Advantages of use of Beef on Dairy in Danish Dairy herds

**EHRC 27th April, 2023**
Lars Nielsen, VikingGenetics

Estimates show that up to 60% of all dairy cows will be inseminated with beef semen by 2030 – Why ?

- **Optimization in dairy herds**

  - Increased longevity & less replacement
  - Less surplus heifers on farm to optimize milk production
  - Genomic testing to detect best females
  - Sexed female dairy semen on best females

- **Clear demand from slaughter calf producers**

  - Reduce number of pure Holstein bull calves
  - Difficulties to sell pure Holstein bull calves drives demand of beef x dairy

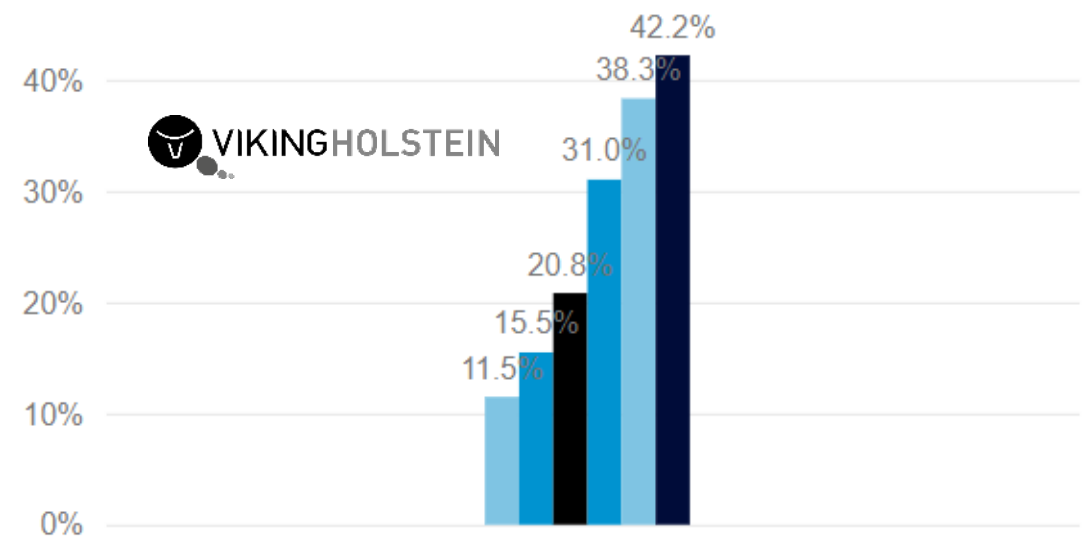# Sexed semen development - dairy
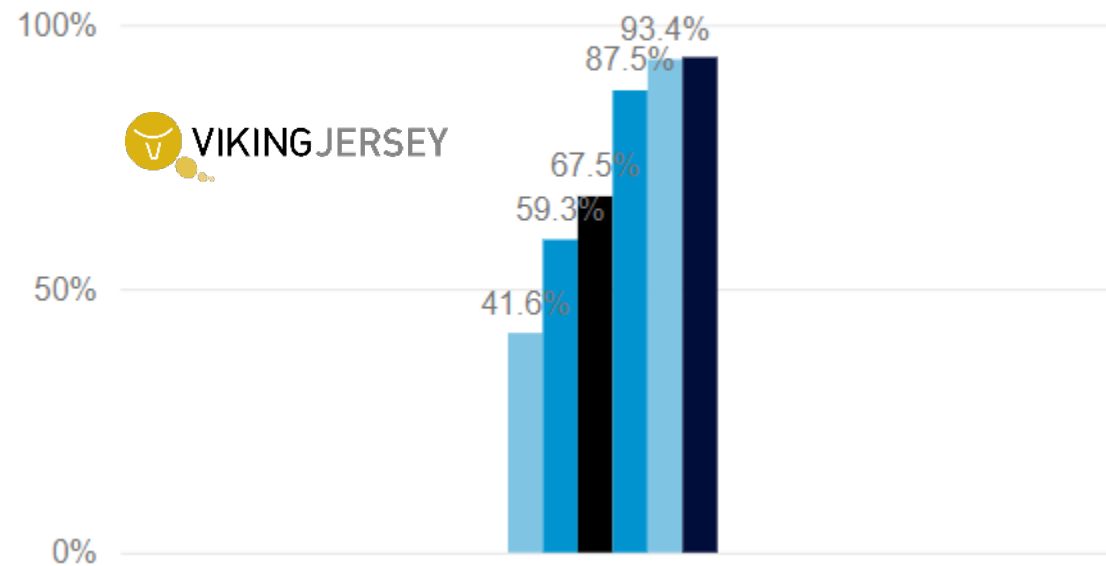
Expect Holstein to be similar to Jersey within 3-5 years

Benefits of using sexed semen

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1 More genetic progress

Breeding heifers from maiden heifers and the best animals maximises genetic progress in your herd

G1 G2 G3 G4
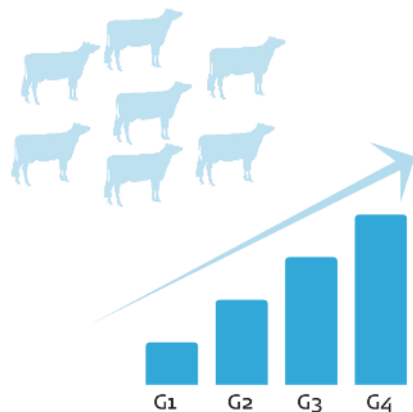
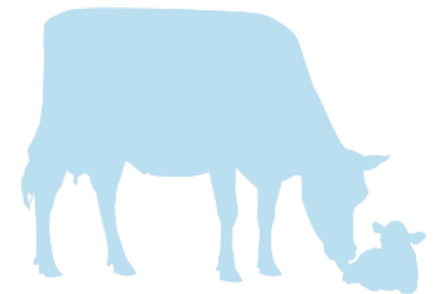## 2 Higher income from beef crosses

Breed high-quality crossbred beef calves from more cows and achieve higher profit

3 Easier calving

Lower veterinary costs, fewer reproduction problems, higher yield

Less workload and easier life for you

Sexed semen on population level
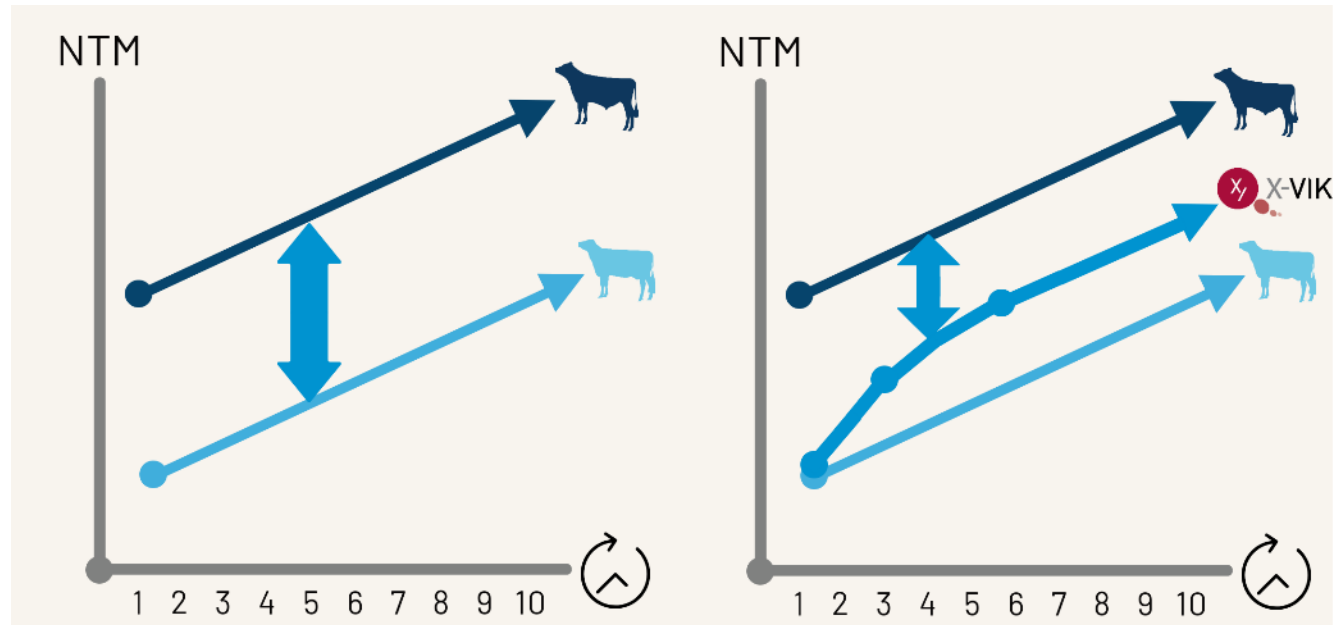
Demands to the BxD product

- **Dairy farmers**
  - Easy calvings
  - Easy handling calves
  - Reliable indices – proven & right sex
  - High genetic quality to ensure high payment

- **Slaughter calf producers**
  - Right sex – bull calves preferred
  - High quality calves
    - Healthy
    - Easy handling
    - High performance
      - Daily gain, carcass conformation
      - Feed efficiency

Increased use of beef semen in Denmark, Sweden and Finland

No. of beef on dairy doses in VikingGenetics Home markets

>50 % sexed male

Chart data (No. of beef on dairy doses):
- 2018: ~385000
- 2019: ~400000
- 2020: ~425000
- 2021: ~520000
- 2022: ~765000
- 2030: ~1200000
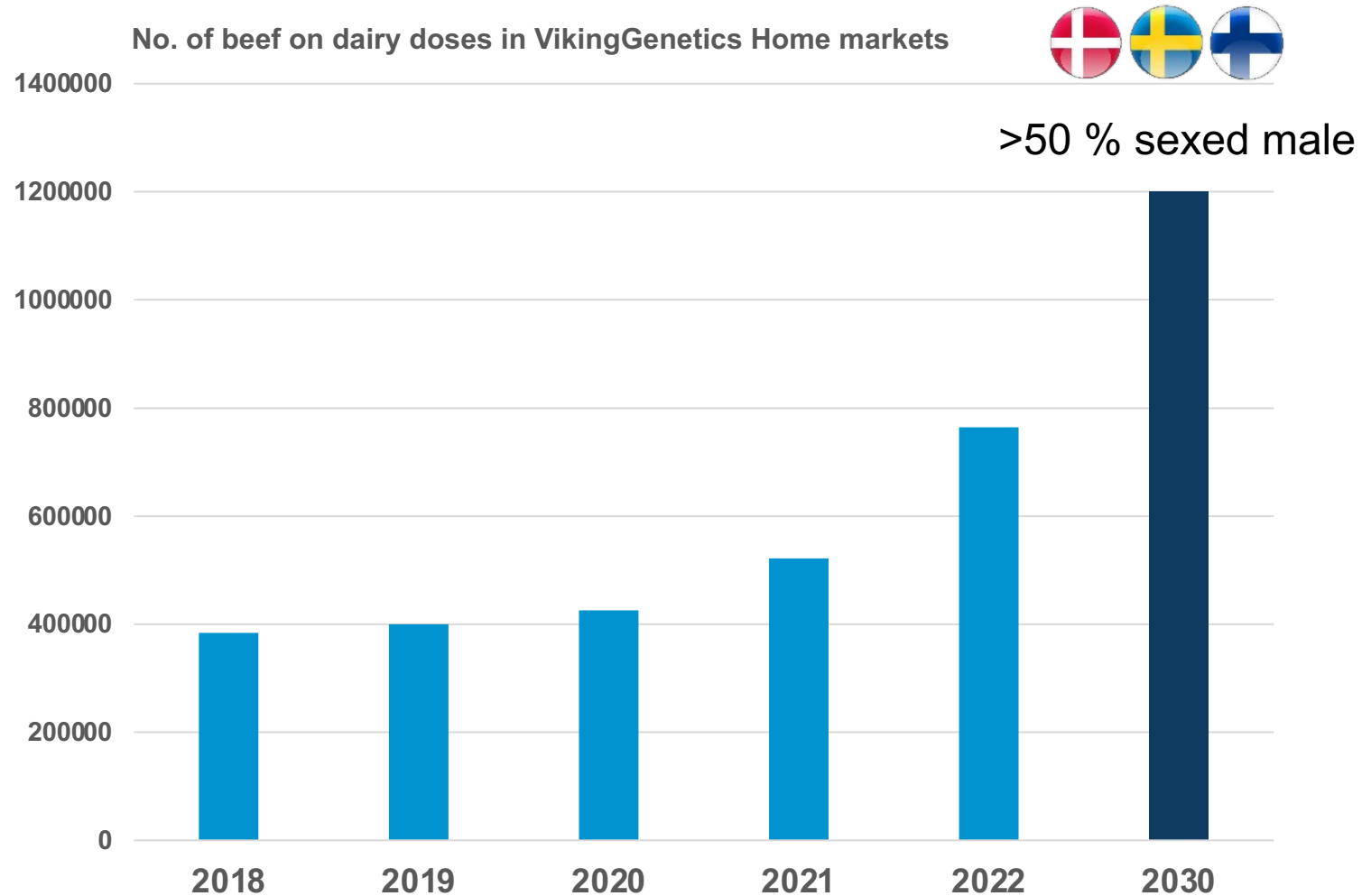
More valuable end product and a more sustainable production system

7

Easy calvings with male sexed (Y-Vik)

Calvings with Y-Vik - Denmark

Bull calves are creating more value for both dairy farmer and slaughter calf producer = win win
Also in a climate perspective…..

Y-VIK
90%
Easy calvings without any assistance

	Easy without assistance	Easy with assistance required	Difficult without help from vet	Difficult with help from vet	C-section performed
1	90.1%	8.0%	1.0%	0.6%	0.32%
2	90.1%	7.5%	2.1%	0.3%	0.01%
3	91.0%	6.0%	2.8%	0.2%	0.02%
4+	90.0%	6.7%	2.5%	0.7%	0.11%

Source: SEGES, Denmark (2023)

■ 1 ■ 2 ■ 3 ■ 4+

How does the use of sexed semen and beef influence your bottom-line?

SimHerd — Improves Your Decisions
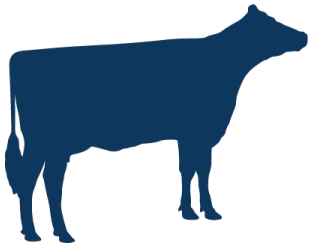
Decisions based on facts & conditions from **the individual farm**
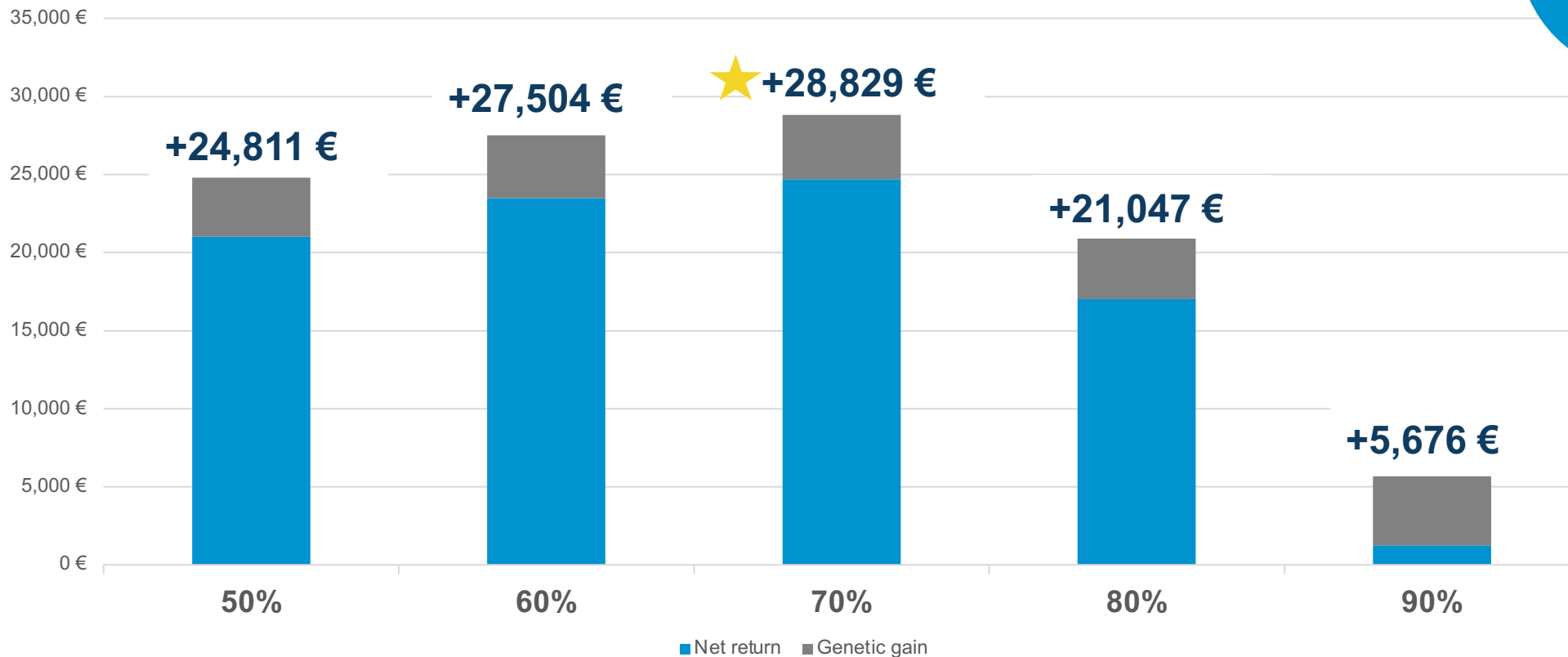
Made in SimHerd

- SimHerd is an advanced simulation model developed at **Aarhus University** in Denmark

- Analyses with SimHerd have been included in over **30 papers in scientific journals** on animal health economics, genetics and herd management

- Widely used **by vets, breeding advisors and consultants** in the Nordic countries and abroad

Extra profit per year: Net return + Genetic gain
Herd with 200 Holstein cows
good reproduction performance

100% sexed on heifers (2x) and 50% on 1st parity cows (2x)
% beef

+28,830 €
per year

+24,811 € +27,504 € +28,829 € +21,047 € +5,676 €

50% 60% 70% 80% 90%

Net return Genetic gain

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SimHerd
Improves Your Decisions

Close collaboration with stakeholders

- **Slaughter houses**

  - Slaughter concepts – clear definitions & payments
  - Marbling & meat quality
  - Partners in data collection and several research projects

- **Dairy cooperatives**

  - **Arla Climate Check** programme supports less youngstock per farm

- **Advisory services**

  - Individual farm strategies based on facts

- **Slaughter calf producers/beef producers**

  - Demands to the dairy farmers?
  - Optimal value creation

DATA is KING: Registration system in the Nordic countries

✓ Veterinarians

✓ Hoof trimmers

✓ AI technicians

✓ Classifiers

✓ Farmers

DATA FROM DIFFERENT SOURCES COLLATED INTO ONE DATABASE

✓ Milk recording & **Slaughterhouses**

✓ AMS system

Traits in NBDI (Nordic Beef on Dairy Index)
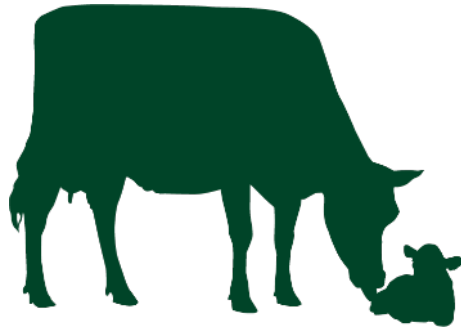
Birth index

- Ease of calving
- Calf survival
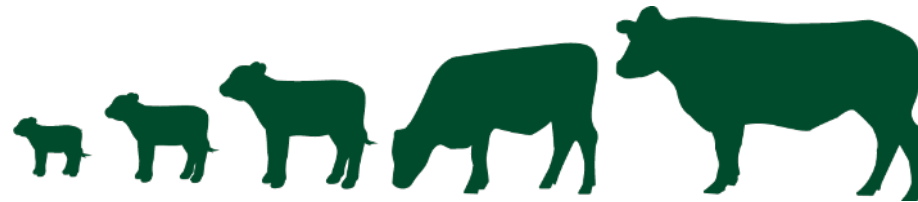
Growth index

- Daily carcass gain
- Carcass conformation score
- Carcass fat score
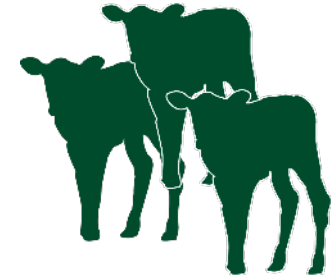
Youngstock survival index

- Early period (day 1-30)
- Late period (day 31-200)

To calculate the index, the bulls are progeny tested on **dairy cows in Denmark, Sweden and Finland** within the dairy breeds Holstein, Jersey and VikingRed. Four times a year, in February, May, August and November, the index is re-calculated in the proof run, adding new bulls who have enough offspring to have a reliable index published.

Nordic Beef on Dairy Index – across breeds

Name	Breed	NBDI ▼	Birth	Calf survival	Calving ease	Growth	Daily carcass gain	Carcass conformation score	Carcass fat score	Youngstock survival
VB Nille	BBL	30	104	102	105	125	119	124	99	109
VB Maskot	BBL	23	96	97	95	126	106	131	78	128
VB PAGH PP	CHA	23	95	97	94	126	138	106	105	100
VB DAVID	BAQ	22	95	97	94	126	127	102	73	90
VB Orania	BBL	21	87	82	95	132	123	127	88	133
VB EASTWOOD	CHA	20	102	104	99	117	131	91	93	108
VB Nito	BBL	20	99	93	105	120	104	125	82	133
VB Nase	BBL	19	106	103	108	112	90	128	83	128
VB GUSTAV	CHA	17	103	105	101	113	129	92	108	108
VB Optimal	BBL	16	102	98	106	113	103	118	92	128
VB Orakkel	BBL	16	98	97	100	117	111	112	88	126
VB Paulus	CHA	15	98	100	97	115	123	100	98	109
VB Picasso	BBL	15	100	97	102	114	105	118	93	127
VB Messi	BBL	14	99	98	100	114	108	117	97	130
VB Nick	BBL	14	96	96	98	117	111	111	85	115
VB IGLOO	CHA	13	103	103	102	109	121	88	94	97
VB NISSE	SIM	13	98	100	96	115	128	93	99	101
VB Nieland	BBL	11	99	98	100	111	101	111	82	121
VB Kevin	LIM	10	99	103	96	110	108	105	91	98
VB MrBlue	BBL	10	93	89	98	116	101	122	81	117
VB PHARMER	CHA	9	99	98	100	109	124	88	99	101
VB HERO	CHA	6	91	94	90	114	128	89	96	111
VB ODD	LIM	6	106	104	106	100	104	98	106	98
VB GÖSTA	LIM	4	88	92	87	115	113	110	97	82
VB LYNCH	CHA	4	95	96	95	109	131	83	111	106
VB Löserupgård Gobrent	LIM	4	93	97	91	110	105	113	100	94

Golden
NBDI 29

Beef x Dairy   Beef   Interbeef   PDF Search

Born	02/11/2011
Breed	Belgian Blue
Breeder	Landmand Gitte Holmberg Thomse
Evaluation	Beef x Dairy
International ID	DNK000009245300480

Herdbook number	
DNK	78276

Trait	# Crossbreed progeny	# Herds
Calf survival, 2nd and later lactations	55300	1750
Carcass conformation score	27377	1149

Sire	UMBA DNK000002682300541
Dam	NLD000000271409168

PGS	DNK000000198800534
PGD	DNK000000017934843
MGS	Marquis BEL000091901789023
MGD	NLD000000122135176
MGDS	BEL000087603091048

Evaluation published **07.02.2023**

Show ☑ Reliabilities ☑ Previous evaluation

| Trait	Current evaluation	70	80	90	100	110	120	130	Reliability	Previous evaluation
NBDI, long	29									29
Birth ◀	101								96	101
Calf survival, Lact. 2+	101								96	102
Calving ease, Lact. 2+	101								98	101
Breeding values not in NBDI ◀										
Calf survival, Lact. 1	104								90	104
Calving ease, Lact. 1	96								98	96
Growth, long ◀	126								98	126
Daily carcass gain	118								97	118
Carcass conformation score	122								98	121
Carcass fat score	88								98	87
Youngstock survival (not in NBDI) ◀	124								96	125
Early period	116								95	116
Late period	124								96	125

Trust in NBDI

- In Denmark slaughter calves are paid due to genetic performance

- Prices automatically calculated in the cattle database based on

  - Sires beef indices (NBDI)
  - Weight
  - Dams beef indices

Danish payment model for calves

Age, Days	Weight	Sire breed	Sire name	Dam breed	Gender	Basic price	Growth bonus	Jersey deduction	MON /FLE Bonus	X-Veal Bonus	Beef Bonus	Individual Bonus	Price
23	38.0	ANG	VB Zimba	KRY	Bull	375	0	0	0	-257	703	0	906
32	46.0	HOL	VH Putur	KRY	Bull	575	-140	0	96	0	0	-526	0
21	49.0	HOL	VH Putur	KRY	Heifer	0	0	0	3	0	0	-3	0
11	51.0	ANG	VB Zimba	KRY	Bull	700	0	0	0	-257	703	0	1231
37	51.0	RDM	VR Upway	KRY	Bull	700	20	0	6	0	0	0	711
22	51.0	ANG	VB Zimba	KRY	Bull	700	0	0	0	-257	703	0	1121
26	52.0	RDM	VR Abin	KRY	Bull	725	50	0	198	0	0	0	935
35	53.0	HOL	VH Putur	HOL	Bull	750	-160	0	0	0	0	0	590
33	54.0	HOL	VH Funen	HOL	Bull	775	0	0	0	0	0	0	760
33	54.0	ANG	VB Zimba	KRY	Bull	775	0	0	0	-257	703	0	1196
27	55.0	ANG	VB Zimba	KRY	Bull	800	0	0	0	-257	703	0	1331
24	56.0	ANG	Thy Lasse	KRY	Bull	825	0	0	0	-231	703	0	1398
29	56.0	ANG	Thy Lasse	HOL	Bull	825	30	0	0	-231	738	0	1362
23	57.0	CHA	VB Onero	KRY	Bull	850	0	0	0	-179	703	0	1481
21	57.0	ANG	Thy Lasse	HOL	Bull	850	30	0	0	-231	738	0	1492
24	57.0	CHA	VB Onero	KRY	Heifer	850	0	0	0	-179	197	0	1074
32	57.0	ANG	Thy Lasse	KRY	Heifer	850	0	0	0	-231	197	0	1016
23	57.0	ANG	Thy Lasse	KRY	Bull	850	0	0	0	-231	703	0	1297
33	58.0	HOL	VH Sheik P	HOL	Bull	875	0	0	0	0	0	0	850
22	58.0	ANG	VB Zimba	KRY	Bull	875	0	0	0	-257	703	0	1406
29	58.0	ANG	VB Zimba	KRY	Bull	875	0	0	0	-257	703	0	1406
27	58.0	BLK	VB Orakkel	HOL	Bull	875	40	0	0	14	738	0	1648
29	59.0	BLK	VB Picasso	HOL	Bull	900	-120	0	0	9	738	0	1502
29	60.0	HOL	VH Speaker	KRY	Bull	925	30	0	0	0	0	0	930
30	60.0	ANG	Thy Lasse	HOL	Bull	925	50	0	0	-231	738	0	1482

Proportion of semen doses sold per breed – VG home markets

Breeds based on sales 2022
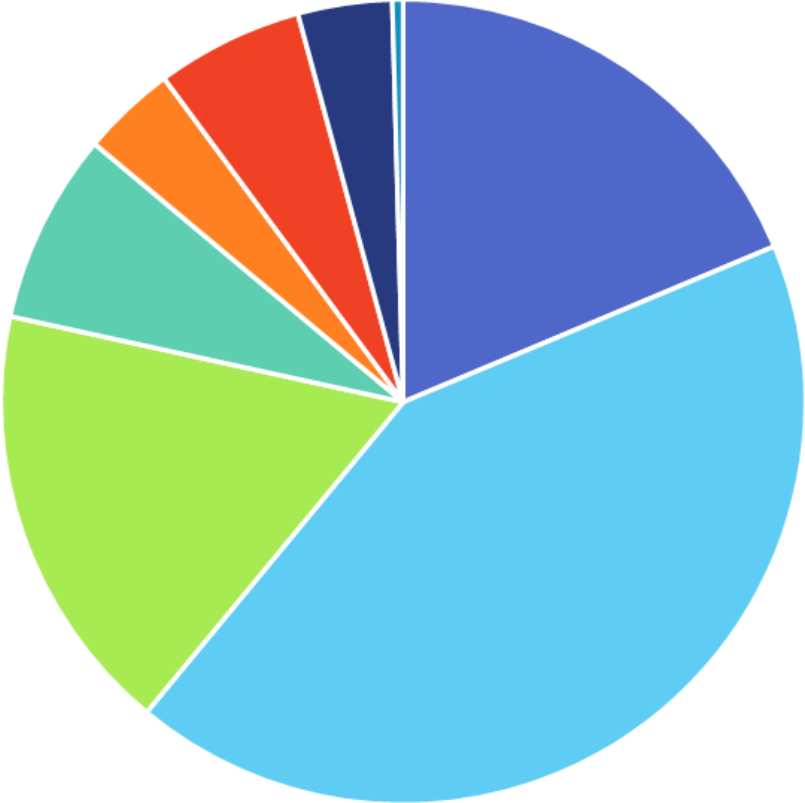
Legend: Angus · Dansk Blåkvæg · Blonde d'Aquitaine · Charolais · Hereford · Limousine · Simmental · Wagyu
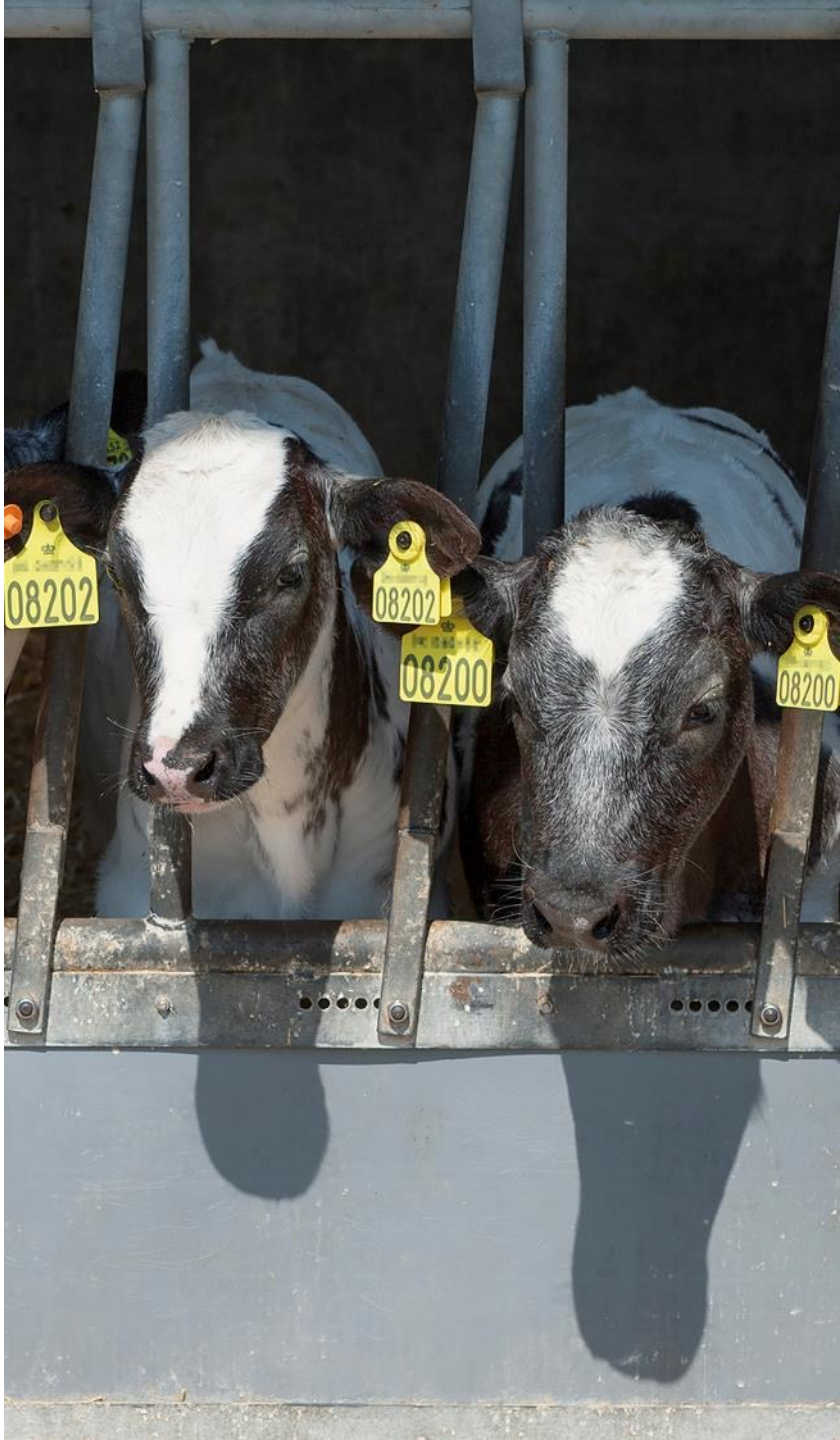
New traits & innovation efforts

- **FutureBeefCross – a Danish GUDP project**

- **Prediction of GEBV for:**
    - Feed efficiency
    - Methane emission
    - Eating quality based on objective measurements

- **Sire breeds:** Angus, Charolais, and Danish Blue Cattle

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Thank you!