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

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NAV

Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Why a Nordic beef × dairy genetic evaluation?
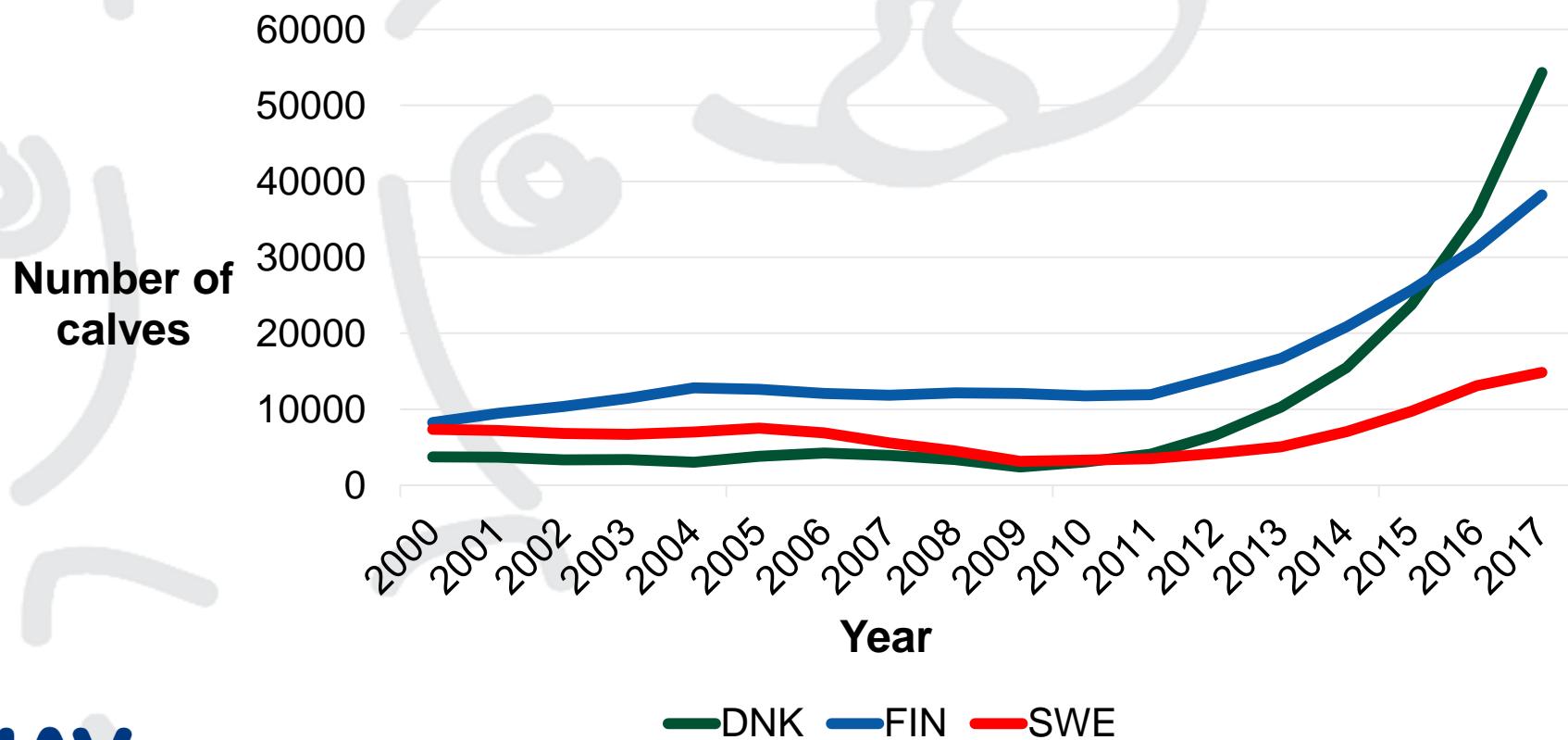
The aim

- **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**
  - **On the same scale**

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

Birth year

Legend: LIM, HLA, HER, CHA, BSM, BBL, BAQ, AAN

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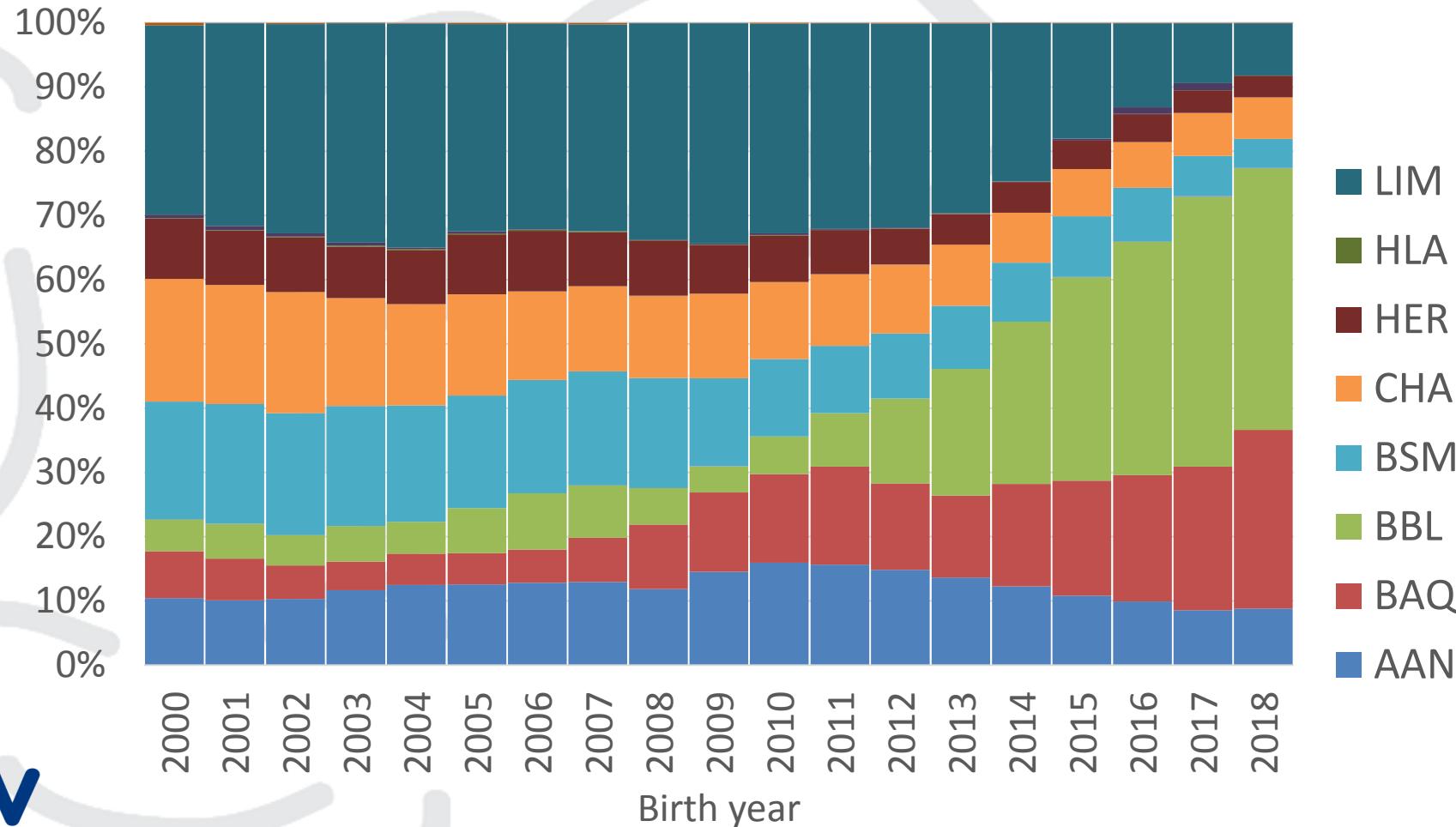
Rearing system

Differences across:

- **Countries**

- **Sex**

Distribution of mean slaughter age for herd-year-sex classes with >= 3 records
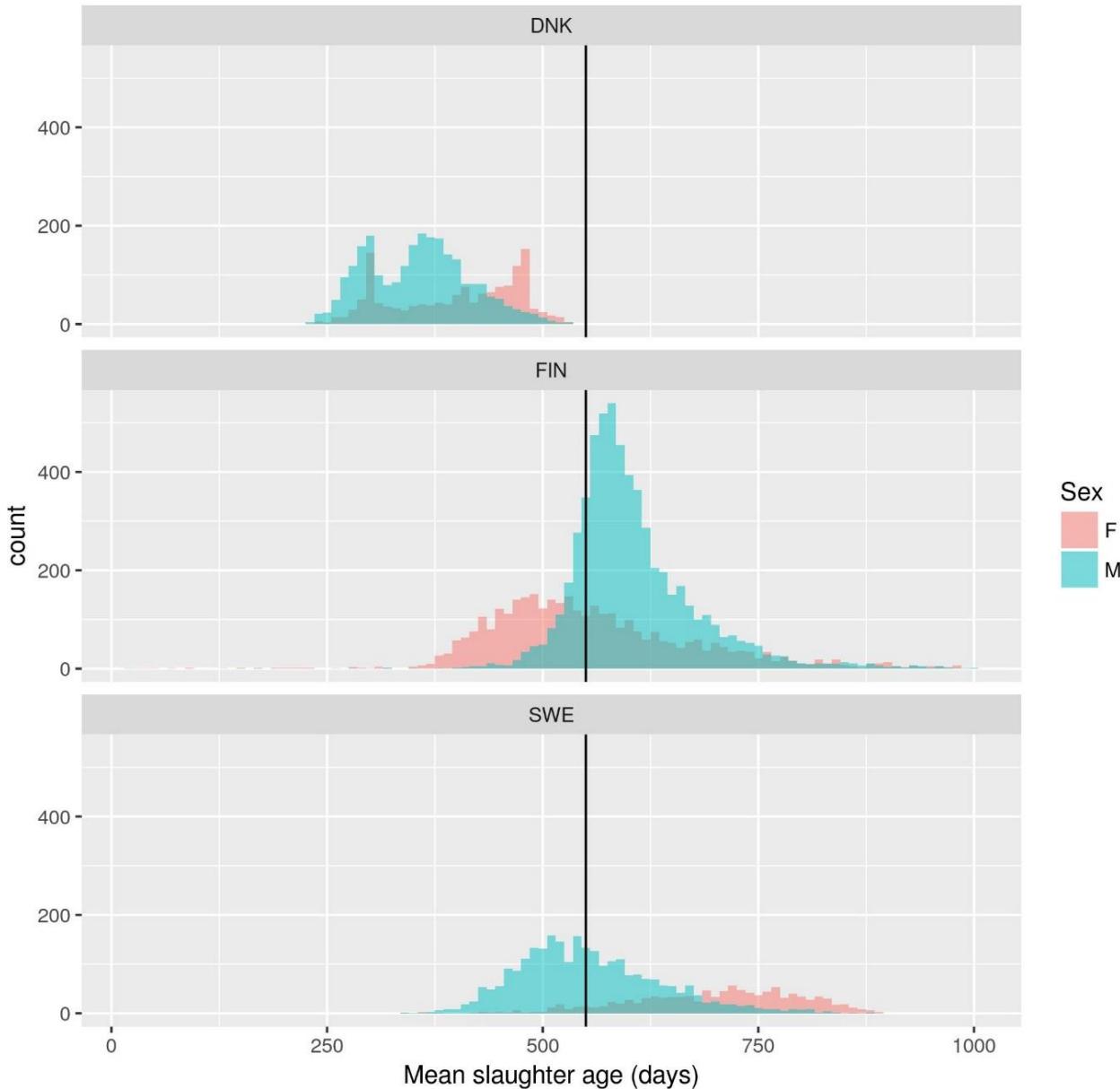
Traits in the evaluation

Calving traits

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

- **2 trait groups**
  - **First parity**
  - **Later parities**

Carcass traits

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

Published breeding values

Calving traits

- **Calf survival**
  - 1st and later lact.*
- **Calving ease**
  - 1st and later lact.

Carcass traits

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

*reliability of 50% <u>or</u> 500 offspring

Effects in the Model

- **Sire beef breed**
- **Herd - year**

} **Comparison within herd when multiple beef sire breeds are used**

- **Year-month-country**
- **Age calving/slaughter**
- **Dam breed-year-country** → **Adjust for breed differences and genetic trend**
- **Multiple-trait** → **Correlation between traits**

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Presentation of Breeding Values

- **As for dairy genetic evaluation**
  - **Mean:** 100
  - **Standard deviation:** 10
- **No economic index (yet)**
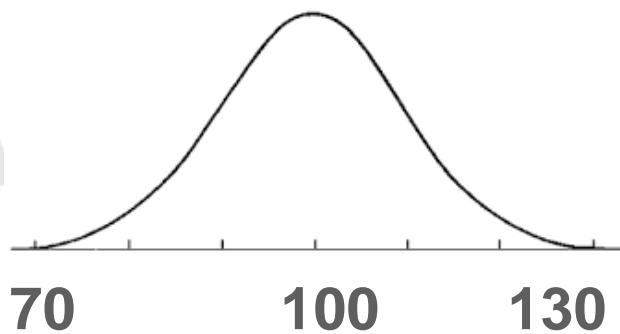
70   100   130

Distribution of breeding values by sire breed

- **Calving traits**
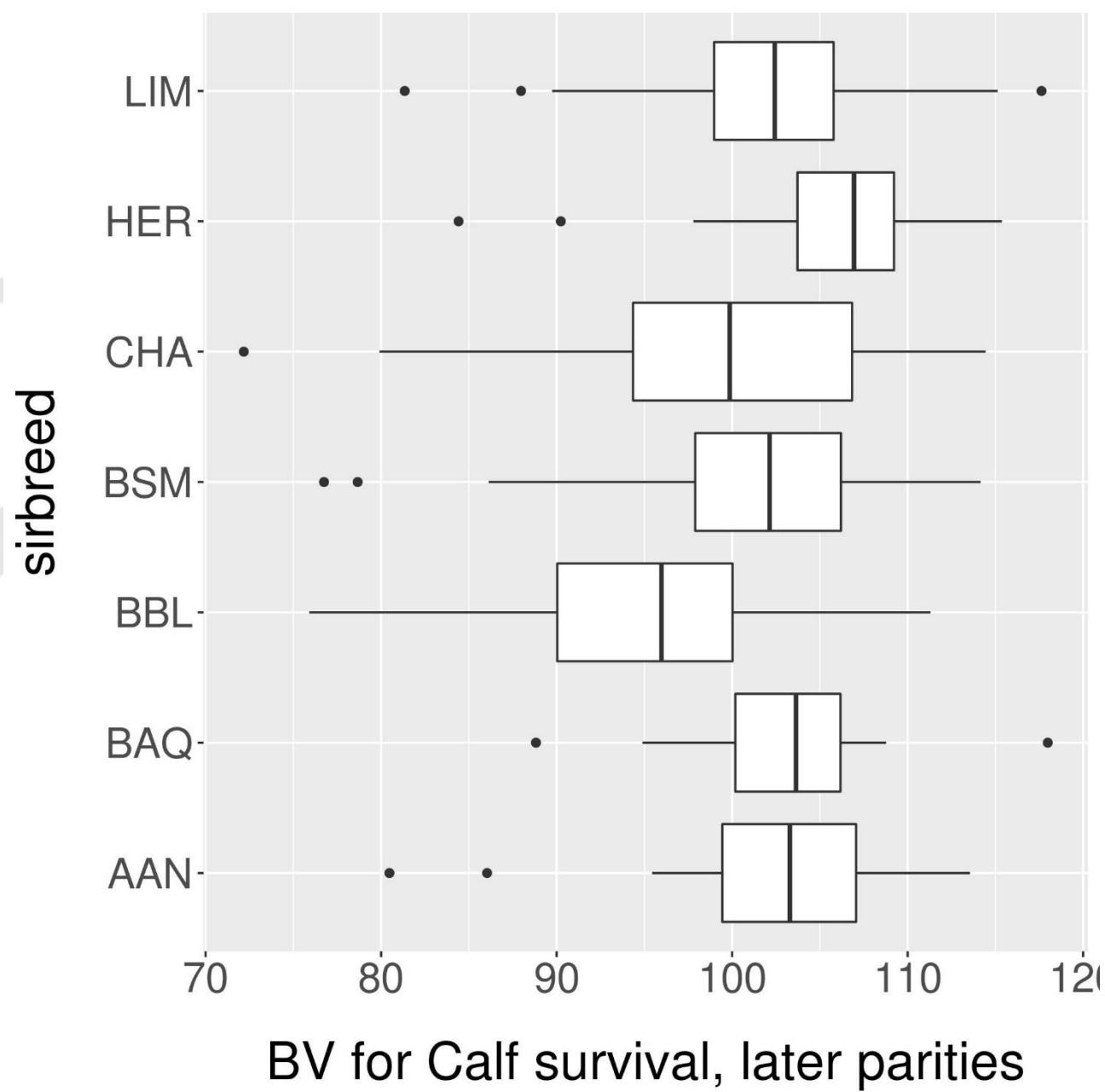
BV for Calf survival, later parities

Distribution of breeding values by sire breed

- **Carcass traits**

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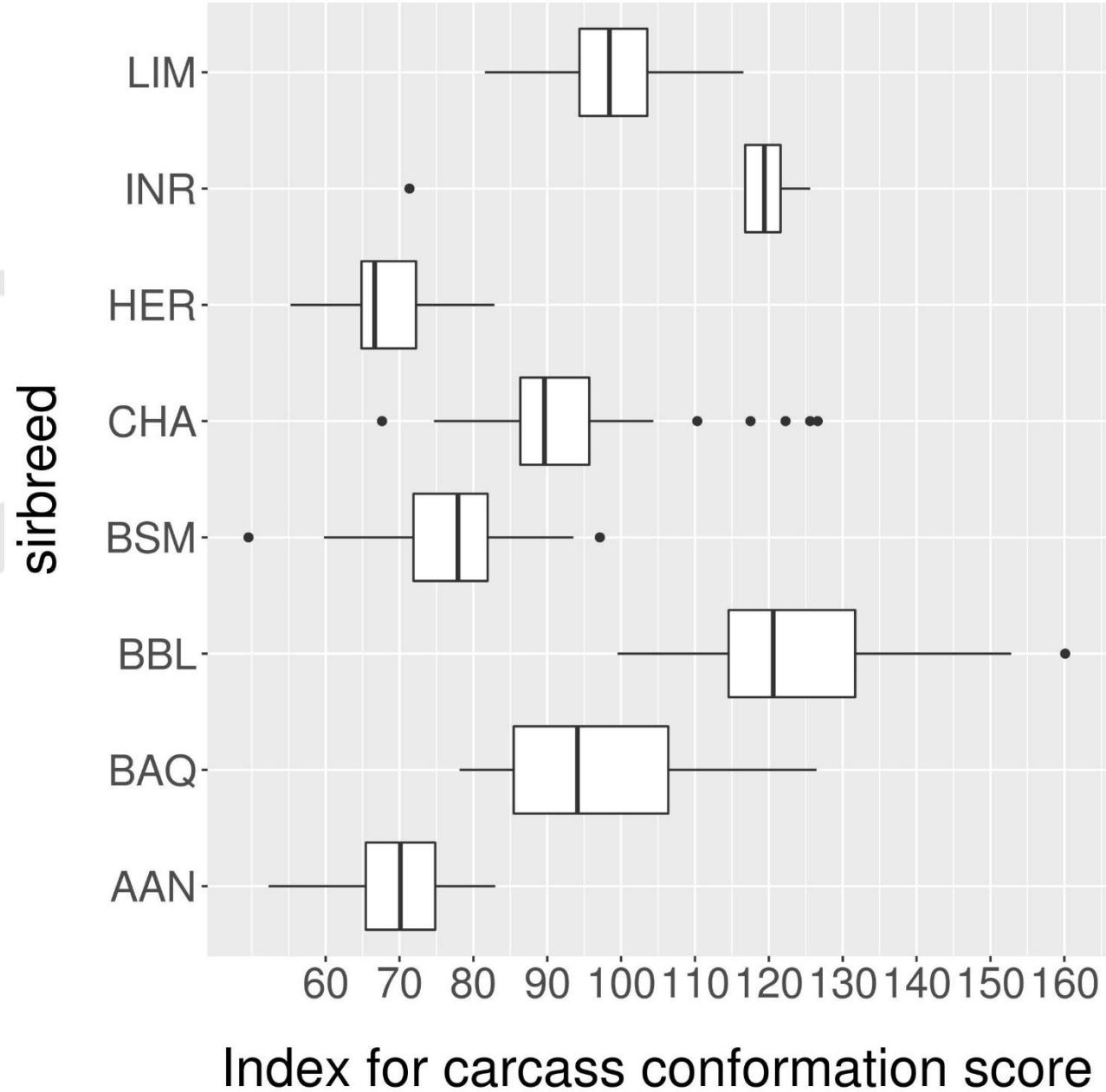
Future plans

- **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**

Photo: VikingGenetics

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**