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Feeding value of low quality grass silage supplemented with maize silage for sheep

Keywords grass silage, maize silage, intake, digestibility, nitrogen retention,

Abstract

The objective of this experiment was to study the effects of interactions between low quality grass silage (GS) dominated by orchardgrass and maize silage (MS) on ad libitum intake, digestibility and nitrogen retention in wether sheep. The study consisted of four feeding treatments involving GS and MS alone and GS and MS mixtures in a ratio of 67:33 or 33:67 (dry matter (DM) basis) fed twice daily. The GS was high in DM (463 g kg⁻¹), neutral detergent fibre (715 g kg⁻¹DM) and acid detergent fibre (429 g kg⁻¹DM) while low in crude protein (90.1 g kg⁻¹DM). The DM content (g kg⁻¹) and starch concentration (g kg⁻¹DM) of MS were 264 and 211, respectively. The inclusion of MS into diet had positive linear effects on fresh matter ad libitum intake (kg d⁻¹ and g kg⁻¹DM^{0.75}d⁻¹) (P < 0.01 and P < 0.001 respectively), digestibility of DM (P < 0.01), organic matter (P < 0.01), acid detergent fibre (P < 0.05), starch (P < 0.001), digestibility of organic matter in DM (D-value) (P < 0.001), nitrogen intake (P < 0.01) and nitrogen output in faeces (P < 0.01). A positive associative effect of low quality GS and MS was observed for ad libitum intake (kg d⁻¹ and g kg⁻¹DM^{0.75}d⁻¹) of fresh matter (quadratic, P < 0.01), DM (quadratic, P < 0.001 and P < 0.01 respectively) and organic matter (P < 0.001), for digestibility of DM, neutral detergent fibre, acid detergent fibre, crude protein, starch and D-value (quadratic, P < 0.01), digestibility of organic matter (quadratic, P < 0.05), nitrogen intake (quadratic, P < 0.001) and nitrogen balance (quadratic, P < 0.05). It was concluded that differences between low quality GS and MS resulted in positive associative responses of GS and MS for all parameters measured (intake, digestibility and nitrogen retention).

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