vikingnews

NO 04 / NOVEMBER 2016

Nordic health traits

suitable for organic farming

HEALTH TRAITS

IMPORTANT IMPROVEMENTS

Hoof health

ProCROSS

VIKINGGENETICS

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Claes Johansson and his wife Amanda from the farm Märene in Skara, Sweden.

Editorial

VikingGenetics bulls are green, **no matter the colour**

In this issue of VikingNews, you can read an article from Claes Johansson, one of the dairy farmers in the Viking area. He explains about the benefits of having genetics from Viking in his cows when he is going organic. That is just another evidence of the advantages you get when selecting for health.

Choosing the green cows means that you can improve the health of your herd regarding mastitis resistance, metabolic disorders, reproductive disorders as well as hoof health. All in one, the selection for health gives you cows with less need to see the vet, fewer treatments, less medicine, and first and foremost less production loss and problems.

Those are key success factors no matter if you are organic or not. It is not just talk – the mastitis frequency is going down, and that is just what you can expect from the remarkable genetic improvement for those traits.

If you look at a bull like VR Umbro, he breeds excellent udder health – his daughters have less than 5% mastitis frequency! The average for the VikingRed breed is 8,3% - what is the average in your herd? There is significant money to be saved – data from the United Kingdom show that the cost for clinical mastitis is about € 300 / case. In line with the breeding goal of VikingGenetics where a profitable cow is easy to manage, the colour of the VikingGenetics breeds is green – no matter the coat colour.

Sara Wiklert Petersson,
Head of Sales, VikingGenetics

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Interview with Lars Nielsen, breeding manager VikingGenetics

”Health traits are creating profit for the dairy farmers.”

By Veronica Löfgren, VikingGenetics

Lars Nielsen is the Breeding Manager at VikingGenetics. It is in his department the breeding strategies are designed, and the guidelines that lead the work to identify the very best sires, are made.

Where do you put the weight on the selection criteria to find the best bulls?
First of all, we breed for maximum profitability. We have a balance between production and cost reducing

traits. Our selection criteria focus heavily on the health traits. That is our strength in VikingGenetics. Other companies claim to breed for health, but the thing is that we are the ones having the highest weight and highest genetics progress on health and fertility traits. The reason why we are able to have this high weight is not only a political decision, it is because we have a proven, reliable registration system to back up our breeding values.

How different is VG from other AI companies that claim to breed for health?
If another Artificial Insemination (AI) company decides to put high weight on traits such as mastitis resistance or hoof health, they can probably do so, but the problem is that they are not able to evaluate mastitis resistance in a reliable way. We can put much focus on the health traits because for us it makes sense since we have the registration system that we have.

There is a tendency among other AI companies to say that they breed for health. What do you think about this?
Health traits have been an integrated part of VikingGenetics' breeding goals since late 80's. The milk recording system farmers are making in the VikingGenetics countries - Denmark, Sweden and Finland - is highly developed, and 90% of the cows participate in the registration of health traits. Although other AI companies have understood the importance of following the health breeding concept, it is VikingGenetics who leads it.

The reason many others are not doing this in other countries is that they can't. They don't have the data in the computer, just the computer.

Is this registration system unique for the Nordic countries?
There are countries that have started to report to a system, but we are the number one in this. We have had this tradition for almost 40 years now; we have learned a lot, and it is a natural part of our farmers' work to add all this information to our cattle database.

What does this weight on health traits mean for the dairy farmer?
With no doubt, the health traits VikingGenetics is breeding for, and I mean all the traits included in the NTM, are creating profitability for the dairy farmer. VikingGenetics has a highly reliable evaluation system that means that, with the decided economic weights, we can generate significant genetic progress in their herds and in their business.

Can production and health be picked at the same time?
The other good news of selecting by Nordic Total Merit (NTM) is that production is included. Usually, when you select for production, you take one step forward if you go for production, but you will go one step back for mastitis resistance, fertility, and other diseases because they have negative correlation to production. If you gain in production, you will naturally loose in health. But since we take health traits into consideration in NTM, we are able to gain significantly in production but also in health traits - look at the phenotypical level of our animals.

» Other companies claim to breed for health, but the thing is that we are the ones having the highest weight and highest genetic progress on health and fertility traits. «

Lars Nielsen, Breeding Manager

Is the company now taking genetic progress to a higher level by using more elite heifers?
Yes, we have taken the step to buy fewer bulls and put more focus on females to increase genetic progress. We work more with embryo transfer to let the best females get more calves.

Do you have a favourite Viking breed?
No, I don't have a favourite. In my childhood, I was working with VikingRed; my family had a VikingRed herd in Denmark and we liked showing them at shows. Then I became responsible for the Holstein breed when I was 28 years old, in Dansire, and then I continued in VikingGenetics when it was formed in 2008. I may have more knowledge of Holstein, but then even though I have not worked that much with Jersey, I can easily see that Jerseys are extremely efficient cows with high components. Therefore, it is true when I say that I don't have any favorite because I can see the advantages in all of them. My favourite is the Viking package.

What is the most demanded breed on the international markets?
It is VikingJersey because you have this high environmental focus on efficiency, and I have no doubt that the Jersey cow is the most efficient one. There is a huge demand in the US for example. The forecast is saying that they are going from 10 to 25% Jersey cows, and that is a big population. We have a more efficient product; we have a healthier, stronger animal with high components which produces more than just water. It is good for cheese production too. The same thing is happening in Europe where it is possible to sell more VikingJersey semen. ●

Important improvements in NAV routine evaluation in the November index run

The Nordic Cattle Genetic Evaluation (NAV) has introduced new calculation methods in order to have more accurate and reliable genomic prediction for VikingHolstein, VikingRed and VikingJersey.

By Veronica Löfgren, VikingGenetics

By the end of October, the Breeding Manager of VikingGenetics, Lars Nielsen, informed that NAV would introduce several improvements on the next breeding evaluation in the November index run.

"These improvements in the use of data and calculation methods show that NAV continuously strives after up-to-date improved tools to help the farmers decide their breeding plan on reliable and accurate genomic predictions," Nielsen said.

A consequence of the new calculations is that the new prediction model will smooth the transition from the Genomically Enhanced Breeding Value (GEBV) to Estimated Breeding Value (EBV).

The main changes occurred in these areas:

- Index for female fertility has been adjusted for the use of X-Vik semen and reliability in general.
- Udder Coordinates from Automatic Milking System (AMS) have been included in the genetic evaluation for udder traits.
- Females' information is improved in calving ease and birth index.
- Better prediction on yield performance using data from robot herds with significant variation in the milking time.

These advances also mean that there will be adjustments in the gNTM (Genomic Nordic Total Merit).

"As a consequence of these improvements in practical life, you will find some changes in the level of genomic NTM because there has been an over estimation of the genomic breeding values. This is a general problem all over the world and we are taking the responsibility to adjust it", Nielsen states. ●

Each day, NAV continously works on improvements and fine tunings on methods and calculations to get the most correct breeding value as possible. The improvements that NAV has made this time in November 2016 has mostly had an effect on the NTM level of the genomic bulls. There has been an overestimation that is now eliminated. The result is that the gap between proven bulls and genomic bulls is less today than before the change. The genomic bulls are still far ahead in NTM and the best bulls are still the genomic bulls. For VikingJersey, the NTM level has in average dropped 2.5 NTM units, for VikingRed the drop is 5.2 NTM units and for VikingHolstein it is a drop of 5 NTM units.

From bull barns to **breeding stations**

VikingGenetics' barns are changing along with the progress of the genomic era. The three stations now receive not only the best bull calves in the Nordic countries but also the best heifers.

By Verónica Löfgren, VikingGenetics

"Elite heifers" as the experts call them, are those animals who have shown high genomic Nordic Total Merit (NTM).

"They have the same reliability in the genomic breeding values as the bulls have, and we really want the best heifers to be flushed to get more calves from the best females," Ann Tidström, sire analyst at VikingGenetics, explains.

The idea is to mate these "Elite heifers" with the very best bulls. By using top females for flushing with sires of the highest genetic quality, VikingGenetics obtains superior embryos.

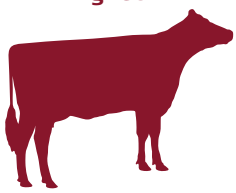
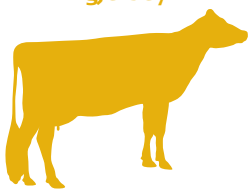
The demand for best genetics is increasing; farmers are looking for healthier cows with high production, and this fact has resulted in a significant focus on ET (Embryo Transfer).

The company flushes the heifers on VikingGenetics' stations but also has flushing contracts with private herds where they flush the best animals of the herd. VikingGenetics subsidized many genomic tests of all the females in many herds to use females in the reference population, and the breeding department in VikingGenetics also finds the superior heifers in this way.

"Our focus is high NTM, meaning great production, healthy cows, and good fertility," Charlotte Andersson, sire analyst at VikingGenetics, states.

VikingGenetics Embryo Program:

VIKINGEMBRYO

VikingHolstein	VikingRed	VikingJersey
		
10,000 genomic tests on females	**12,500** genomic tests on females	**12,500** genomic tests on females
450 heifers contracted for flushing	**490** heifers contracted for flushing	**70** heifers contracted for flushing
4,000 produced embryos per year	**4,000** produced embryos per year	**500** produced embryos per year

» For us, organic production is the future. We have healthy cows that make the job at the farm easier «

Claes Johansson, Märene

Facts of the Farm

Märene Farm is located in Skara, Sweden.

- Total cows: 220
- Production: 11,543 kg ECM
- Fat: 4.3%
- Protein: 3.6%

Nordic health traits
suitable for organic farming

Märene farm in Sweden is about to take a big step in its history, to become an organic dairy farm. Märene has already, long time ago, decided to breed for healthy cows, which makes the step easier.

By Verónica Löfgren, VikingGenetics

"From the beginning, farming was in my blood. I always wanted to be a farmer", Claes Johansson the fourth-generation owner of the Märene farm says surrounded by his working-team around the meeting table.

The Märene Farm in Skara in Sweden is a pure Holstein herd and it's a place full of life, projects, dreams, and compromises.

"The coffee meetings are important. Everyone is here and we talk a lot about our goals; we discuss, what do you want? How would you like to have it? And then, we set goals, and you know what to achieve" Claes' wife, Amanda Jansson, explains.

The next big project they are focused on, is to become an organic farm by taking advantage of the "green" cows as Claes Johansson refers to his VikingHolstein herd. "We have always been a Viking farm. Viking has done a good job all the time, and we like the VikingHolstein because they are healthy", he states.

Healthy cows with high production along with an increased demand for organic products is keeping the team motivated to make Märene a green farm. "If you have these good-looking, healthy cows producing much on pasture in your herd, then you have gained a lot when you talk to consumers", Johansson states.

The breeding goal in his farm is efficiency, and the strategy is designed to the smallest detail. The manager, Jakob Nielsen, explains that they make the genomic test on every single heifer when they are born, and 10% of those with the lowest results are sent to slaughter in order to keep a high NTM (Nordic Total Merit) herd level.

They also use X-Vik on their best females to guarantee that they will have heifers from them. "We want a cow that milks 11-12,000 kg – not only 9,000 kg per year. Although this is a good cow, we don't want to have daughters from her; instead we inseminate with beef", he explains.

With 10% of the lowest NTM heifers going to slaughter and 10% inseminated with beef, they can guarantee a healthy and high-producting herd.

Health in focus

With 11,543 kg ECM (Energy Corrected Milk) per year in production average, the Märene farm is producing above the average in Sweden which is 10,452 kg ECM on Holstein. "I think we have the milk so we can look at other things and of course health is the most important", Nielsen says. "We are looking at individual needs when planning the breeding", Nielsen adds. ●

» In just some weeks from now, I will open my own little cheese factory. This is the next step in the dairy chain «

Filip Larsson, Son of Claes Johansson, Märene

Improved hoof health
- increased profit

By Lea Foustad Harbo, VikingDanmark

Hoof disorders in dairy cattle cause lameness and a lot of pain and leads to large loss in production and early involuntary culling of cows. Lameness is a symptom of a very painful condition and an important welfare problem in modern dairy production.

Nursing, environment and feeding play a central role in the occurrence of hoof disorders, but also genetics are important. Modern high-producing dairy cows have a high risk of hoof disorders – also in good environment.

The most effective way to increase the resistance against hoof disorder through breeding in long term is by using hoof health as a breeding goal. By including hoof health in the Nordic Total Merit Index (NTM), VikingGenetics was the first Artificial Insemination (AI) company in the world with hoof health in their breeding goal.

The fact that genetic progress in hoof health is possible is mainly due to the access to the world's largest database for hoof health. Hoof trimmers in Sweden, Denmark and Finland register the data and today we have more than 2 mill. registrations in the database.

In the hoof health index, there are registrations from cows in lactation 1-3. Some disorders have been categorized because they are symptoms of the same or almost the same disorder:

- Infectious or hygiene related (digital dermatitis, skin proliferation and heel horn erosion)
- Laminitis related disorders (sole haemorrhages, white line disease and sole ulcer)
- Malformation hoofs (cork screw hoof)

Hoof health has a strong correlation with longevity.

Healthy hoofs

Sole ulcer has the highest weight in the hoof health index since this is the disorder with the highest economic loss and a very painful disorder for the cow.

Differences between bulls

VH Clark, one of our proven bulls with NTM +27 has a hoof health index of 128 and for digital dermatitis specifically, he has 143. That means that VH Clark actually lowers the risk of getting the disease by 50% on his daughters. This is worth taking into consideration when selecting bulls to use in the herd. ●

PROCROSS

A successful
and “easy to manage” system

ProCROSS is the only scientifically proven crossbreeding system in the world used by progressive dairy farmers in the United Kingdom, United States, Italy, The Netherlands, Spain, Germany, Portugal and other countries. By combining VikingRed, Montbéliarde, and VikingHolstein, ProCROSS is recognized as the most profitable crossbreeding system in the world.

By Roger Trewhella, VikingGenetics distributor in UK

ProCROSS is not only efficient but also easy to understand and manage day-to-day. ProCross is founded on two basic and simple principles. The first one is related to a crossing between dairy breeds with wide difference in their genetic make-up. The mix of VikingRed, Montbéliarde and VikingHolstein provides this diversity because the three breeds combine and compensate very well their strong and weak points making a perfect balance.

The second principle is the ability to retain more hybrid vigour through three breeds in a rotation, rather than a two-way combination. It also removes any need to consider inbreeding and to the contrary it gives an extra bonus, called Heterosis. When genes are mixed with different breeds, the offspring gets a bonus on top of the parental average. For fertility and health traits it is approx. 8-10% bonus.

Furthermore, the principles behind ProCROSS are the result of research at the University of Minnesota, USA. Dairy producers sometimes disappointed with the health, fertility, and survival of their pure Holstein cows motivated the studies at the University. The conclusions made ProCROSS the first global crossbreeding system to be science-led.

Benefits for the UK industry

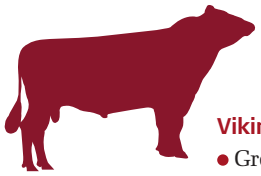
From testimonials given by UK farmers we can, without a doubt, state that ProCROSS cows meet the needs of the UK market. They are strong, healthy and fertile and at the same time able to produce significant volumes of high compositional quality milk from forage-based rations.

Besides, cull and calf income is high; not just the Montbéliarde influence, but also VikingRed and VikingHolstein having a Growth Index evaluation within their breeding values.

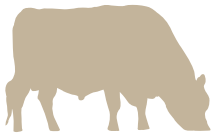
All in all, ProCROSS releases time to devote to other herd management demands.

Each of the three breeds in the ProCROSS concept adds specific traits to the ultimate ProCROSS dairy cow. And all are based on science. ●

VikingHolstein adds
- Moderate stature
- High production
- Good udder conformation



VikingRed adds
- Great calving ease
- Excellent hoof health
- Great overall health and fitness



Montbéliarde adds
- Good fertility
- Great body condition
- Good protein production

Visiting China
Our Export Manager in China, Hans Christian Hansen visited Wenshi Sairy Group in Guandong Province. The company owns 20,000 Holsteins cows in six farms. Hansen took this picture with managers of the Wenshi Sairy Group in october.

VikingGenetics at World Dairy Expo
In October, our genetic solutions were present and very demanded during the World Dairy Expo in Madison, Wisconsin, USA. VikingGenetics had a booth that was much visited during the Expo which is one considered the most important in the world dairy industry.

Visit from England
A group of dairymen from England visited us at our headquarters in Assentoft, Denmark, in September. They had the opportunity to see the advantages of ProCROSS´ herds by visiting five farms.

Visit from Australia
Adam Blum, dairy farmer from Australia together with Anna Nordgren, Business Manager from VikingGenetics Australia, on herds visits in Sweden and Denmark.

Study tour to VikingGenetics countries
In the beginning of July, representatives from VikingGenetics Australia and Colombia made a series of farm visits in Denmark and Sweden to get a view of genetics from Viking. The visit focused on data collection and one hoof trimmer demonstrated how registration of hoof health is made, which is unique for the Nordic countries.

Interview with Jan Andresen, Export Manager VikingGenetics

"An open mind is essential when working on different markets"

By Verónica Löfgren, VikingGenetics

Jan Andresen is in charge of the VikingGenetics International (VGI) sales to Ireland, Germany, Croatia, Poland, Italy and New Zealand. He is also an important link to VikingGenetics' subsidiary in Australia, VGAu. Working at home at his family farm when he was very young, and being a breeding advisor for more than four years, has helped Jan Andresen to understand the challenges the dairy farmers face every day. He has also participated in the design of the VikRank, the new tool that helps farmers pick the best bulls that suit their needs.

What do your markets have in common?

They are very different, but Ireland, New Zealand and Australia have season calvings and are extremely pasture-based and the herds are nearly year round outside in the case of New Zealand and Australia. In these countries, we can provide our services almost in the same way. In Poland, there are many small family farms as well as big companies. Croatia has big companies that own most of the farms.

How about the rest of your markets?

Germany and Italy are a bit similar. Many family farms in these countries. Tradition is very important in Germany. Moreover, a big challenge is to go from focus on type to cows that are more commercial. Our cows actually make more money for farmers.

Are the farmers in your markets basically selecting for production and health?

In general, farms that are more commercial are focusing on business and need a good, strong, profitable cow and that is what we at VikingGenetics can deliver; healthy cows with high production.

What breed is the most popular in these markets?

In Ireland, we mainly sell VikingHolsteins. In New Zealand, VikingRed and VikingJersey are popular. Our VikingRed is incredibly strong on mastitis resistance and in calving traits, which are important factors in seasonal calving areas like Ireland, New Zealand and Australia. There you need cows that get pregnant in time and calve easily.

Where do farmers put most focus when selecting for health?

In Croatia, we primarily sell VikingHolstein with focus on mastitis resistance. Meantime in Poland, the largest Holstein market in Europe, we want to promote our VikingHolstein with bulls like VH Clark, whose daughters are reducing digital dermatitis incidence by 50%. He also increases fertility in the herd.

Export Manager Jan Andresen together with VH Clark. Andresen was breeding advisor in the herd that bred VH Clark, and together with the herd owner decided on the mating leading to VH Clark - top daughter proven Holstein bull.

Are Italy and Germany also mainly Holstein markets?

We sell a lot of VikingHolstein in Germany. Our sales on VikingJersey are still small but increasing well. We have started to sell based on our Nordic Total Merit (NTM). And in Italy they use ProCROSS to produce good cheese.

Where do you put extra attention when you sell on these markets?

For sure, it is that we are prepared to see what challenges the dairy farmers have in the different markets. I like to listen to the sales team, the distributors and the dairy farmers and really understand their challenges. Then, I can look more into what is the best solution for them: what kind of bull should I pick, and what traits should we focus on.

Is this about building strong relationships with your customers?

There are different situations in Ireland, Croatia or Germany, and that is why we want to be as close as possible to our markets with an open mind and open eyes to understand what we can do. That´s how we work. ●

Gustav Kämpe looks carefully at NTM "because this is the best way you do a longterm breeding plan", he says.

VikingGenetics accompanying the growing ambition

Torpet Farm, reaching goals **with a new generation**

As a child, Gustav Kämpe never thought he was going to be a farmer. He grew up surrounded by cows because his parents were dairy farmers, but seeing them work on the farm was not attractive to him. "I never wanted to do the hard work!" he admits and laughs.

By Verónica Löfgren, VikingGenetics

Gustav Kämpe came back to Torpet Farm after more than ten years; it was a long journey, it took many years before he decided to be a dairy farmer, but when he made up his mind, he did it big.

Kämpe's way back to manage the dairy family business is influenced by his university title as an environmental engineer, as well as by a job in one of the large agricultural companies in Sweden, and also by his wife, who loves farming life.

All these things together were crucial to bringing him back to the place he grew up. This time, he was eager to develop a new and progressive way of management. "I found a new view of how to be a farmer; it came from another perspective", Kämpe says while mentioning that Vi-

kingGenetics is an important part of this new era at Torpet Farm.

He and his wife moved into the property eight years ago. The couple started a company together with Gustav's father, Kurt Kämpe, to manage the farm. Last summer, they bought the farm; And in one year, they have increased the number of cows from 100 to 200 and built a new barn with three milking robots.

"One of the goals for me and Sofia was to take care of the farm. We wanted to develop it. This has been the goal for the last eight years, and now we are here", he adds.

The Torpet farm has a mixed herd, 60% VikingRed and 40% Holstein.

A clear, long-term breeding plan

The Torpet farm is located in a flat and open property of 200 hectares land and 60 hectares of natural grass. The property is close to the water and surrounded by large trees.

The Kämpes have a long-term breeding plan that is already positioning them on the map of progressive farms in Sweden.

The Torpet farm has a mixed herd, 60% VikingRed and 40% Holstein; production is 11,100 Energy Corrected Milk (ECM); putting them above the average in Sweden that is 10,452 kg ECM for Holsteins and 9,749 kg ECM for VikingRed.

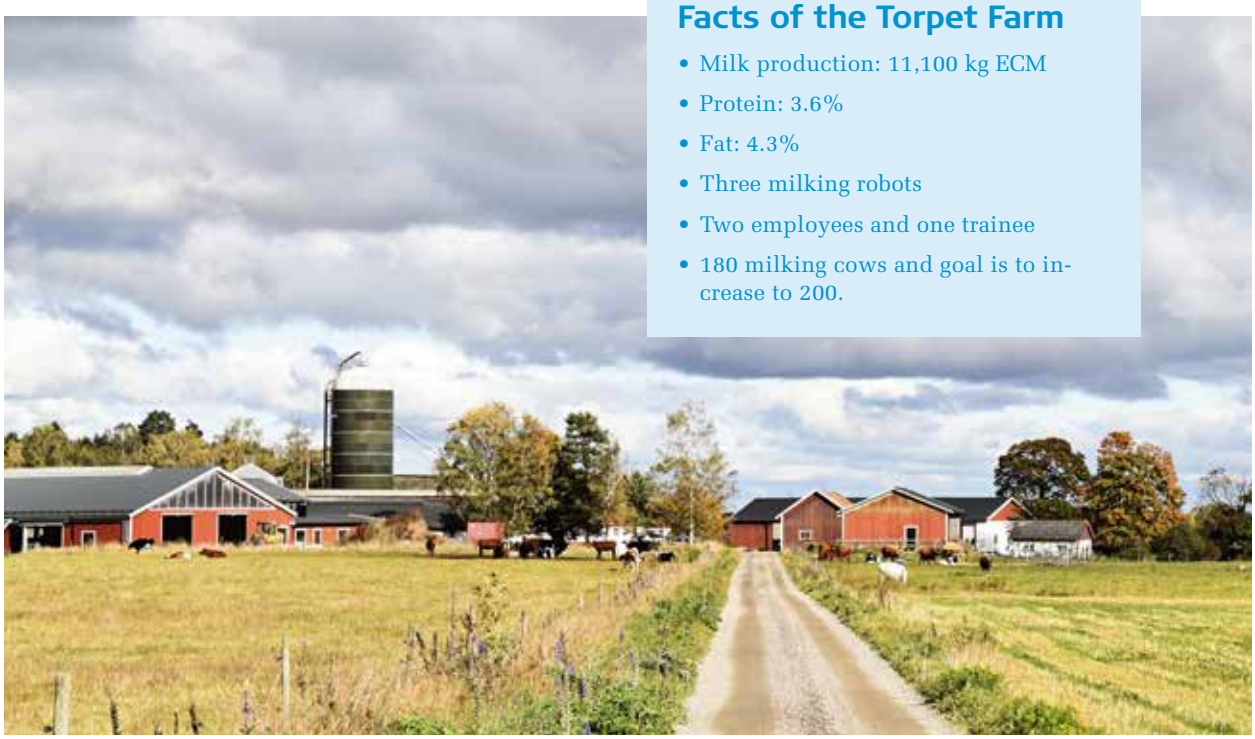
The genetics from VikingGenetics are behind these exciting numbers; Gustav Kämpe has inseminated the females in the herd with X-Vik to increase the number of cows getting heifers by their own.

When selecting genetics for the next generation, Kämpe says they select traits such as yield and udder traits suitable for robots "We look very carefully at the NTM; this is the way you do a long-term breeding plan", he states.

He also has a profitable plan for heifers that he is not going to use as mothers for the next generation of milking cows. He explains that since the price of meat is quite high, he inseminates them with beef. ●

Facts of the Torpet Farm

- Milk production: 11,100 kg ECM
- Protein: 3.6%
- Fat: 4.3%
- Three milking robots
- Two employees and one trainee
- 180 milking cows and goal is to increase to 200.



The Torpet farm is located in a flat, open and large property – 200 hectares land and 60 hectares of natural grass.

Colanta Coop to Improve Quality of Milk making VikingGenetics' bulls their natural choice

By Verónica Löfgren, VikingGenetics

Colanta began its breeding program in 1980. Currently, Colanta is the third biggest cattle genetics company in Colombia and provides artificial insemination services, embryo transfer, and molecular diagnosis, among others.

Since 2000, Colanta radically changed its breeding objectives due to the low performance of the cheese. They wanted to make the transition from milk producers to dairy producers. At that time they used predominantly bulls from United States (US), but the percentage of protein was not satisfactory. Facing this challenge, they started to work more often with VikingGenetics and that is something they want to continue with to increase the quality of milk even more.

After a visit to VikingGenetics in Denmark and herd visits in Denmark and Sweden in June 2016, the AI-program coordinator of Colanta, Juan Fernando Vásquez Cano, states that they definitely want to increase its business by working more closely with VikingGenetics.

"We have had increases in milk protein level and today we reach a modest level of protein at 3.2%. This contrasts with the Viking-Holstein cows in Sweden and Denmark that have 3.6-3.8% and there are cows with more than 4.5% protein and over 8,000 kilos of milk per lactation. We definitely have a lot of work to be done", Vázquez Cano summarizes.

Vázquez was also impressed by the dedication and focus that VikingGenetics, the dairy farmers and authorities give to the health level in the herd.

"We admire the attention and concern of the government and dairy farmers regarding the cow's health. We are impressed of the somatic cell counts and genetic selection for udder health, in which VikingGenetics is pioneer, as well as the strict registration protocols of the hoof trimmers," he states.

He also emphasizes the important role the control in the use of drugs as well as the focus in health played to declare the Nordic countries free from diseases that still concern the Colombian farmers, such as the Bovine Virus Diarrhea (BVD) and the Infectious Bovine Rhinotracheitis (IBR). "We still have a lot work to do in this", he says. ●

» We are impressed of the somatic cell counts and the genetic selection for udder Health, in which VikingGenetics is pioneer, as well as the strict registration protocols of the hoof trimmers «

Juan Vázquez, AI-program coordinator of Colanta, during his visit to Danish and Swedish herds in June.

Export Manager Suvi Johansson and CEO Rex A. Clausager visiting the Colanta dairy.

Facts of Colombia

Colombia has a cattle population of 22.6 million animals.

About Colanta

Colanta is a cooperative that was created in 1964 by 60 farmers. As the time went by, the cooperative became bigger and stronger and an important distributor of VikingGenetics in Latin America.

Today, Colanta is the leading dairy company in Colombia, able to produce 2.5 million liters/milk per day which is about 16% of the national production.

Colanta synonym for success

Colanta is a farmer's cooperative with approximately 5,000 members. The cooperative takes care of a great part of the value chain. They also deliver semen and a growing part of this is from VikingGenetics.

They have technicians, a dairy and a slaughterhouse as well as chain of grocery stores promoting their products. Their products are available in most grocery shops and supermarkets and in addition, they have farmer shops where they sell everything from horse saddles to fertilizers.

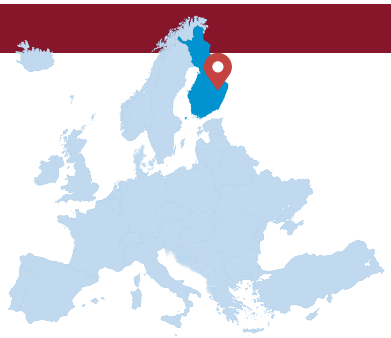
There is also a restaurant chain where their aim is to sell food of high quality at an affordable price. Colanta also has a bank targeting cheap loans to their members.

The company has a subsidized agreement with the local government to provide a free milk or yogurt product every day to every school-kid at all the schools in the Medellin area.

Colanta is the largest dairy producer in Colombia with a 15% market-share.

Last October, VikingGenetics CEO Rex A. Clausager and the Export Manager for Latin America, Suvi Johansson visited Colanta. The plant they visited, produced milk, yogurts, milk powder and cheese "All living up to very high quality standards. I feel proud that we are working together with this forward-looking farmers' cooperative in Colombia." Clausager states. ●

Suvi Johansson, Export Manager for Latin America, VikingGenetics; Juan Manuel Cerón, Chief of Technical Assistance, Colanta; Sara Wiklert-Petersson, Head of Sales VikingGenetics; Juan Vázquez, AI-program coordinator of Colanta, and Rex A. Clausager, CEO of VikingGenetics. Colanta staff came to Danmark to know more about VikingGenetics.



VR Umbro

– The red star in the bull sky

By Mikko Säynäjärvi, Faba, Finland

In summer 2016, Faba in Finland arranged a competition among dairy farmers to find the most appealing bull and thus give credit to the breeders. VR Umbro became the clear winner. Along with the great udder health, the super conformation, the voters praised his pedigree where his sire VR Uudin and grandsire Ullimulli are well known.

The breeders Ulla Heikkilä and Juhani Lemola could not be more pleased. “VR Umbro is my wife Ulla’s achievement. When we built a bigger barn and bought animals, it was a very uneven herd and the quick remedy was to use conformation bulls. We chose Alpu for the mating because of his pedigree and also due to the fact that he was born at nearby Rokkila farm“, explains Juhani. “Umbro’s dam Ikaoka and granddam Yamba are among the best cows in our herd", he adds.

Ulla and Juhani are happy about VR Umbro’s fame. ”It feels good, a sparkle of light in these difficult times. I used to study bull catalogues as a little boy, now I’m having my 30th anniversary as a dairy farmer, so it is great to finally succeed.”

Although other bull calves have been tested during the genomic era, only VR Umbro has been purchased. Silpola farm has participated in testing all females in the herd from the start, but as the sampling was time consuming and difficult to arrange, they quit for a year. Now with the new DNA ear tags, the sampling is very easy and up and running again.

VR Umbro (VR Uudin x Alpu)

“Testing is now really handy with these ear tags, and all females that are planned to go to milk production, are tested“, Juhani says. "We want to have the best possible females in our herd, and by testing them genomically, we feel we can make a correct selection from the start", he explains.

The 200-cow herd consists mainly of VikingRed cows, and Silpola farm has a milking parlor 2 x 12 and when choosing bulls for breeding plan they look mainly among the robot bulls. And of course, high NTM is the main focus. ●

The proud breeder of VR Umbro, Juhani Lemola in his 200-cow herd consisting mainly of VikingRed cows. The breeding goal is high production along with good stature and conformation

Genomic test

– an unavoidable tool for progressive farmers

By Ritva Hilpelä-Lallukka, Sire Analyst, VikingRed

Seppälän Malva (Aavistus-Ullimulli) was flushed in the home herd and gave seven embryos.

The Seppälä Ayrshire herd run by Ulla and Seppo Riihimäki is a high quality group of females. The genomic tests are revealing the potential this couple has in their hands.

In 2010, some females were genomically tested and received good values. In 2014, the flush contract on Kristalli (Solero x Sale) produced 19 transferable embryos.

Tinahely's granddaughter Seppälän Lollipop (VR Uudin x Facet), still Uudin's fourth best genomically tested daughter in all VikingGenetics countries, was sold to Hollola nucleus herd. Seppälän Malva (Aavistus x Ullimulli), Aavistus best daughter, was flushed at home with VikingGenetics contract, the result was seven embryos.

"It is sometimes a bit difficult to find recipients at home, but luckily the neighbors help and buy some embryos", the farmer couple says. "With genomic testing, the choice of females becomes more accurate and the flushings have also become more meaningful. The herd develops in leaps ", Ulla and Seppo state.

A big advantage in their herd is longevity. The herd has produced eight 100-ton cows until today, and that is a lot when thinking of the size of the herd; just 40 cows. Now there are several five and six times calved cows, the eldest is Basso (Jehta x Eepa) that has calved 12 times. Behind the nine-times calved Tinahely ET, there is an unbroken chain of four generations of 50- and 100-ton cows.

Besides, the herd is very even with good stature, the udders are excellent throughout the ages of cows, feet and legs are dry and well angled. The 40-cow 10,000 kg herd lives in a loose stall barn and grazes during the summer. ●

Extensive technology

behind finding the correct Holstein bull calves

During one year, we genomically test 3000 Holstein bull calves in the three VikingGenetics countries and 5000 in our cooperation with NOG (German AI company). The goal is to have 100 Holstein bulls sampled in total, placed in the Nordic countries and abroad.

By Ann Tidström, Sire Analyst, VikingGenetics

FIGURE 1. DIFFERENCE BETWEEN GEBV (GENOMICALLY ENHANCED BREEDING VALUES) AND PA (PARENTAL AVERAGE). THIS FIGURE SHOWS THE IMPORTANCE OF USING GENOMIC SELECTION TO FIND THE CORRECT BULLS. FOR EXAMPLE, THIS FIGURE SHOWS THAT WE HAVE BOUGHT ONE BULL THAT INCREASED 21 NTM UNITS WHEN TESTED GENOMICALLY.

THE DISTRIBUTION ON BOUGHT BULL CALVES

Difference between GEBV and PA

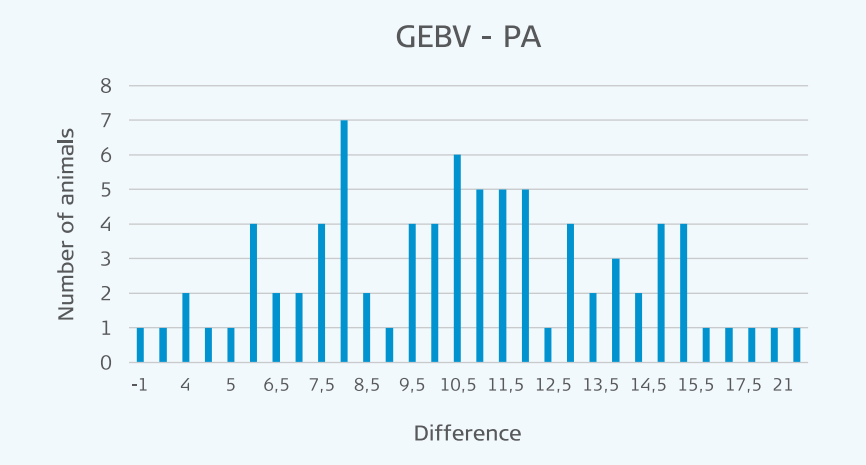


TABLE 1: THE MOST COMMON SIRES AMONG OUR BULLS

Sire name	Number of offspring
Reflector	5
VH Cosmo	3
VH Lemek	3
VH Liftoff	3
VH Sparky	3

TABLE 2: THE MOST COMMON MGS AMONG OUR BULLS

MGS name	Number of offspring
VH Grafit	7
VH Miracle	7
Denim	4
VH Bostrup	4
G Force	4
Picanto	4
VH Pop	4

Genomically tested dams give more hits

Statistics from our bull calf selection show that we buy more bull calves after genomically tested dams than from those not genomically tested. Out of the tested bull calves, 60% of the dams had genomic Nordic Total Merit (NTM), but when we selected the bull calves, 84% of the dams were genomically tested. This shows that the success rates are higher on genomically tested females because of higher reliability of the genomic breeding values. We can also see that the success rate from embryos is very high. 18% of all tested bull calves a year back are from embryos, and 41% of the bought bulls are embryo calves.

The parental average (PA) NTM on bull calves tested last year was 20, and their average NTM after genomic test (GEBV) was 18. This shows that the average NTM does not differ between pedigree index and genomic index; but we can see big re-ranking, sometimes as big as 20 NTM units, but most of the calves have a difference in +/-6 NTM units. See figure 1.

The PA on the bought bull calves was 22 and GEBV in average +31.

Quality in focus

The bought bulls have 60 different sires and 55 different maternal grand sires. This means that we buy only one bull calf after most of the sires of sons today. From some sires, we find two and up to five good bull calves. Last year, 71% of the bulls were bought in Denmark, 14% in Finland, 13% in Sweden and 3% abroad. See tables 1 and 2. ●

VH Balzac
a new top bull

Cattle breeder Steen Baekgaard from Denmark has been in the dairy production business since 1967, and VH Balzac is the first bull he has ever sold to VikingGenetics – and the first animal ever he has genomically tested.

By Lea Foustad Harbo, VikingDanmark

”Well, then I tried that as well. Who would have thought that the first genomic test would be a ”winner?, Steen Baekgaard replies to the question how it feels having a bull on the daily plan for the first time at the age of 72.

VH Balzac (VH Beta x VH Bento x S Ross) with gNTM +36 is by a VH Bento cow classified VG86 with impressive protein components – average 3.94%. The cow has just finished her second lactation and is pregnant by VH Sherman. Her dam – a VG86 S Ross daughter – is still in the Baekgaard herd and has five calves – so far.

Steen Baekgaard took over the farm in 1977 after his father. At that time there were 50 cows in the herd, and this number increased to 65 in the beginning of the 1990's when Baekgaard redirected the production and made it organic. Today, he has 40 cows and says that the work in the barn and the field is “a time consuming hobby”. He takes care of everything himself. A long life with cows enables Baekgaard to clearly see the genetic progress in the breeding:

“In particular the calvings have improved over the years. Earlier I would get up at night to check on a cow calving, but now I don't even set the alarm clock any more. Today the animals handle it by themselves”, he says.

Prefers healthy cows with long life expectancy

Of course, Steen Baekgaard prefers cows with high production, but that is not the highest priority when he goes through the breeding strategy with the breeding advisor. Then he focuses on healthy animals with good feet and legs and many years in the herd. He never buys in animals – he keeps his herd self-sufficient – and uses little sexed semen and beef semen. He sells a few heifers every year and no longer spends much time on the bulls for the mating plan:

“When there was a local AI (Artificial Insemination) centre in our local area, we ordered the bulls ourselves and got to know them, but now there is a constant flow of new bulls all the time and the situation is completely different”, Baekgaard says.

VH Balzac is in top for health and reproduction with a fine balance to conformation and functional traits. ●

VH Balzac - a new top sire with gNTM +36.

VH Balzac's dam and grandam.

By Peter Larsson, Breed coordinator VikingJersey

Felicia is the first Jersey to produce 100,000 kg milk in Austria

The Jersey population in Austria is primarily based on imports of heifers from Denmark. The quality of the animals is in general very good. Jerseys do well in the Alps of Tirol, where they climb mountains and graze all summer. One of the best and most productive cows in the Alps is 17-year old Felicia, a daughter by FYN Lemvig. She was imported from Denmark as a heifer in 2000 and now her production has exceeded 100,000 kg milk. She is owned by Andreas Burgstaller, one of the very first Jersey breeders in Tirol.

17-year old Felicia by FYN Lemvig, the first jersey cow in Austria reaching 100,000 kg milk.

550 Jersey heifers **exported to Russia**

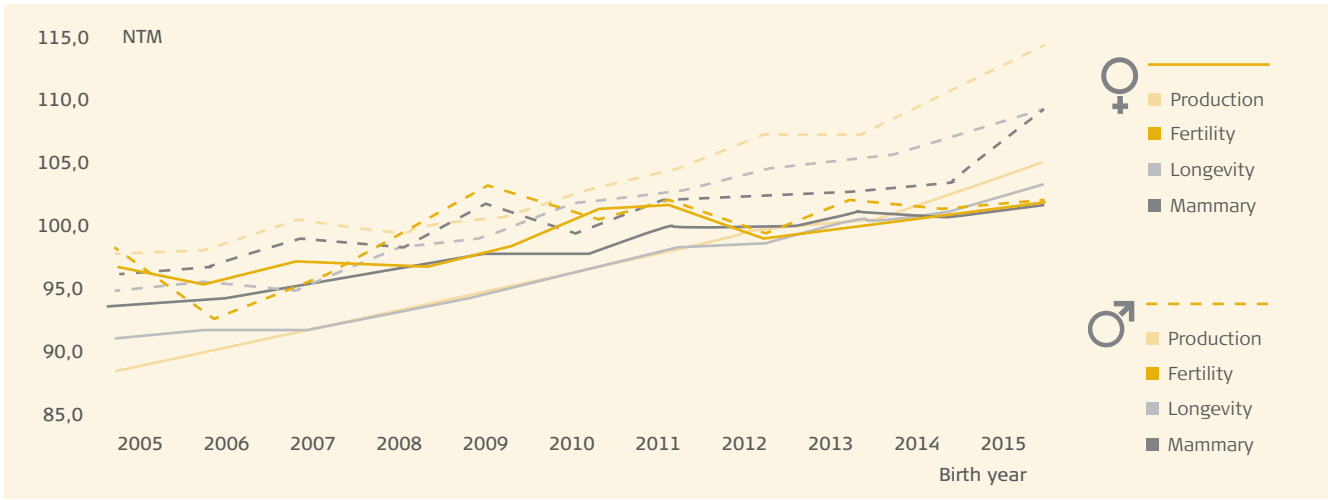
The buyer of 550 Danish Jersey heifers decided to have all heifers genomically tested before they entered the 3000-cow Jersey herd in Russia. Several heifers had NTM level +15 to +25, which is a very good base for establishing a nucleus herd and starting an ET program in Russia.

100 Danish Jersey bulls **on their way to India**

Last year The National Dairy Development Board (NDDB) in India imported 45 Jersey bulls from Denmark, and this year, 100 will be selected for moving there in December. The bulls are rejected by VikingGenetics after genomic test, but still fulfilling the strict demands on breeding values set by Indian authorities where high production of solids, good fertility and conformation are in focus.

Continuous genetic improvement

It is important to check the genetic trend in the female population continuously to ensure progress and positive effects on the animals in the herd. Below you see the trends for Jersey bulls and Jersey females in Denmark. Bulls follow a very positive trend at a higher level than females, which is natural, but females follow the same trend. More emphasis will be put on female fertility in the bull selection, to make the traits related follow the same trend.



Sires in focus

VJ Dau

VJ Hjort x VJ Tei x DJ Zuma

The admirable first VJ Hjort son

VJ Hjort (VJ Husky) is the sire of new top bull VJ Dau.

VJ Dau is bred in the Brogaard herd in Daubjerg, Denmark. This is a bull coming from a high-producing cow family, known for high percentages.

The dam, Brogaard Tei Caroline, has produced 7,200 kg milk with 6.47% fat and 4.24% protein per year, in 4.4 years.

VJ Dau is the first VJ Hjort son to be marketed. VJ Hjort is a VJ Husky son out of a DJ Zuma daughter. The maternal grand sire VJ Tei is a DJ Topholm out of a Q Hirse dam.

VJ Dau breeds very high protein and fat percentage. Daughters will be of average stature with good capacity, udders will be very well attached both at front and rear. Shallow udders and teat placement are other of VJ Dau's trademarks.

aAa: 432 Cappa Casein: BB Beta Casein: A2/A2 JH1 Free

VJ Haun

VJ Hian x VJ Tester x DJ Prima

A whole package sire

Dam of VJ Horst

VJ Haun improves protein percentage, fertility, health and conformation. VJ Haun is out of the VJ Tester daughter no. 2181, from the Baungaard herd in Denmark.

The dam of VJ Haun has an average yearly production of 7,670 kg milk, with 6.75% fat and 4.46% protein in 3.4 years.

The paternal line is VJ Hian (VJ Hickey x DJ Zuma), VJ Tester (DJ Topholm x Q Hirse) and DJ Prima (Perimiter X FYN Lemvig). VJ Haun breeds high protein percentage. Fertility is at a very high level, as well as udder health and longevity. Daughters will have a good frame with very fine legs. Udders will be well attached and very shallow with strong ligament.

aAa: 243 Cappa Casein: BB Beta Casein: A1/A2 JH1 Free

VJ Lesten

VJ Lurik x VJ Hickey x VJ Ramses

Solids, health and super udders

VJ Lurik (DJ Lix) is the sire of new outcross bull VJ Lesten

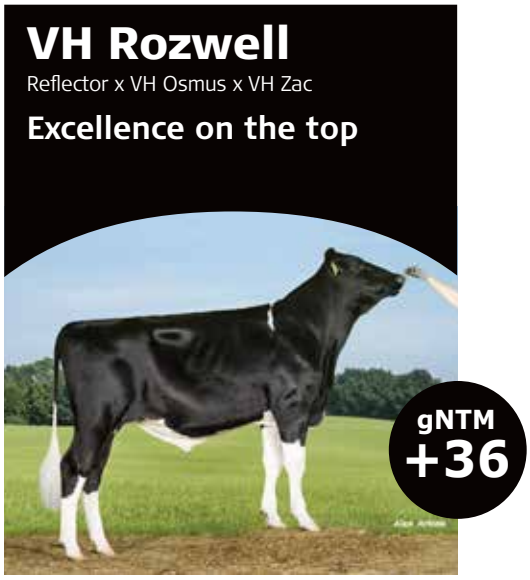
VJ Lesten is bred in the Birkelygaard herd in Gesten, Denmark, one of the most successful breeders of VikingJersey bulls over the last couple of years, with bulls like VJ Libero, VJ Lago, VJ Role and now VJ Lesten, which is the first VJ Lurik son to be marketed.

VJ Lurik is an outcross (DJ Lix out of a VJ Hamsum daughter). VJ Lesten is free of DJ Hulk and Q Impuls genes.

Birkelygaard Hickey Silene is just ending her first lactation with 6,300 kg milk, 6.18% fat and 4.21% protein. VJ Lesten breeds very high production of solids and increases percentages as well. He breeds best bulls for udder health, and improves fertility and longevity.

Exceptional udders are VJ Lesten's trademarks. Both fore udders, rear udder height and width are extremely good. Udders are shallow, teats are of ideal size and placed perfectly. It will be a great pleasure to milk VJ Lesten daughters.

aAa: 243 Cappa Casein: BB Beta Casein: A2/A2 JH1 Free



VH Rozwell

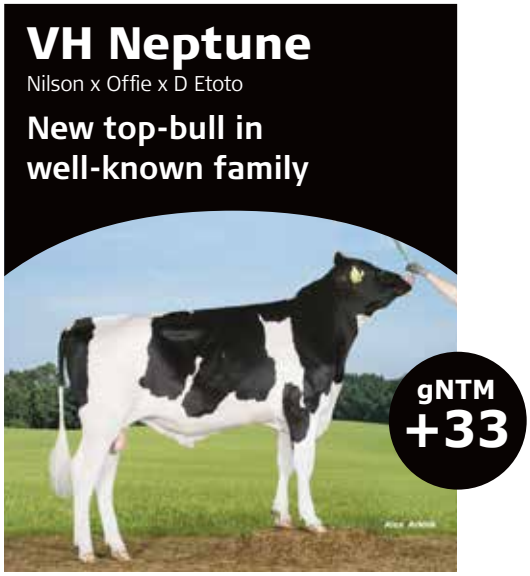
VH Rozwell is what we call a modern type of Holstein. He will have average sized cows with super feet & legs and mammary with super attachment.

He has health and calving ease at the top. Milking speed is at impressive 136. VH Rozwell is bred at Morten Hansen in Denmark.

His sire – Reflector is an American Mogul x Superstition son. In the dam line we find a daughter of the famous VH Osmus that still today has +28 in NTM, so among the very best cows in the population. Her dam is a EX91 VH Zac daughter that in 3.7 years has a yearly average of 12,000 kg milk with 1,050 kg fat and protein. Before her we have an EX90 F Halling daughter with similar impressive production level. An excellent cow family.

The VH Osmus dam has also delivered two other bulls for VikingGenetics; VH Gain (VH Goblin) and VH Sixtus (VH Sparky).

aAa: 345 Cappa Casein: Beta Casein:



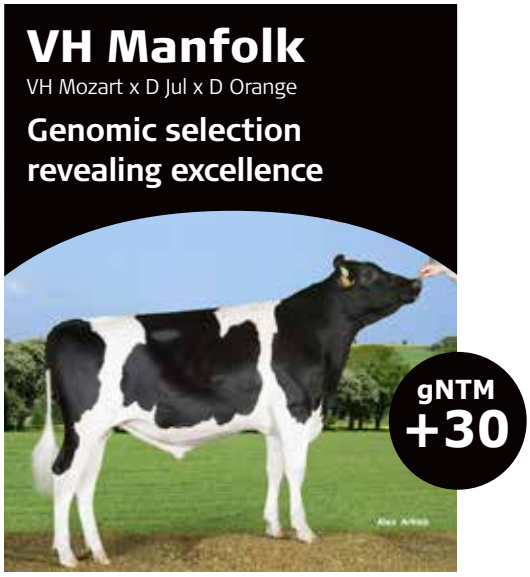
VH Neptune

VH Neptune is from a family where we have several good bulls including the Reflector son VH Rozwell.

Neptune has the Dutch G-Force son Nilson as sire and a VG88 Offie (Observer) as dam. She has produced for 1.1 year with an average of 13,200 kg milk and 950 kg fat and protein. Her dam was a D Etoto daughter from Oman Claire and then the Lancelot, also found in VH Rozwell's pedigree.

VH Neptune is at the top of the list because of a unique combination for reproduction and health together with high protein percentage. The conformation is good especially the udders are perfect with 126 in total.

aAa: 432 Cappa Casein: Beta Casein:



VH Manfolk

It is often said that the genomic test can detect new families and VH Manfolk is a good example of that practice.

The D Jul dam is the first in this family to have genomically tested offspring and so far two sons tested and VH Mozart (D Mason) being one of them. Try to look at some of the accomplishments from the family. The D Jul has, in average of 1.5 year, produced 16,000 kg milk with 1,150 kg fat and protein. She did her peak in production in second lactation at 66.7 kg per day. The D Orange cow is a VG85 with 14,000 kg milk and 1,030 kg fat and protein.

VH Mozart is breed at the herd of Hans Jacob Fenger in Denmark. He is an outstanding production bull with good components with a fast milking speed. He also breeds good health and easy calving. Conformation is around average and size is a bit smaller than average.

aAa: 342 Cappa Casein: AB Beta Casein: A2/A2

VH Pogba P

Powerball P x Massey x D Limbo

Polled Powerball from a strong family

VH Pogba P

This polled top bull is breed at Tirsvad Holstein in the middle of Denmark. Coming from a family with several good bulls.

He has a full brother called VH Pitbull (not polled), and also a full brother to the dam called VH Milkman and VH Fellow, at VikingGenetics barns. Moreover, the granddam had a full brother at Viking, the well-known and high-ranking daughter proven bull VH Loop that has +16 in NTM.

The Massey dam has been milking for about 150 days and is classified VG87. The D Limbo has an annual average of 14,000 kg milk with 1,100 kg fat and protein. VH Pogba P will give high-producing cows with a good calving ease and good udder health. Really good conformation and calm cows, and half of them being polled.

aAa: 342 Cappa Casein: Beta Casein:

VH Galbert

VH Gizmo x D Op x Rakuuna

A bull from a rock solid family

VH Galbert

VH Galbert is bred at Flemming Balle Jensens farm that is placed just outside Randers, also very close to the head office of VikingGenetics.

VH Galbert is bred at Flemming Balle Jensens farm in Denmark. It is the first bull from this family and also from this herd.

The dam is a 83 D Op (D Onside) daughter that is an outstanding milking cow with 14,400 kg milk in average on 2.1 year, with more than 1,000 kg fat and protein. She is in her third lactation and has been inseminated with her fourth calf. An extraordinary fertility which finds the source of this excellent daughter on the fertility specialist Rakuuna.

VH Galbert himself is a good mix of this solid family. He breeds high production especially in protein, good health and fertility and a conformation just as we like it with average sized animals with a bit extra strength, good feet & legs and really nice udders.

aAa: 324 Cappa Casein: Beta Casein:

VH Ingolf

Icone x VH Bynke x Planet

An exquisite International mix

VH Ingolf

He is a mix from France, North America and VikingGenetics. VH Ingolf is bred at the famous herd Anderstrup Holstein in Skoerping in Denmark.

He is born in Skoerping, but the family starting with the VH Bynke daughter is coming from Erik Wiltink in Debel in the South West part of Jutland in Denmark. The sire, Icone is a French Mogul x Man-O-Man son.

The VH Bynke cow (VH Bismark) is just about to finish her first lactation. She has produced for 292 days, giving already 13,700 kg milk and classified score VG87. Her dam is classified VG85.

VH Ingolf will give you cows with an excellent production with good components and balanced conformation. Moreover, health and reproduction will be clearly better than average. He will give also calm cows with fast milking speed

aAa: 342 Cappa Casein: Beta Casein:

VR Redfox

VR Rankin x R Fastrup X O Brolin

A balanced sire with many strengths

VR Redfox

VR Redfox is from a high producing VR farm and from a very highly productive dam. Lille Orritslevgaard in Denmark is the breeder of the bull.

The dam has produced in average over 1.9 years 3.7% fat, 3.3% protein and 14,853 kg milk and this is combined with super feet and legs on 89. The great production and good feet and legs are also the strengths of VR Redfox. Many strengths of Redfox mean in practice good health and fertility, none of these indeces is below 100. He is also especially good in youngstock survival where he ranks 111.

aAa: 423 Cappa Casein: BB Beta Casein: A2/A2

VR Hilbert

VR Haltia x A Linné X R Alfa

Much milk with high speed

VR Hilbert

VR Hilbert is an Embryo Transfer (ET) calf, a half sib to VR Fonseca and VR Fontain.

The grand dam of this sire is also the dam of VR Cigar. The A Linné cow has been flushed three times and has given a lot of good bulls and heifers. She had a high classification and had good components in milk: 4.75% in fat and 3.83% in protein. A Linné was one of the most popular proven bulls at home markets some years ago.

Hilbert is a milk volume sire with very fast milking speed without lowering udder health. He is average in size, nice in feet and legs and very good in udder conformation. The best traits in his udder conformation are the attachments: fore udder 118 and rear udder width 114.

aAa: 243 Cappa Casein: AB Beta Casein: A2/A2

VR Viper

VR Vilde x A Linné x Huseby

A high component pedigree

VR Viper

The dam of Viper has an average of 9,805 kg milk with high components, 4.9 % fat and 4.0 % protein that means 11,310 kg ECM.

The MGD by Huseby, was a productive cow with an average of almost 9,500 kg during four years and eight months, 10,552 kg ECM. She had six calves on five lactations and her dam, by B Jurist, had the same, six calves and five lactations, with a production average of 9,550 kg milk, 4.4 % fat and 3.6 % protein, 10,130 kg ECM. Joakim Fjägers, Sweden, is the breeder of Viper.

Viper is a high component sire with great udder health. He is average in size with excellent udder conformation.

aAa: Cappa Casein: AA Beta Casein: A1/A2

Sires in focus

VR Vendi

VR Viro x VR Enox x Sauli

Great fertility and health

VR Vendi

The breeder of VR Vendi is Iso-Ahola farm in Finland. VR Vendi has an average size and his great health traits will give daughters that also last long in herds.

His dam Kaneli is an average cow in the 170 cow herd but the grand dam Inkivääri shines more: yield in third lactation 12,000 kg and classification EX93. The cow family backwards is also prominent: five generations have milked over 50,000 with average lactation over 10,000 kg.

VR Vendi is a great production sire with average components. He is positive in all fertility and health traits.

aAa: *Cappa Casein: AA* *Beta Casein: A1/A2*

VR Niki

Nora Prästgård x Peterslund x Kelli

Outstanding, progeny tested sire

VR Niki

VR Niki's dam Upura was a great producer, the best yield being 15,500 and lifetime production 68,000 kg.

Her Nordic Total Merit (NTM) is still +20 with good last classification. In addition, grand dam Saturnus was also a super producer with lifetime yield of 68,000 and best lactation being over 14,000 kg. The breeders are Heikki and Tuula Kurkinen, Finland.

VR Niki has over 1,000 daughters in his progeny proof. His strengths are health traits, being positive in all of them.

aAa: *Cappa Casein: AA* *Beta Casein: A2/A2*

VR Elix

VR Enigma x Buckarby x R David

Excellent calving ease sire

VR Elix

VR Elix is out of the same flush as the full brother VR Elux. The feet and leg quality of Elix comes from great bone quality and perfect set of legs.

The dam has had several flushes with good results. VikingGenetics also has two flush contracts for two daughters of this dam. The breeder of the bull is Stakkehavegård in Denmark.

VR Elix is a high component and calving easy sire combined with excellent type and management traits. You do not often see these high component indeces.

aAa: 423 *Cappa Casein: AB* *Beta Casein: A2/A2*

TREATING SYMPTOMS IS ONE WAY,

FINDING THE CAUSE IS THE SUSTAINABLE WAY!

Thanks to the unique Nordic registration system, with strong focus on health traits, you will get healthy cows and a profitable business when using sires from VikingGenetics.

VIKINGGENETICS®

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