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Influence of Environmental Temperature on Dairy Herd Performance and Behaviour

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Abstract : The objective of this study was to determine the effects of environmental stressors on the performance of lactating dairy cows and discuss some future trends. There exists a relationship between the meteorological data and milk yield prediction accuracy in pasture-based dairy systems. New precision technologies are available and are being developed to improve the sustainability of the dairy industry. Some of these technologies focus on welfare of individual animals on dairy farms. These technologies allow the automatic identification of animal behaviour and health events, greatly increasing overall herd health and yield while reducing animal health inspection demands and long-term animal healthcare costs. The data set consisted of records from 489 dairy cows at two dairy farms and temperature measured from the nearest meteorological weather station in 2018. The effects of temperature on milk production and behaviour of animals were analyzed. The statistical results indicate different effects of temperature on milk yield and behaviour. The “comfort zone” for animals is in the range 10 °C to 20 °C. Dairy cows out of this zone had to decrease or increase their metabolic heat production, and it affected their milk production and behaviour.

Keywords : behavior, milk yield, temperature, precision technologies
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