



In search of a more sustainable slaughter calf

”

I would like to be able to say that my farm and my animals are more climate friendly.

Kristian Sørensen, specialized slaughter calf producer and participant in FutureBeefCross

In cooperation with Aarhus University, Danish Crown, Allflex, Viking, Frontmatec and a number of veal producers, SEGES is developing tools that will make it possible to breed towards a more sustainable and climate friendly crossbred calf characterized by high feed efficiency and meat of high quality.

WE CAN and must always strive to improve. This motto permeates the Danish agricultural sector and is the main driver for FutureBeefCross. This SEGES led project aims to create a more climate friendly slaughter calf through improved genetics. “We would like to investigate if there are genes that code for lower methane emissions from the slaughter calf, whilst lowering the feed intake and being able to convert the feed into tender and tasty meat. This type of animal may contribute further to the cattle producers’ efforts to lower the climate impact” says Trine Barrett, head of department, Livestock innovation, SEGES. The four-year project has a budget of 20 million DKK and is co-financed by GUDP (Green Development and Demonstration program).

A necessity

Four veal producers have made their calves and stables available to the project – amongst them is Kristian Sørensen. For him FutureBeefCross is a necessity. “I would like to be able to look my neighbour in the eye and say that my farm and animals are more climate friendly. High goals

have been set for the climate effort and we as farmers need to do everything, we can to reduce the emission of for instance methane. That is why I think it is interesting to be part of FutureBeefCross. At the same time there is a huge economic potential for us in the project, because the more we can reduce the feed intake of the calves, the less money we need to spend” says Kristian Sørensen. His colleague, who is also part of the project, Lars Thinggaard Larsen, agrees. “There is much discussion about the climate footprint from the agricultural sector. We need to contribute to make a difference. I also see the potential in knowing when and how much the calves eat throughout the day”, says Lars Thinggaard Larsen.

Significant demand

The two farmers deliver calves to Danish Crown, who is also a part of FutureBeefCross and sees the project as a part of the company’s overall work with sustainability and climate. “We want to look at options to make meat from young calves – as well as meat in a broader sense – more climate friendly. This project can help provide a business ad-

vantage for Danish Crown, other slaughterhouses, and the Danish farmers. I have no doubt that in the long run we will see significant demand for sustainable meat with high eating quality”, says Finn Klostermann, CEO at Danish Crown Beef. Veal producer Kristian Sørensen agrees and hopes that FutureBeefCross can change the consumers’ view on Danish veal: “We need for all consumers to realize, that meat from Danish calves is a more climate friendly choice than buying meat from South America for example”.

FutureBeefCross

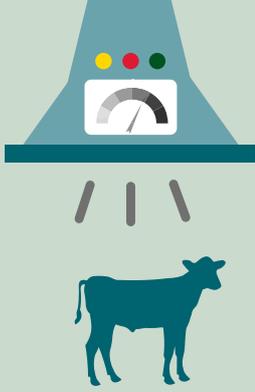
- > Four-year project
- > Startup in 2019
- > Budget of DKK 20 million
- > Participants: SEGES, Danish Crown, Aarhus University, Allflex, Frontmatec and VikingDenmark.

The project in short

We measure

- > Methane emission
- > Feed intake
- > Body weight
- > Eating quality of meat from 12,000 crossbred calves.

This information is used to identify the beef bulls of the highest genetic level.



**METHANE
SENSOR**

Higher net return for the farmer

FutureBeefCross helps farmers obtain a better economic result, because the calves use feed more efficiently and provides meat of a higher eating quality. These calves have higher economic potential due to a higher genetic level. Popularly speaking, The bag of money, that can be split between the veal producer and the dairy farmer will be larger. To the benefit of both parties.

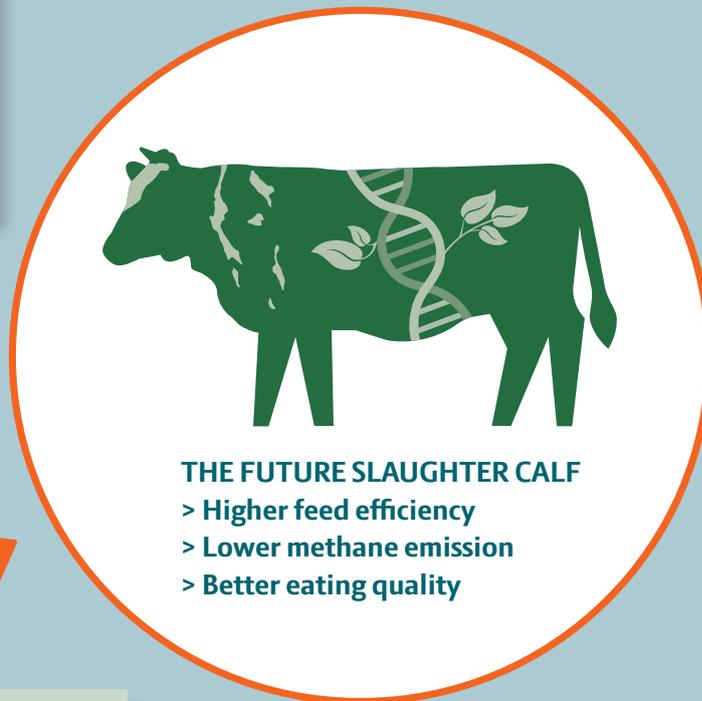
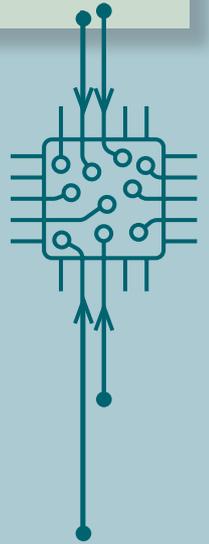
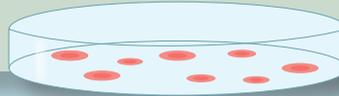
/ ANDERS FOGH, HEAD OF DEPARTMENT, GENETICS, SEGES

Breeding values will help dairy farmers

FutureBeefCross will develop tools that make it possible to rank beef bulls used for crossbreeding with dairy cows. The new tools include breeding values for eating quality, feed efficiency and methane emissions. This will help VikingGenetics, and eventually, dairy farmers to find the beef bulls with the highest genetic level for these traits.

/ SØREN BORCHERSEN, CHIEF R&D OFFICER, VIKINGGENETICS

CHEMICAL ANALYSES



METHANE →

← **FEED EFFICIENCY**

← **EATING
QUALITY**

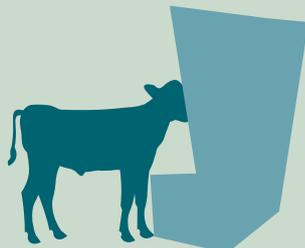
Improved feed utilization with All-Feed stations

As a leading global producer and supplier of animal identification and monitoring equipment Allflex are focused on optimizing cattle feed consumption. For this purpose, we have developed All-Feed stations, which are a central element in the FutureBeefCross project.

/ KRISTIAN VEDEL RASMUSSEN, CEO, ALLFLEX DANMARK



LIVEWEIGHT SCALES



FEED BOXES



Focus on the eating quality

Taste, tenderness, and juiciness are crucial for the experience a consumer has, when eating a good steak. With FutureBeefCross we aim to improve eating quality by using bulls with the best genes for these traits.

As the amount of intramuscular fat in the meat is important for taste, tenderness, and juiciness The Department of Food Science at Aarhus University are measuring and analysing this on 1000 animals. Based on these data and advanced camera technology, Frontmatec, will develop deep learning algorithms during the project, to quantify the amount of intramuscular fat.

/ MARGRETHE THERKILDSEN, SCIENTIST,
DEPARTMENT OF FOOD SCIENCE, AARHUS UNIVERSITY

FutureBeefCross builds on a strong partnership

FutureBeefCross is a four-year project with a 20 million DKK budget. The aim is to develop breeding values to be used for selecting beef bulls that sire cross bred calves with:

- > Reduced methane emission
- > Higher feed efficiency
- > Better eating quality

The project builds on a strong partnership between companies and institutions with expert knowledge on all aspects of the production chain in slaughter calf production - from farm to fork. Calves are performance tested by several commercial Danish veal producers.



We are the innovation centre for the Danish agricultural sector and at SEGES our focus is to form a bridge between science and practical farming. In the project we handle the data transfer from farmer to database and develop the genetic models that are the foundation for calculation of reliable breeding values.



As part of the Allflex Group, the world's largest producer of eartags, our mission is to supply the best products and service to farmers worldwide. In FutureBeefCross our contribution is to develop and maintain the equipment that registers daily feed intake.



We are the largest meat-processing company in Europe and Danish Crown Beef is an important player on the European beef market. In the project we are responsible for taking photographs of meat cuts from 12,000 calves and taking 1,000 meat samples.



We are among the world's largest and leading farmer owned cattle breeding associations. At VikingGenetics we use the latest technology, such as genomic selection and sexed semen. In the project we are responsible for tissue sampling and genomic tests.



We are a farmer owned company that delivers semen from world class bulls to all dairy and beef farmers in Denmark. At the same time VikingDanmark offers insemination and advisory service. In the project we are responsible for the selection of beef cattle bulls and their strategic use in dairy herds.



We research the whole chain from farm to fork and have expert knowledge in health beneficial characteristics of food and food components. In the project we are responsible for analysing eating quality (intramuscular fat and shear force) in meat samples from 1,000 calves.



We research quantitative genetics and genome research. We especially work with statistic models for use in livestock and plant breeding. Within the project we calculate genetic parameters for eating quality, methane emission and feed efficiency. We develop models that can be used to calculate genomic breeding value for these traits.



We develop, manufacture, and maintain slaughterhouse solutions of high quality. In the project we are responsible for the development of algorithms which translate images into eating quality traits.

