The of use haylage-based diets for fattening of young bulls and heifers

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High-quality forage-based diets reduce the competition between humans and cattle for the use of cereals and are expected to reduce the carbon footprint of the meat produced. Thirty two veal's, 16 females and 16 males, weaned with 7 months, were submitted to a trial until an average live weight of 400 kg and 500 kg, respectively. The animals were blocked by sex and weight and distributed in pairs by 16 pens. The Control diet (C) was based in concentrate, and 3 Total Mixed Diets, with haylage : concentrate ratio of 1:1 (dry matter), were formulated to a target protein level of 16% in DM. The haylages used were two biodiverse mixtures harvested in January (MW) or April (MS) and *Triffolium suaveolens* (TS) harvested in April. All diets were offered *ad libitum*. Methane production was evaluated *in vitro* using the Ankom System. Meat quality was evaluated in *Longissimus lumborum* at days 3, 7, 14 and 28 *post mortem*. Dry matter intake was not affected by diet and was 16.2% higher in males. The intake of starch was higher and of NDF and total phenols were lower in C than in MW, MA and TS diets. Daily weight gain was 43.9% higher in males and was higher in C and MW diets than in MS and TS. Dry matter conversion ratio was higher for TS and similar for the other diets. Feeding costs were not affected by diet and were higher for females. Diets did not influence the methane production which presented an average value of 19.5 ml/g DM. Carcass weight was higher for C and MW than for MS and SP, and dressing percentage was unaffected by the diet. Meat and subcutaneous fat colour were unaffected by diet. Meat redness decreased and yellowness and chroma increased linearly with ageing. Lightness changed quadratically with ageing with a maximum value at 14 days and hue was not affected. Shear force decreased with ageing and was higher for TS. High-quality forage based diets may be a sustainable alternative to concentrates for the fattening phase of young cattle, considering production costs, productivity and meat quality.

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