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

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Nordic cattle genetic evaluation

- Dairy breeds
  - Joint genetic evaluation
  - Joint TMI = Nordic Total Merit

- Beef breeds
  - Beef x dairy – joint genetic evaluation
  - Purebred beef – development ongoing
Why a Nordic beef × dairy genetic evaluation?

Number of beef x dairy calves

Year

DNK FIN SWE

The aim

• Develop breeding values that helps dairy farmers to select beef sires that produce the economically best crossbred calves

• 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 beef sire (major breeds)
- born on milk producing herds
PROPORTION OF BEEF X DAIRY CALVES BORN IN 2018 AFTER DIFFERENT SIRE BREEDS

- **Danish Blue**: 41%
- **Blonde**: 28%
- **Limousin**: 8%
- **Angus**: 9%
- **Simmental (beef)**: 5%
- **Charolais**: 6%
- **Hereford**: 3%

**BBL**: Only used in DNK ~80% of calves ↑ over years

**BAQ**: Major breed in FIN ~50% of calves ↑ over years

More equal distr. in SWE BSM, HER, CHA, LIM, ANG ~from 30 to 15% each
Differences in rearing system

Different average age at slaughter for males and females in our three countries
Published breeding values

**Calving traits: 4 EBV**
- Calf survival
- 1\textsuperscript{st} and later lact.*
- Calving ease
- 1\textsuperscript{st} and later lact.
- Indicator trait:
  - Calf size

**Carcass traits: 3 EBV**
- Carcass daily gain
- Carcass conformation score*
- Carcass fat score
- Split on rearing period and/or gender

*Publication rule: 50%*
Effects in the multiple trait models

- Sire beef breed
- Herd - year
- Year-month-country
- Age calving/slaughter
- Dam breed-year-country
- Genetic effect of animal=beef sire solution

Adjust for breed differences and genetic trend

Adjust for breed differences, added back to sire solutions
"I use always Angus on my dairy cows to avoid difficult calvings. Which bull it is doesn’t matter…"
Distribution of breeding values by sire breed

- Calving traits

Relative breeding values
Mean=100
Std=10

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

- Carcass traits

Index for carcass conformation score
Status and 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 Beef x Dairy Index

- Birth index (calving traits)
- Growth index (carcass traits)
  - Short rearing period
  - Long rearing period

➢ NBDI (all traits)
  - *Short rearing period*
  - *Long rearing period*
Take-home message

• Nordic dairy farmers can now select beef sires across breed for a profitable production

• Communication and advisory service needed to promote new values