**Content of major minerals in the empty body of growing Fleckvieh bulls fed rations with varying energy concentrations**

Gehalt an Mengenelementen im Leerkörper wachsender Fleckviehbullen bei Fütterung von Rationen mit unterschiedlichen Energiegehalten

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**Introduction:** The performance potential of Fleckvieh (German Simmental) fattening bulls has been improved by selective breeding during past decades. This might have affected the body composition and composition of gain of growing bulls. Consequently, energy and nutrient requirements of the animals might have changed. A feeding experiment finalized by a serial slaughter trial was conducted to reevaluate the deposition of energy and nutrients in growing Fleckvieh bulls representative for the current genetic level. This abstract presents data on the content of major minerals in bulls with different live weights after feeding diets with different energy concentrations.

**Methods:** 72 Fleckvieh bulls (age: 42 d, body weight (BW) 80 kg) were fed with restricted amounts of milk replacer (120 g/l) and a concentrates/hay-based total mixed ration (TMR) until weaning at an average BW of 121 kg and subsequently on a TMR based on maize silage and concentrates for ad libitum intake. The fattening period began at an average BW of 225 kg. Bulls were randomly allocated to a normal energy (NE) and a high energy (HE) treatment group with 11.6 and 12.4 MJ ME/kg DM, respectively. The differences in energy concentrations of the TMRs were reached by varying the percentage of maize silage and concentrates. Bulls of the NE group were fed rations with 80 % maize silage and 20 % concentrates, while animals of the HE group were fed rations with 40 % maize silage and 60 % concentrates (basis DM). Individual feed intake was recorded daily and BW was determined in four-week intervals. The bulls were slaughtered in five final live weight groups with 120 (n=8), 200 (n=10), 400 (n=18), 600 (n=18), and 780 kg (n=18). During slaughtering and carcass processing, the empty body weight was determined as final live weight minus the contents of urinary bladder and gastrointestinal tract (GIT) and the whole empty body was dissected to the body tissue fractions hide, blood, organs, empty GIT, body fat, muscle, bone and tendon. Body tissues were chemically analyzed for their mineral contents regarding calcium, phosphorus, sodium, potassium, sulfur, and magnesium. The mineral contents of the bull's empty bodies were calculated based on the mineral contents of the individual body tissues. Statistical analysis was performed using Proc Mixed of SAS (Version 9.4). The analysis included a two-way ANOVA with interaction (feed energy, weight group, feed energy x weight group). Results are shown in ranges and standard error and were compared by the PDIFF option with values of $p<0.05$ regarded as significant.

**Results:** The empty body weights of weight groups 120, 200, 400, 600, and 780 kg were 104, 176, 370, 553, and 734 kg, respectively. Since there were no significant effects of dietary energy concentration on mineral contents in normal and high energy treatment groups, the combined results of both animal groups are shown. The calcium content in the bull's bodies did not vary between weight groups and averaged at 14.3 g/kg ±0.5. The contents of the other minerals decreased during growth ($p<0.05$; phosphorus content: 8.9-7.7 g/kg ±0.2; potassium content: 2.5-2.0 g/kg ±0.03; sulfur content: 1.7-1.5 g/kg ±0.02; sodium content: 1.6-1.2 g/kg ±0.02; magnesium content: 0.43-0.41 g/kg ±0.01).

**Conclusions:** Feeding varying energy concentrations did not alter the empty body mineral content in growing bulls. While the calcium content remained constant during growth, the content of the other minerals decreased with increasing live weight of the animals. Our results showed higher body mineral content compared to Fleckvieh bulls in previous studies (1), but the mineral content of current Fleckvieh bulls was comparable to data of growing

Schwarzbunt bulls (2). The higher mineral contents in current Fleckvieh bulls might be associated with higher mineral accretion at defined live weights.

**Acknowledgement:** This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727213 (GenTORE).

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