

Breeding values for beef breed sires used for crossbreeding with dairy cows

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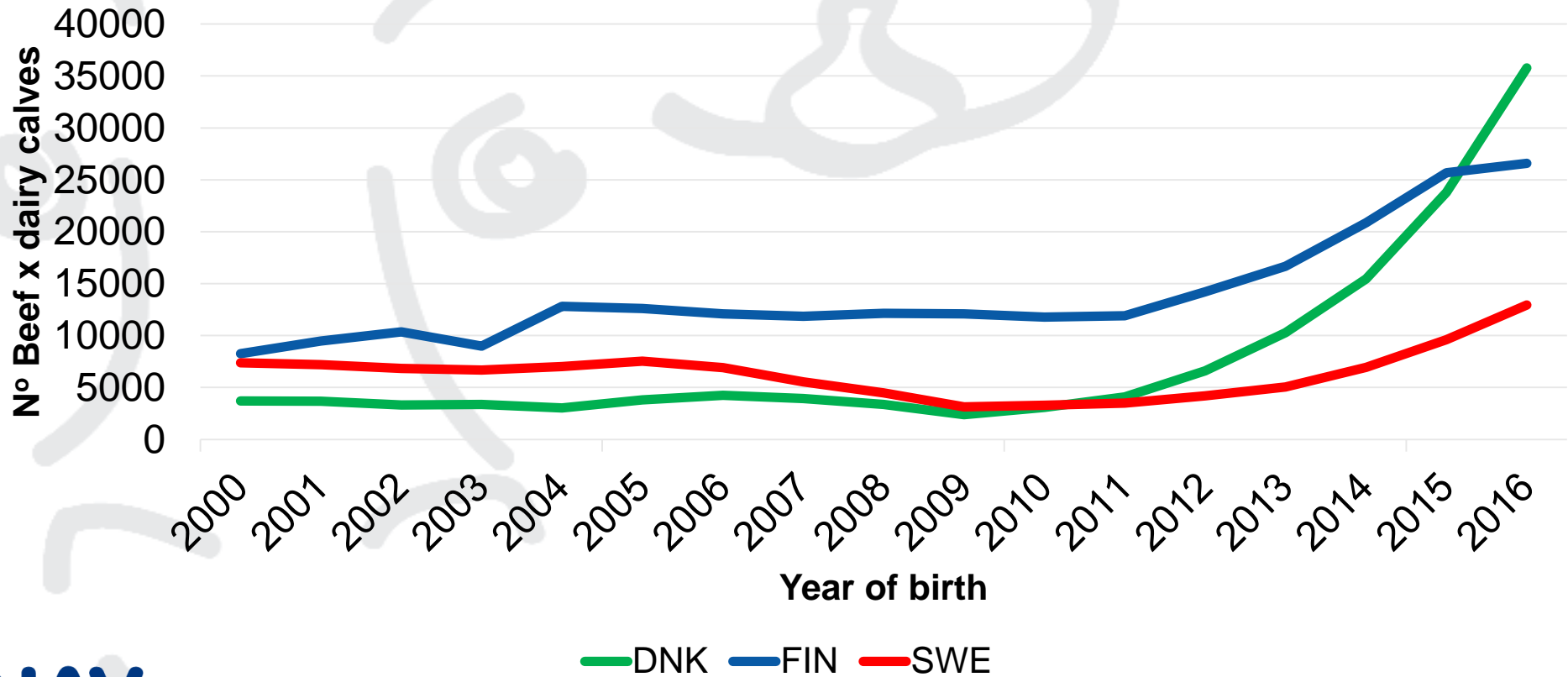
NØK – July 2018

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Why are we developing a Nordic beef x dairy genetic evaluations?



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The aim

- Develop an overall economic index that helps dairy farmers to select beef sires that produce the **economically best crossbred calves**
 - Include economically important traits
- All beef bulls are **comparable across breeds**

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Which traits are included?

Calving traits

- **3 traits**
 - Stillbirth
 - Calving ease
 - Calf size (only DNK)
- **2 trait groups**
 - First parity

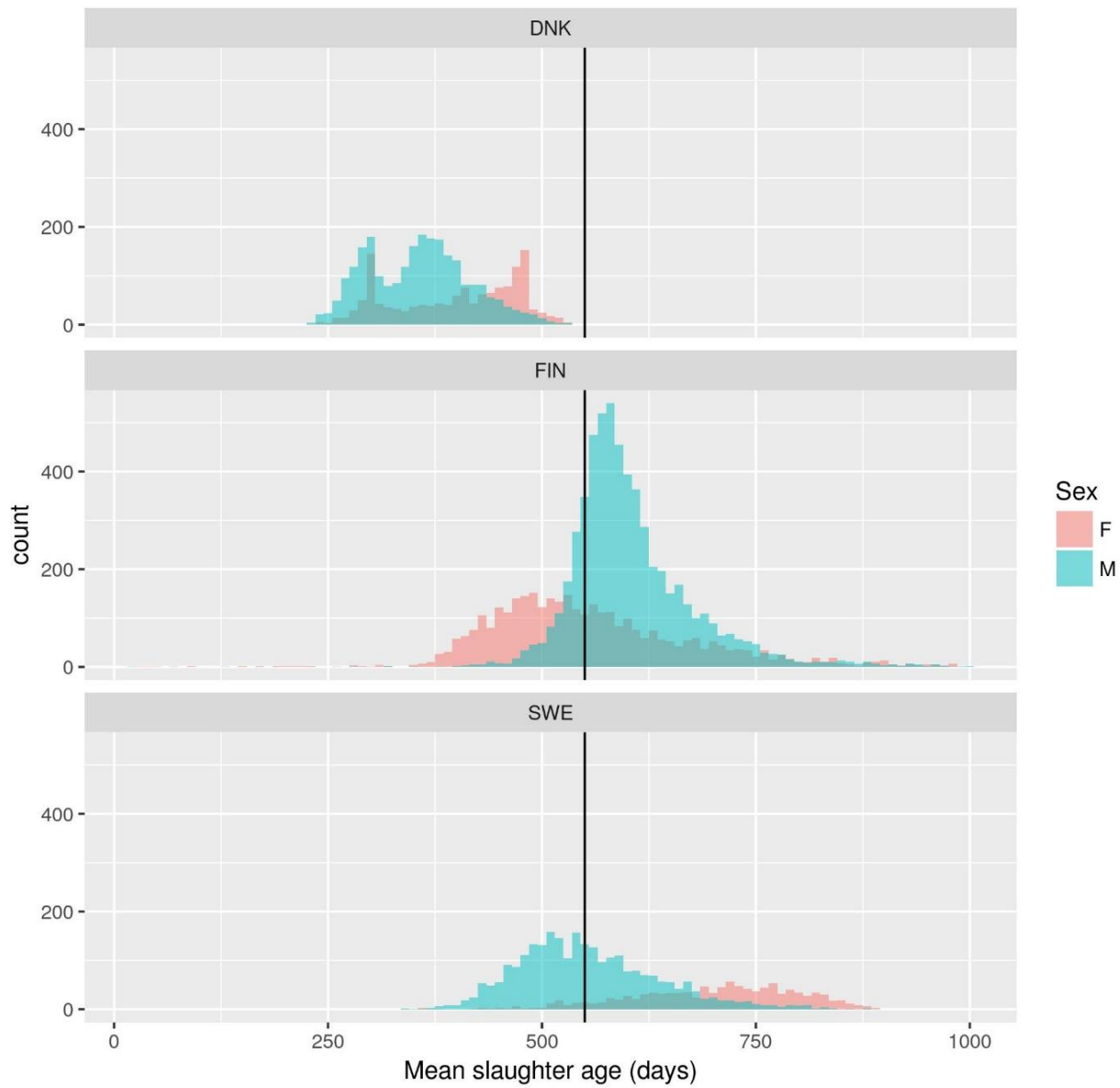
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Carcass traits

- **Average daily gain**
 - Short fattening period
 - Long fattening period
- **EUROP form score**
- **EUROP fat score**



Distribution of mean slaughter age for herd-year-sex classes with ≥ 3 records



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Which calves are included?

- Only crossbred calves born by purebred dairy dams (HOL, JER and RDC)
- Sired by purebred AI beef sires (also INRA)



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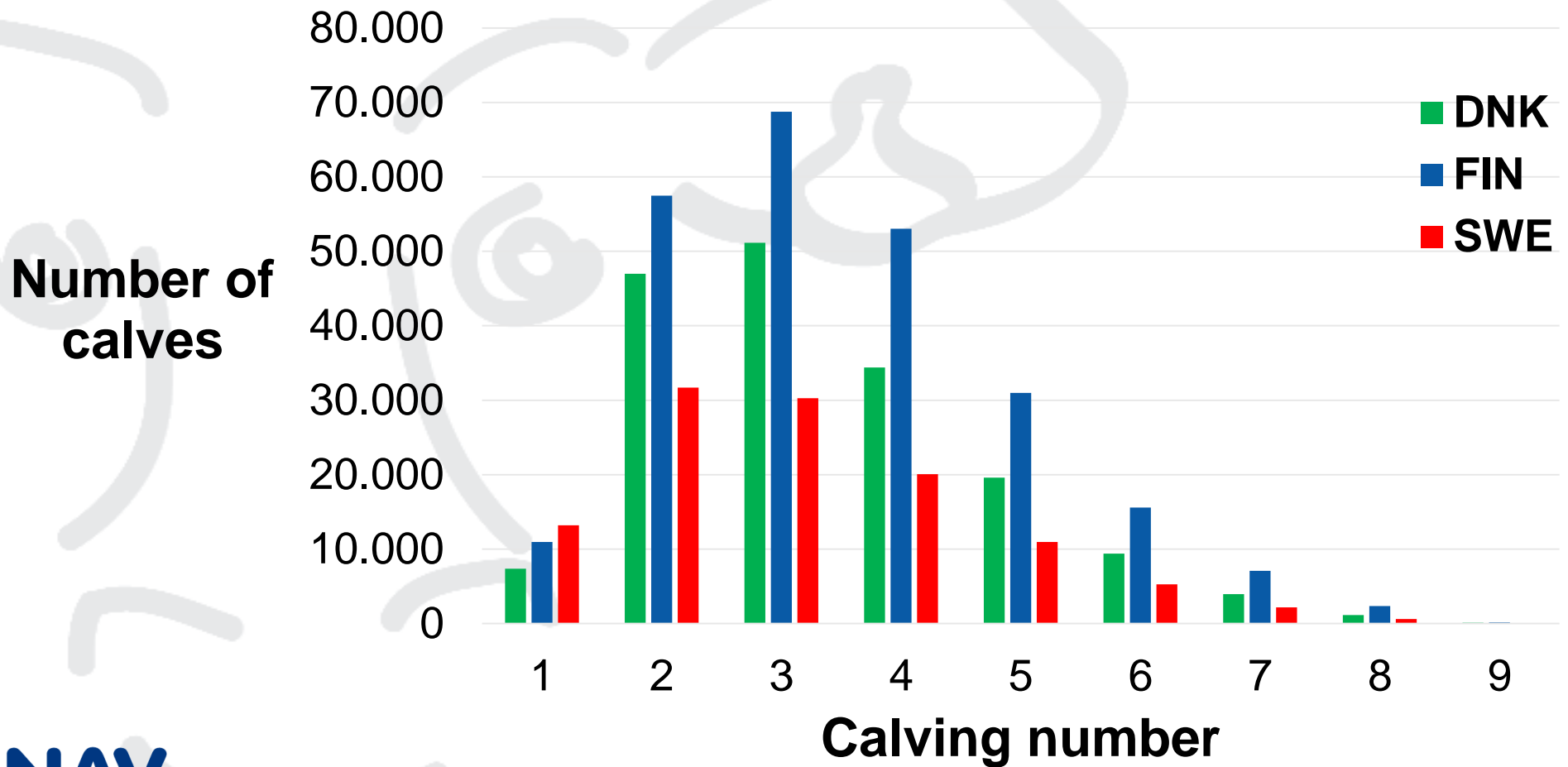


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Average herd size

Herdtype	DNK	FIN	SWE
Beef × dairy	236	47	100
Only dairy	153	28	71

Parity



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Connection between dams

N° offspring	% dams
1	77.9
2	16.8
3	4.0
4	1.0
>4	0.3
Total	

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Beef sire breeds

Sire breed	DNK	FIN	SWE
Angus	1.9	16.9	11.3
Blonde	3.2	22.8	2.2
Danish Blue	66.9	-	-
Simmental (beef)	6.6	9.2	27.1
Charolais	3.6	9.2	26.4
Hereford	0.6	4.2	18.4
Highland	0.0	0.1	0.2
INRA	4.3	-	-
Limousin	12.7	37.7	14.3

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Patterns of use of beef sires

- Majority of herds use >1 beef sire per year
- Different sire breeds are used in the same herd
- All sire breeds are used on all dam breeds

**Solid basis for comparing breeding values
across beef breeds**

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Genetic parameters – Calving traits

- **Low heritabilities**
 - **Calf survival: 0.01 – 0.05**
 - **Calving ease: 0.05 – 0.11**
- **Moderate genetic correlations**
 - **First – later parity: ~0.90**
 - **Calving ease – calf survival: 0.6 – 0.7**



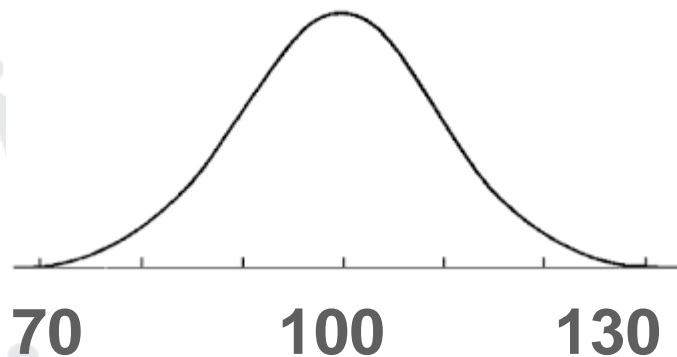
Genetic parameters – Carcass traits

- **Moderate heritabilities**
 - **0.2 – 0.4**
- **Moderate/high genetic correlations**
 - **Daily gain short – long fattening: >0.95**
 - **Male – female traits: 0.8 – 0.9**



Presentation of Breeding Values

- As for dairy genetic evaluation
 - Mean: 100
 - Standard deviation: 10
- No economic index (yet?)



Future outlook

- **Economic index**
- **Young stock survival & health traits**
- **Impact on dairy cow**



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Summary

- **Use of beef sires on dairy cows is increasing**
- **Breeding values for beef sires based on dairy crossbreds available in November 2018**
- **Need for economic index**

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