Viking Jersey Bull breeding program

Presented by Peter Larson
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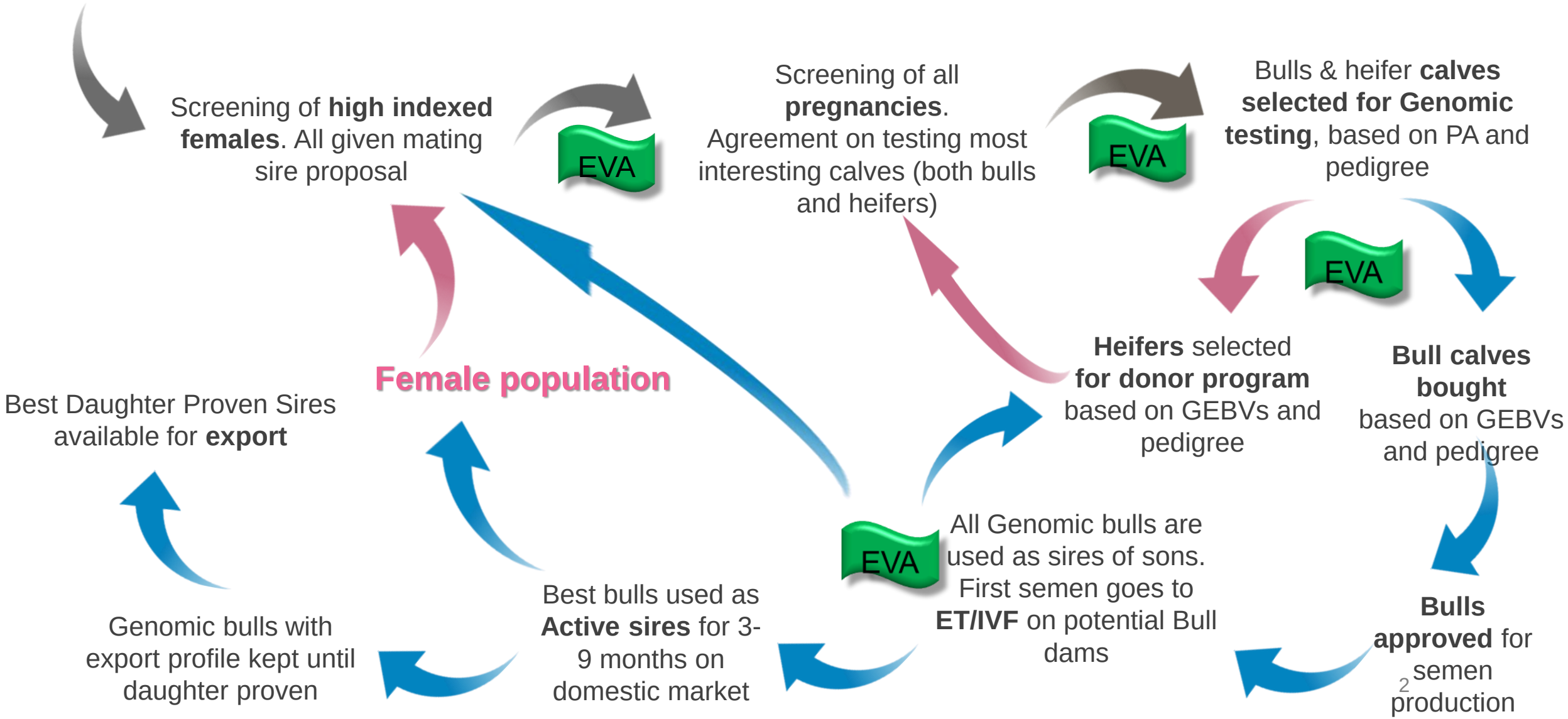
World Jersey Conference 2024

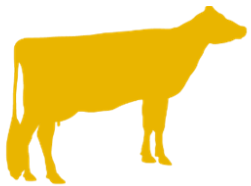
Jersey Breeding scheme 2024



Genomic Breeding program 2024

VikingJersey

- 35 bulls from Home Market
- 7 bulls from FR, NO, DE, …



VikingJersey

- 85 bought in total
  - 10 in France
- 110 Flush contracts in Home Market

VIKINGEMBRYO

1.900 embryos from VikEmbryo donors

600 embryos from Flush contracts

Total 2.500 embryos

Jersey breeding program

- Purchase 42 bulls/year – Semen released from 35 bulls
  - Focus on
    - High genetic trend
    - All bulls able to produce sexed semen
    - Avoiding inbreeding (use Sires of Sons from other populations)
  - 86% óf bulls are ET from VikEmbryo or Field flushes
- Collaborations
  - Breeding program with other European populations
    - Currently with France, Norway (negotiating with others)
  - Embryo import from USA

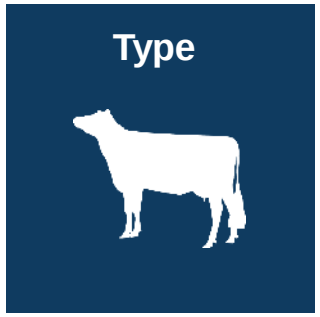
One main Jersey profile – NTM

when breeding & buying the bulls

NTM profile

Emphasis and weight according to value of the individual traits. Fits where you have **conditions like in Northwestern Europe**

Emphasis on **milk volume**



Emphasis on **conformation traits**

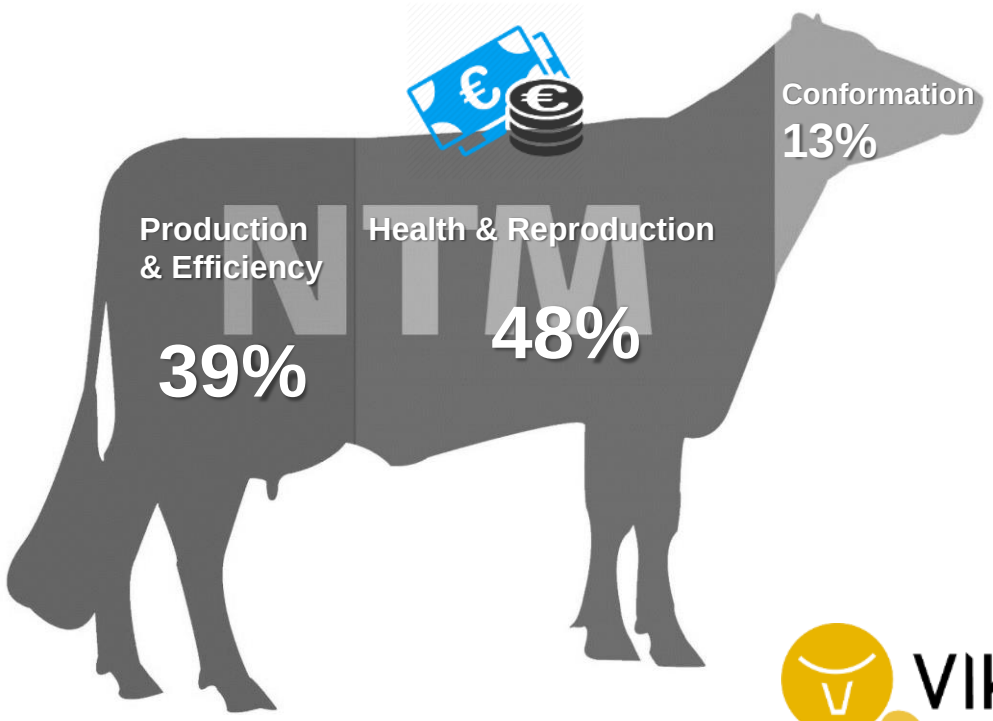
Emphasis on **block calving and grazing** (NZ management)

Emphasis on **health, fertility, longevity, efficiency**

Sub profile	Proportion 2025
Milk	10%
Type	10%
Grazing	10%
Sustainability	45%
Other	
Polled	35%
Casein (A2 & BB)	90%
Purebred	100%
Lethal & defect free	100%

The Nordic Total Merit (NTM)

- ALL traits in NTM are of **economic importance**
- **>90 sub traits** combined into **16 main traits**



VIKINGJERSEY

Main traits in the Breeding goal

Production index
Milk, fat and protein production and %

Youngstock survival
Survival of calves in rearing period

Longevity
Days in herd
(1st calving to end of 3rd lac.)

Growth
Carcass weight

Udder Health
Clinical mastitis – first 3 lactations

Conformation
22 sub-traits

Saved feed
Maintenance and metabolic efficiency

Hoof Health
10 hoof disorder data from hoof trimmers for first 3 lactations

Milkability
Direct data from recording system

Daughter fertility
Days from calving to first ins.,
Days from first to last ins.,
Number of inseminations

General Health
>80 diagnoses
Vet registrations – first 3 lactations

Temperament
Registered by farmers/classifiers

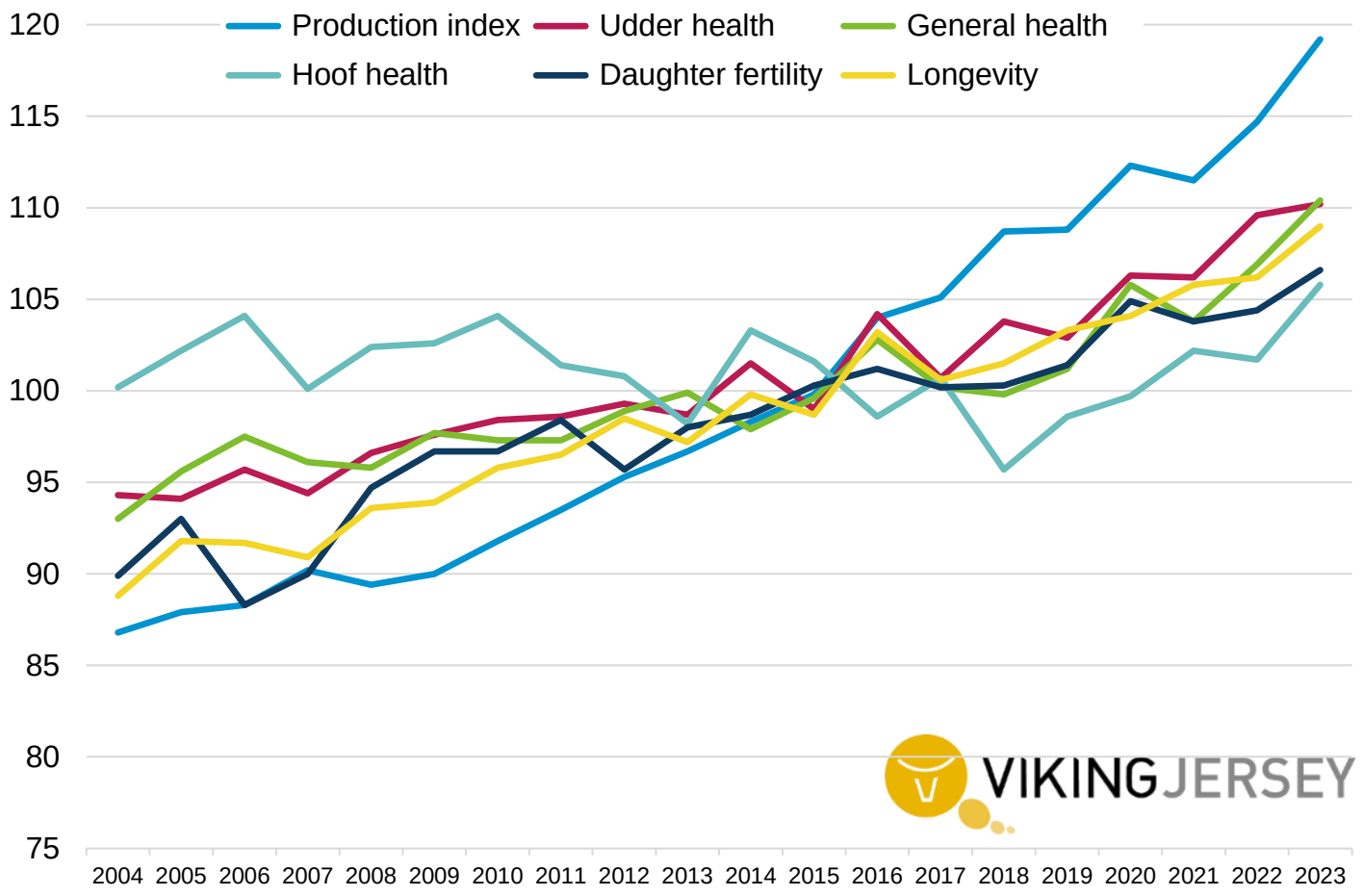
Calving direct & maternal
Survival of calf, calving ease & size of calf

Described goals for all traits 2025 and 2030

Weight in % of total

	Relative weights in NTM
Production index	**32%**
Growth	**0%**
Saved feed	**7%**
Daughter fertility	**10%**
Calving direct	**2%**
Calving maternal	**3%**
Udder health	**17%**
General health	**5%**
Hoof health	**3%**
Longevity	**3%**
Young stock survival	**4%**
Frame	**0%**
Feet & legs	**3%**
Udder	**6%**
Milkability	**3%**
Temperament	**1%**

Genetic trends – VikingJersey bulls



Modern breeding strategies

Genomic test

of all heifers in the herd

- To have more reliable breeding values/selection tools

Sexed semen

for top 30-50%

- Will be enough for replacement
- **Will increase genetic trend for preferred traits**

Beef semen

for bottom 50-70%

- The majority to be male sexed semen

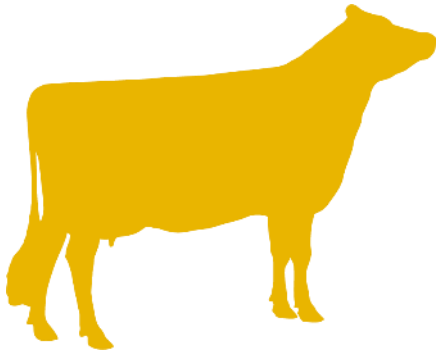
Moderate sized Jersey cows

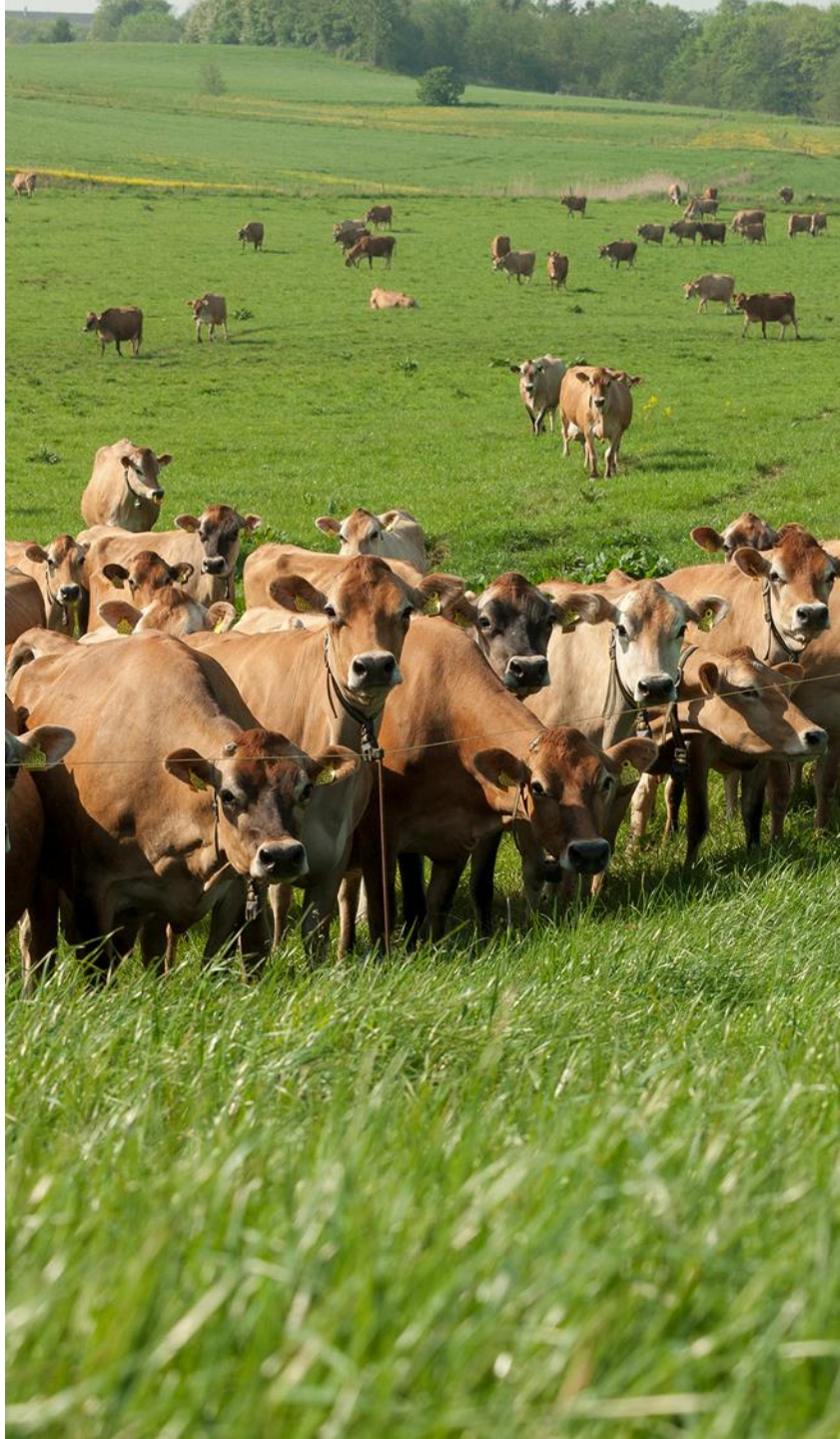
Average weight based on AMS data

	Body weight, kg
Lactation	
1	380
2	444
3	471

Breed population average - Stature, cm

129.8 cm





Up to two tons less feed intake - and the same amount of milk!

- The most efficient cows produce **more milk per kg of feed intake**
- Less feed per kg of milk produced results in **less methane per kg of milk produced**

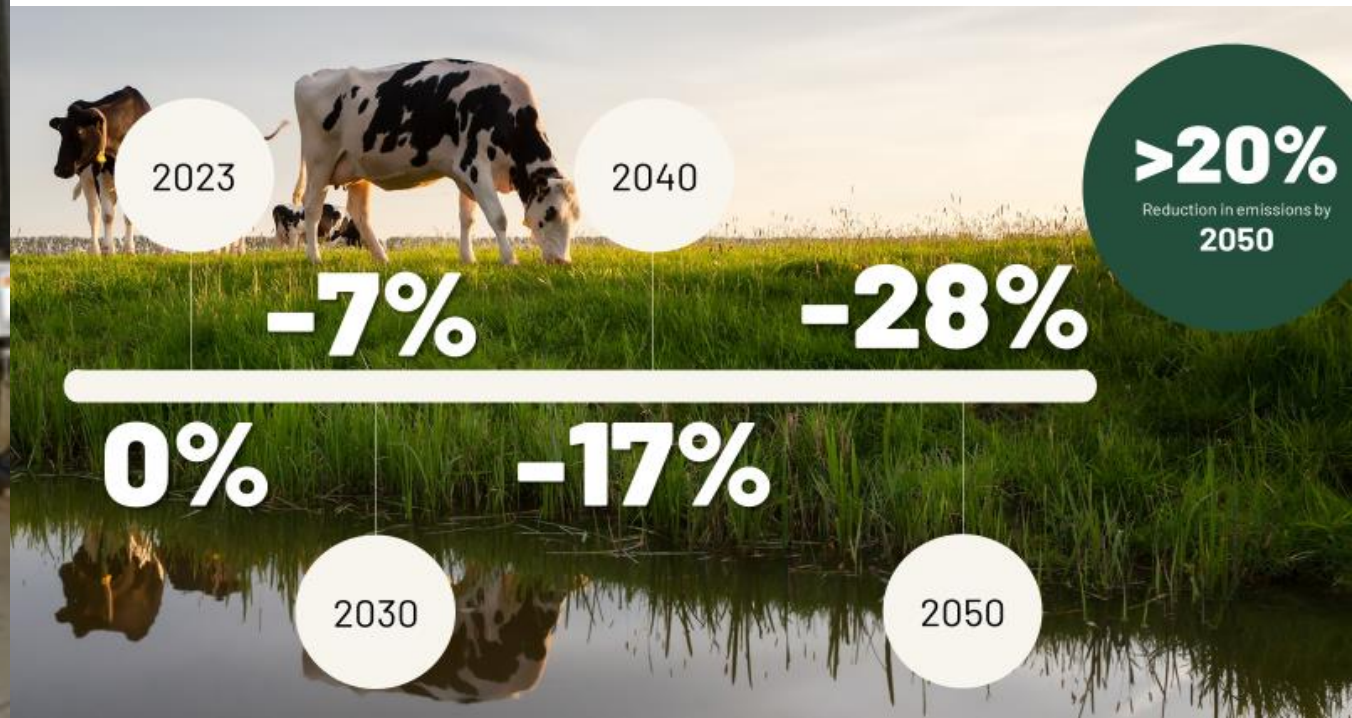
Cows in the same herd & same management system

Cow no.	Lactation	Production 305 days, Kg milk	Feed intake 305 days, Kg DMI	
1	**1.**	10,190	6,749	
2	**1.**	10,097	**5,407**	**-1.342**
3	**4.**	11,469	7,614	
4	**4.**	11,864	**5,662**	**-1.952**

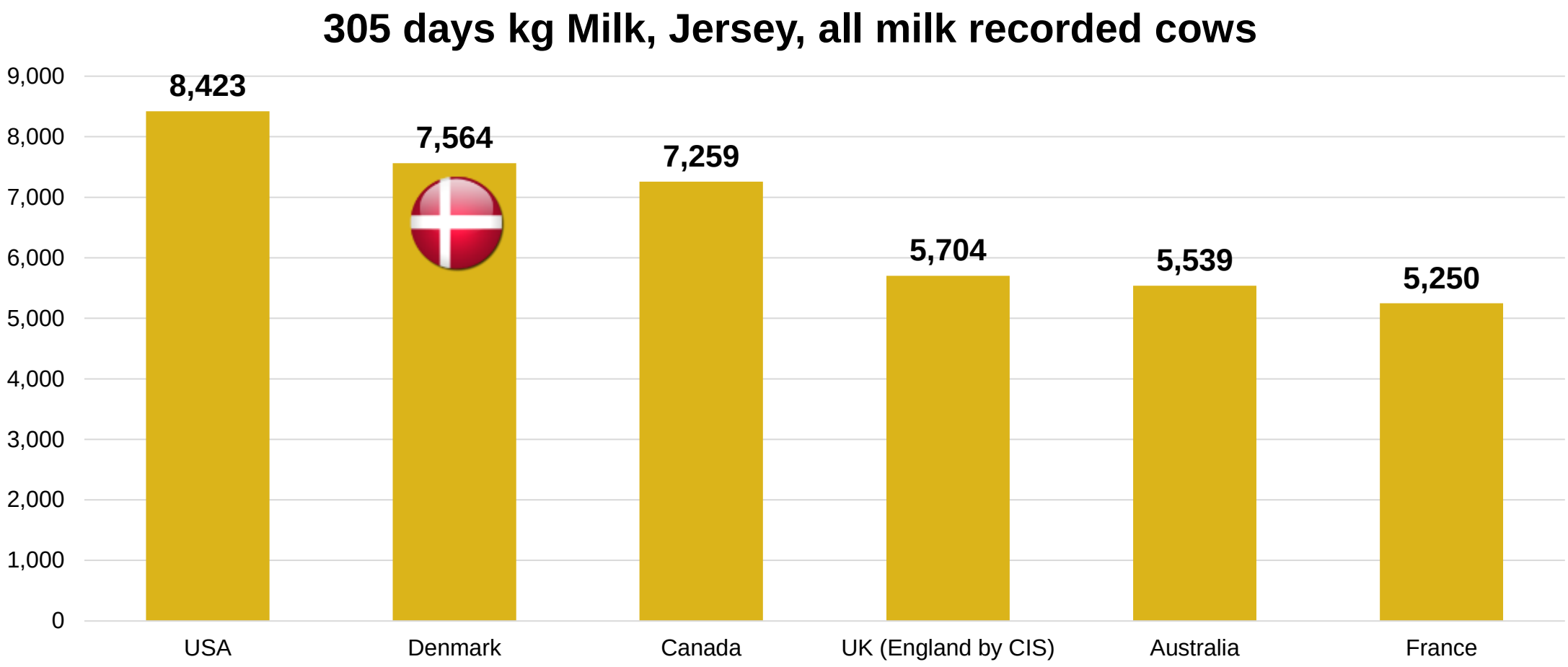
VIKINGGENETICS
innovative breeding

Project ONIMIT

- “**Methane sniffers**” attached to the milking robot
- Measures the cows' **individual methane emissions**
- The goal is to breed cows **with the least emissions**
- In collaboration between **Arla Foods**, **AU, Viking, SEGES & others**

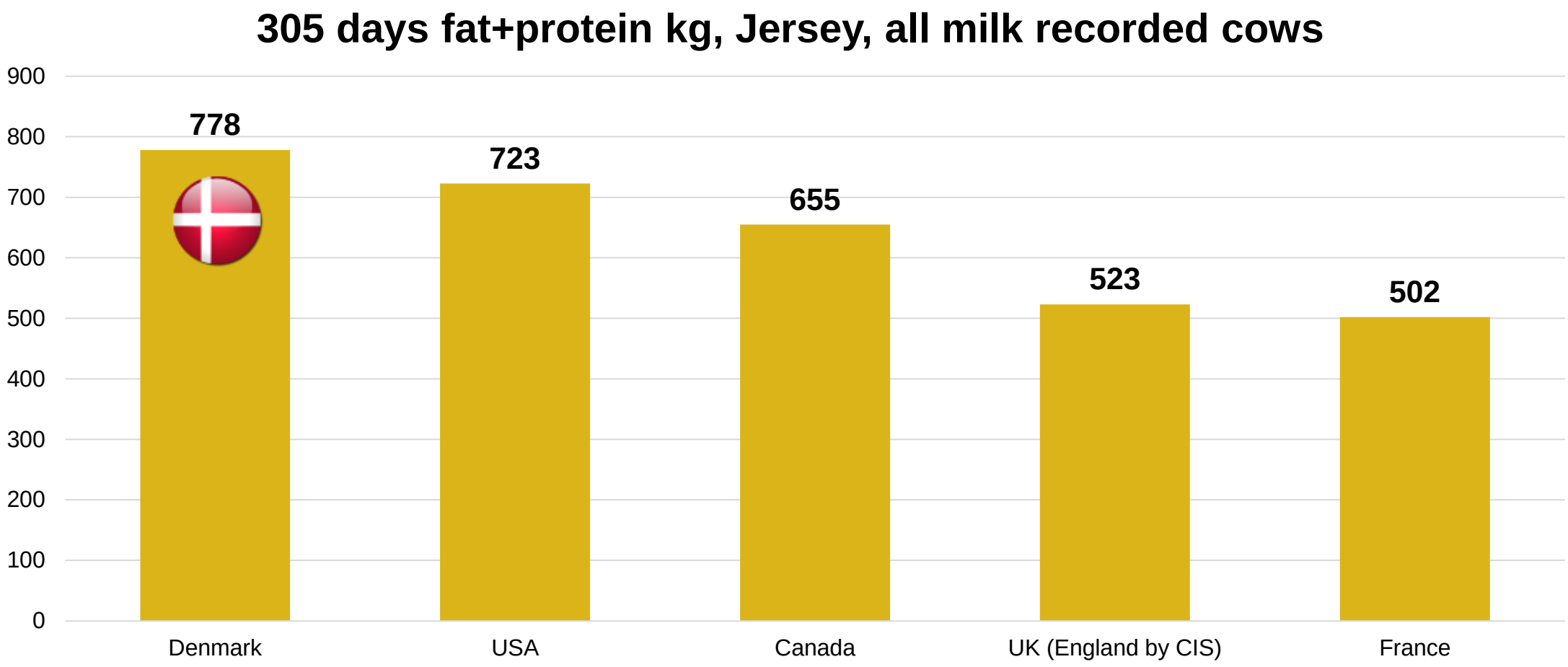


Milk yield per cow, 305 days – Jersey



Source: *International Committee for Animal Recording (ICAR) 2021. Data for USA – US CDCB (2021). Data for Denmark – NAV (2021)*

Kg fat + protein, 305 days – Jersey



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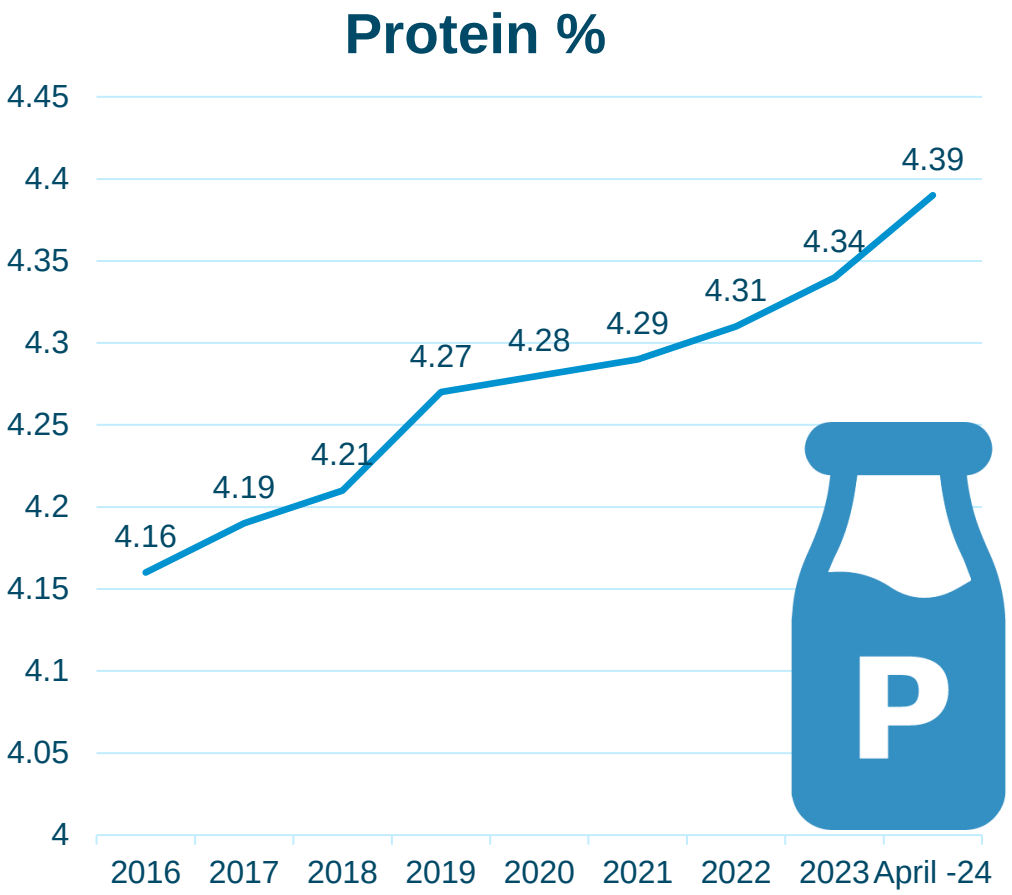
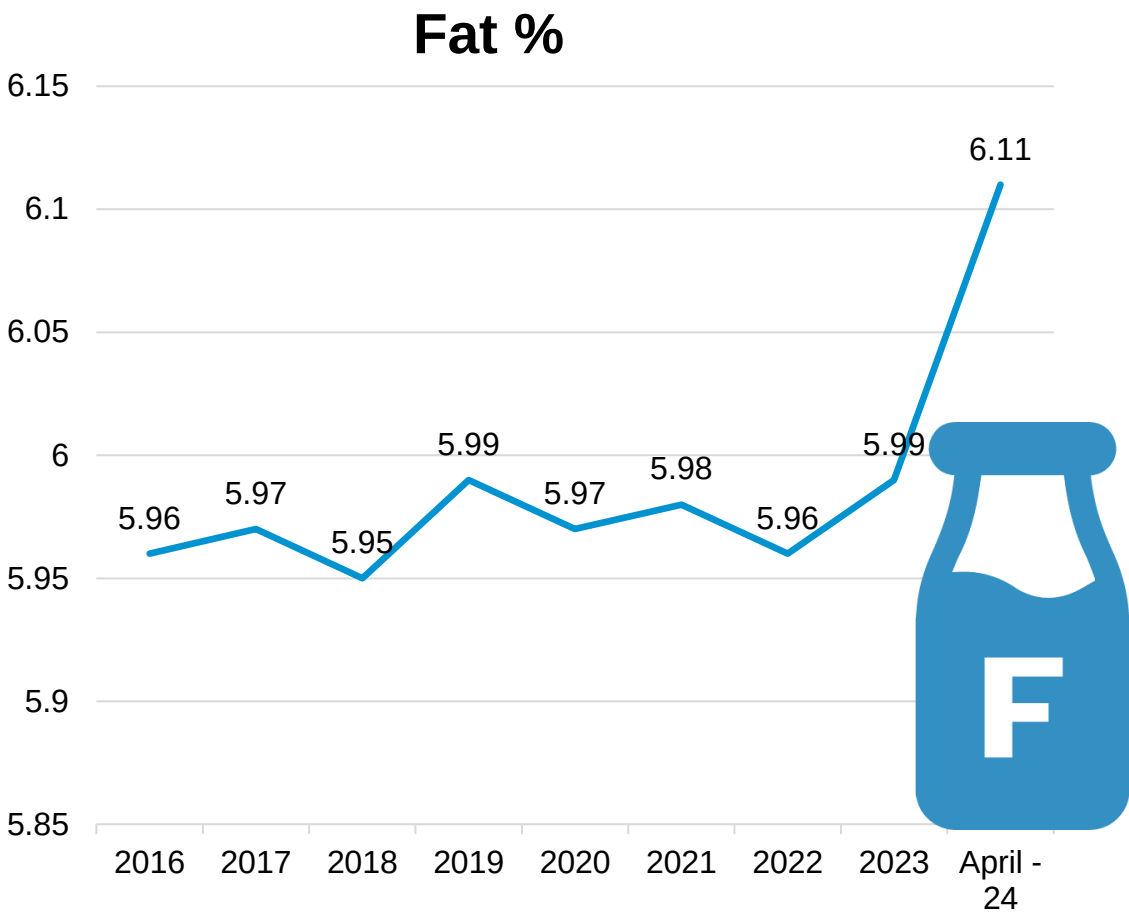
New World record, Protein %





Monogenetic traits

Decisions on the importance, effects, and how to avoid / handle

Positive:

- Pollednes
- Caseins
  - Cappa Casein
  - Beta Casein
- Might be more in the future

Negative:

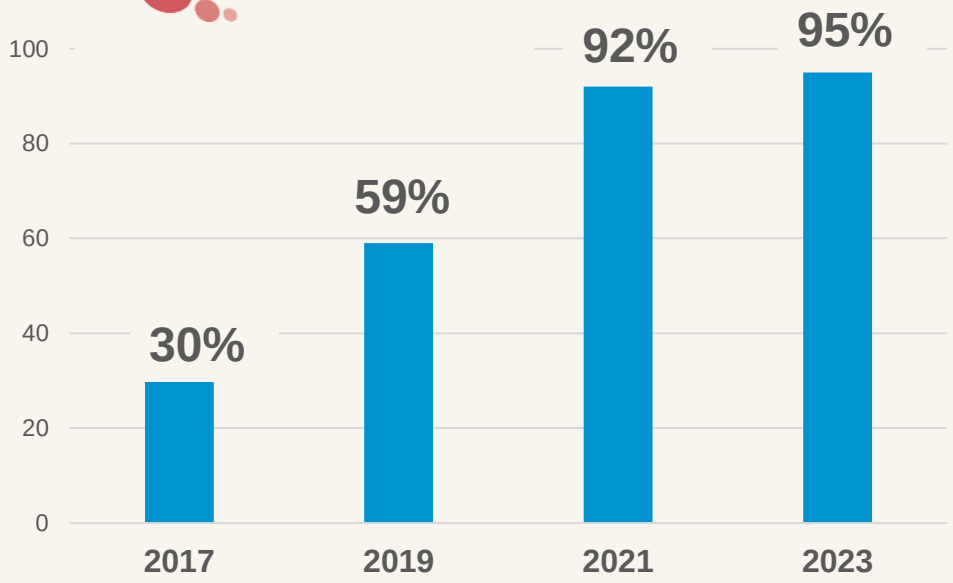
- JH1
- JH2
- JNS
- RVC (Eradicated)
- **There will be more in the future!**

Jersey semen usage

99%
genomic bulls

1%
proven bulls

X-VIK™



VIKINGBEEF

48%

of Jerseys inseminated with **Beef**

Breeding Scheme focus

Importance of ET/IVF

More than 85% of bulls from ET & IVF

Genomic test of all heifers and breeding next generation of Bull Dams

Bull dams

Profitability

- and focus on focus balancing
  - ▲F (relationship) &
  - ▲G (genetic trend)

Jersey X-Vik for 30-50% best and Beef Y-Vik on the rest

Sexed semen

Interbull Genetic levels, April 2024

(Based on weights in Nordic Total Merit)

	Milk	Fat	Protein	Y-index*	Frame	Udder	Udder health	Longevity	Daughter Fertility
VIKINGJERSEY	**103**	**106**	**106**	**107** (65)	**101**	**103**	**101**	**101**	**102**
AU	105	90	97	90 (19)	108	95	94	97	90
Canada	109	94	101	94 (15)	113	101	85	95	87
NZ	98	94	98	95 (310)	-	-	96	91	99
USA	115	101	109	103 (300)	113	102	85	99	89

*** -0.30 x Milk : +0.65 x Fat : +0.65 x Protein**

( ) = number of daughter proven bulls

The Purebred alternative

Purebred

Exceptional genetic diversity

- Makes it easier to select bulls:
  - All VikingJersey bulls are at least 99.5% pure Jersey
  - All VikingJersey bulls will improve percentages
  - All VikingJersey bulls are non-carriers of genetic diseases or defects
  - All VikingJersey bulls are A2A2 for Beta Casein
- Outcross
  - No risk of inbreeding, when used on pedigrees from US, NZ, AU & CA
  - Fits Cross breeding programs
    - Lower stature and weight
    - Boosts percentages, fertility and hoof health


Thank you for your attention!