An investigation into the effects of different housing and feeding systems on behaviour and milk production of dairy ewes in mid and late stages of lactation

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Abstract

Comparisons of different New Zealand dairy sheep farm systems are currently lacking. The aim of this study was to evaluate the effects of different management systems on the behaviour and milk production of East Friesian cross-bred sheep at different stages of lactation. Two study groups were evaluated. In study group 1, a mob of 479 mixed-age, mid-lactation ewes were housed 24 h/day, and a separate mob of 473 mixed-age, mid-lactation ewes were managed in a hybrid system (housed between morning and afternoon milkings; grazed lucerne overnight). Both received a total mixed ration (TMR) indoors. In study group 2, a mob of 604 mixed-age, late-lactation ewes grazed pasture 24 h/day, and a separate mob of 452 mixed-age late-lactation ewes were in a hybrid system, grazing pasture overnight. For both study groups, individual milk yield, walking distance, lying time, ambient temperature, live weight, and body condition score (BCS) were recorded. All sheep gained BCS and live weight except the fully grazed late-lactation ewes. For study group 1, fully housed ewes in mid-lactation spent less time lying overall during the day, but more overnight compared with those in the hybrid system, which was likely due to the latter grazing overnight. Lying bout duration was similar between groups, while milk yield was 29% less in housed ewes compared with the hybrid ewes. For study group 2, grazing ewes in late-lactation spent more total time lying each day, had longer lying bouts, and walked further each day than those in the hybrid system. Both late-lactation groups had similar milk yields. Fully-housed sheep showed a positive relationship between daily lying time and increasing ambient temperature (P=0.07), however, more detailed weather information would be required to draw conclusions from this. In summary, the hybrid management system seems to improve milk yield in mid-lactation compared with the fully housed system, whereas there was no difference between the hybrid and fully grazed systems in late-lactation. Lying behaviour and walking distances (late-lactation group only) differed among different management systems, however, it is unclear what this means in terms of animal welfare, and warrants further investigation.

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