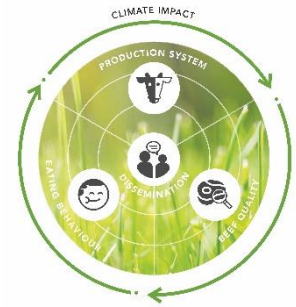


Grass-based Organic Beef for Sustainable Eating

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Background and objective

Organic dairy bull calves are currently raised under conventional production conditions. Only a minor proportion is raised as organic steers, a production where high feed resources are needed per kg product. Hence meat from steer production has a high impact regarding nutrient losses and climate. This is a challenge to the fundamental organic values and principles. Thus, there is a demand for finding sustainable solutions, which in GrOBEat is based on two pillars.

Pillar 1: Quality can replace quantity when it comes to food consumption^{1,2,3} and thereby health-optimize meat consumption, facilitating an overall lower meat intake, without compromising human well-being. Pillar 2: Organic beef can be produced in a sustainable way securing animal welfare, biodiversity, climate, high quality as well as production economy by exploring the growth potential of dairy calves in a grass-based system

The aim of the GrOBEat project is to develop a new innovative food chain based on a production system, where three well-characterised beef products are produced. The GrOBEat system needs less feed per kg live weight gain, whereby the nutrient losses (N and P) and green house gas emissions become lower per kg meat produced. Together with a higher animal welfare and high quality beef, this leads to lower consumption of beef due to an earlier sensory satisfaction.

Materials and Methods

Forty-eight Holstein dairy bull calves were raised in a nurse cow system, with two calves per nurse cow on pasture until the age of 6½ mo, before they were housed and raised on a grass-based total mixed ration. At 8 mo, the best 16 calves were slaughtered, and the meat analysed for technological and sensory quality, as well as eating quality in a consumer study. The remaining 32 calves are raised for further 8 mo (16 animals) and 18 mo (16 animals) on grass-based feed until slaughter and analysed as the 8 mo animals. Data from the production, the slaughter and the meat and consumer studies are analysed in order to calculate the climate impact of the meat products.

Results

At the conference, we will present the innovative perspective taken in the project as well as our first results from the 4-year project in order to demonstrate how we approach “How changes in consumer preferences can facilitate transitions on the production side?”.

Discussion

Beef production and beef consumption is challenged due to impact on climate and human health, however cattle also have positive contributions because of the capability of utilizing waste products and grass-land⁴, contribute to ecosystem services and the delivery of energy-dense foods with high nutritional value. Thus, it is a matter of finding the right balance in a future production system that to a higher degree fulfil the organic values and principles, a sustainable production and includes consumer preferences in the concept.

Acknowledgement

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¹Andersen, BV. 2014. PhD thesis. ²Cornil Y & Chardon P. 2016. *J. Marketing Res.* 53(5):847-64. ³Møller, P. 2013. *Flavour* 2, 8. ⁴van Selm et al. 2022, *Nature Food* 3, 66-73.