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Breeding for climate-friendly cows is possible – VikingGenetics focuses on reducing methane emissions at herd level

Last week, three researchers, including one from VikingGenetics, were awarded the Innovation Fund Grand Solution Prize in Denmark. The award was for developing a way to use breeding to reduce cattle related methane emissions at herd level. This is one of the ways VikingGenetics is empowering efforts to breed more climate-friendly cows.

"Our most important discovery is that there is a genetic component to methane emissions which means this is heritable. As such, you can select animals with reduced methane emissions," says VikingGenetics project manager, Jan Lassen. Lassen, together with Peter Løvendahl of the Department of Molecular Biology and Genetics at Aarhus University, Denmark and Henrik Bjørn Nielsen of the Technical University of Denmark, received the Innovation Fund Grand Solution Prize from Søren Pind, Minister for Education and Research in Denmark.

The findings of the three researchers are highly relevant in the fight to curb global warming. Gaseous emissions from cows contain methane, a global warming gas. In terms of contributing to the greenhouse effect, methane is up to 23 times more potent than carbon dioxide (CO_2), according to the United Nations Intergovernmental Panel for Climate Change (IPCC).

As part of a four-year study, that included 2,500 cows, the researchers developed equipment to measure methane and CO_2 emissions from exhaling cows as they were being milked.

The researchers have managed to breed cows that reduce methane emission by 5%, which in Denmark alone, would ensure the equivalent of a 90,000 tonne reduction in CO_2 emissions per year. At the same time, they were able to reduce feed consumption by 1%.

"These findings can help to design more climate-friendly cows. We analysed thousands of cow genes along with production figures and feed efficiency to select those cows with the most optimal inheritance," Lassen explains. The research mainly concerned the Holstein population, but Jersey and Red Dairy Cattle (RDC) were also included in close cooperation with VikingGenetics personnel in Finland and Sweden.

These studies are very important as VikingGenetics already exports genetics to 50 countries, while according to the IPCC, methane accounted for about 16% of global greenhouse gas emissions in 2015.

"We want to be part of the solution when it comes to combatting global warming. Climate change affects all of us, no matter where in the world we live and we have been breeding for climate-friendly cows for a long time," says Rex A. Clausager, CEO of VikingGenetics.

Breeding for "green cows"

As methane emissions are heritable, selection for climate-friendly cows is possible. Lower methane emissions and feed efficiency are correlated.

"If you select for efficient cows, this will also influence gaseous emissions. By choosing Feed efficiency bulls from VikingGenetics, farmers will soon be able to select for lower methane emissions," Lassen explains.

"The next step is to have breeding values for methane emissions on VikingGenetics bulls, and we are working as fast as we can with Feed Efficiency. We know that this selection can be possible without diverting the focus from health and fertility traits," Lassen says.

"These findings confirm that we take our responsibilities very seriously in terms of our sustainable breeding goals. By focusing on productive, green cows with a natural defence against diseases in their genes, we enable milk to be produced with minimal use of antibiotics. And now with the added benefit of showing that these cows are also capable of reducing methane emissions," Clausager says.

Read more at:
http://mbg.au.dk/en/news-and-events/news-item/artikel/the-innovation-fund-denmarks-grand-solution-prize-is-awarded-to-three-researchers-for-their-breedin/

https://innovationsfonden.dk/da/nyhed/grand-solution-prisen-2018

http://www.bbc.co.uk/programmes/w172vr0s7jj9p17#play play from 48:40

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About VikingGenetics:
For decades, Nordic farmers have contributed to creating a breeding goal that leads to healthy and productive cows. VikingGenetics is a cattle breeding company developed for farmers by farmers. Today, VikingGenetics is owned by 25,000 beef and dairy farmers in Denmark, Sweden and Finland. The company exports genetics to 50 countries and genomically tests 8,000 bull calves annually to select 220 for progeny tests (VikingHolstein, VikingRed and VikingJersey).