Nordic breeding values for beef breed sires used for crossbreeding with dairy dams

Interbull, Open meeting 22nd June 2019

Ruth Bønløkke Davis, Freddy Fikse, Emma Carlén, Jukka Pösö, Gert Pedersen Aamand
Why a Nordic beef × dairy genetic evaluation?

Number of calves

Year

DNK  FIN  SWE
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 and countries
Data in the evaluation

Crossbred Nordic calves with:
- purebred dairy dam (HOL, JER and RDC),
- purebred AI sire from a beef breed (also INRA)
- born on milk producing herds

Photo: VikingGenetics
Distribution of sire breeds
Rearing system

Differences across:
- Countries
- Sex
Traits in the evaluation

**Calving traits**
- Calf survival
- Calving ease
- (Calf size)

**Carcass traits**
- Carcass daily gain
- Carcass conformation score
- Carcass fat score

**2 trait groups**
- First parity
- Later parities
Published breeding values

Calving traits
- Calf survival
- 1\textsuperscript{st} and later lact.*
- Calving ease
- 1\textsuperscript{st} and later lact.

Carcass traits
- Carcass daily gain
- Carcass conformation score*
- Carcass fat score

*reliability of 50% or 500 offspring
Model description

- Sire model
- Multi trait
  - Calving traits
  - Carcass traits

Correlation between traits
Effects in the Model

- Sire beef breed
- Herd-year
- Year-month-country
- Age calving/slaughter
- Dam breed-year-country

Comparison within herd when multiple beef sire breeds are used

Adjust for breed differences and genetic trend in dairy population
Presentation of Breeding Values

- As for dairy genetic evaluation
  - Mean: 100
  - Standard deviation: 10
- No economic index (yet)
Distribution of breeding values by sire breed

- Calving traits

BV for Calf survival, later parities
Distribution of breeding values by sire breed

- Carcass traits

Index for carcass conformation score
Future plans

- December 2018 first publication
  - With NAV routine evaluation (4 times/year)
- Economic *Nordic Beef x Dairy Index* in the pipeline
- Research on genetic evaluation for additional traits
NBDI – Nordic BeefxDairy Index

- Birth index (calving traits)
- Growth index (carcass traits)
  - Short fattening period
  - Long fattening period
- NBDI (all traits)
  - Short fattening period
  - Long fattening period
Take-home message

- Nordic dairy farmers can now select beef sire across breed for a profitable production

- Communication and advisory service needed to promote new values