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Influence of slaughter age and dietary energy concentration on the empty body nutrient contents of growing Fleckvieh bulls

Einfluss des Schlachalters und der Energiekonzentration in der Ration auf die Nährstoffgehalte der Leerkörper wachsender Fleckviehbullen

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Performance of Fleckvieh (German Simmental) fattening bulls has been improved by selective breeding during past decades. This might have affected carcass tissue composition as well as chemical body composition and as a consequence energy and nutrient requirements of animals during fattening might have changed. In order to reevaluate the deposition of energy and nutrients and the chemical and body tissue composition of growing Fleckvieh bulls of modern type, a feeding and slaughter experiment was conducted. This abstract presents data on nutrient content of bulls slaughtered in different weight categories 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) with a maximum of 6 l/d and a total mixed ration (TMR) based on concentrates (55.7 %), hay (30.0 %) and molasses (14.3 %) over a period of 6 weeks until weaning at an average BW of 121 kg. Subsequently, the animals were fed a TMR based on maize silage (average 63.6 %), concentrates (30.8 %), hay (3.7 %) and molasses (1.9 %) for ad libitum intake. The TMR for the period after weaning (8 weeks) was adjusted weekly and supplemented with brewer's yeast, 110 g per calf and day. The fattening period began at an average BW of 225 kg. Bulls were randomly allocated to a normal and a high energy treatment group with 11.6 and 12.4 MJ ME/kg DM, respectively. 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 (GI) tract and the whole empty body was dissected to the body tissue fractions hide, blood, organs, empty GI tract, body fat, muscle, bone and tendon. Body tissues were chemically analyzed for crude fat, crude protein, crude ash and water contents. Statistical analysis was performed using Proc Mixed of SAS (Version 9.4). Results are shown in ranges and standard error and were compared by the PDIF 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 nutrient contents in normal and high energy treatment groups, the combined results of both animal groups are shown. During growth, the percentage of crude protein, crude ash and water decreased ($p < 0.05$; crude protein: 20.6-19.1 % ± 0.2 ; crude ash: 4.8-4.4 % ± 0.1 ; water: 68.4-55.3 % ± 0.5), while the crude fat percentage increased ($p < 0.05$) from 6.2 to 21.3 % ± 0.7 . **Conclusions:** Variations in dietary energy concentrations within margins found under practical conditions did not alter the body nutrient composition to a relevant extent. The body nutrient contents of modern type Fleckvieh bulls corresponded widely to literature data from past decades (1). During growth, the amount of crude fat increased mainly at the expense of body water. Furthermore, modern bulls showed a 600 g higher daily weight gain during the fattening period and thus had a higher nutrient accretion than bulls in former studies (2). In summary, modern type Fleckvieh bulls feature a higher growth potential and can be fattened up to 780 kg final live weight. **Acknowledgement:** This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727213 (GenTORE).

- 1) KIRCHGESSNER M., SCHWARZ F.J., OTTO R., REIMANN W., HEINDL U. (1993): J. Anim. Physiol. Anim. Nutr. 70: 266-277
- 2) SCHWARZ F.J., KIRCHGESSNER M., AUGUSTINI C., BRANSCHIED, W. (1992): Fleischwirtschaft. 72: 1584-1589

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