

# Natural defence

against diseases



**VIKING  
DEFENCE**

**EMBRYO  
STRATEGY**

**VikMate**

**Viking  
WORLD**



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## The natural defence of the healthy cows

There is growing international concern about multi-resistant bacteria (MRSA), and we are starting to see more attention being given to the subject from both the political and consumer side. The World Health Organization has recently campaigned to create awareness about this problem, and for one week in November, the eyes of the whole world were turned to this global health problem and the steps that can be taken to reduce the use of antibiotics.

Concerned about the problem, VikingGenetics aims to support dairy farmers in reducing the use of antibiotics in cattle breeding. Thanks to strict veterinarian regulation of the use of antibiotics in Scandinavia, we are able to breed for health. This focus on health has been natural for us for the past 40 years and as a result, Scandinavian countries now have the lowest use of antibiotics in Europe and the world.

We are proud of this development which enables us both to increase the production level AND improve cow health. To share this message with the rest of the world, we have now launched VikingDefence™ as a genetic solution to reduce incidences of clinical diseases such as Mastitis and Digital dermatitis, in herds.

As VikingDefence is in the genes, the solution will work anywhere, from the Zimbabwean bush to intensive farming systems in the USA. We have dedicated this issue of VikingNews to VikingDefence.

We have also produced a range of articles for your interest, from the viewpoint of women in the breeding world, a common sight in Finland, to successful farmers around the Viking World such as on the Torre Santa Maria farm in Spain. This farm is now doing genomic test on females on our NTM (Nordic Total Merit) scale with outstanding results!

**Happy reading!**

**Thank you for following us!**



*David Stenkær Ravnkilde,  
Head of Business Development, VikingGenetics*

# Contents

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## New improvements in General Health

The index improved in the November evaluation and triggered some changes in the bull ranking. The correlation between the “old” index and the new index is 0.90 for VikingRed and VikingHolstein, while for VikingJersey the correlation is 0.50, meaning some more reranking in VikingJersey compared to VikingHolstein and VikingRed.

Page 5



## "For us VikingGenetics means trust and security"

"We feel safe with VikingGenetics. Viking works with the goal that we like; a high focus on health and production," says Marianne Jansson, one of the owners of Noltorp Farm in Skara, Sweden.

Page 12



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## VJ Hurling, first VJ bull bought outside Scandinavia

As closing a circle that started in 1962, VJ Hurling, was born on the same farm that 50 years ago imported the first bull into Ireland from Denmark. VJ Hurling was bred at Richard and Ben Tyrell's herd at Woodtown Jerseys in Kildalkey, Ireland

Page 20

Defence is in the genes	4
Reliable registrations	6
Get a win-win	8
Ensure your revenues	9
Supporting the reduction of antibiotics	10
Healthy Viking cows	11
VikingJersey strategic ally of Veldhuis	15
Prosperous breeding	16
Embryo Flushing	18
Heifers with high NTM	19
Around the VikingWorld	20
Viking Weaving stories	23
News from VikingHolstein	25
News from VikingRed	26
News from VikingJersey	27





# VikingDefence™

## – defence is in the genes

VikingDefence is the solution that combines all health traits that we have been breeding for in the Nordic countries for decades. Our bulls have been selected to breed high yielding and healthy cows. They breed daughters with a natural defence against diseases, VikingDefence.

By Camilla Rosman, Marketing Manager, VikingGenetics

Lately, there has been a lot of media coverage concerning the low use of antibiotics in the dairy industry in the Nordic countries compared to the rest of the world. We see this as recognition of the responsibility we have taken in breeding. We care about natural, healthy animals and have a responsibility for sustainable dairy production where people and the environment are also in focus.

VikingDefence includes the traits with registrations from clinical diseases made by veterinarians and hoof trimmers.

Dairy producers in the Nordic countries have a long tradition and a strong commitment to being a part of our unique registration system because the data each farmer receives is the most powerful management tool they have as professional dairy farmers.

Registering specific clinical cases makes breeding far more successful than solely relying on correlated traits such as somatic cell count, feet & legs, and immunity. Some people argue that it is not possible to breed for better health, because heritability is too low (2-5%), however as long as there is variation between bulls, selection works and as we get reliable

data in, we also get reliable data out. That is the secret behind successful breeding.

In the Nordic countries, we have been breeding for health traits for more than 40 years, longer than anywhere else. Trust VikingDefence. Defence is in the genes and healthy cows mean a better life, for both you and your cows. ●

### Traits included in VikingDefence™

- General Health (reproductive and metabolic diseases)
- Hoof Health
- Udder Health



# New Improvements in General Health Index

By Lars Nielsen, Head of Breeding, VikingGenetics

The General Health index improved in the November evaluation and triggered some changes in the bull ranking. The correlation between the “old” index and the new index is 0.90 for VikingRed and VikingHolstein, while for VikingJersey the correlation is 0.50, meaning some more reranking in VikingJersey compared to VikingHolstein and VikingRed.

The General Health Index is a combined index of early and late reproductive disorders, metabolic disorders and feet and leg problems. Veterinarians and hoof trimmers collect the data behind this index, during the first three lactations. In the group “metabolic disorders” we find ke-

tosis, milk fever, other metabolic diseases, other feed related disorders, and other diseases.

## The main changes made in November were:

- Hoof trimming data were deleted from the General Health Index. It is more logical to have such data in the Hoof Health Index only.
- Metabolic disorders will be divided into ketosis and metabolic disorders. Ketosis will be given its own index and Beta Hydroxy Buturate (BHB) from milk data are included as an indicator for ketosis. Correlation between BHB and ketosis is around 0.70, a similar level to somatic cell count as an indicator for mastitis.
- The statistical “Animal model” will be used instead of “sire model” and this means that females will also be given breeding values based on own performance

To start with, subindices in General Health will only be published for daughter proven bulls, not for genomic bulls.

We aim to improve predictions for our breeding values and the new improvements will make the General Health index more reliable than ever – supporting the optimal cow. ●



*We now have a new improved index for General Health.*

# Reliable registrations are always the key to success

Breeding directly for health traits is possible. With a large amount of high quality and reliable data for the actual disease cases, you can measure and keep track of the health traits.

By Uliana Langeland, International Marketer, VikingGenetics

To breed directly for health traits is possible. With a large volume of high quality and reliable data for actual disease cases, you can measure and keep track of health traits. Some people argue that it is difficult to achieve reliable proofs for individual disease traits, because you cannot measure health traits as you can milk yield. However, VikingGenetics is confident with saying that in the Nordic countries, we can breed for health traits with the highest possible reliability. This practice is possible thanks to an extensive and trustworthy data entry system.

We have put a lot of effort into creating and improving the data collection system. This would only be possible with standardisation of disease recording, and educating farmers, veterinarians and hoof trimmers, and bringing all the information into the same database.

A high proportion of cows contribute with data results for high reliability of breeding values. General Health and Udder Health are based on records kept by veterinarians in the first three lactations. For registrations made by veterinarians, over 80 different disease codes are used to describe the diagnoses that are categorised as follows for breeding purposes:

## UNIQUE DATA COLLECTION

What makes data collection in Denmark, Sweden and Finland different?

- Each cow has a unique Identification (ID) from birth to slaughter.
- All the data are entered in one database.
- A high proportion of herds participate in data registration. Around 900,000 or 90% of cows are registered for health traits in the database.
- The data are available from different production systems at all management levels.
- Strict veterinary rules – all veterinary treatments are registered.
- Farmers commit to register data because they use the results as the most important management tool.

- Udder diseases
- Reproductive diseases (retained placenta, metritis, etc.)
- Metabolic diseases (ketosis, displaced abomasum, etc.)
- Feet and leg diseases

For Hoof Health, data are mainly entered electronically by hoof trimmers but also by veterinarians and herd managers.

The Nordic Cattle Genetic Evaluation (NAV) is always available to ensure high reliability and quality of data. Only records from herds complying with strict rules are used in genetic evaluations. Systematic data collection for health traits started before 1985 in Sweden and Finland, and since 1990 in Denmark, the first countries to record systematic data. Since 2006, registration has been initiated on a smaller scale by other countries in e.g. Austria, Canada, France, United Kingdom (UK) and United States (US). ●

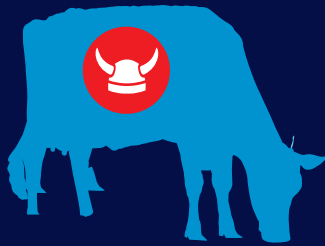


## TRAITS INCLUDED IN VIKINGDEFENCE

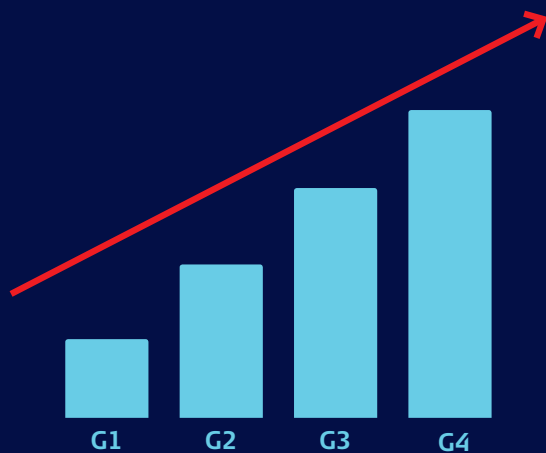


## DAUGHTERS

HAVE A STRONG  
NATURAL DEFENCE  
AGAINST DISEASES

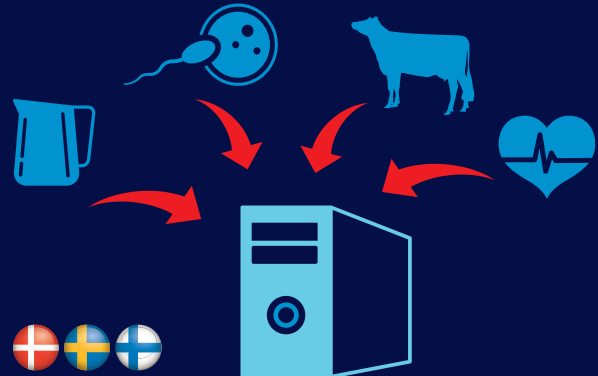


**NO COMPROMISE  
ON PRODUCTION**

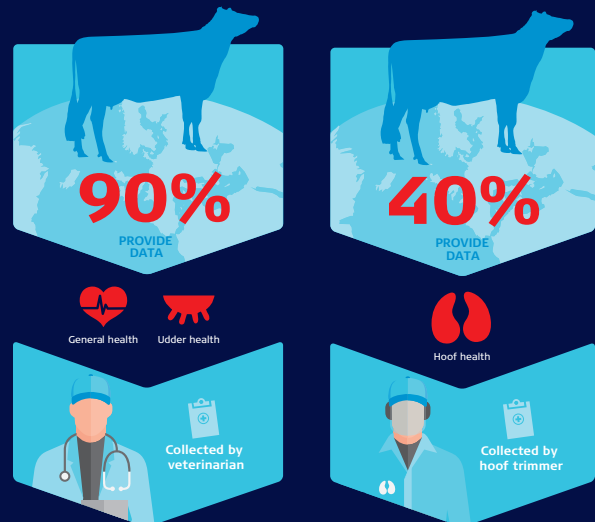


**GENETICS IS A LONG-TERM SOLUTION  
TO HEALTH PROBLEMS**

## UNIQUE REGISTRATION SYSTEM

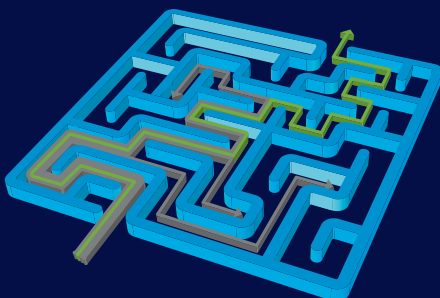


- Each cow has a unique ID
- All data is collected into ONE database
- All veterinary treatments are reported
- Data from all different production systems and management levels
- Full commitment among farmers



The strength of the registration system in the Nordic countries is the very high proportion of cows contributing with data and not only some selected herds. 90% of cows provide data for General Health and Udder Health, while 40% of cows provide electronic data from hoof trimmers

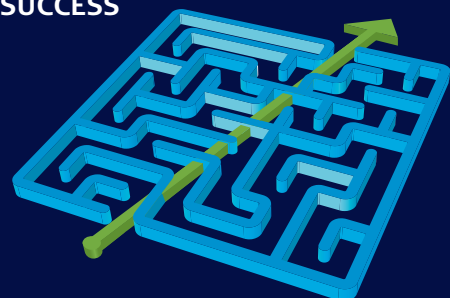
**DO NOT GET LOST IN THE LABYRINTH  
OF INDICATOR TRAITS**



**GO  
STRAIGHT  
TO THE  
CORE**



**100%  
SUCCESS**



# Get a win-win

## You don't need to compromise on production when breeding for better health

By Uliana Langeland, International Marketer, VikingGenetics

When breeding for improved health, you don't need to compromise on production and efficiency in your herd. Even though there is zero or negative correlation between health traits and production, you can still improve your milk yield, as both production and health traits are taken into consideration on the Nordic Total Merit (NTM) scale. All VikingDefence™ bulls are high on the NTM scale, which means we can ensure they have a balanced breeding profile.

The graphs below show genetic trends for the Production index and three health indices for the period 1996-2016.

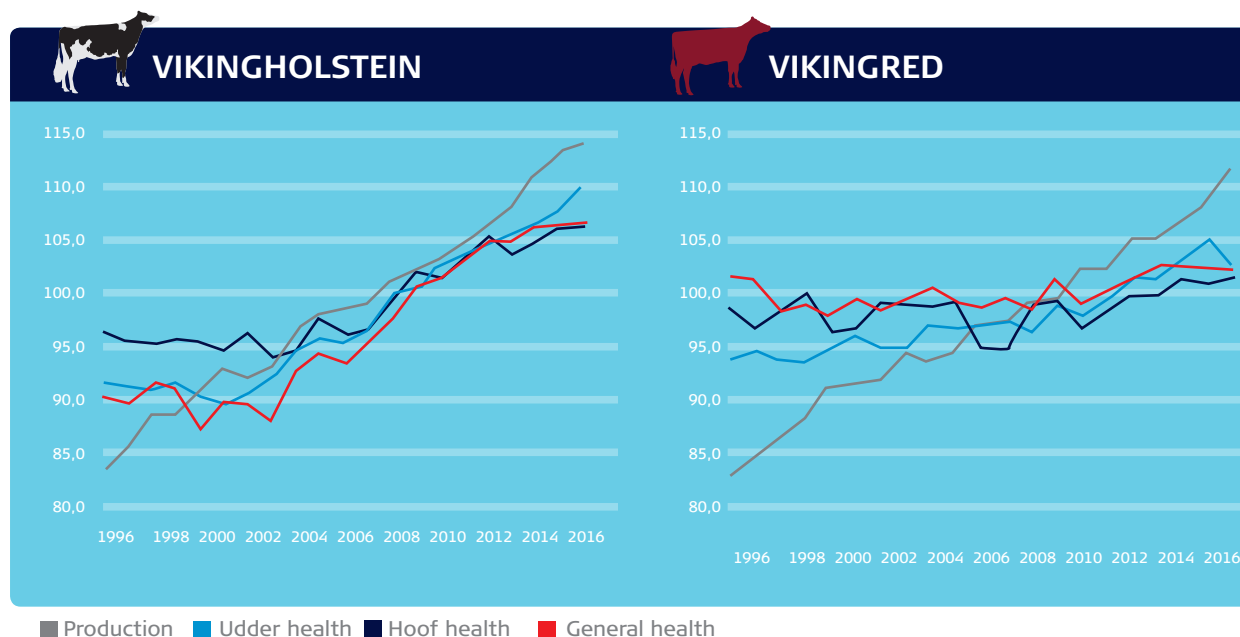
VikingHolstein bulls show strong genetic progress for health traits like Udder Health (+19 index units), General Health (+16 index units) and Hoof Health (+10 index

units) and have also made great progress in the Production index (+31 index units).

For VikingRed bulls, we have achieved strong genetic progress for Production (+31 index units) whilst also making good progress for Udder Health (+10 index units) and maintaining a stable and already high genetic level for Hoof Health (+4 index units) and General Health (+1 index units). The reason why the improvement in General Health and Hoof Health is not as marked as for Holstein, is because the VikingRed breed has fewer health problems than Holstein.

For VikingJersey, strong genetic progress for Production (+34 index units) is combined with good progress for Udder Health (+16 index units) and General Health (+15 index units) and avoiding genetic decline for Hoof Health (+2 index units).

### Genetic trend for Production, Udder Health, Hoof Health, and General Health

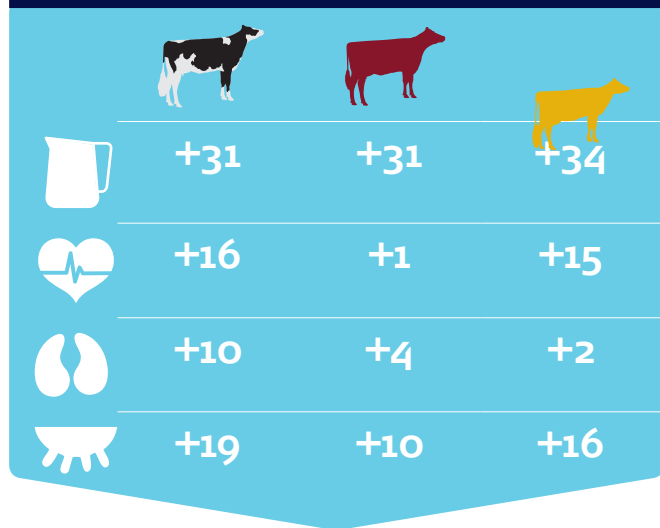




## Genetic progress

for VikingGenetics' bulls 1996-2016 shown in index units.

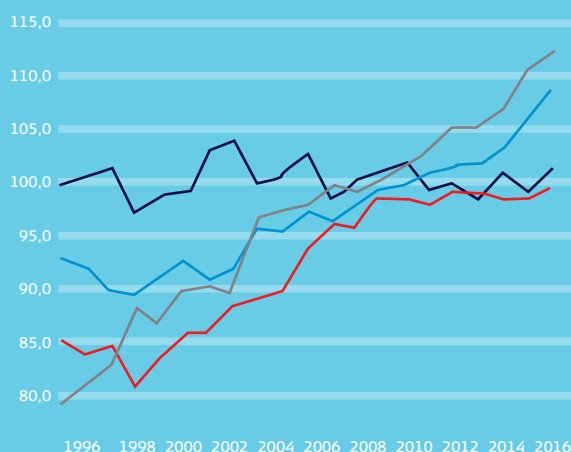
Although the goal is to make progress, in the case of traits where you are already good, progress doesn't have to be massive. Instead, you can put your main effort into traits you want to improve.



By relying on NTM in your breeding goals, you can improve both herd health and milk yield. That way, you take advantage of the easy-care healthy genetics without compromising on production and efficiency. With NTM, you are always breeding for improved profit. ●



### VIKINGJERSEY



Source: NAV (2017)

# Ensure your revenues

Learn more about the costs of health problems and the importance of breeding for better health.

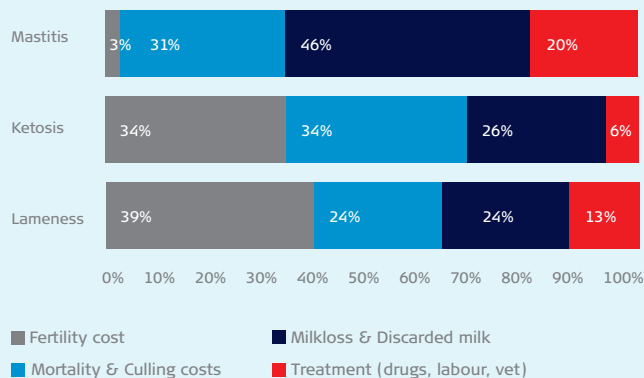
By Uliana Langeland, International Marketer, VikingGenetics

**H**ealth problems not only cause dairy cattle pain and distress, they also have a huge impact on the economy of dairy farms.

When talking about how much a certain disease costs, we tend to think mainly about veterinarian and medicine expenses, and overlook a crucial part: indirect costs.

- Extra time and labour charges
- Fertility problems
- Costs of preventive measures
- Lost milk production
- Culling costs
- Genetic impact from losing the potentially best-performing daughters
- Bigger risk of having another disease

## Costs of major health problems



Source: Compiled data from Wilshire et al., 2009 and Overton et al., 2014, and the article in Progressive Dairyman.

The prevalence of different health problems varies from farm to farm. No matter what production system you use, or what your current management level is, you can achieve better efficiency and reduce your costs by breeding for stronger resistance to diseases. Once you do so, you can focus more on management strategies to improve your dairy business. Healthier cows mean a better life for you and your herd. ●



VikingGenetics

# supports the reduction of antibiotics in cattle breeding

When the world is facing increasing global concern about the use of antibiotics in animals and the rise in antibiotic-resistant infections in humans, the Nordic countries are perceived as a “paradise” with the absolute least use of antibiotics in the European Union.

By Verónica Löfgren, communicator, VikingGenetics

The Nordic tradition of breeding for healthy cows is reflected in the latest report by the European Medicines Agency (EMA), from 2016: “Sales of veterinary antimicrobial agents in 29 European countries in 2014”. EMA is a decentralised body of the EU responsible for the protection and promotion of public and animal health. According to EMA, Sweden, Finland and Denmark are the EU countries with the lowest use of antibiotics in livestock, with an outstanding leading position.

The use of antibiotic treatments in cows includes therapeutic treatment (when ill), treatment of a batch of animals when at least one is diagnosed as sick; and for some countries within the EU and as in the United States, also as a preventive treatment against diseases. There is also the use of subtherapeutic doses in animal feed and water to promote growth and improve feed efficiency. This practice has been banned in Europe since 2006.

In the Nordic countries, we have a central database where veterinarians and hoof trimmers record all clinical diseases for each cow, while NAV (Nordic Cattle Genetic Evaluation) evaluates, investigates and monitors genetic trends to form the most reliable breeding values. This valuable information is the foundation of VikingDefence™ to identify the sires

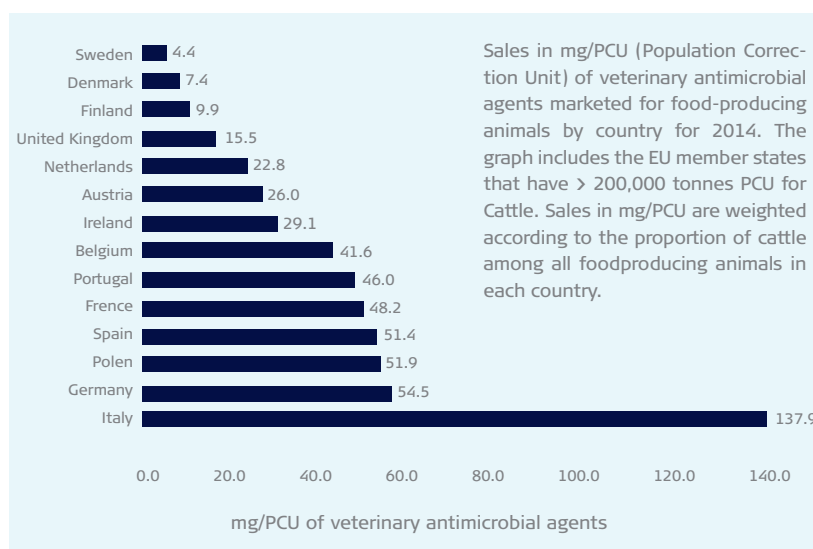
with the best genetic potential to transmit resistance to reproductive, metabolic and hoof health diseases.

“Because we have had strict veterinary regulations when it comes to the use of antibiotics, we needed to find a way to avoid antibiotics, and this is how the 40 yearlong tradition of breeding for health started,” Camilla Rosman, Marketing Manager at VikingGenetics explains. “As a result, our cows have a

natural defence against diseases in their genes,” she adds.

In modern dairy cattle operations around the world, mastitis is one of the most frequent infectious diseases, and accounts for most of the doses of antibiotics given to dairy cows. VikingDefence reduces the risk of incidences of clinical diseases such as mastitis and digital dermatitis, and many other diseases. ●

## SALES IN MG/PCU (POPULATION CORRECTION UNIT) OF VETERINARY ANTIMICROBIAL AGENTS MARKETING FOR FOODPRODUCING ANIMALS BY EU COUNTRY FOR 2014.



Source: Adapted from the report by European Medicines Agency, European Surveillance of Veterinary Antimicrobial Consumption, 2016. (EMA/61769/2016).

# Farmers satisfied with Healthy Viking cows



**SAM GRAHAM, AUSTRALIA**

"We have been using VikingRed for a long time and are now in the 8th or 9th generation. That's why I can confirm that these cows are extremely healthy and with good daughter fertility. They are very reliable." Sam Graham is the owner of Beaulands, situated on Comerong Island Road, Numbaa in Australia. His herd consists of 500 VikingRed cows and his farm was one of the pioneers in introducing the VikingGenetics red breed in Australia.



**MARIANNE JANSSON, SWEDEN**

"We feel secure with VikingGenetics. Viking works on goals that we like; high focus on health and production. Our strict veterinary rules where antibiotics are by veterinarian prescription only, makes me feel proud, and we are far advanced in the way we think about antibiotic resistance," Marianne Jansson, one of the owners of Noltorp Farm in Skara, Sweden, with 70 milking cows. Production: 11,148 kg organic milk, 4.3% fat and 3.5% protein.



**AIDEN DEASY, IRELAND**

"Health traits are the most important thing really, I'm happy with my production. I have a commercial herd, so I am not gambling anymore, I am going for the safest option." Aiden Deasy, owner of Ballyheada Farm in Cork, Ireland. With a Holstein herd of 180 cows, Deasy is now looking forward to breeding cows that are suitable for his milking robot.



**CRISTIAN PERAT, SPAIN**

"We have given the highest priority to the Daughter Fertility trait. We had a lot of problems getting our cows pregnant and poor fertility was the major reason for culling in our herd. The second most important trait is temperament, it is so important that the cows are easy to work with. We trust the VikingGenetics bulls. The cow is going to be exactly as the proof says, the evaluations are very reliable," Cristian Perat says, who together with his brother Héctor manages the family dairy business Agropecuaria Perat in Catalonia, Spain. They have a 1,450 head Holstein herd of which 820 cows are in production.



**JORN MIKKELSEN, DENMARK**

"I know I have production in my cows already in place, so when I'm selecting bulls, I focus on health traits, strong feet & legs and good udders. Health is not an issue with my cows," Jorn Mikkelsen of Stenhøjvej, Hinnerup, Denmark says. The Mikkelsen farm has 100 VikingJersey cows, with an average production of 9,197 Kg Energy Corrected Milk (ECM), with an outstanding 5.75% fat and 4.17% protein content.





Marianne Jansson, co-owner of Noltorp farm in Sweden:

# “For us VikingGenetics means trust and security”

“We feel safe with VikingGenetics. Viking works on the goal that we like; high focus on health and production”, says Marianne Jansson, one of the owners of Noltorp Farm in Skara, Sweden.

By Camilla Rosman, Marketing manager, VikingGenetics

“We feel safe with VikingGenetics. Viking works with the goal that we like; a high focus on health and production,” says Marianne Jansson, one of the owners of Noltorp Farm in Skara, Sweden.

As an organic farm, Noltorp’s cows need to spend five months out on pasture and at least 50% of their daily intake must be grass. The farm is located in an area with plenty of natural pasture land and the soil is perfect for growing grass. The farm is owned and managed by Anders and Marianne Jansson.

In 2014, they built a new barn. “We are happy that we invested in a new barn, even though we are not that young anymore,” says Marianne and laughs. “We love our cows and our work, and to have a nice environment for us and our cows means a lot,” she adds.

Marianne worked as an advisor in Växa for 20 years and as a teacher in an agricultural college for 13 years. Today she works full time with their cows. “I take care of the paperwork to follow up on production results and see where we can improve. Anders works more with the cows and out in the fields. We complement each other in a good way,” she says while looking at Anders with a smile.

“VikingGenetics and NTM have always meant “trust” and “security” to us,” Marianne adds. “We know that NAV (The Nordic Genetic Cattle Evaluation) is improving its models and data continuously, and they have long experience and the expertise to do so. I don’t need to worry about that,” she says.

## Health and high NTM in focus

A healthy herd is important for the Janssons; they have always chosen bulls with high NTM. A quick look at the results shows that the heifers at Noltorp are five to six NTM index units above the average in the population. “I am not at all surprised that the Nordic countries use the lowest amount of antibiotics in Europe,” says Marianne.

“We have been breeding for health traits for 40 years, and it is so strongly connected with animal welfare,” she adds.

“Our strict veterinary rules where antibiotics are only available on veterinarian prescription makes me feel proud, and we are far ahead in the way we think about antibiotic resistance,” she stresses.

Health traits come naturally when using Viking bulls and the owners of the Noltorp farm know that.

“High NTM means good health. We don’t have any big health issues in our herd. Last year we only had five cases of clinical mastitis in our cows and 10 other disease incidences,” she says.

The Noltorp farm uses breeding advice from Växa (a Swedish cooperative that owns VikingGenetics) four times a year. The couple knows that the genetic potential of their cows is very good, which leads to the next decision: “Now it is up to Anders and me to take advantage of that, and manage to get the most out of the cows,” Marianne says.

Besides excellent health and good temperament, mediumsize cows are also appreciated by the Janssons. “Since we invested in the robot, udder conformation is more important than ever,” she adds.

They have regular meetings with production advisors where they follow up all data regarding their cows. The data collected at farm level are the heart of the unique registration system that dairy farmers in the Nordic countries have. “Some people think it is frustrating with all this data entry, but I see it as a huge treasure trove. We can follow up on all details in production. If you use the results you get, it is worth all the time it takes to enter the data,” Marianne says.

Warm and confident are two words to spring to mind when describing the couple who makes breeding work sound so easy. They have been using Viking bulls since 1988 and VikingGenetics has given them reason to believe that they do not need to think about health issues. Instead of taking care of sick cows, the Janssons can use this time to manage and improve their business. ●



## Noltorp Farm in Sweden

- Anders and Marianne Jansson own and work on the farm
- 80 ha
- 70 milking cows, 40 Viking-Holstein, 20 VikingRed, 10 VikingJersey
- Production; 11,148 kg milk, 4.3% fat, 3.5% protein. Organic milk.
- New barn in 2014 with one robot.
- Calving interval; 12.1 months



*Marianne and Anders Jansson own and work on the Noltorp farm: "We feel safe with VikingGenetics".*





# VIKMATE

Online mating to enhance your herd

# Enhance your herd with VikMate



The updated version of the VikMate mating program is available now on [vikmate.vikinggenetics.com](http://vikmate.vikinggenetics.com).

VikMate is an online tool to make optimal matings to create future generations, selecting the best bull for each female as easily as possible. VikMate controls inbreeding and gives you information on genetic improvement in your herd.

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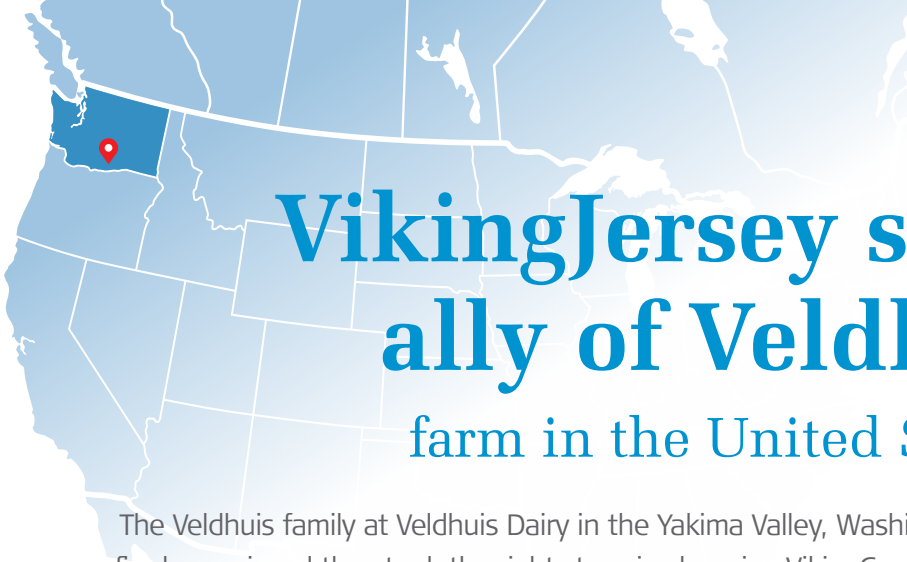
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Breeding for what truly matters





# VikingJersey strategic ally of Veldhuis farm in the United States

The Veldhuis family at Veldhuis Dairy in the Yakima Valley, Washington State, in the United States, is firmly convinced they took the right steps in choosing VikingGenetics as their partner to improve the dairy family business where they currently milk 15,000 Jersey cows.

By Verónica Löfgren, Communicator, VikingGenetics

Excellent health traits and the high fat and protein content in VikingJersey cow milk were the sales pitches that caught the attention of Hessel Veldhuis and Shannon Edwards. They are part of a family

» Our goal is to keep the family together and improve our dairy business «

used to taking calculated risks to be ahead of the game. This time was no exception when they decided to become a purebred Jersey herd, after advice from their AI-technician.

Veldhuis and Edwards learned more about the VikingGenetics breeding programme for Jerseys last summer when they visited the Danish National Animal Show, Landskuet. “We started to use VikingJersey bulls because we liked the phenomenal components they have”, Veldhuis says. “Along with components, the health traits are very important and VikingGenetics is able to breed for a cow that is high in components without losing health, and that’s the kind of cow we’re looking for,” Edwards adds.

The couple are in charge of the reproduction program on the family farm where they milk the cows in groups of 400, three times a day. “That’s 24/7 work in the milk barn,” Veldhuis tells. The dairy company has 205 employees in different areas and builds their facilities to optimise the work.

The pioneer in this family dairy business is Veldhuis’ father, Jacob Veldhuis. As an immigrant from The Netherlands, he arrived in the United States in 1981, and by 1987, he had his first dairy farm. He leased out the farm throughout the 1990s, but in 2000, he returned to the dairy business and bought a farm with 450 Holstein cows.

Jacob switched breeding strategy in 2006 when he decided to breed pure Jerseys.

“We have started to reach our main goal, which is purebred Jerseys, but now we are going to improve our herd with VikingGenetics genes,” Hessel says. “The plan includes increasing the number of Jersey cows from 15,000 to 18,000 in the short term.”

Veldhuis Dairy has started to select VikingJersey bulls, and VikingGenetics breeding manager for VikingJersey Peter Larson, visited them in October to explain more about the advantages of VikingJersey. “VikingJersey has suc-

## About Veldhuis Dairy

- 15,000 milking cows, mainly Jersey.
- Fat: 4.5%
- Protein: 3.8%
- Area: 2,000 acres in a valley surrounded by the Rocky Mountains to the East, and the Cascades Range to the West.

cessfully managed to increase the genetic trend for fertility, health and longevity. We have even set new production records and increased percentages of fat & protein at the same time,” Larson says, listing some of the advantages of working with VikingJersey as Veldhuis Dairy is now doing.

He also recommended using some of the best VikingJersey bulls at Veldhuis Dairy: VJ Quintana (International top bull and Sire of sons), VJ Huzar (Best Daughter proven VJ bull), VJ Huus (Best VJ Huzar son) and other bulls that fulfil the breeding goal at Veldhuis Dairy of superior fertility, high percentages of components and exceptional udders. “We made a good choice,” Hessel Veldhuis says. •

The Veldhuis family at Veldhuis Dairy in USA chose VikingGenetics as their partner in their herd of 15,000 Jersey cows in milk.



# Prosperous breeding

## made by strong women

It is quite common for women to be in charge of the breeding plan in dairy farms in Finland, one of the VikingGenetics countries. Women have been doing this for decades, and there is no reason for this to change.



*Anuriikka Lallukka telling the story about how she ended up in cattle breeding.*

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By Johanna Vuori, Digital Marketer, VikingGenetics

**W**e met one of these powerful women in dairy cattle breeding, Anuriikka Lallukka, who manages a herd of 70 cows, 80% VikingRed and 20% VikingHolstein and a few VikingJerseys, together with her husband Markku.

“When I was six years old, I announced to my family that I would be an agronomist when I grow up,” Lallukka says with a big smile on her face. “I never did, but I did study to become an agrologist. I was never supposed to be running a farm either, but here I am,” she adds.

Her story of becoming a mother of two and running a farm with her hus-

band starts from an urban setting when she finished school and got her first job

» My grandmother, Aini Rytkönen, told me that if you are good to the animals, they will be good to you too. This is very true and I’ve always acted accordingly «

**ANURIIKKA LALLUKKA OF LALLUKKA FARM IN FINLAND.**

on a farm. She spotted a young single farmer, and the rest is history.

The couple has been together for almost 20 years now. At first, she kept her job as a breeding advisor for Faba (Finnish Animal Breeding Association, the Finnish owner of VikingGenetics) when she moved to the farm. She also worked as a dairy farm advisor. They started to build the new barn in 2010 and there was a need for her to work full time on the farm.

Her grandparents had a small farm where she spent most of her summers, and that’s why she has always felt herself to be a farm girl, even though she grew up in a city. Running a farm with her family has always been very natural for her.



When it comes to breeding and developing the herd, this is her domain, while Markku focuses more on farming, machinery and general farm management, such as feeding.

Lallukka sees no special advantages in being a woman and making breeding decisions; it all comes down to the natural abilities and interests of the couple running the farm. “The most important thing is to divide the tasks and duties, so we are in balance. It is all about cooperation and partnership. We discuss important choices together,” Lallukka says while her husband agrees.

When making decisions concerning breeding choices, she trusts her own judgement but always consults with their breeding advisor from Faba. The teamwork with the breeding advisor has worked very well; in seven years, the herd has developed a lot. The Lallukka farm’s goal has been to breed healthy, robot suitable and high producing cows – the invisible cow. They also do a lot of genomic testing on their heifers, as they are part of the VikingGenetics LD project where farmers are supported by VikingGenetics in genomically testing all females in the herd.

When asked if she has any favourite bulls, she says: “Peterslund has been my all-time favourite. His offspring have always been high

producing, healthy and easy to manage. Absolutely the invisible cows we want,” Lallukka says. “Peterslund has been one of the most best-selling VikingGenetics bulls of all time.

#### “Attached to the cows”

The Lallukka couple have achieved their goals through hard work, careful planning and making tough choices regarding culling of animals. The culling of animals is not Lallukka’s favourite thing to do. “I get easily attached to the animals,” she admits. Lallukka adds that this is her biggest downfall when it comes to breeding and farm management: “I always find it very emotional and sad when we have to let go of cows that have been with us for a long time”.

This attachment to animals has always been a part of her nature ever since she was a child. Having said that, there is a hidden strength in this caring attitude. “My grandmother, Aini Rytönen, told me that if you are good to the animals, they will be good to you too. This is very true and I have always acted accordingly. AI technicians, vets and other visitors are always very surprised to see our herd – the cows are so well behaved and friendly and that makes it very easy to manage our herd,” Lallukka explains. ●



*When making decisions regarding breeding choices, Anuriikka trusts her own selections but always consults her choices with their breeding advisor from Faba*

#### Lallukka farm

- Cows: 70
- Open barn with one milking robot, built 2010
- Production average 9,400 kg
- Fat 4.4%
- Protein 3.6%



*There are 70 cows in the herd; 80% Holstein and 20% red.*



# Embryo Flushing

## – VikingGenetics' Best Females in Production

VikingEmbryo is our solution to reduce the generation interval for females by producing offspring from heifers. Learn more about how our world-class programme is running dynamically to achieve genetic progress.

By Johanna Vuori, Digital Marketer, VikingGenetics

**T**he generation interval in females is usually around four years, but with embryo flushing, this can be halved to two years. By reducing the time, genetic progress can be achieved much faster, which adds up to greater efficiency for a dairy farm.

The VikingEmbryo programme is also a tool for getting the best possible new sires for our breeding pro-

grammes. Bull calves born from top genomic females and our best bulls' semen will accelerate the genetic progress of our breeding programme.

By combining VikingEmbryo with GenVikTEST (genomic test), you can find the best females from the herd for embryo flushing and then have lower genomic value females carry the offspring of the top females. The best genomic females are then

inseminated with X-Vik semen.

We flush embryos from heifers in Denmark, Sweden and Finland. These images are from Finland, where high quality embryo flushing expertise is delivering very impressive results.

**1) BEFORE FLUSHING.** The heifers are brought through superovulation, where they release multiple ovum cells (egg cells) at once. These heifers are then inseminated with sire semen. The embryos then undergo a week of development before collection. The embryos are flushed from the uterus into a round collection tray.



*Before the flushing*

**2) COLLECTION.** In general, this is a relatively quick procedure, on average around 30 minutes per flushing.



*The collection of embryos from a heifer*

**3) AFTER FLUSHING.** The collection trays are marked with the date and name of the heifer and then sent to the laboratory. There the collection tray is cleaned and the embryos transferred to a Petri dish. Lab technicians search and obtain embryos through a microscope, which are then transferred to another dish.



*After the flushing*

# Heifers with high NTM are healthier as cows

By Anders Fogh, The Nordic Cattle Genetic Evaluation (NAV)

**4) SPECIAL TREATMENT – EMBRYO CLEANING.** After the embryos have been transferred, they are rinsed five times in a special dish to clean them.



Cleaning the embryos

**5) SPECIAL TREATMENT – COOLING PROCESS.** The cleaned embryos are picked up in individual straws. If the embryos are to be used fresh, they are quickly transported to the farms for insemination in the receiving females, otherwise the straws go through a cooling process before being frozen. In this process, the embryo straws are placed in a liquid nitrogen cooling tank. Cooling is a complex and multistage process. Once frozen, the embryos are transferred to a storage tank.



Cooling process

The success rate for frozen embryos is around 50-60%, around the same rate as for conventional insemination with semen. As noted before, Finland is one of the top countries for embryo flushing; on average, we obtain seven embryos per heifer per flushing, which, by international standards, is an extremely good result for red breeds and Holstein. We perform embryo flushing every week at all our Viking country stations. ●

The difference in health between heifers with high and low NTM (Nordic Total Merit) has been investigated in a Danish analysis. All Danish Holstein and RDC (Red Dairy Cattle) herds with more than 150 cows were included in the analysis (442 herds for Holstein and 21 herds for Red Dairy Cattle - RDC). To provide a fair comparison, the cows were divided into three groups for each herd based on their NTM as heifers. When a heifer receives her NTM, it is based on pedigree information only. When she begins her first lactation, additional information from her own performance contributes to the NTM.

## DIFFERENCES BETWEEN HIGHEST AND LOWEST NTM GROUPS, FOR HOLSTEIN AND RDC COWS IN THE FIRST AND SECOND LACTATION.

	HOLSTEIN		RDC	
	1st	2nd	1st	2nd
Lactation				
<b>Mastitis</b>	- 5%	-2%	-5%	-4%
<b>Metabolic disorders</b>	- 1%	-1%	0%	-1%
<b>Feet and leg disorders</b>	-1%	0%	-2%	0%
<b>Early reproductive disorders</b>	-3%	-1%	-1%	0%

Within each herd, the average level of different diseases was calculated for both first and second lactation in each of the three NTM groups. We calculated the differences between the groups with the highest and lowest NTM in each herd and all the differences were combined into a group average across herds. The analysis was conducted to investigate if heifers with the highest NTM, actually had less diseases as cows, compared to those with the lowest NTM.

The mastitis incidences in both the first and second lactation were reduced in the highest NTM group for both Holstein and RDC (table 1). In the first lactation, cows in the highest NTM group had five percent less mastitis compared to cows from the lowest NTM group. In both breeds, the highest NTM group had a reduction in metabolic disorders, feet and leg disorders and early reproductive disorders in the first lactation.

In the second lactation, the differences were smaller, but overall the highest NTM group had lower disease rates compared to the lowest NTM group. It should be taken into account that the high NTM group also has a higher yield than the low NTM group, which increases the risk of mastitis and other diseases. Therefore, the differences seen are even more impressive. This analysis confirmed that heifers with a high NTM index are healthier as cows, compared to heifers with a low NTM index. ●

# VJ Hurling, first VJ bull bought outside Scandinavia



The family has been using genetics from the Viking countries ever since Ben Tyrrell's grandfather imported the first Danish Jersey bull into Ireland, 50 years ago.

By Verónica Löfgren, Communicator, VikingGenetics

In closing a circle that started in 1962, Viking Jersey Woodtown Horn Hurling, VJ Hurling, was born on the same farm that 50 years ago imported the first bull into Ireland from Denmark. VJ Hurling was bred at Richard and Ben Tyrrell's herd at Woodtown Jerseys in Kildalkey, Ireland. Father and son have been using the best of VikingGenetics' semen for generations; and it was Ben's grandfather Garret, who changed the course of the farm that celebrated its centenary this September.

The farm became more of a dairy farm in the 1950s. The import of livestock from the Channel Island of Jersey marked the beginning of the use of Jersey cows here, and in the 1960s, Garret Tyrrell made an important decision that not only improved the fame but also paved the road to success for other Irish farmers. Together with Jo Bewley, another passionate farmer, these two men imported the first Danish Jersey bull in 1962.



The first Danish Jersey bull was imported to Ireland in 1962 – to the same farm that has now bred VJ Hurling.

"That was the first time Danish semen was used here and we have been using it ever since," Ben says. His father Richard explains the reasons why: "My father knew about the importance of traits such as fertility, and by that time the Nordic countries were already excellent in these kinds of health traits".

"He was a pioneer, and has since been proved correct that he was always on the right path. Our herd is one of the best you can see all around," Richard says. Proud of what they have achieved, Richard shows us a black-and-white photo from 1962 of his father and Jo Bewley bringing the first Danish Jersey bull out of the plane that brought him to Ireland.

## New generation in charge

Ben Tyrrell took over the management of the farm from his father in 2008. Ben has a clear strategy for the herd of 300 VikingJersey cows. When selecting genetic progress, he aims to guarantee three most important aspects: Fertility, protein production and Udders.

Ireland has seasonal calving with very intensive days between January and May every year. An exceptionally high fertility rate is therefore very welcome. "Whenever I'm choosing a bull, I look at fertility as number one; and they have to be over 100 in NTM for fertility and if it's below 100, I wouldn't even consider it," Ben explains.

Next on the list of priorities is protein Kl. "Protein pays double compared to fat; the third trait I look for is Udders. Those are the three essential traits on this farm," Ben adds.

This focused way of breeding is paying off and this summer, Viking-



Ben Tyrrell and the dam of VJ Hurling.

Genetics bought from the Woodtown About Farm the first VikingJersey bull bred beyond Nordic Country borders. VJ Hurling is a son of VJ Horn, and following fine genomic test results from the calf, the team at VikingGenetics headquarters in Assentoft decided to buy him.

It was actually the first time that the owner of this farm had taken a genomic test on his herd: "The sire of this bull, VJ Horn, has a very high production index and high NTM. He has all the traits that I'm looking for," Ben Tyrrell says.

His combination hit the bull's eye. "Ben made some super alternative combinations with VJ Horn and we tested a handful of sons. I checked both dam and grand dam, but eventually, it was the genomic proof of the bull that made me buy him," Peter Larson, Breeding Manager for VikingJersey, says.

"VJ Hurling will be known for good female fertility, high percentages of fat and protein, good feet & legs, excellent mammary and udders plus health and longevity," Larson adds.

"Other markets might also find him interesting when we publish his breeding values and start marketing him," Larson says. ●



## A daughter of A Linné is the “Ayrshire Grand Champion” in Colombia



By Suvi Johansson, Export Manager, VikingGenetics

An amazing daughter of VikingGenetics’ famous Viking-Red sire, A Linné, was named Ayrshire Grand Champion at AgroExpo, Bogotá.

The cow is called El Trebó A Linné Betina ET and she is owned by Doctor Felipe Calderón, President of the Ayrshire Association of Colombia.

Betina has calved five times and at her peak has produced almost 60 kg of milk per day. Canadian judge Christopher Studer said Betina ET was an easy choice as Grand Champion. He praised her long, balanced body, amazing dairy strength, good feet and legs and excellent udder.

Betina ET was also named Ayrshire Grand Champion at the previous AgroExpo two years ago, and has improved her performance both in production and looks ever since.

A Linné is an excellent sire to pass on fertility to his daughters as well as young stock survival. ●



The winner is an A Linné daughter, El Trebó A Linné Betina ET, owned by Doctor Felipe Calderón. Betina has calved five times and at her peak has produced almost 60 kg of milk per day.

## Crossbreeding with Viking bulls popular in Zimbabwe



Zimbabwe is well known as an agricultural country, with more than 20,000 dairy cows. Holstein is the main breed, but there are also populations of Jerseys and Red cows in the country. Crossbreeding is very common and works well.

By Seppo Niskanen, Export Manager, VikingGenetics

Milk production is not high enough for the population of Zimbabwe, but dairy business appears to be increasing slightly. Bhara Bhara is the most prominent dairy herd in the country and has the highest yield. Ajs Kirk, a distributor for VikingGenetics, owns the herd where they milk about 600 cows.

All the cows are crossbred animals. Kirk uses VikingHolsteins and VikingRed bulls. “Crossbreeding works very well in this country. We want productive, healthy and fertile cows and during the years with crossbreeding, we have had outstanding results.”

Besides good genetics, Kirk wants calves in good condition that will be able to grow without problems and start milk production at the age of two. ●



A group of farmers interested in learning more about the genetics and the VikingHolsteins and VikingRed bulls.

# “VikingGenetics offers solutions that farmers consider optimal”

Anna Adamczuk is Head of the Genetics Department at P.H. Konrad in Lomza, the leading importer and distributor of bovine semen in Poland.

By Verónica Löfgren, Communicator, VikingGenetics



Anna Adamczuk, Manager of Genetic Department P.H. Konrad

Adamczuk is a hardworking manager with a perceptive view of the cattle breeding industry and with the skills to be a leader in this field. From her office at P.H. Konrad in Lomza, Adamczuk heads marketing strategies, supervises the sales team, and looks after special customers. Above all, she is a key person in the organisation and is especially keen to build longterm relationship with customers.

Adamczuk has both a law degree and MBA, but has spent her career close to the countryside, cows and farmers. “I like to spend time with farmers and people from villages. I think farmers are special people and find them very open. It’s a pleasure spending time with them,” she says.

Last summer, Adamczuk attended the Livestock Expo “Landsskuet” in Denmark, that is organised by

VikingDenmark, owner of VikingGenetics. The Expo is a perfect platform for VikingGenetics to showcase its unique breeding program to farmers from around the world.

“This kind of event makes a very good impression and sums up what

VikingGenetics stands for,” Adamczuk says and refers to the VG breeding program that focuses on health traits to enhance herd profitability. “Visiting farms and being able to see the cows is much appreciated by our farmers,” she adds. Adamczuk headed and acted as English to Polish interpreter to a group of some 40 Polish dairymen. The company for whom she works has a very clear plan for the immediate future. “We aim to expand our position on the Polish market and forge closer cooperation with VikingGenetics because most if not all farmers in Poland are experiencing problems with their cows, and VikingGenetics offers solutions that farmers consider optimal,” she says.

## Why are genetics important for farmers?

Genetics is one of the key issues for success which means it is very im-



Anna Adamczuk and the Polish delegation visiting the Danish National Show this summer.





portant to farmers. Using the best genetics together with good farm management genuinely pays off for the farmer.

#### **What is your view of genetic advances in the cattle-breeding field?**

“I have been in the genetics business for 15 years. During this time, many “revolutionary” things have happened, such as sexed semen and genomic selection. Health traits are very important right now and will become even more important in the future. Having healthy cows means fewer problems and lower costs for farmers. That is what they are looking for.

#### **What do you think is the best thing about genetics from VikingGenetics?**

VikingGenetics offers a unique concept to farmers. NTM is a very well-balanced index where milk production, health & fertility plus conformation, are accorded the correct importance. Inbreeding is one of the biggest issues these days. It is great that you can find different bloodlines in huge range of VikingGenetics bulls.

#### **What genetic traits do farmers in Poland look for?**

Polish farmers still need to improve dairy conformation of cows and they look for good Feet & Legs and Udder indices. The next is Fertility because more and more farmers realise that health is also very important. This is the result of a longterm “educational campaign” we have run together with VikingGenetics in Poland. ●

## **VIKING WEAVING STORIES**

### **PROCROSS PIONEERS VISIT VIKINGGENETICS**

In September, the owners of the US farms included in the ProCROSS Minnesota trial visited Törlan Farm in Falkenberg, Sweden, which is an organic farm with 300 VikingHolstein and ProCROSS cows. Production numbers were something that the visitors

considered very relevant. The Törlan Farm has a production of 11,300 kg ECM (Energy Corrected Milk) with 4.2% fat and 3.4% protein.



*ProCROSS delegation from the US visiting Törlan Farm in Falkenberg, Sweden.*

### **VIKINGACADEMY 2017 – EMBRACING GOALS TOGETHER**

VikingAcademy 2017 took place last September in Copenhagen, Denmark, with the participation of our international distributors. Our guests came from Spain, Ireland, Italy, Portugal, Poland, The Netherlands, Costa Rica, Colombia, Mexico, Lithuania, Croatia, France, the Czech Republic and Estonia. VikingAcademy was an excellent opportunity for VikingGenetics managers and distributors to learn more from each other while discussing new ideas and tendencies.



*VikingAcademy participants in Denmark.*

### **VIP VISIT FROM CHINA**

VikingGenetics in Skara, Sweden, had the honour of hosting a delegation from China, led by Director-General Li Jianwei, General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), Department of Supervision of Animal and Plant Quarantine. The visitors learned more about our breeding program, unique registration system, quality controls and production.



*Chinese delegation visiting our facilities in Sweden.*



## Torre Santa Maria optimises management with genomic test on females

Torre Santa Maria has started to see the benefits to make genomic test on all the females.

By Verónica Löfgren, Communicator, VikingGenetics

**T**orre Santa Maria, owned by the Baptista family, has one of the biggest Holstein herds in Spain. Located in Lleida, the Torre Santa Maria farm is an excellent VikingGenetics' ambassador that shows other farmers how the VG breeding programme works.

Having inseminated the herd with VikingHolstein for several years under the management of Joan Baptista, the family recently decided to go one step further in optimising their dairy business and started to genomically test females on the NTM (Nordic Total Merit) scale.

"By testing females genomically, you get more reliable breeding values and your selection of best females is more accurate," Claus Langdahl, VikingGenetics Breeding Manager, says.

So far, 139 females have been tested which has given Torre Santa Maria a unique opportunity to optimise management decisions on their herd, Langdahl explains.

"It is really comforting to see that all the time and money spent on breeding is now also confirmed on paper - in terms of good breeding values, and it's something that we have already been noticing on the

### Did you know?

You can also genomically test your animals on the NTM scale. If you are interested, and require further information about this, please contact your local distributor.



Joan Baptista is the owner of the Torre Santa María farm in Spain.

### About Torre Santa María

1,800 VikingHolstein cows

11,800 kg

35 employees

farm for some time," Baptista says regarding the good results his females achieved on the genomic test.

"Using genomic selection on your females together with X-Vik sexed semen on your top heifers, will ensure the highest possible progress of your herd. For the lower ranked females, you can use conventional or beef semen," Langdahl says.

### Top NTM heifers

The 139 genomically tested females also revealed very interesting top NTM animals; the best heifer sired by VH Cosmo having gNTM as high as +30. "VikingGenetics would like to congratulate Torre Santa María for their breeding work, and wishes all the success also in the future", Suvi Johansson, Export Manager for Spain, states. ●



# Calving ease index shows big improvement

By Claus Langdahl, Breeding Manager, VikingHolstein

Look at the graph below. What do you see? Is the line falling? A tendency to go down? That is exactly what it is happening with the change in the percentage of stillborn calves from Holstein heifers since 2005 in Denmark.

This impressive graph is the results of positive developments both on management and breeding that have been reaped from a focus on calving ease. The “calving maternal” index describes the bull’s daughters’ genetic

potential for easy calving and live-born calves. The “calving, direct” index refers to the bull’s offspring’s genetic potential to be born easily and alive.

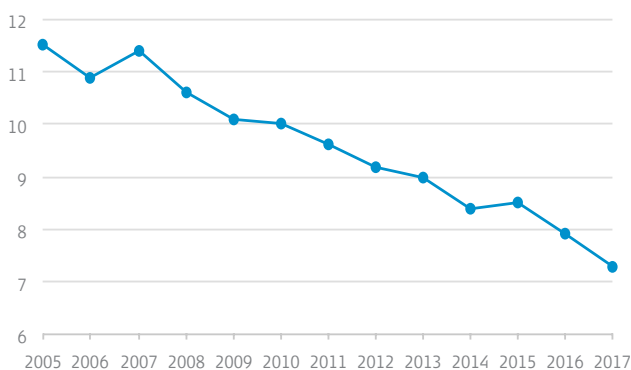
Both indices contribute to better economics and a more satisfying daily life for the farmer. These results are also a significant development from a society point of view where animal welfare is more and more important.

Selecting genetics for “Calving ease” on NTM is very relevant to continue this positive tendency. ●



To select genetics for “Calving Ease” on NTM is very relevant to continue with the positive tendency.

VIKINGHOLSTEIN – STILLBIRTH 1ST CALVING (%)



## VH Clark

**Danish Holstein Hall of Fame 2017**

**VH Clark NTM +27 was selected to the Danish Holstein Hall of Fame!**

VH Clark is one of our best proven VikingHolstein bulls with 7,200 daughters in his

proof. He breeds excellent Hoof Health (128), Daughter Fertility (129) and Longevity (120). We are very happy about this honorable mention for VH Clark!



D Cole x T Lambada x V Bojer Breeder: Hans Thysen, Denmark

# Selecting TOP VR heifers

By Auli Himanen, Breeding manager VikingRed

**F**or the first time, Red Breed Associations across Denmark, Finland, and Sweden together with VikingGenetics, have nominated the very best genomically tested and contracted heifers and sent diplomas to their breeders/owners.

Following evaluations in May, the group agreed that the Swedish 696 Valma (VR Faabeli x Yllyke), owned by Dansjö gård and bred by Kvinnersta Lantbruksskola, was the number one, sharing the position with two new heifers, this time from Denmark. They all have gNTM +34. One of the heifers is from Morten Hansen (VR Birka x VR Haltia), born in March 2017. The other (VR Borat x VR Hammer) came from I/S Kokkenborg and was born in February. ●

## New homozygous polled sires soon in use

**VR Henrik PP** is a homozygous polled sire, who has entered into semen production lately. His gNTM is +17, and he is a son of VR Hel P with Valpas as MGS. He is a good production sire, index 115, with good udder health and female fertility.

We also have **VR Vind**, who started to get polled calves, and when tested, he was confirmed as a polled sire. VR Vind has good semen stock and gNTM +20. He is a VR Viro son that transmits good production to his daughters. He will also give them an average size combined with very good feet and legs. ●



## VikingRed sires leaders in VikingDefence

**N**ow that VikingDefence™ is part of our solutions for dairy herds, we have also selected the best VikingRed sires that are part of VikingDefence, where you breed to reduce the use of antibiotics to treat diseases such as ketosis and milk fever; VR Borat, VR Folmer and VR Tequila. All of them are available for export markets.

**VR Borat** (VR Brick x VR Alavire X Turan-dot) gNTM +21 is also available as X-Vik. He is average in milk yield and high in components. His general health (index 116) is excellent as are other health traits such as Udder Health 111, Hoof Health 117 and Calf Survival 118. The dam of VR Borat has now had two lactations, both being over 10,000 kg milk with high components, fat 5.6%, and 3.9% protein.

In the case of **VR Folmer** (VR Fair x Turan-dot x Fastrup), he has gNTM +22 and is a high protein component sire. His General Health is 116, Hoof Health 116 and Female Fertility 112. His dam has had one lactation with over 11,000 kg milk with 4.3% fat and 3.6%.

Included in the new VikingDefence solution we also have **VR Tequila** (VR Tokyo x VR Esso x Brolin) gNTM +20 - a milk volume sire with General Health 115, Udder Health 113 and Female Fertility 110. His dam has produced 9,500 kg milk on her first lactation with high components: 5.1% fat and 4.0% protein. ●



*The top NTM VikingRed heifers have been nominated by the red breed associations across the three Viking countries.*

## VikingJersey with milk solids in focus

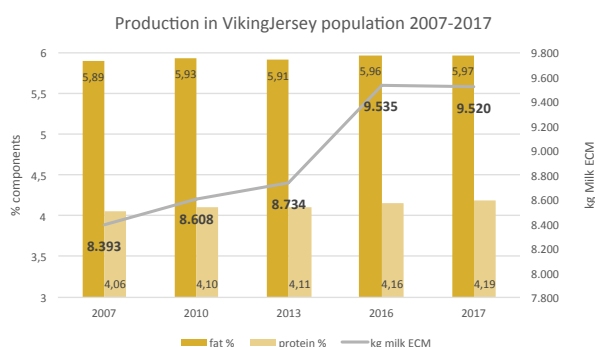
By Peter Larson, Breeding Manager VikingJersey

**N**egative weight on milk volume and high weight on butterfat and protein drive VikingJerseys to higher production levels. The current world market price for butterfat has never been higher, and in the homeland of Danish Jerseys, dairy companies are increasing their profit thanks to butterfat. This situation is reflected in the milk pricing system, and is encouraging farmers to breed more Jerseys.

Over the course of the past year, the use of sexed semen has increased by 60%, driven for the demand from both home markets and the rest of Europe.

The production of milk solids and the percentages in the milk is constantly increasing. The protein percentage average has never been higher, currently at 4.20% and butterfat percentage at 5.98%, the highest levels this millennium.

The highest producing Jersey herds now have an average of more than 9,500 kg milk and more than 900 kg milk solids (fat + protein). ●



*Increase in percentage of fat and protein and kg milk ECM in the VikingJersey population*

## Breeder of VJ Huzar named “Jersey Breeder of the Year”

**M**orten Jensen of Hoeholt Jerseys, has been extremely successful in breeding bulls for VikingGenetics. Daughter proven VJ Huzar is just one of many and the most important. He is one of the first bulls to prove that the genomic breeding program succeeds in identifying top bulls already as calves. “Cattle Breeding is the main driver in my life as a farmer”, Jensen says, as he received the “Jersey Breeder of the Year” award at the Danish Jersey Annual General Meeting.

Jensen is the owner of Hoeholt Jerseys, a 150-cow herd in the far north of Denmark. His interest in breeding started when VikingGenetics encouraged him to flush two heifers 10 years ago. This resulted in the first bull sold for Artificial Insemination and many more followed.

Morten sold VJ Huzar to VikingGenetics in 2012 and have pretty much had a bull on the Active Sires List since then. The last eight bulls bought from Morten and the Hoeholt herd average +18 in NTM. This group of bulls includes VJ Perez, VJ Linus, VJ Hjørri and VJ James.

VJ Huzar began his career as a young genomic sire in 2014. VikingGenetics bought two sons of his, of which VJ Huus (VJ Huzar x VJ Husky) followed his father's steps on the Active Sires List in 2016, with gNTM +20. VJ Huzar now has 300 daughters, proving to be one of VikingGenetics' best bulls with NTM +24, - high percentages, super daughter fertility, udder health, longevity and type along with exceptional udders.

VJ Huzar is also tested in US, with very good result: US proof, Nov, 2017: 431 NM\$, 132 JPI and +3.3 DPR! ●

## Pure bred Jersey bulls will fulfil your expectations

**A**ll VikingJersey bulls are over 99.5% pure bred Jersey and this was resolved by the VikingJersey Board in order to avoid any negative effects of genes other than Jersey. This decision is even stricter than European requirements.

The agreement was reached in 2009 and the aim now is for the VikingJersey female population to fulfil the bull dam requirement (over 99% Jersey genes) to have as extensive a breeding base as possible. Currently approx. 95% of

all Jersey cows in VikingGenetics countries are registered, milk recorded, pure bred Jerseys.

VikingJersey bulls might not breed as high milk volume as bulls with Holstein genes in their pedigree, - but they will breed high percentages and in many cases just as high production of milk solids. Daughter fertility, udder health and udder conformation will not be negatively affected by high milk volume, resulting in long-lasting cows and higher profits. ●





# DEFENCE IS THE BEST ATTACK

Be in a league of your own with VikingDefence™.  
True defence against diseases is in the genes.  
VikingGenetics' bulls are born to defend your success.

[www.vikinggenetics.com/vikingdefence](http://www.vikinggenetics.com/vikingdefence)

