

# Multi breed genetic evaluation of beef bulls used in dairy herds Emphasis on newest development

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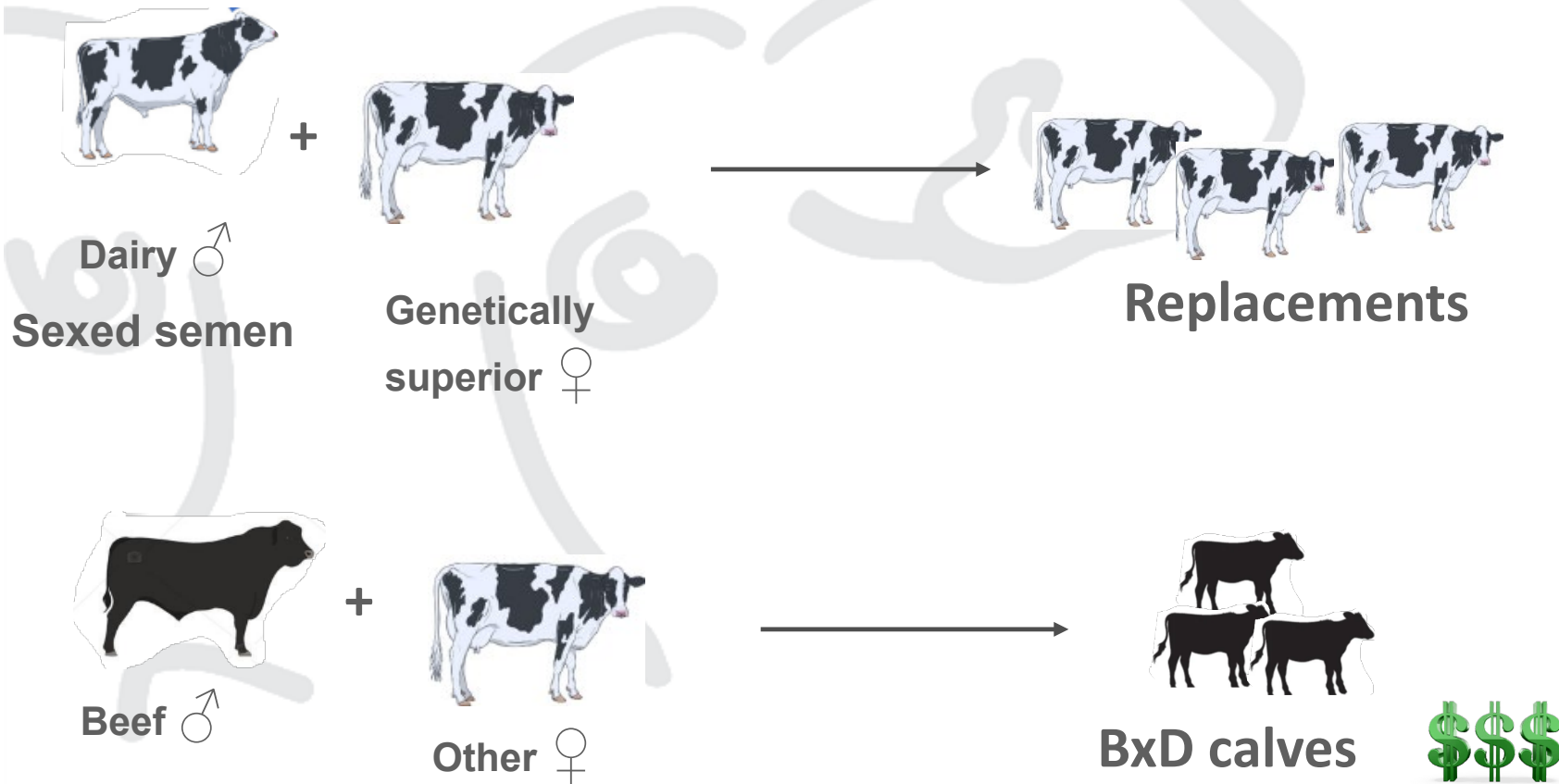
Interbull Annual Meeting – August 26-27, 2023 – Lyon, France



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# Beef on dairy: more than a trend...

## A winning strategy



# Beef on dairy: more than a trend...

## A winning strategy



Selecting the right  
beef sire

A critical success  
factor

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# Joint Nordic Beef x Dairy Genetic Evaluation

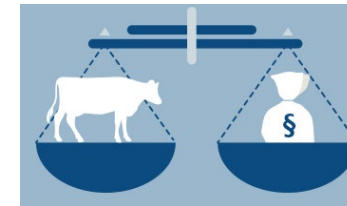


Since 2018

Across breed breeding values for AI beef sires based on data from their offspring when used on purebred HOL, JER and RDC cows

Since 2019

NBDI



Overall Economic index

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# Joint Nordic Beef x Dairy GE

## Trait groups

### Calving



- Calf survival  
1<sup>st</sup> and later lactations
- calving ease  
1<sup>st</sup> and later lactations

### Carcass



- Carcass daily gain
- Carcass conformation score
- Carcass fat score

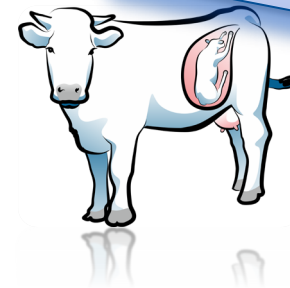
### Latest additions

### Youngstock survival



Economy ++  
Animal welfare ++

### Gestation length



Management tool  
Economy ++

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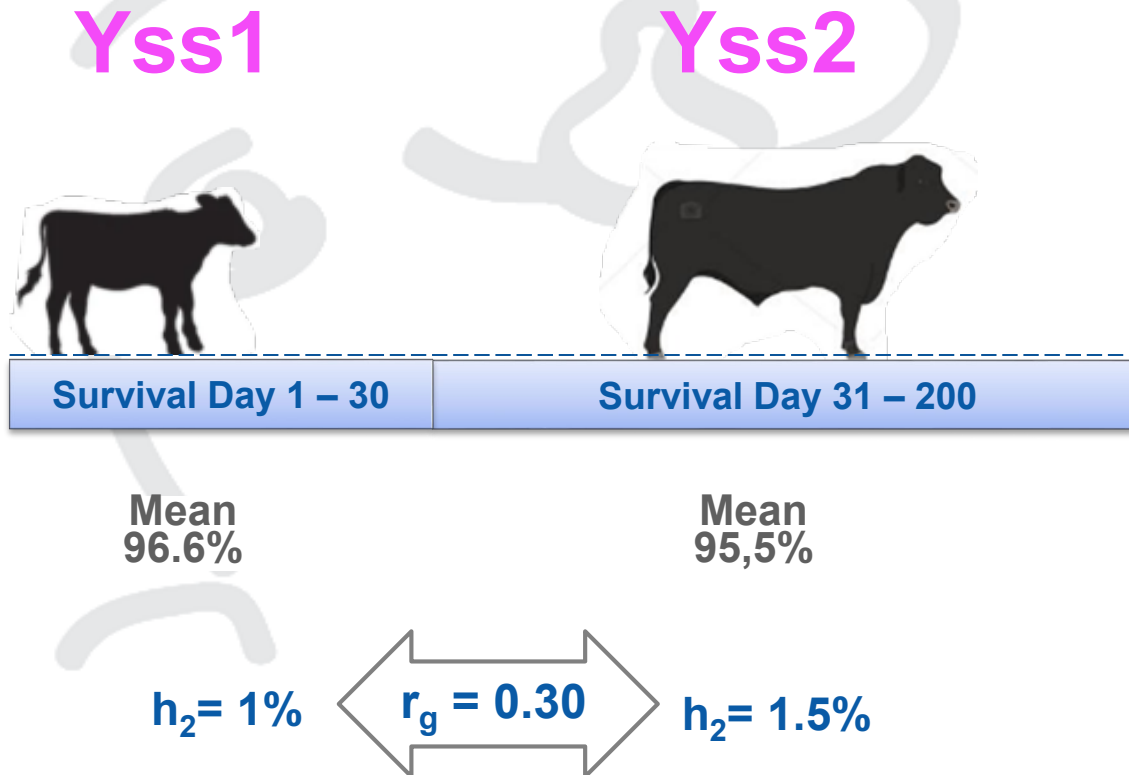
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# Youngstock survival

Two different periods, no distinction between sexes



# Youngstock survival

## The model

### Multiple-trait linear model

#### Fixed effects

- Sire breed
- Country – herd - year
- Country – year - month
- Country – year – sex
- Dam breed – year
- Country – parity
- Country – transfer\*

#### Random effects

- Sire

\*Only for Yss2

*Transfer = 1 if the calf was transferred during the first 100 days/0 otherwise*



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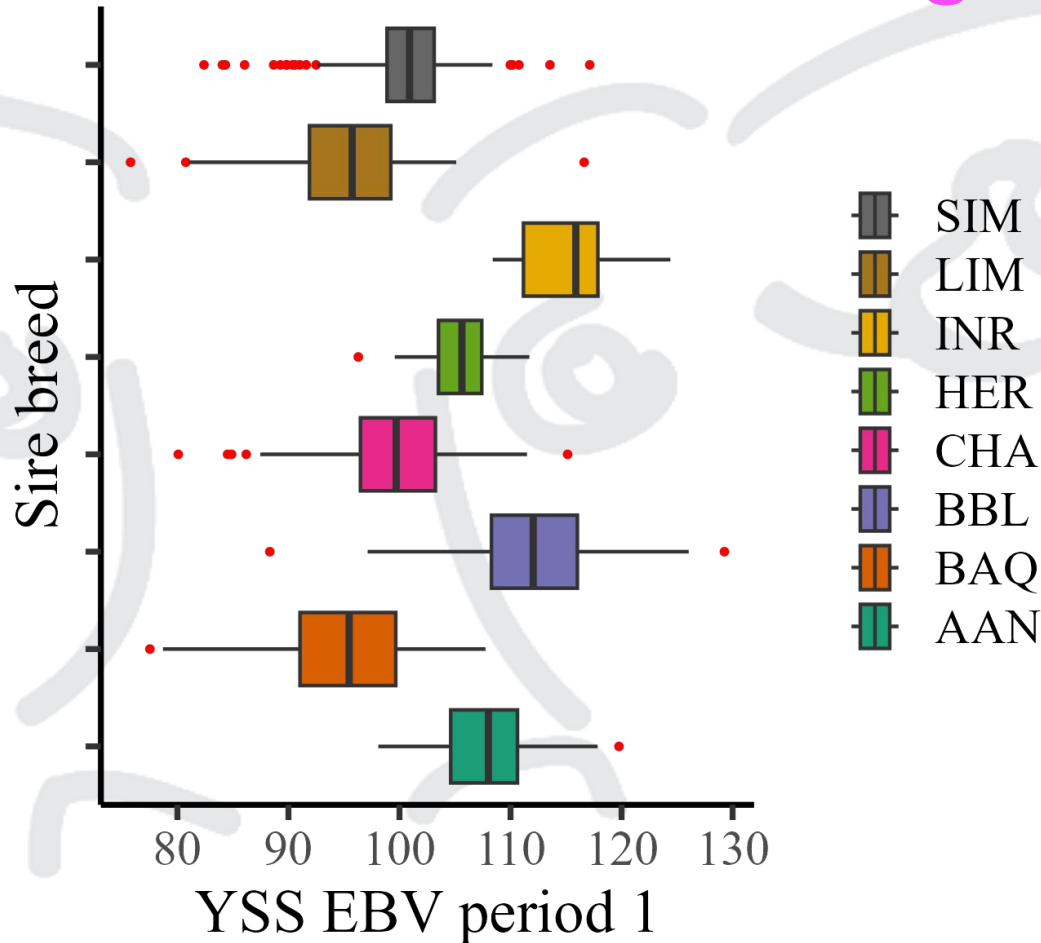
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# Youngstock survival Breeding values



Three YSS breeding values are published

YSS period 1, YSS period 2 and YSS (a combined by)

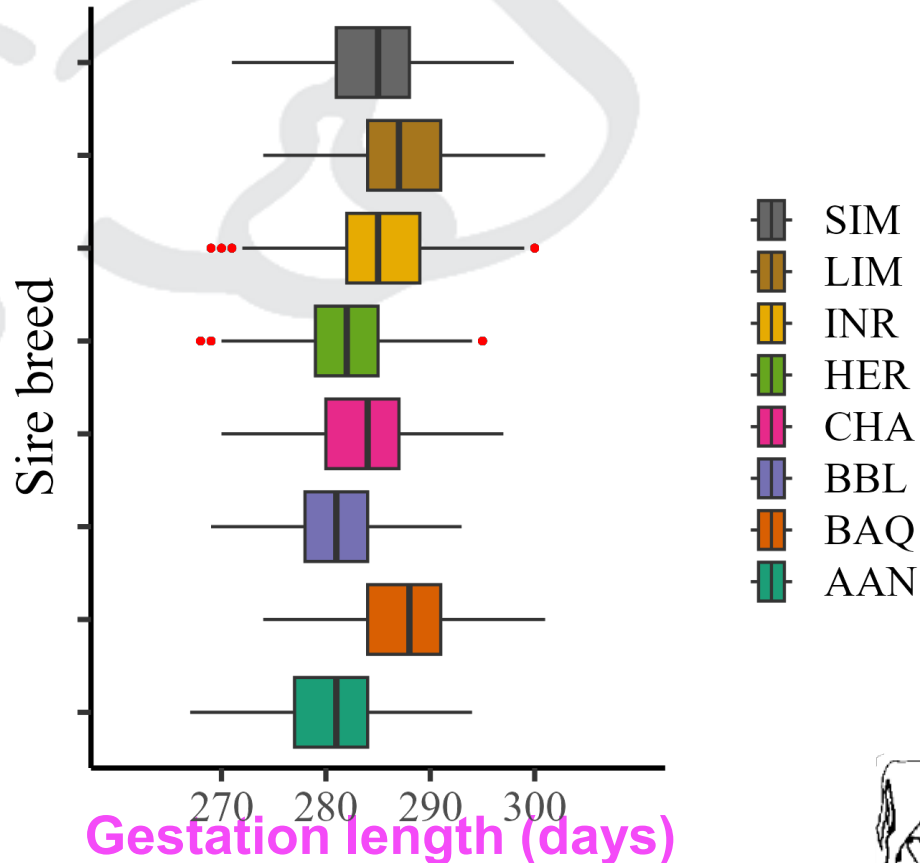


# Gestation length

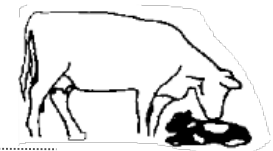
## Phenotypes

sex	mean	sd	median	mad
Female	283.1	6.0	283	5.9
Male	284.3	6.2	284	5.9

	Mean	SD	Median	MAD
Cows	283.9	6.1	284	5.9
Heifers	282.3	6.1	282	5.9



Conception



parturition

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# Gestation length

## The model

### Multiple-trait linear model

#### Fixed effects

- Sire breed
- Country – herd - year
- Country – year - month
- Country – year – sex
- Dam breed – year
- Country – age of the dam

#### Random effects

- Sire

#### Two separate traits:

Heifers and cows

#### High heritability:

0.56, 0.57 for heifers, cows

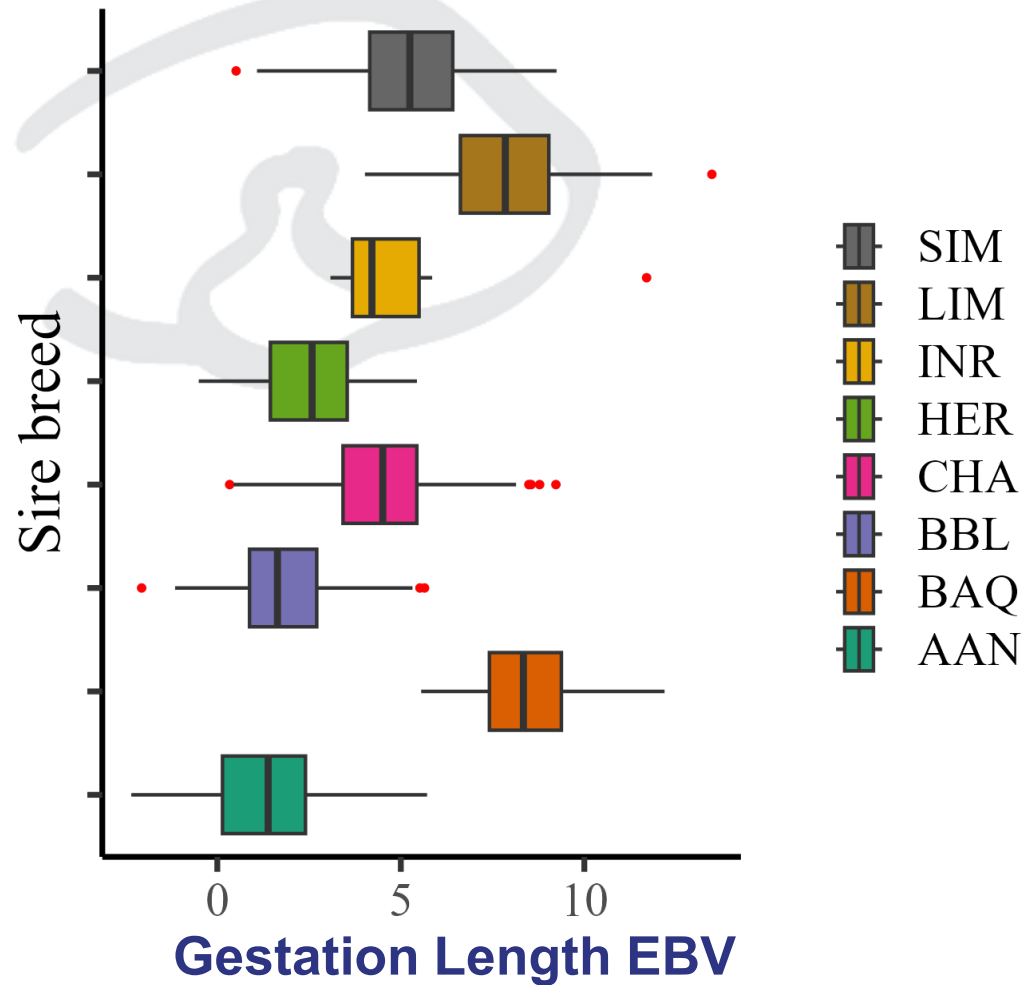
#### Very high $r_g = 0.99$ :

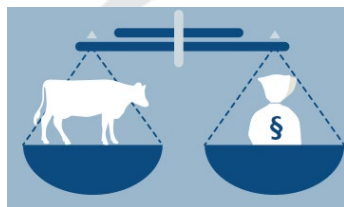
Only GL for cows is published

# Gestation length

**MAY 2023**

- Expressed as a deviation from a standard dairy mean fixed at 280 days
- A management tool
- It is an optimum trait  
→ No inclusion in NBDI

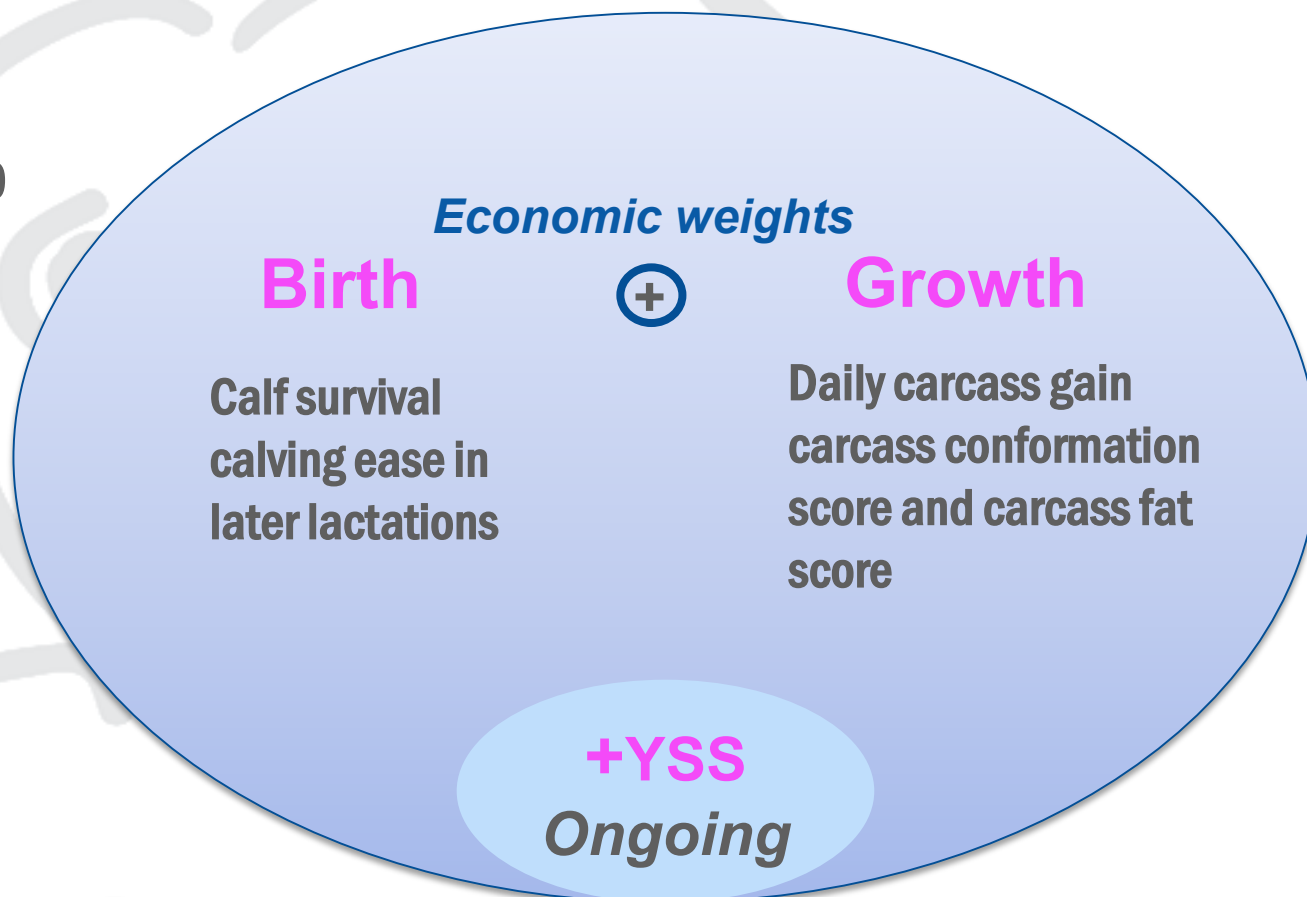




# The Nordic Beef on Dairy Index

## NBDI

- Short rearing period (<550 days)
- Long rearing period (>550 days)



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# Future: few more challenges

- **Current BXD EBVs very useful for dairy farmers to select beef bulls**
- **Genetic improvement of beef bulls require an efficient breeding program for beef breeds focusing on economical important traits for BXD production**
- **Genomic selection might be beneficial tool for both creating genetic progress in beef breeds and for selecting beef bulls for BXD production**