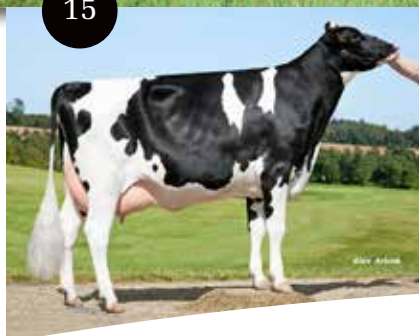


More accurate hoof health breeding values

page 7



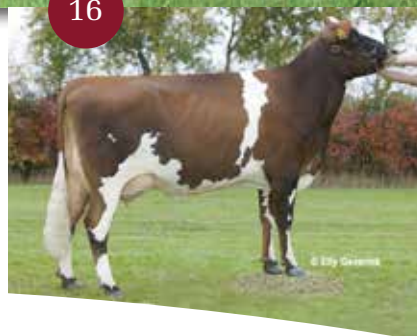
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16



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By sales manager Sara
Wiklert Petersson

VikingGenetics - best for economy and longevity

In this issue of VikingNews there is a comparison between VikingHolstein and other Holstein populations in the world. If we look at the total merit index (NTM) and longevity, the picture is clear – VikingHolstein has far higher level - and the same goes for the other two breeds. All cattle breeders in the Viking area can proudly say that they have contributed to this – and take advantage every single day.

The global trend in breeding is a healthier and more fertile cow. Therefore, our product gains global popularity, as many dairy farmers demand a cow that is healthy and fertile. With genomic selection, the speed of genetic gain is higher than ever before – and the NTM combines all the economic traits into one.

Still the goal is a cow that can produce lots of quality milk and stay healthy year after year. We recently got a photo of a Viking bred cow in Argentina with a lifetime production over 112,000 kg and 12 lactations - that is excellent in a pasture-based system. She was the second best cow in the region with 50,000 primarily Holstein cows and herself being a VikingRed.

Another Viking customer in Spain says that having 100% Viking cows in the barn, life quality has improved significantly, due to less problems with his cows – and less work. That is the cows we like and that is the type of cows we aim for in VikingGenetics.



vikingnews

LAYOUT AND PRODUCTION: vahle* nikolaisen.

PHOTOS: Alex Arkink, Elly Geverink, Elisabeth Theodorsson, Tiina Tahvonen and employees by VG.

COVER PHOTO: DJ Zuma daughter from Juulsgård, Denmark. Photo: Alex Arkink.



Contents

MAGAZINE NO. 04 | DECEMBER 2015 | VOLUME 7

Törlan combines top genetics and ProCROSS

Bengt Svensson & Ulf Person own and run the Törlan herd in Sweden. They do cross breeding for a part of their Holstein top herd with VikingRed and Montbeliarde. This fits well to the conditions for the farm with much pasture.

Page 4

VikingGenetics owns more and more heifers

VikingGenetics owns an increasing number of heifers from dairy breeds. We primarily buy heifers from herds that do not wish to do the flushing themselves - or from organic herds where it is not possible to flush. We do 2-3 flushings in heifers and maybe Ovum-Pick-Up to ensure higher amount of progeny.

Page 5

More accurate hoof health breeding values

The new hoof health genetic evaluation introduced by NAV in November 2015 improves the reliability of the hoof health breeding values for especially cows.

Page 7

Norwegian dairy farmers prefer Holstein and Jersey

In Norway, the majority of the cows are the local red breed NRF. However, more and more Norwegian cattle breeders prefer Holstein and Jersey cows in their herds.

Page 12

VikingHolstein – much more than Holstein

Is the VikingHolstein cow like other Holstein cows in the world? In brief: no. The VikingHolstein cow is healthier, more fertile, calves easier and better for economy and longevity.

Page 14

vikingnews

OPU in VikingGenetics	6
Frequently asked questions about breeding	6
More beef on dairy cattle	8
Around the VikingWorld	9
News about VikingHolstein	14
News about VikingRed	16
News about VikingJersey	18
Sires in focus	19

Törlan combines top genetics and ProCROSS

Bengt Svensson & Ulf Person own and run the Törlan herd in Sweden. They do cross breeding for a part of their Holstein top herd with VikingRed and Montbeliarde. This fits well to the conditions for the farm with much pasture. Besides the milk production, they also breed bullocks and lambs.

Törlan made a strategy plan with focus on increased profitability. A part of this strategy is to inseminate the 10-15% poorest animals with Limousine and the next 30% with VikingRed (VR) and Montbeliarde (MO). The rest 55-60% purebred animals are inseminated with the best Holstein bulls. In this way the genetic progress in the farm is much higher and the profitability increased.

They do genomic test for all heifers, and based on the results of these, it is decided which animals to be used in the purebred breeding scheme, and which to be crossed with VR/MO in the ProCROSS concept.

First cross heifers calve in December

The first ProCROSS animals (HOL x VR and HOL x MO) will calve by the end

of the year. The animals will then be inseminated with the third breed on the ProCROSS concept. All heifers that are inseminated with Montbeliarde, will be inseminated with sexed semen to avoid too large calves. The 3-way crosses will be good as a buffer. If they have surplus of heifers, they can be fed up for slaughter, and if not they will be part of the milk production.

Top genetics from many years' breeding work

Switching over to 100% ProCROSS will be relevant for the herd. "We have always been interested in breeding and will continue with that. But taking this step will give us even better animals for breeding in future since we only use the very best for recruiting". At Törlan they also work with ET and have just

Facts Törlan

- 270 Holstein cows
- 12,135 kg ECM
- Calving age 24 months
- Calving interval 12.2 months

had the flush contract for the third heifer. "A flush contract is necessary to do flushing", Bengt says.

Select bulls by NTM

Every two months a new breeding plan is prepared in order to always use the newest bulls. When selecting the bulls for the purebred animals, it is first and foremost NTM that is important. "If they have high NTM then they are also good for health, and that is important", Bengt says.

It will be interesting to follow the development at the Törlan herd – it will not be slow! On the wall in the lunch room is a board with the goals motivating the herd:

- We will have fun
- We will make money
- We will have our vacation
- We want to create an attractive workplace

Actually, the goals are pretty obvious and simple, but when they are visible, you will be reminded about them every single day... ●



Bengt Svensson crosses a part of his Holstein top herd Törlan with VikingRed and Montbeliarde.

VikingGenetics owns more and more heifers

VikingGenetics owns an increasing number of heifers from dairy breeds. We primarily buy heifers from herds that do not wish to do the flushing themselves - or from organic herds where it is not possible to flush. We do 2-3 flushings in heifers and maybe Ovum-Pick-Up to ensure higher amount of progeny. With genomic selection, the heifers are as important as the bulls, as they obtain the same reliability on their EBV.

VikingHolstein

In VikingHolstein, VikingGenetics owns app. 20 heifers at present and have 50 heifers included in the 2016 budget. Table 1 shows pedigree, index and ranking of the youngest heifers owned by VikingGenetics. A fine list of heifers with NTM from +32 to +41 that will contribute to the future genetics in VikingGenetics.

VikingRed

At present, VikingRed owns app. 75 heifers in Denmark, Sweden and Finland. The heifers have a large variety of pedigree for sires and dams, and are among the highest ranking sons when it comes to NTM by the relevant sires. Table 2 shows examples of some of the young heifers owned by Viking with NTM between +29 and +32.



The Finnish heifer La Cumparsita (Offie x D Ole) with gNTM +33 is owned by VikingGenetics and is in our barn in Hollola in Finland.

VikingJersey

VikingJersey does not yet own any heifers. At present, we are in contact with cattle breeders and try to convince them to flush or sell their high index heifers. We expect to buy the first heifers in November and have them flushed in Denmark. ●

Table 1. The youngest Holstein heifers owned by VikingGenetics

Born	Country	NTM	Ranking	Sire	MGS
31.05.2015	SWE	+41	4	Balisto	VH Salomon
28.11.2014	SWE	+32	3	VH Gavin	VH Rabaz
04.11.2014	FIN	+38	1	VH Redwood	Törlan
28.10.2014	SWE	+33	1	VH Booth	D Limbo
05.10.2014	DNK	+36	3	Fageno	D Obo
24.09.2014	FIN	+34	1	VH Scout	VH Grafit
11.09.2014	SWE	+36	1	VH Gregor	D Orange
08.09.2014	FIN	+33	1	Offie	D Ole

Table 2. The youngest VikingRed heifers owned by VikingGenetics

Born	Country	NTM	Ranking	Sire	MGS
24.12.2014	SWE	+30	1	VR Bilbo	Record
17.12.2014	FIN	+30	2	VR Gallas	VR Fergus
25.03.2015	SWE	+31	1	VR Helix	G Edbo
06.01.2015	DNK	+31	2	VR Porter	VR Fergus
15.01.2015	FIN	+29	1	VR Rankin	VR Fergus
17.01.2015	FIN	+28	1	VR Saarni	VR Tagi ET
14.05.2015	SWE	+29	2	VR Uudin ET	V Föske
15.06.2015	FIN	+32	1	VR Vimpula	VR Fimbe

OPU in VikingGenetics

It is important to use the best females in the breeding scheme and in this way optimize the genetic progress. Therefore, we do embryo transfer (ET) in the best females from the individual breeds so they will parent more progeny. In ET, the donor will be treated with hormones so that

she will release more eggs. The donor will be inseminated and on the eighth day, the embryos will be flushed out and transferred to a recipient/surrogate.

As a supplement to ET, it is now possible to do **OPU (Ovum Pick Up)** and **IVF (In Vitro Fertilisation)**. With this method, unfertilized eggs are removed from the donor, and fertilization and culture in test tube (In Vitro). The fertilized eggs are then transferred to a recipient/surrogate. OPU can also be done in pregnant animals. But then the method is far more complicated and costly than conventional ET. Currently, VikingGenetics is working with OPU trial, and in Finland we have a two-digit number of pregnancies and have three pregnancies in Denmark.



What is OPU and IVF?

In OPU (Ovum Pick Up) unfertilized eggs are taken out from the ovary on the donor animal, and this can also be done in very young and pregnant animals. The fertilization of the egg with semen and culture to embryo is in test tube (In Vitro Fertilisation – IVF). The same method is used in human when treating infertility.

OPU might become more widespread than at present, but also in future it will only be a supplement to conventional ET. ●

Frequently asked questions about breeding

Several have asked good and relevant questions to us, and in the following Head of Breeding department, Lars Nielsen will answer a couple of them.

Lars Nielsen.



Genomic reliabilities for the same traits vary quite a lot between the countries/areas. Are there any plans for an international standard for calculation and publishing genomic reliabilities?

Lars Nielsen: “Unfortunately we do not yet have an international standard regarding genomic reliabilities. It means that the single country or evaluation system can decide exact-

ly how and what to publish. Today it seems like genomic reliabilities are more a marketing tool than a true value of the quality of indices. ICAR is working on creating international standards – and hopefully they will be published soon.

Why do cows with high NTM not always have the herd's highest production?

Lars Nielsen: “NTM contains many traits where production is the single trait with highest weight. In general we see a high

correlation between production and NTM on cows. But a cow being average on production can get a high NTM if she, at the same time, is very high on other important traits like fertility and mastitis. Especially if she is genomically tested so these traits have a higher reliability and therefore can move longer away from average.

If you have a heifer with high NTM, it does not necessarily tell you that she will be high producing – even though chance is good. 50% of heifers will be positive mendelians and 50% negative mendelians. If you combine a bull and a cow – both with 120 in production index – offspring will get an index of 120. But in reality 50% will be below and 50% higher than 120. Some can even be below 100 – like some can be over 140. If you want to know more about the mendelian terms – we recommend you to make a genomic test where you get a much better prediction of true breeding value compared to parent average on all traits in NTM including production. ●

More accurate hoof health breeding values

By Emma Carlén, Anders Fogh and Terhi Vahlsten (NAV/Växa/Seges/Faba)

The most important change when a new hoof health genetic evaluation was introduced in NAV in November 2015 is that the reliability of hoof health breeding values for especially cows are markedly improved.

The main reason for this is that published cow breeding values are now based also on their own hoof recordings and not only on pedigree information which was the case previously. Other improvements in the evaluation are updated genetic parameters and a new method for reliability calculation. The latter implies that reliabilities for bulls drop slightly compared to previously. Also data quality and editing have been improved.

Higher reliability for genomic animals

One ongoing process in NAV is to change evaluation for all trait groups to models where the breeding values for cows also include own performance. Cows can then be in the reference population behind the genomic breeding values. In this way it is compensated for the testing of fewer bulls in future

For hoof health the development work with including cows in the reference population has not yet been made. This will be at a later stage.

EBV for hoof health can change

This new information and the increased reliability in cow breeding values for hoof health imply that cow breeding values change more than usual. The correlation between hoof health index EBVs for cows in August 2015 and in November 2015 is around 0.85 while the corresponding figure for bulls is around 0.95 - slightly lower for Jersey.



Leading in hoof health

The Nordic countries, have been pioneers on registration and genetic evaluation of hoof health. The breeding value evaluation today includes seven different hoof disorders recorded in the first three lactations. Traditional breeding values (EBV) based on registration from hoof trimmers was introduced in Sweden already in 2006 and in NAV in 2011. Last year genomically enhanced breeding values (GEBV) were included. ●

Improved results with new X-Vik



Since 2014, VikingGenetics has used a new method and a new extender in the production of sexed semen. The pregnancy results with this new method – called Ultra – have improved significantly. The difference for non-return rate 56 days (NR56) between conventional semen and sexed semen is only 6.6% with the new method compared to 10% with the old method. ●

More beef on dairy cattle

During the past four years, the use of beef breed semen for crossing in dairy cattle has more than doubled in the three Viking countries from 100,000 to 225,000 doses.

In 2011, the use of beef breed semen in dairy cattle was app. 100,000 doses beef breed semen. Since 2011, the use has increased significantly in the whole VikingGenetics area, and the latest 12 months the use of beef breed semen in dairy cattle has been 225,000 doses – this is more than a doubling in four years.

In Denmark, Blue cattle accounts for the majority of this increase. 87,000 out of the 111,000 services with beef breeds in dairy cattle were with Blue cattle bulls.

In Finland, the current use is 88,000 doses. The use of Blonde has increase the most to 32,000 services, so the breed now accounts for app. a third of the beef breed semen used in dairy cattle. Then follows Limousine with 25,000 services and Angus with 17,000 services.

In Sweden, 29,600 services with beef breed semen in dairy cattle were made. Hereford is the most used breed – with 7,000 services followed by Charolais, Simmental, Limousine and Angus with 5-6,000. The increase in the use of beef breed semen was not as pronounced in Sweden as in Finland and Denmark.

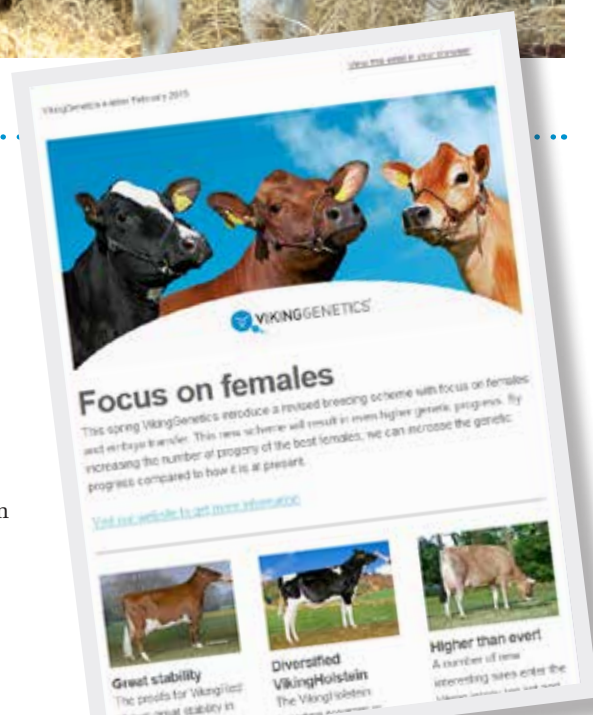
In VikingGenetics we expect the development with higher use of beef breed semen to continue. Therefore, we will have more focus on this development in our breeding and selection scheme for the beef breeds so that we can continue the delivery of top quality beef breed semen at competitive prices. ●



During the past 12 months, there have been 88,000 services with Blue cattle in Denmark – corresponding to 80% of all services with beef breed bulls in dairy cattle.

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To get the latest news from VikingGenetics and stories from around the VikingWorld to your e-mail, go to www.vikinggenetics.com/newsletter and subscribe to our mailing list. You can find the link to the subscription form also from the start page on left hand side menu. ●





Buckarby daughter by the Avendaño family.



Turandot daughter by Elisabeth Avendaño.

Success with VikingRed in Argentina

The VikingRed breed is gaining popularity in Argentina. Elisabeth Avendaño and her son has a pure bred herd with 350 VikingRed cows and sends us this story of success.

Our herd of VikingRed cows stands out among the neighbors for the low cell counts and for very few cases of mastitis. This does not mean we never experience mastitis, but the clinical cases are very few and SCC is normally between 200,000 and 250,000 - in spite of quite a high percentage (10%) of our cows having seven or more lactations.

Here in Argentina cows are routinely treated with intra-mammary antibiotics at dry off. Thanks to the healthy udders of our cows, we only have to treat 1/5 of our 350-cow herd, which are the ones with higher cell counts or those who might have had mastitis during the last lactation. When cell counts are regularly under 100,000, we don't treat them at dry off.

Again, thanks to their natural fertility, easy calvings and healthy udders, many cows stay on in the herd and this enables us to sell around 50 pregnant heifers each year and 80

have incidentally been exported to Bolivia. We experience that VikingRed really has a huge advantage in the selection for mastitis resistance. This is a trait that many farms here really want to improve, so VikingRed could be the obvious choice.

The Buckarby daughter on the photo is by a Hällom cow and she had her first calf - a heifer by Leroy only a month ago. She just had her first milk recording with 25.5 liters and only 25,000 somatic cells. As you know, being mostly pasture based, our production level is not as high as in TMR systems and our cows generally do not reach their full potential until third or fourth lactation. And from there on they just continue producing - and make money for us.

The other photo is a daughter of Turandot also in her first lactation. The dam is an Andersta daughter and had a bull calf by Buckarby. Her production is 24 liters with 4.07% fat and 3.61% protein and her cell count is as low as 2,000! ●



Two VikingJersey sired class winners in Space

VikingJersey sires were well presented in Space show in Rennes, France. There were three Jersey classes in this expo in September and two class winners were sired by Viking bulls.

The winner of the class of cows in 3rd and 4th lactation was Flash, five-year old cow which is sired by DJ Plys. The MGS is also from Denmark, Q Hirse. One year earlier Flash was the young champion in the national Jersey show.

The winner of oldest cows was Q Impuls daughter Caleche. The pedigree is very nice, MGS is Q Zik so this combination works very well in the show ring as in the barn and milking parlor. This eight-year old cow is beautiful and in excellent condition and was selected as a champion this year at the annual Jersey show in Chemillé. Both these cows are coming from Pierre Yves and Aline's herd called EARL LA LIMONIERE. ●



Caleche (Q Impuls x Q Zik) was winner of oldest cow class at Space show 2015.



The winner of the class of cows in 3rd and 4th lactation was Flash (DJ Plys x Q Hirse).



Fiorenzo enjoys VikingHolstein and ProCROSS

Fiorenzo Albini in Italy is very happy with VikingHolstein and ProCROSS in his herd of 65 cows. The new way of breeding means less problems, better life - and higher income.

The Albini family had a traditional Italian Holstein herd dominated by North American genetics. But too many problems with fertility, health and hoofs made them look for better alternatives. They chose the ProCROSS 3-way cross breeding system that is based on VikingRed, Montbeliarde and Holstein. VikingGenetics has been breeding for health, fertility and high production/components for decades, so it is obvious to use VikingHolstein in the ProCROSS program. ●



Fiorenzo Albini with three Rakuuna daughters.



Fiorenzo Albini with ProCROSS calves.



Easier life with cross breeding

By Poul Bech Sørensen

The Beamond family in Scropshire, UK, find life easier and business better with their trouble-free cross bred cows.

“We were initially a British Friesian herd”, the sister and brother Jayne & Howard Beamond say. Together they run a typical British dairy farm with 200 cows and 600 acres in Scropshire west of Birmingham. “Some years back we decided to chase more milk, so we crossed our Friesians with Holstein. The first crosses were good, so we went further down the Holstein route. However, some of the Holstein cows just couldn’t compete with the system.”

“Therefore, we were looking for something that was stronger and more forceful. We finish every animal on the farm and with Holstein, we lost the carcass. The Holsteins were producing over 9,000 liters on average, but because we are block calving we then couldn’t get them back in calf”.

“When milk prices are low, you survive by having the low-cost ProCROSS system”

JAYNE & HOWARD BEAMOND

Looking for hybrid vigor and stronger animals

“The main driver to start cross breeding was to get the hybrid vigor and stronger animals. We really like the ProCROSS cross breeding concept with Montbeliarde, VikingRed and VikingHolstein. The three breeds give maximum hybrid vigor and bring us:

- Lower cell count – less mastitis
- Better fertility & general health
- Easier calving
- Better carcass classification
- Stronger feet

“It is definitely fair to say the udder conformation is very good on the ProCROSS cows, our cell counts have gone

down, calving problems have gone down dramatically and we hardly ever have milk fewer. We are impressed with the way they held the production through the lactation even if lacking grass in the summer and feed them poorly. One summer they were fed on barley straw and molasses because we had no grass, and they continued to milk, which a Holstein would never have done”.

Lower vet and feeding costs

The vet costs have dropped a lot and in the winter we are having a weekly vet visit – normally just for pregnancy scanning. Apart from that, we hardly ever need to call a vet. Life is just easier with our ProCROSS cows as they don’t have to be looked after and protected like the Holsteins”.

“We are in a learning process and for a couple of years we were probably overfeeding them as we were feeding them like Holstein. Now we know not to push them with expensive feed in the beginning of the lactation (winter) as we will get the milk of the grass in the spring and summer. This means we

Facts Beamonds

- 200 ProCROSS cows
- 600 acres – grass and cereals
- 20% replacement rate
- 8,000 kg 4.1% fat 3.4% protein
- Two full-time employees
- 24 months calving age

can reduce our feed costs by not feeding to a peak and we are getting a flatter lactation curve”.

“We are very pleased that we started crossbreeding eight years ago, because we would not have been able to cope with Holsteins under the current low milk prices. When you obtain a high milk price, you can pay for the high costs that come with having Holsteins, but when milk prices are low, you survive by having the low-cost ProCROSS system”, Jayne and Howard finish off. ●



Tony & Jayne + Howard Beamond enjoy the easier life with their ProCROSS cows – and a better bottom line.



Norwegian dairy farmers prefer Holstein and Jersey

In Norway, the majority of the cows are the local red breed NRF. But more and more Norwegian dairy farmers prefer Holstein and Jersey cows in their herds.

In September, Rune Bauge, Undheim in Norway, took a new barn for 60 Jersey cows and young stock in use. The farm has had Jersey cows for at least 50 years – and it pays off. To the question why he chose Jersey, Rune says that it is primarily due to the improved economics in Jersey cows. Jersey milk is paid 76 Euro cent / liter, which is 21 Euro cent more than the price for NRF/Holstein milk.

In Norway, a dairy herd has a maximum quota of 900,000 liters, but since the quota is liter, it is possible to produce more kg ECM with Jersey than with NRF cows. At the same time, you can have more cows per hectare, and in many areas in Norway, land is a limiting factor to the production.

"The good feed efficiency and easy temper of the Jersey cows are another advantage" Rune points out. "In addition, they work well in the Lely A4 milking robot and after three weeks only two cows need help. They find their own way to the milking, and we already have 2.5 times of milking per day".

Due to the good economy in Jersey cows, the demand for Jersey livestock is high, and the Norwegian Jersey Association has a two-year waiting period for Jersey livestock in their sales list. The prices for heifers in calf are 1600-2700 Euro. Due to veterinary regulation, import of live cattle to Norway is not possible so the only option to increase the herd is import of embryo and use of sexed semen. VikingGenetics is the only supplier of Jersey semen in the Norwegian market, and Viking also offers special advising in Norwegian Jersey herds by breeding advisor Peter Weinkouff.

In 1999, Steinar & Reidunn Todnem, south of Stavanger in Norway, started crossing their NRF herd with Holsteins. Since then they have used VikingHolstein sires. "During the latest 12 months, our 75 Holstein cows have produced 11,100 kg milk in average. At the same time, the quality of the udders has improved significantly, which is a huge advantage in a system like ours with milking robot", Steinar points out.

The breeding goal is directed towards optimal economy and function in the free-stall barn. "We use breeding advisor Peter Weinkouff from VikingDanmark, who has huge knowledge on Holstein", Steinar explains. "Peter visits us once a year and uses a computer based mating program – "Vik-Mate®". This program takes our breeding goal into account and at the same time keeps the inbreeding at an acceptable level".

"In general, we select bulls based on NTM, which has high weight on health, fertility and hoof health – all important traits in our herd. Furthermore, production and functional traits have high focus. Unfortunately, Geno is not a member of NAV, but we have been promised that we can have NAV breeding values for our animals. In this way, we can compare them with other Holstein animals in the Nordic countries."

Steinar and Reidunn use sexed female semen (X-Vik) systematically for the first insemination in heifers and cows in good heat. "The prices on Holstein livestock and heifers in calf are good. Therefore it pays off to use sexed semen, and we are happy with the pregnancy results", Steinar explains. ●



Torbjorn Garborg successfully uses VikingRed in his NRF herd. Here he is with an R David daughter.



In 2015, Rune Bauge, Undheim, inaugurated a completely new barn for his 60 Jersey.

Per Aadne Skårland is the chairman of Norwegian Jersey. There is a two-year waiting period for purchase of female Jersey animals in their sales list.



Per Aadne has 70 Jersey cows producing 10,800 kg ECM with 6.50% fat and 4.20% protein.



Hanne Varhaug & Arild Helland have chosen Holstein over NRF.



Kristian Skretteland finds it fantastic to work with the Holstein breed.



Miriam & Ove Morten Sor-Heim, Tronhaug, never regretted that they switched over from NRF to Jersey.

Kåre Sigurd Undheim has milked Jersey cows for 45 years. The 40 Jersey cows in the herd produce 11,400 kg ECM in average with 6.30% fat and 4.10% protein.



Reidunn and Steinar Todnem, Norway, have 75 Holstein cows in their new barn.



Sigmund Rangen is the chairman of Norwegian Holstein with huge progress of members these years. Here he is together with his daughter Lene-Iren.

VikingHolstein

– much more than Holstein

Is the VikingHolstein cow like other Holstein cows in the world? In brief: no. The VikingHolstein cow is healthier, more fertile, calves easier and better for economy and longevity.

VikingGenetics has had high focus on the cost reducing traits like udder health, hoof health, female fertility and calving ease for many years. In breeding, you get what you are looking for, and a comparison with the genetics in other countries shows that VikingGenetics' sires are superior for these traits at present.

The figures in the following tables come from the neutral index calculation made by Interbull in August this year, who compared the average of daughter proven bulls in the biggest Holstein populations. This is a fine way to see the differences in the genetic levels from the individual countries.

Health and reproduction in world class

Table 1 shows five significant Holstein populations on global level and their level for the health and reproduction traits. It is clear that the focus that we have had on these important traits for many years, has given VikingHolstein a considerably higher genetic level.

Not at the expense of production

It would be obvious to think that the high genetic level of health and reproduction for VikingHolstein is at the expense of the production. However, this is not at all the case. As table 2 shows, the level of the weighted production index is the highest for VikingHolstein which primarily is due to protein and

secondary to fat. Especially in North America, there is more focus on kg milk and less weight on components.

VikingHolstein best for economy and longevity

If we look at the total merit index (NTM) and longevity, the picture is clear – VikingHolstein has a far better

average level. All cattle breeders in the Viking area can proudly say that they have contributed to this – and take advantage of this every single day.

How can we use this knowledge?

Most importantly, these results can be used to document that the genetic level for VikingHolstein is high. The hoof

Table 1.
Genetic level for health and reproduction in five large Holstein populations

Trait	Viking	USA	Canada	Holland	Germany
Female fertility	101	98	94	97	95
Birth index	101	96	96	97	95
Calving ease	102	102	98	98	98
Udder health	102	100	96	97	96

Table 2. Genetic level for production

Trait	Viking	USA	Canada	Holland	Germany
Production index	105	102	102	103	102
Milk	103	106	105	102	104
Fat	103	104	104	102	102
Protein	105	102	101	103	102

Table 3. Genetic level for economy (NTM) and longevity

Trait	Viking	USA	Canada	Holland	Germany
Longevity	106	102	96	98	96
Economy (NTM)	8.6	3.0	-2.8	0.2	-2.4



Daughter by VH Fanta from Skovgård, Them.



The owner of the largest herd in Chile with 6,000 Holstein cows has found that healthy and fertile cows with high components lead to better economy. Therefore he selects Holstein bulls from Viking.

health trait that is a problem in many Holstein herds is not included in the comparison since most countries do not register this trait. We have done this for almost 10 years in the three NAV countries now. All Viking bulls have hoof health index making it possible to improve this trait through breeding.

The global trend is a healthier and more fertile cow. Therefore, our product gains global popularity as many dairy farmers demand a Holstein cow that is healthy and fertile.

In the picture above is the owner of the largest herd in Chile with 6000 Holstein cows – so far only used North American genetics. However, he has concluded that healthy, fertile cows with high components give better economy – and now Holstein sires from VikingGenetics are his obvious choice. ●



The VikingHolstein cow is healthier, more fertile, calves easier and better for economy and longevity.

Gunnarstorp – standing the test of time



Gunnarstorp photographed at the age of 13½ years in front of the barn at the Skara bull station in Sweden.

Gunnarstorp truly has been standing the test of time and he is now the oldest VikingRed sire in the VikingGenetics barns. He was born in June 2002 by Torbjörn & Ola Johnsson, Gunnarstorp Gård in Sweden. The dam 1131 Eda calved eight times and produced on average 9,400 kg milk with high components; 4,6% fat and 3,7% protein.

9,358 daughters are included in Gunnarstorp's international breeding values from six different countries: Sweden, Finland, Denmark, USA, Holland and Germany. Besides that he has been used in Great Britain and Chile. In total VikingGenetics has exported 116,000 doses outside the home markets.



VR Gobel is Gunnarstorp's best son with NTM +23.

Gunnarstorp keeps a high NTM +15 which makes him attractive in many countries and he is the highest ranking sire born in 2002.

VikingGenetics has 17 sons by Gunnarstorp, and most of them already have breeding values based on daughters. The highest ranking son is VR Gobel with NTM +23. In addition, Gunnarstorp has many daughters who are bull dams and so far VikingGenetics has recruited 55 bulls with Gunnarstorp as maternal grand sire. This guarantees Gunnarstorp high influence on the VikingRed breeding program the coming years.

Gunnarstorp is doing well in all parts of the world with red cows. In the USA he is the highest ranking Ayrshire sire with NM\$ +547, in Germany he is the highest ranking sire in the Angler group with RZG 134, in the UK PLI 502 and in Canada he is the highest ranking sire with LPI 3032. ●

New record with five sons at the daily plan

Only few cows in VikingGenetics get a son on the daily plan – and even less get more sons on the daily plan. A G Edbo cow from Morten Hansen in Denmark beat all records by having her fifth son on the daily plan. No cows ever before have had this many sons on the daily plan in VikingGenetics. Her sons are VR Felipe, VR Faber, VR Barkov, VR Bruhn and VR Rafael. The five bulls have four different sires of sons. ●



Dam of five proven sires in VikingGenetics: VR Felipe, VR Faber, VR Barkov, VR Bruhn and VR Rafael from Morten Hansen, Denmark.

VikingRed best for NTM

The genetic progress can be measured in many ways, but for the cattle breeder high NTM for the newborn heifers is important since it affects the bottom line in future. In Denmark, Seges made an evaluation of NTM for born heifer calves in the period 2000 to 2015 (figure 1). It shows that over the past eight years, VikingRed heifers had the highest NTM across the breeds. The good result for VikingRed is due to an effective breeding scheme, limited use of private bulls and few import bulls with low NTM. VikingGenetics has good breeding schemes for all three dairy breeds with high genetic progress benefiting the VikingGenetics members. ●

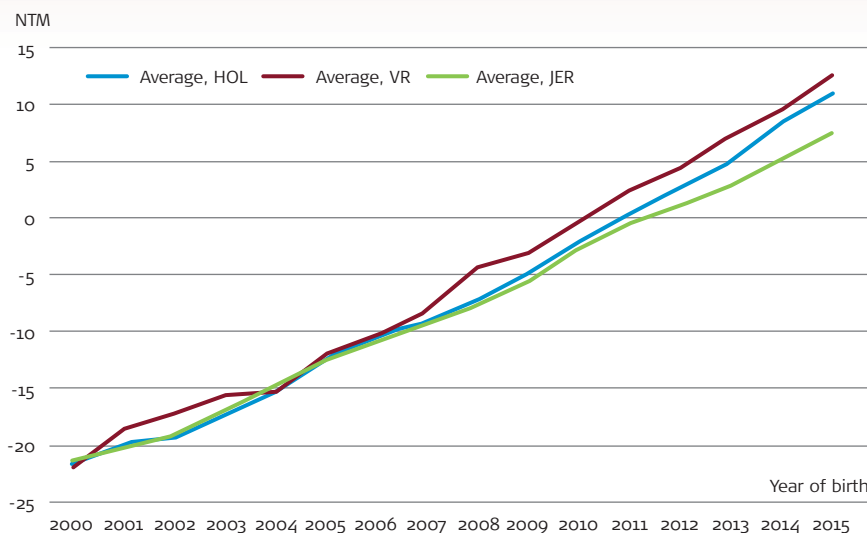


Fig. 1. Average NTM for newborn heifers in Denmark

12,5 months and already on the daily plan

Before genomic selection, the bulls were app. five years old before entering the daily plan. With genomic selection the bulls on the daily plan are much younger. VikingRed has put VR Hel P on the daily plan – only 12½ months old – and he has already produced more than 5,000 doses of semen. ●



VR Hel P - 12½ months old and has already produced 5000 doses of semen.

Changed calculation of index for udder conformation

As per November 2015, VikingJersey has changed its weighting for udder conformation index. As a result of this change, the traits teat length, teat thickness and front teat placement will no longer effect the bull's breeding values while the traits rear teat placement, udder balance and suspensory ligament now have a weighting.

The goal is to have a relatively higher progress for udder conformation in general and for the most important traits like front udder attachment and udder depth. At the same time, we have higher correlation to udder health and longevity, and higher progress for these traits. VikingJersey is very close to optimum for the traits that no longer have weight in udder conformation.

The new breeding values for udder conformation do not reflect the look of the udder as well as previously, and therefore we advise to analyze the bull's way of breeding concerning the traits that you weight the most before selecting a bull.

Like for other breeds the index for hoof health has been improved. Index for hoof health, now due to Jersey heritability, is only calculated for progeny proven bulls. Therefore, the change will have no consequences for the young, genomic bulls. Genomic Jersey sires are expected to have their indexes for hoof health published during the next year. ●

Table 1. The weight of the traits, breeding value udder conformation

Trait	Old weight	New weight
Fore udder attachment	25	20
Rear udder height	5	0
Suspensory ligament	0	10
Udder depth	35	25
Teat length	3	0
Teat thickness	12	0
Fore udder placement	15	0
Teat rear	0	10
Udder balance	0	10

The young VikingJersey bulls are much better

During the past two years, VikingGenetics has invested massively in genomic test of females. Especially for Jersey, this has resulted in a significantly larger reference population and thus higher reliability for the genomic indexes. The higher reliabilities for EBV mean that the young, genomic bulls quickly outdo the older, progeny proven bulls.

Table 2 shows the genetic level of the bulls in our bull stations. The bulls born in 2011-2013 are the ones of which we expect to have the best progeny tests – and those might enter the daily plan again and become bulls for export. The 2014 year group are the bulls that currently are on the daily plan, sires of sons and “budget bulls”. The 2015 year group are the newly purchased bulls that we look forward to using in 2016. ●

Table 2. Bulls in VikingGenetics bull stations, Oct. 2015

Birth year	No. of bulls	Average NTM	Average Production index	Various sires of sons
2015	42	+22,8	116	20
2014	36	+18,8	114	23
2013	21	+17,0	111	15
2012	22	+15,5	110	15
2011	18	+13,2	108	14



Especially for VikingJersey, the massive investments in genomic test of females has resulted in a significantly larger reference population and thus higher reliability for the genomic indexes. VJ Hizzi is the first Jersey top bull born on the small, Danish island Aeroe.

Sires in focus

VH Lemek

(VH Lund x VH Grafit x Rakuuna)

Top of ranking



VH Lemek

gNTM
+41

The number one bull world-wide is VH Lemek – and he is available for you.

He is bred at Ladefoged I/S, Denmark and the VH Grafit dam was genomically tested as heifer and went through the roof and became the highest-ranking heifer at that time. Now she has shown her worth

with 16,400 kg milk and 1,250 kg fat + protein in first lactation. Not a coincidence that she bred the top sires VH Lemek with impressive 135 in female fertility, health indexes from 110 and up and high components. He is average for mammary and needs to be protected in milking speed.

VH Pontos

(Picanto x VH Bismark x D Onsild)

Functionality



VH Pontos

gNTM
+34

VH Pontos is bred at Tronsmark Holstein, Denmark. He is a good example of combining international bloodlines – in this case the German Snowman son Picanto with VikingHolstein genetics.

The VH Bismark dam is high producing with average of

14,000 kg with high components. She is classified VG88 in first lactation.

Health, fertility, production and functionality – these good words describe VH Pontos well.

X-Vik
semen is
available

VH Sparky

(VH Suarez x VH Salomon x T Funkis)

Lifetime production



VH Sparky

NTM
+30

VH Sparky originates from an extraordinary family – a nice VH Salomon daughter as dam, and her dam a T Funkis cow with 120,000 kg of milk in less than 10 years' production. The breeder is Flemming Petersen, Denmark.

VH Sparky is the kind of bull that moves the Holstein popu-

lation in the right direction. Health and fertility being super - especially hoof health at 117, which is a trait of high economic value for most farmers. Besides from this he breeds high production and components. Excellent conformation, but be aware that he makes larger cows than average for a Viking-Holstein.

X-Vik
semen is
available

VH Cosmo

(VH Clark x Router x Oman Justi)

Have you noticed VH Cosmo?



VH Cosmo

NTM
+34

VH Cosmo is a bull you should pay attention to. Being a son of one of the highest daughter proven sires, VH Clark (NTM +22) is definitely a strength, and it is easy to find the footprint from the sire. Cosmo gives you top hoof health that will contribute to economical gain in your herd.

VH Cosmo is bred by Michael Jensen, Denmark. His

dam – a Router (Roumare x Ramos) is a really high-producing cow with an average of more than 1,000 kg fat + protein in first lactation and classified VG87. In addition to the impressive hoof health, you should expect high production, good reproduction and fast milking speed from your VH Cosmo cows.

X-Vik
semen is
available

VH Simon

(VH Sprite x VH Bento x VH Grove)

Homemade is well made!



VH Lemek

NTM
+35

In more than one way, VH Simon is a homemade Viking product. A quick look at the sire line shows VikingHolstein bulls, but also on the female side, he is homemade.

VH Simon is bred in the famous herd of Lisbeth Klinge, Denmark, and so is his mater-

nal grandsire VH Bento – a cow classified VG85 and a production with more than 14,000 kg milk and 1,100 kg fat + protein in her first lactation.

VH Simon has his strengths in female fertility (125), calving ease (112), udder health (113) and mammary in the very top (125).

X-Vik
semen is
available

VJ Hizzi

(VJ Hillum x DJ Izzy x FYN Lemvig)

Exceptional mammary and udder health



Viking Jersey Skovby Hillum Hizzi.
VJ Hizzi.

VJ Hizzi is out of “Skovby Izzy Lissi”, bred by Max Hansen, on the small Danish Island Aeroe, south of Funen.



VJ Skovby Lemvig Anette, MGD of VJ Hizzi, when celebrated for 100,000 kg lifetime production.

The dam has just ended her second lactation, with an annual average of 8475 kg milk with 5.97% fat and 4.25% protein. The maternal grand dam of VJ Hizzi, “Skovby Lemvig

gNTM
+25

Anette” exceeded 100,000 kg milk and an annual average of 10,177 kg milk with 5.20% fat and 3.94% protein in 10.1 years.

VJ Hizzi is a VJ Hillum (VJ Hilde (Q Hirse) x DJ Hulk) and the gene distribution is 68% Danish genes, 26% US and 6% NZ genes.

VJ Hizzi breeds exceptional udders - especially fore udder, rear udder width and udder depth. Udder health, components, longevity, milking speed, type and fertility are also extremely high.

VJ Hizzi is an excellent choice for daughters with a majority of American genes and where mammary and udder health need improvement.

VJ Livius

(VJ Link x DJ Hulk x Q Zik)

Production, feet & legs and super mammary



Viking Jersey Haesinge Link Livius. VJ Livius.

VJ Livius is out of “Haesinge Hulk Hulda”, bred by John Hansen, Funen. The dam is a young DJ Hulk daughter, just ended her first 305 days with 6600 kg milk with 5.65% fat and 4.13% protein. MGD and MGGD are both averaging more than 7100 kg milk annually.

The gene distribution in VJ Livius is 54% Danish, 25% US, 16% Canadian and 5% NZ genes. He combines the best from leading populations world-wide, through bulls Lester (sire of FYN Lemvig) and Legacy (sire of VJ Link).

VJ Livius is an excellent choice for daughters where feet & legs, mammary, fertility and udder health need improvement.

Triple aAa: 423 Cappa Casein: BB JH1 Free
X-Vik semen available

gNTM
+23

VJ Lago

(VJ Land x DJ Jason x Q Zik)

Outcross and overall improver



Viking Jersey Birkelygaard Land Lago. VJ Lago.

VJ Lago is out of “Birkelygaard Jason Solsikke” by Niels Jørgen Olesen, Denmark. The maternal family is known for high production of concentrated milk.

The dam of VJ Lago has an annual average of 7750 kg milk with 6.42% and 4.36%, in her first three years, and the MGD has milked for seven years with an average of 7785 kg milk and 4.18% protein. Next dam milked 7.4 years with an average of 7154 kg milk and 4.26% protein.

VJ Lago breeds high percentages and combines good udder health, fertility and milking speed with longevity, stature and frame.

VJ Lago is an excellent choice for daughters where health, frame, fore udders and udder depth need improvement. Note that there is no DJ Hulk in the pedigree.

Triple aAa: 165 Cappa Casein: BB JH1 Free

gNTM
+23

VR Hjusticia

(VR Hammer x Vret x Gunnarstorp)

The number 1 sire



VR Hjusticia

gNTM
+34

VR Hjusticia remained the number 1 sire in VikingRed with NTM +34. This VR Hammer son was born at Karl-Gustav Karlsson, Sweden. There is a special story behind the name of the bull. The breeder had a long process with authorities to get justice to himself and therefore wanted to name the bull like this.

The dam of VR Hjusticia is a tall cow, 150 cm, with excel-

lent udder and high production of 11,577 kg ECM. The grand dam is still in the herd and has an average production of almost 11,000 kg ECM.

VR Hjusticia is a calving ease sire with very good health and functional traits. He is also on top in feet & legs as well as in udder conformation. He is in X-Vik semen production in Denmark.

X-Vik
semen is
available

VR Borat

(Brick x Alavire x Turandot)

A real Viking



VR Borat

gNTM
+29

VR Borat is a real Viking with his health profile being on top in female fertility as well. His udder health is 116, other diseases 115 and hoof health 109. He also breeds excellent longevity. The dam is a nice first calver classified 82 for feet & legs and 82 for udder and making a high first production year also. The breeder is Matti Hakala, Finland.

X-Vik
semen is
available

VR Rafael

(VR Rankin x G Edbo x R David)

Success breeds success



VR Rafael

gNTM
+28

VR Rankin is a new sire from the most successful VR cow since the introduction of genomic selection. First, she gave VR Felipe and VR Faber, later on VR Barkov and VR Bruhn that are still in use and now we have VR Rafael gNTM +28, the fifth sire in use out of the same dam. Rafael is a good production sire with high components. He also gives easy calvings and top functional traits. Who would guess the breeder? Morten Hansen, Denmark.

VR Hel P

(VR Helix x Nora Prästgård x O Brolin)

Top polled genetics



VR Hel P

gNTM
+27

VR Hel P with gNTM + 27 is a new polled top bull in Viking-Red sired by VR Helix.

The polled dam out of Nora Prästgård has been flushed five times and is now on her third lactation. In the pedigree, the eyes focus on the

third grand dam, a very good Vest Bæk that gave 48 offspring. She is also the grand dam to VR Babylon and VR Pablo. VR Hel P is a high component sire with very good type traits. Breeder is Søren Røndbjerg, Denmark.

VR Tuomi

(Turandot x Record x Ooppium)

Proven reliability

gNTM
+21



Haaralan Kaiku (VR Tuomi)



Haaralan Kaiku by VR Tuomi



Haaralan Kaiku (VR Tuomi) -udder

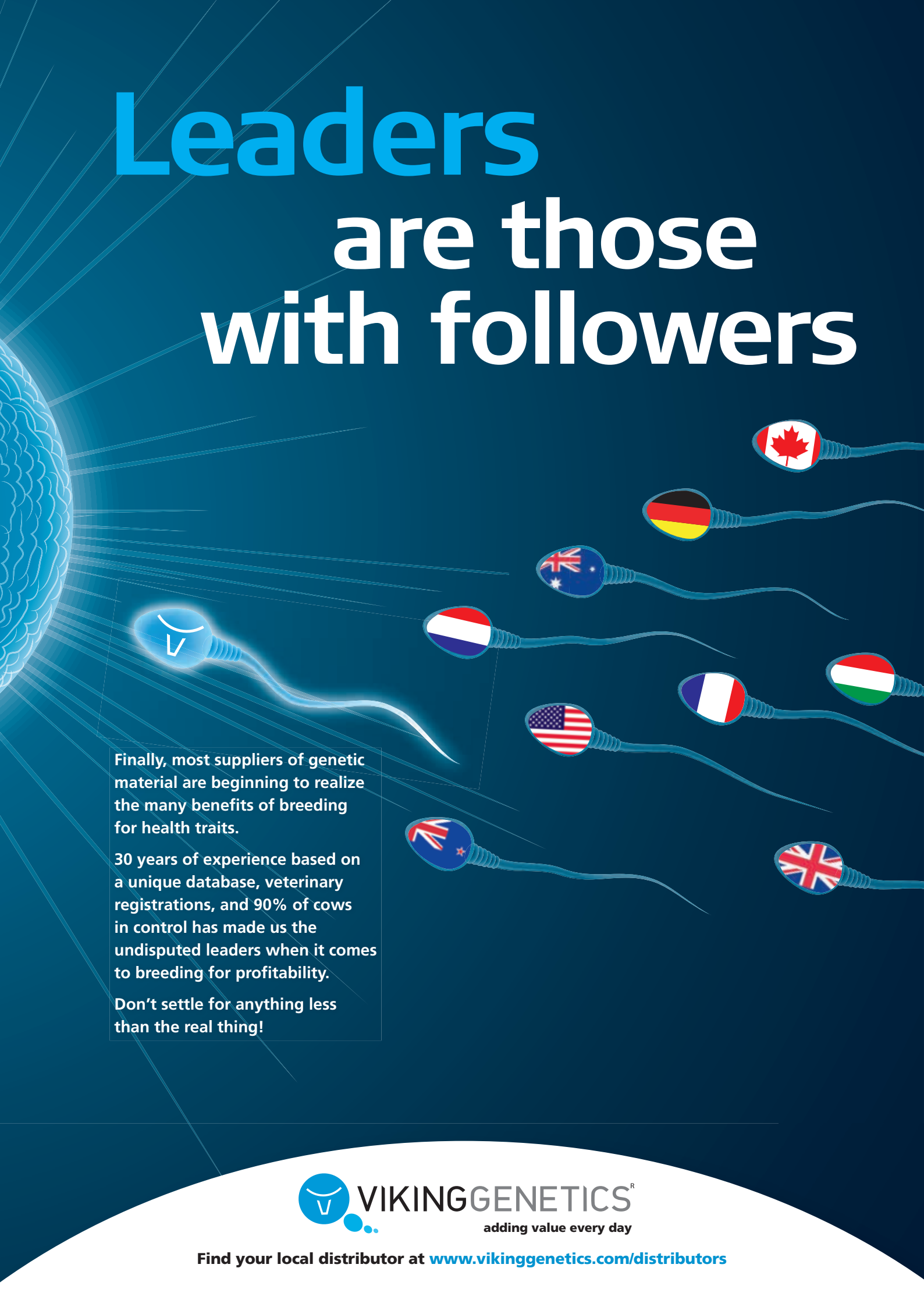
VR Tuomi originates from Asmo nucleus herd. His maternal grand dam entered the herd by embryo purchase. Two female calves were born, one of them Asmo Virna being the grand dam of Tuomi.

There was a time when she had the highest NTM for all females in Finland. She is still in milk in her seventh lactation and has produced more than 70,000 kg milk with com-

ponents 4.7% and 3.5%. She was flushed three times and one of the ET daughters, Apila, is the dam of Tuomi. She had three lactations, total production over 50,000 kg milk, 4.90% fat and 3.70% protein. The best lactation was over 12,000 kg milk, 596 kg fat and 440 kg protein. She has given another male calf to VikingGenetics out of Saxebyn, named VR Saarni. Saarni is today +21 in gNTM.

Tuomi has finally gotten his progeny test result and NTM is +21. He is a good production sire with excellent udder health. Also other health evaluations are very good like the new trait youngstock survival. Udder conformation is of top quality like feet & legs. Daughters are slightly smaller than average with very good longevity.

Leaders are those with followers



Finally, most suppliers of genetic material are beginning to realize the many benefits of breeding for health traits.

30 years of experience based on a unique database, veterinary registrations, and 90% of cows in control has made us the undisputed leaders when it comes to breeding for profitability.

Don't settle for anything less than the real thing!



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