

Pasture Type under Continuous Stocking Had No Effect on Beef Cattle Performance or Enteric Methane Emissions

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We aimed to assess the effect of pasture type on beef cattle enteric methane emissions under continuous stocking. Since April 2021 Stabilizer beef steers and heifers (n=30) were allocated to graze the permanent pasture (PP) or the perennial ryegrass and white clover (G-WC) sward at the North Wyke Farm Platform, Rothamsted Research, UK. Herbage mass was estimated using a rising plate meter and G-WC herbage samples were taken to estimate white clover content. Individual enteric methane emissions (n=12) were estimated using the SF₆ technique during two 1-week periods in mid-June and mid-August. Live weight (LW) was measured before and after each period and average daily gain (ADG) was calculated. Data were analysed using repeated measures including pasture type, period and the interaction as fixed effects and time as a repeated measurement. The herbage mass in the PP and G-WC was 1801 and 2631 kg DM/ha in June and 2595 and 2142 kg DM/ha in August, respectively. The white clover content of the G-WC herbage was 3.3% and 29.7 DM% in June and August, respectively. Animals in both pastures had similar LW (531±0.8 kg), ADG (0.76±0.052 kg/d), daily enteric methane emissions (215±6.3 g methane/d) and methane emissions yields (0.39±0.011 g methane/kg LW; 340±46 g methane/kg ADG). While LW decreased from June to August (532 vs. 529±0.8; P=0.03), daily methane emissions and per kg ADG increased (201 vs 231±6.6 g methane/d; 0.36 vs 0.42±0.012 g methane/kg ADG; P<0.01), but no period effect was observed for ADG or methane emissions per kg LW. We conclude that the pasture types tested had thus no effect on beef cattle LW gain or methane emissions, but these variables were affected by the month when the measurements were undertaken.

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