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

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Beef on dairy: more than a trend...

A winning strategy

Dairy ♂ + Genetically superior ♀ = Replacements

Sexed semen

Beef ♂ + Other ♀ = BxD calves

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Beef on dairy: more than a trend...
A winning strategy

Selecting the right beef sire
A critical success factor
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
Joint Nordic Beef x Dairy GE
Trait groups

Calving
- Calf survival
- 1st and later lactations
- Calving ease
- 1st and later lactations

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

Youngstock
- Survival

Gestation length

Latest additions

Management tool
Economy ++
Animal welfare ++

Interbull Annual Meeting – August 26-27, 2023 – Lyon, France
Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation
Youngstock survival

Two different periods, no distinction between sexes

Yss1
- Survival Day 1 – 30: Mean 96.6%
- Survival Day 31 – 200: Mean 95.5%
- $h_2 = 1\%$
- $r_g = 0.30$

Yss2
- Survival Day 1 – 30: Mean 95.5%
- Survival Day 31 – 200: Mean 95.5%
- $h_2 = 1.5\%$
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
Youngstock survival
Breeding values

Three YSS breeding values are published
YSS period 1, YSS period 2 and YSS (a combined bv)
Gestation length

Phenotypes

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<th>Sex</th>
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<th>SD</th>
<th>Median</th>
<th>MAD</th>
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Mean | SD  | Median | MAD |
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<td>Cows</td>
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<tr>
<td>Heifers</td>
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<td>6.1</td>
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</table>
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

- 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)

Economic weights:

**Birth**
- Calf survival
- Calving ease in later lactations

**Growth**
- Daily carcass gain
- Carcass conformation score and carcass fat score

+YSS Ongoing
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