



DEPARTMENT OF CATTLE BREEDING  
Beef cattle and meat quality

*The research is aimed at economically viable production of beef while meeting the current demands on its nutritional value and organoleptic properties.*

## OVERVIEW

Our research is mainly focused on the area of beef production and quality. We investigate growth, feeding efficiency, carcass quality and meat quality in various cattle breeds and crossbreds. We evaluate different fattening systems and diets, effects of sex and slaughter age on beef production and quality.

We study genetic and non-genetic effects on meat composition, particularly on the content of intramuscular fat and fatty acids profile. Along with this we evaluate the factors influencing the organoleptic and technological properties of beef.

In addition, we investigate farming systems applied in farmed cervids with the aim to achieve economically viable venison production. Different rearing methods and dietary regimes have been assessed with respect to growth, carcass and meat quality of farmed deer.

We are responsible for training of beef carcass classifiers in harmony with the EU legislation.

## GROUP MEMBERS

### Scientific Staff

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*group leader*

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## KEYWORDS

Beef cattle, carcass value, meat quality, deer farming, venison

## MAIN TOPICS & PROJECTS

### Efficient beef production

Feeding experiments are focused on the efficient production of beef and the improvement meat quality parameters. Different feedstuffs are tested, e.g. the partial replacement of grains in diets with alternative diet components. In addition, post-slaughter carcass manipulation (carcass hanging methods, ageing of meat etc.) are assessed with respect to meat chemical composition, physical attributes and sensorial characteristics.

### Genetic factors influencing the fatty acid profile of bovine meat and adipose tissue

Associations of polymorphisms in different candidate genes with intramuscular fat content and fatty acid composition of muscle and various adipose tissue types have been investigated with the aim to understand the genetic variation underlying the beef fatty acid profile.

### Expression of genes related to intramuscular fat content and fatty acid composition

The expression level in bovine lipid metabolism related genes is measured to elucidate the molecular mechanisms which induce the different levels of fat deposition and its composition.

### Optimization of diets used for farmed fallow deer

Different feeding systems applicable in fallow deer farms are evaluated with the objective to efficiently produce venison with nutritive and organoleptic characteristics meeting the demands of current consumers.

## KEY PUBLICATIONS

Bureš, D., Bartoň, L., (2018): Performance, carcass traits and meat quality of Aberdeen Angus, Gascon, Holstein and Fleckvieh finishing bulls. *Livestock Science*, 214, 231-237.

Kudrnáčová, E., Bartoň, L., Bureš, D., Hoffman, L. C. (2018): Carcass and meat characteristics from farm-raised and wild fallow deer (*Dama dama*) and red deer (*Cervus elaphus*): A review. *Meat Science*, 141, 9-27.

Cawthorn, D.M., Fitzhenry, L.B., Muchenje, V., Bureš, D., Kotrba, R., Hoffman, L. C. (2018): Physical quality attributes of male and female wild fallow deer (*Dama dama*) muscles. *Meat Science*, 137, 168-175.

Bartoň, L., Bureš, D., Kott, T., Řehák, D. (2016): Association of polymorphisms in bovine DGAT1, FABP4, FASN, and PPARGC1A genes with intramuscular fat content and the fatty acid composition of muscle and subcutaneous fat in Fleckvieh bulls. *Meat Science*, 114, 18-23.

Bureš, D., Bartoň, L., Kotrba, R., Hák, J. (2015): Quality attributes and composition of meat from red deer (*Cervus elaphus*), fallow deer (*Dama dama*) and Aberdeen Angus and Holstein cattle (*Bos taurus*). *Journal of the Science of Food and Agriculture*, 95, 2299-2306.

Bartoň, L., Bureš, D., Kotrba, R., Sales, J. (2014): Comparison of meat quality between eland (*Taurotragus oryx*) and cattle (*Bos taurus*) raised under similar conditions. *Meat Science*, 96, 346-352.

Bartoň, L., Bureš, D., Homolka, P., Jančík, F., Marounek, M., Řehák, D. (2013): Effects of long-term feeding of crude glycerine on performance, carcass traits, meat quality, and blood and rumen metabolites of finishing bulls. *Livestock Science*, 155, 53-59.

Bureš, D., Bartoň, L. (2012): Growth performance, carcass traits and meat quality of bulls and heifers slaughtered at different ages. *Czech Journal of Animal Science*, 57, 34-43.

Bartoň, L., Bureš, D., Kott, T., Řehák, D. (2011): Effect of sex and age on bovine muscle and adipose fatty acid composition and stearoyl-CoA desaturase mRNA expression. *Meat Science*, 89, 444-450.

Bartoň, L., Kott, T., Bureš, D., Řehák, D., Zahrádková, R., Kottová, B. (2010): The polymorphisms of stearoyl-CoA desaturase (SCD1) and sterol regulatory element binding protein-1 (SREBP-1) genes and their association with the fatty acid profile of muscle and subcutaneous fat in Fleckvieh bulls. *Meat Science*, 85, 15-20.