

Red is the new black

Profitable crossbreeding with
VikingRed



Crossbreeding with VikingRed is increasing all over the world

The unique qualities of the VikingRed makes it the obvious choice for the commercial dairy herd of today, demanding efficient cows that can take care of themselves.

When you crossbreed you utilize the benefits from hybrid vigor. Often the traits you like to improve are longevity, fertility and health. Crossbreeding with VikingRed is a perfect choice as the breed has its strength in these areas, due to selection for health and fertility for more than forty years in the Scandinavian countries.



Around the world



VIKING
RED[®]



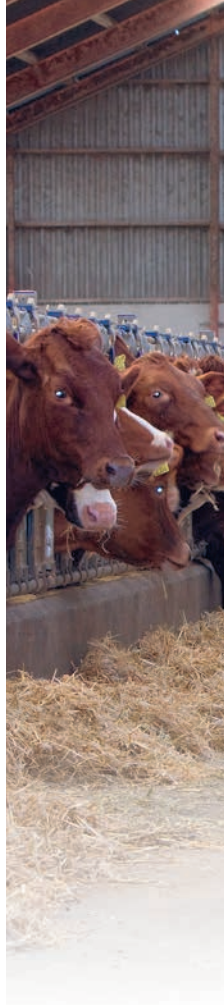
The strongest red breeding program in the world

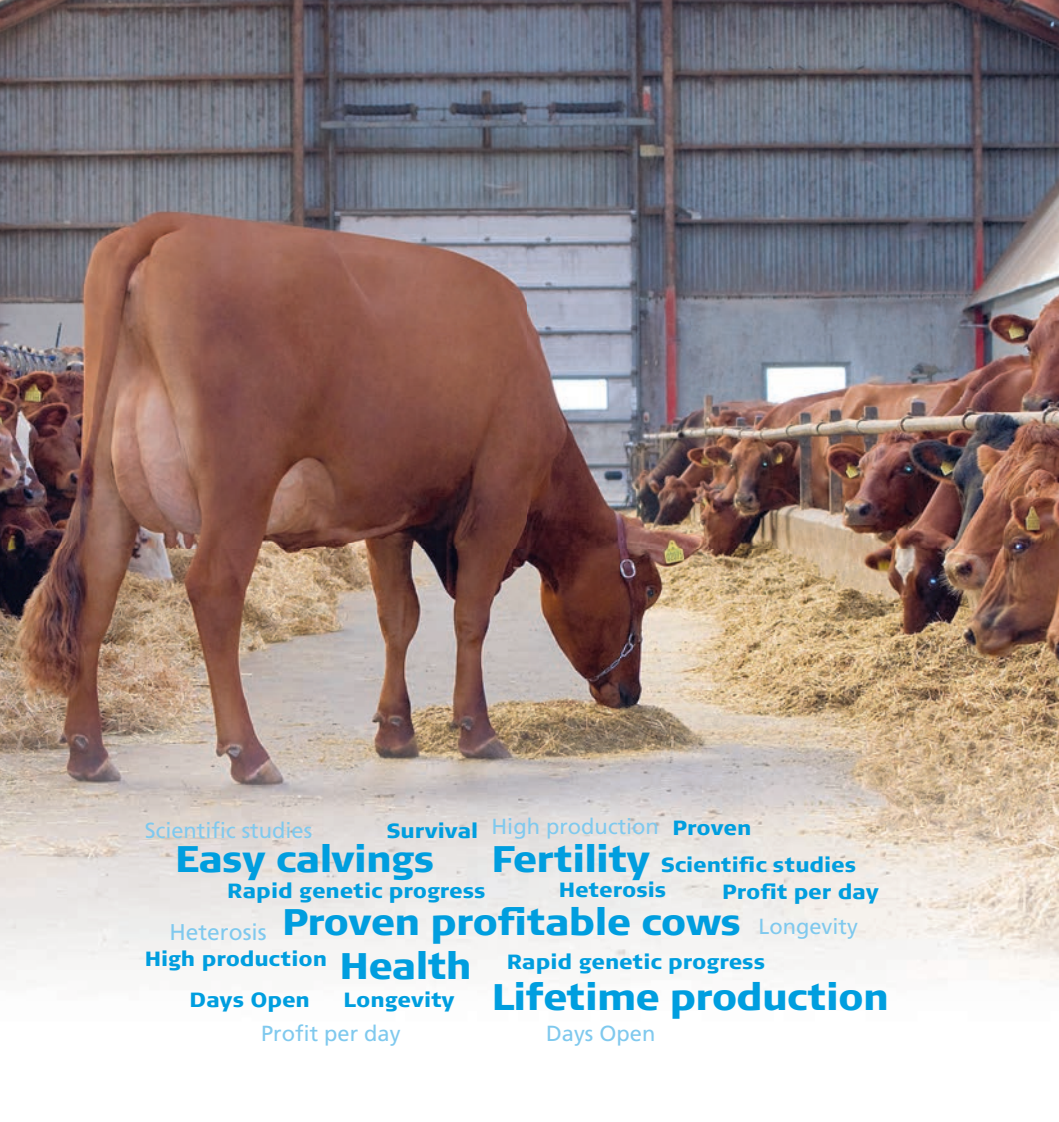
VikingGenetics has the world's strongest red breeding program – VikingRed.

The three very impressive breeds

– Finnish Ayrshire, Swedish Red and Danish Red – share the same selection program and breeding goal: the economic cow. For that reason we list them as one breed – VikingRed.

The total number of VikingRed cows in milk recording in the three Nordic countries is 310,000 and VikingGenetics progeny tests more than 200 bulls annually. Selection is intensive and reliable thanks to genomic testing based on the largest red reference group in the world.





Scientific studies

Survival

High production

Proven

Easy calvings

Fertility

Scientific studies

Rapid genetic progress

Heterosis

Profit per day

Heterosis

Proven profitable cows

Longevity

High production

Health

Rapid genetic progress

Days Open

Longevity

Lifetime production

Profit per day

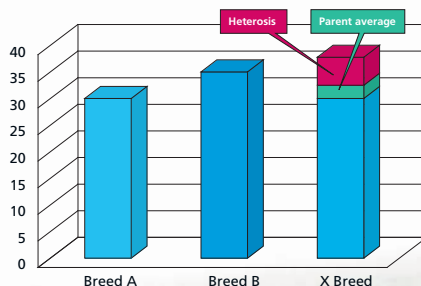
Days Open

Rapid genetic progress

Crossbreeding is designed to help you to achieve rapid genetic progress within your herd for **fertility, health, cell count and longevity**. All these key areas have an impact on the profitability of your dairy business. Crossbreeding gives you the highest probability of genetic gain through the effect of heterosis.

Heterosis

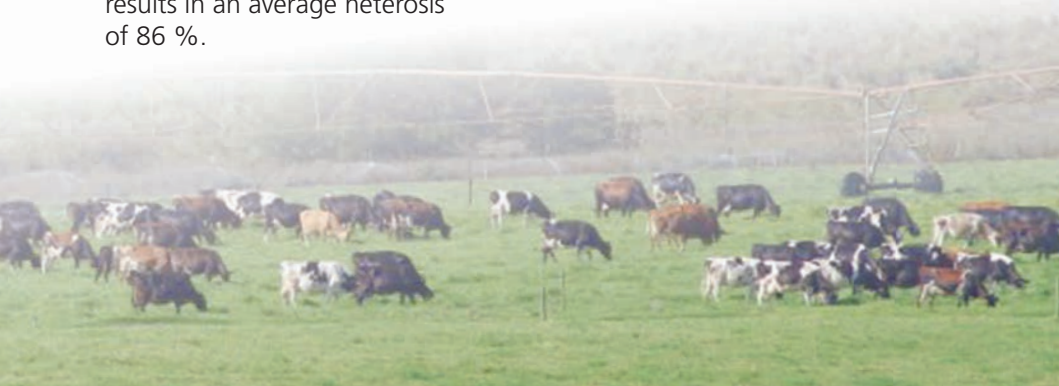
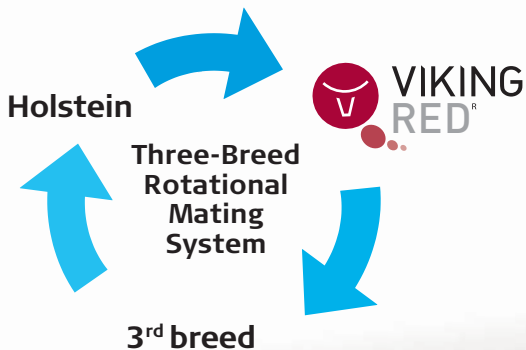
The effects of heterosis are the opposite of the effect of inbreeding depression. At each location of the pairs of chromosomes the two genes are much less likely to be identical with crossbreeding than with same-breed matings. Therefore, genetic recessives of both major and minor consequence are not expressed. Research indicates that heterosis is greatest for traits related to vitality, fertility, health and survival.



Heterosis is not everything – the additive breed effects are important in crossbreeding as well as in all breeding. The heterosis will be an extra benefit on top of the parent average. So one critical point is to always use the best bulls from breeds that suit your conditions. A crossbreeding program needs to be well planned and organized to produce benefits. The breeds you select must be unrelated, competitive and have an efficient breed improvement program – and remember to use the best bulls for the best results.

Why three breeds?

Capturing and sustaining heterosis is a key part to an efficient cross breeding program. Once you are used to the extra bonus of heterosis you do not want it to drop below 75 %. A three-breed rotation is the optimum and results in an average heterosis of 86 %.



Proven profitability

The VikingRed has been intensively used for crossbreeding world wide for over ten years. **Scientific studies** from Germany and US combined with results and testimonials from thousands of dairy herds all give a clear picture – **it does work!**



Denmark The Viking Red is used for crossbreeding in Denmark and results gathered by the Knowledge center for Agriculture and Dr. Sørensen show a difference between pure Holsteins (1 991 cows) and crossbreds by VikingRed sires (869 cows) mixed in the same herds on their first lactation. (Table below shows the performance by the VikingRed crossbreds compared to the pure Holsteins).

Production	
Milk	- 34 kg
Fat	+ 8 kg
Protein	+ 5 kg
Calving traits	
Stillbirths	- 2 %
Calving ease	+ 4 %
Fertility	
Period from calving to 1 st AI	- 4 days
Period from 1 st to last AI	- 7 days



VikingRed x Holstein in MN, USA



USA The results from California include data from six commercial herds that has been crossbreeding with Scandinavian Red (NRF and SRB) for more than 10 years now. The University of Minnesota has done thorough analysis of their results, including economic calculation and

found out that over life time the crosses make significantly more money! The reason is the better survival due to higher fertility alongside with the fact that the crosses produce almost as much milk as the Holsteins.

Source B. Heins and L. Hansen, University of MN 2007 and 2010.

Production average 5 lactations	Holstein	SR* x Holstein
Milk, kg	11,417	10,627
Fat, kg	409	394
Protein, kg	352	339
Fat + Protein	762	733
Calvings (1st lactation)		
Sire calving difficulties, %	16.4	5.5
Sire still births, %	15.1	7.7
Maternal Calving difficulties, %	17.7	3.7
Maternal Still births	14.0	5.1
Fertility		
Days Open	148	136
Survival		
Losses in first lactation	15.9 %	6.2 %
Survival to 4 th calving	29.1 %	50.5 %
Lifetime production		
Milk	28,086	31,276
Fat	996	1,154
Protein	871	1,003
Fat + Protein	1,867	2,157
Lifetime profit	\$ 4,347	\$ 6,272
Profit per day in the herd	\$ 4.17	\$ 4.32

+ 15 %
+ 44 %
+ 3.5 %

Net gain

* SR = Scandinavian Red (SRB and NRF)

Germany

Crossbreeding experiment in Germany.

The goal with the experiment was to confirm the American Crossbreeding results under German conditions.

Source W. Brade, J. Jaiter and F. Reinhardt.



Production	Holsteins (2460 cows)	VikRed x Hol (226 cows)
Milk kg	25.8	25.2
Fat kg	1.01	1.03
Fat %	3.98	4.12
Protein kg	0.87	0.88
Protein %	3.4	3.52
Cell count (1,000/ml)	205	183
Fertility	Diff. Crossbreds- Holsteins	
Heifers: NRR* 56	- 3.30 %	
Cows: Days Open	- 8.10 %	
Cows: NRR* 56	- 4.60 %	
Calving traits	Holsteins	VR x Hol
Calving difficulties	3.90 %	2.40 %
Stillbirths	9.60 %	2.80 %

*Non Return Rate

United Kingdom The figures from Quikes in Devon show that VikingRed crosses are more fertile and last longer than Holsteins and NZ crossbreds. Only 18 % of Holsteins survived to have their fifth calf at six years old, compared to 38 % of VikingRed crossbreds!

	% survived to calve once as 2 yo's	% survived to calve twice as 3 yo's	% survived to calve 3 times as 4 yo's	% survived to calve 4 times as 5 yo's	% survived to calve 5 times as 6 yo's
Holstein	81 %	59 %	49 %	34 %	18 %
NZ crossbreds	86 %	71 %	52 %	38 %	32 %
VikingRed	85 %	70 %	59 %	49 %	38 %
Diff. VikingRed/Holstein	4 %	11 %	10 %	15 %	20 %



VikingRed x Montbeliarde x Holstein in Italy

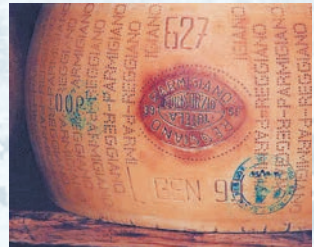


The Parmesan Miracle

Italy “Milk from VikingRed crosses and pure Holsteins have been compared and tested for all the casein fractions. Every 0.1 % of difference in what is called True Casein results in 300 gr (0.3 kg) of Parmesan cheese per milk ton.

One of our customers, Taroni has an average production of 11,000 ton milk and his VikingRed crosses average 0.25 % more of True Casein, compared to Holstein. This means that, giving the current gross prices for the Parmesan cheese, if Taroni would milk ONLY VikingRed crosses, he would gain EUR 60,225 per year! And this would happen without changing anything else, other than the semen. So much gain for such a small investment.”

Claudio Mariani, Product Manager, Genesi Project



Crossbreeding with VikingRed – proven profitability

VikingRed is the original first hand choice when it comes to profitable crossbreeding with any red breed. The VikingRed excel for calving ease, they are great for fertility, they are more healthy – and they produce side by side with the pure Holstein. In the long run they stay longer in the herd and make more money. The VikingRed is the ticket to your dream – a trouble-free, profitable cow!

Scientific studies Survival High production Proven
Easy calvings **Fertility** Scientific studies
Rapid genetic progress Heterosis Profit per day
Heterosis **Proven profitable cows** Longevity
High production **Health** Rapid genetic progress
Days Open Longevity **Lifetime production**
Profit per day Days Open

