

Use of automated activity, temperature and rumination and rumen pH boluses to assess the effect of maintain dairy cows on grazing on pasture full time or intermittently

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In New Zealand dairy cows have traditionally been grazed all year round, however the expansion of the land area being utilized for dairy production and intensification of existing milk production systems has led to increased nitrogen losses into ground and surface water. Limiting the amount of time that cows have access to pasture during wet and dry soil conditions, by standing cows on feed pads has been traditional practice, however cows are now more frequently being kept in houses. This approach that is particularly important during inclement weather, in protecting soil structure and pasture from treading damage, but especially during dry conditions to prevent heat stress and nitrogen build up and loss during periods of subsequent rain fall. Changes in the daily access to pasture and alterations in animal behaviour patterns due to grazing time, pasture allowance, diet and health issues due to inclement weather (heat and cold stress) along with lameness and mastitis are important considerations that affect animal behaviour. A total of 400 cows and 22 % heifers, have been allocated into two (n=200) matching herds according to breed, age, body weight, breed genetic merit and health. The farm has been divided into two matched areas according to distance from the milking shed/parlour, topography and soil type. The pasture based animals will be managed by more conventional practices by grazing, the occasional intermittent use of a feed pad and 40 % destocking during winter. They will be compared with cows that will remain (100%) at the dairy unit during winter and throughout the year be given intermittent access to a free stall barn fitted with 212 free stalls. The use of automated technologies at applied (September 2014 onwards) at milking and to the individual cows to monitor cow activity, body temperature, feeding, rumen pH and rumination. These will be used to monitor the effect of these types of management practices and compare the effect of conventional grazing and stand-off pad use with intermittent housing and grazing of dairy cows throughout lactation and controlled short term studies. Measurements will include diet and feed composition, animal activity/behaviour, feeding behaviour, rumination and rumen pH, milk yield, milk composition, mastitis incidence and bacteriology, locomotion scoring and claw horn disorder evaluation will be used to monitor the effect of changes in weather, management type and management pattern on cow, behaviour, health and productivity.

Acknowledgements

This article is based upon work from COST Action FA1308 DairyCare, supported by COST (European Cooperation in Science and Technology, www.cost.eu). COST is a funding agency for research and innovation networks. COST Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.