Re-Livestock
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Re-Livestock Abstracts

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Breed differences in grazing behaviour of veal calves

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Introduction

Pasture-based rearing of youngstock or calves offers a sustainable and cost-efficient alternative to conventional calf management by reducing concentrate use and improving grassland utilization (Delaby et al., 2020). Further, keeping calves on pasture also supports better animal welfare, as the animals can express their natural feed intake behaviour and have a better health status (Leiber et al., 2025). Especially ethical and societal concerns surrounding male dairy calves can be mitigated, while supporting environmental goals, by raising and finishing these animals extensively on pasture for veal or beef, rather than losing organically born calves to the conventional production chain. Understanding breed-specific adaptability to pasture conditions can reform breeding and management strategies for more sustainable veal and beef production.

Methods

In this study, 18 male dairy calves representing three breeds (Brown Swiss, Limousin × Brown Swiss (Crossbred), and Swiss Fleckvieh) were equipped with noseband sensors to record grazing behaviour within three 24-h monitoring periods, repeated monthly from the 4th to the 6th month of life. Two calves per breed were kept on three farms located in lowland, midland, and highland regions. Before the experiment, all animals per farm were raised together without pasture access. During the first month on pasture, all animals were fed an average of 2.3 litres of milk replacer per day. Throughout the three-month fattening period, they had ad libitum access to hay and additionally received 0.5 kg of alfalfa and 1.3 kg of whole-plant maize cubes per animal each day, followed by 0.5 kg of concentrates per calf per day during the final four weeks. On average, these animals spent approximately nine hours per day on pasture. The bodyweight was measured every second week, and average daily weight gain (ADG) was compared via Kruskal-Wallis and Dunn's pairwise comparison. To compare behavioural differences of the animals while having pasture access, three behavioural parameters while having pasture access, were analysed using Generalized Linear Mixed Models (GLMMs) in RStudio, with farm and individual nested within farm as random effects.

Results

No statistically significant differences in ADG were observed among Brown Swiss, Crossbred and Swiss Fleckvieh calves ($P > 0.23$), indicating that all three genotypes achieved comparable growth performance under extensive pasture conditions (Fig. 1). Despite the similar ADG, pronounced breed effects were detected in grazing behaviour. Swiss Fleckvieh calves

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exhibited significantly longer grazing times (31.2 min/h) and considerably higher bite rates (1285 bites/h) compared with Brown Swiss (22.7 min/h; 844 bites/ h) and Crossbred calves (22.8 min/h; 839 bites/h). These behavioural differences suggest a greater motivation or efficiency in forage acquisition among Swiss Fleckvieh calves on pasture. In contrast, rumination time did not differ significantly among breeds, indicating comparable digestive processing across genotypes. The absence of breed differences in rumination time also suggests that Swiss Fleckvieh calves maintained adequate fibre intake compared to the other breeds, likely supported by using similar ad libitum hay provision when housed indoors. Thus, the key behavioural advantages observed in Swiss Fleckvieh calves, namely their longer grazing times and higher bite rates, may enable greater forage intake at pasture.

Conclusions

Swiss Fleckvieh calves showed greater adaptability to pasture-based rearing through enhanced grazing activity, characterised by significantly higher grazing times and bite rates. While growth performance did not differ among breeds, the behavioural distinctions highlight the importance of considering genetic and behavioural traits when selecting breeds for low-input veal and beef systems. Integrating such breed-specific characteristics into breeding and management decisions may help optimise the use of permanent grasslands, improve animal welfare, and support more sustainable and socially accepted production systems for male dairy calves.

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Multi-species pasture for gestating sows

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Introduction

Outdoor access is a cornerstone of organic livestock systems, yet agricultural land is a limited resource under increasing pressure. To optimize land use, grazing areas must support not only animal welfare but also feed production and ecosystem services such as biodiversity. The aim of this study was to investigate the effect of a species-rich pasture on herbage intake and the establishment of body reserves of sows during gestation.

Methods

The study was conducted at a commercial organic pig farm located in Funen, Denmark. In spring 2024, two experimental pasture mixtures, one traditional and one multi-species (Table 1), were undersown in rye and allowed to establish until spring 2025. In total 96 organic sows were included in the experiment. The experiment was conducted in three overlapping blocks, in which 32 sows were divided into four paddocks: two on traditional pasture and two on multi-species pasture. Throughout the experimental study the condition of the pasture was assessed every 2nd week by visually evaluating the coverage of sward, bare and uprooted soil and wallowing hole. At the time of sow arrival and removal (approximately d 100 of gestation) from the experimental paddocks, their body weight (BW), back fat thickness (BF), and body condition score (BCS) were recorded. All sows were nose ringed, according to standard Danish organic practice, to avoid uprooting of the sward. In six plots of 0.25 m2 the vegetation height was measured, and samples were cut and weighed inside each paddock every 4th week, and three samples of 0.25 m2 were cut and weighed in ungrazed areas between the paddocks every 2nd week. The intake was calculated using the following formula (Smit et al., 2005) and adjusted for the percentage of the paddock not covered by sward. [Intake formula – see the original article.]

Results

All presented results are based on preliminary data. Changes in sow BW ($P = 0.65$), BF ($P = 0.09$) or BCS ($P = 0.88$) during gestation did not differ between pasture mixtures. Daily sow herbage intake was greater when grazing the traditional mixture (8.3 kg/sow as-is) compared to the multi-species pasture mixture (5.2 kg/sow as-is; $P < 0.001$). The herbage intake of sows varied with time (Fig. 1; $P < 0.001$), however, with no clear pattern, likely due to the influence of climatic factors such as precipitation and temperature. The weight of cuts from traditional pasture increased more than the multi-species pasture with increasing sward height (17.6 vs. 12.4 g/0.25 m2/cm; $P < 0.01$), suggesting a greater density of the traditional pasture. The sward height measured in the cutting plots did not differ between the two types of pasture,

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indicating an overall high motivation for grazing and likely pasture availability was the limiting factor for sow herbage intake.

Conclusions

The multi-species pasture mixture offered no advantage in terms of herbage intake. According to estimations based entirely on pasture measurements, sows on traditional pasture had a greater herbage intake, likely attributable to a greater sward density. Although sows had a greater intake from the traditional pasture mixture, it did not result in greater re-establishment of body reserves.

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