rumen development. All lamb behaviours were visually recorded during weeks 2, 3, 5, 7, 10 and 12 (nine hours/week). Milk feeding behaviour traits were automatically recorded hourly through the automatic MR dispenser while being reared inside for 23 days. Health scores were recorded twice daily and total days health incidences were recorded. Meal access accelerated onset of rumination, while NM lambs spent more time consuming wood shavings during week 3 ($P<0.001$). Once outside, NM lambs spent more time grazing during weeks 5 ($P<0.05$), 7 and 12 ($P<0.001$), and increased rumination time compared to M lambs by week 12 ($P<0.001$). Lambs with meal access on average had a greater number of rewarded meals (meals in which lambs consumed more than 1 ml), with a greater intake of MR per meal than lambs without meal access ($P<0.001$). There were no mortalities of lambs fed either diet. Loose faeces (mild scours), pink eye and navel infections were observed in both M and NM lambs. These findings may allow refinement of lamb-rearing practices by adjustments to the provision of meal to lambs since no adverse behavioural or health effects were observed in lambs without meal access.

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