

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

Interbull, Open meeting 22nd June 2019

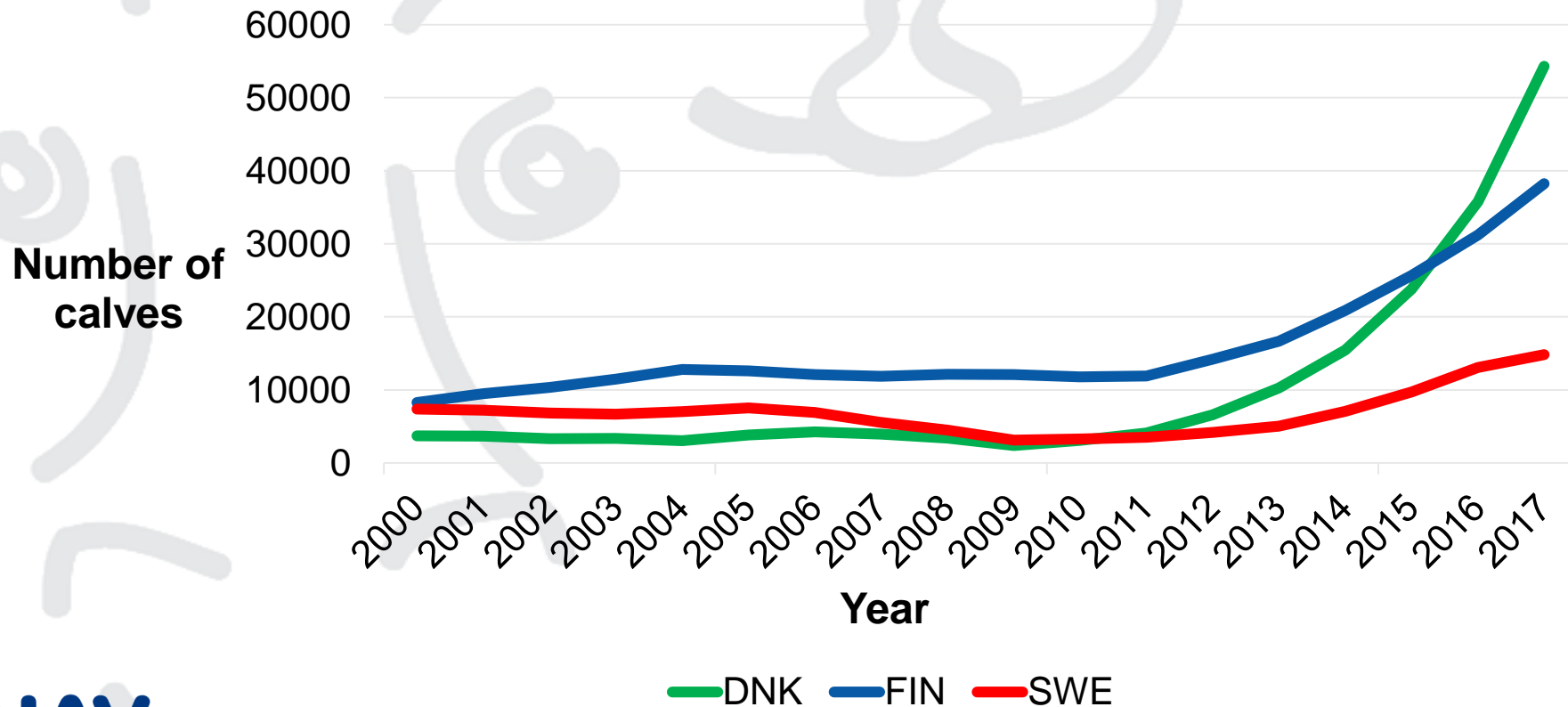
**Ruth Bønløkke Davis, Freddy Fikse, Emma Carlén,
Jukka Pösö, Gert Pedersen Aamand**

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Why a Nordic beef x dairy genetic evaluation?



NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle 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**

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

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**



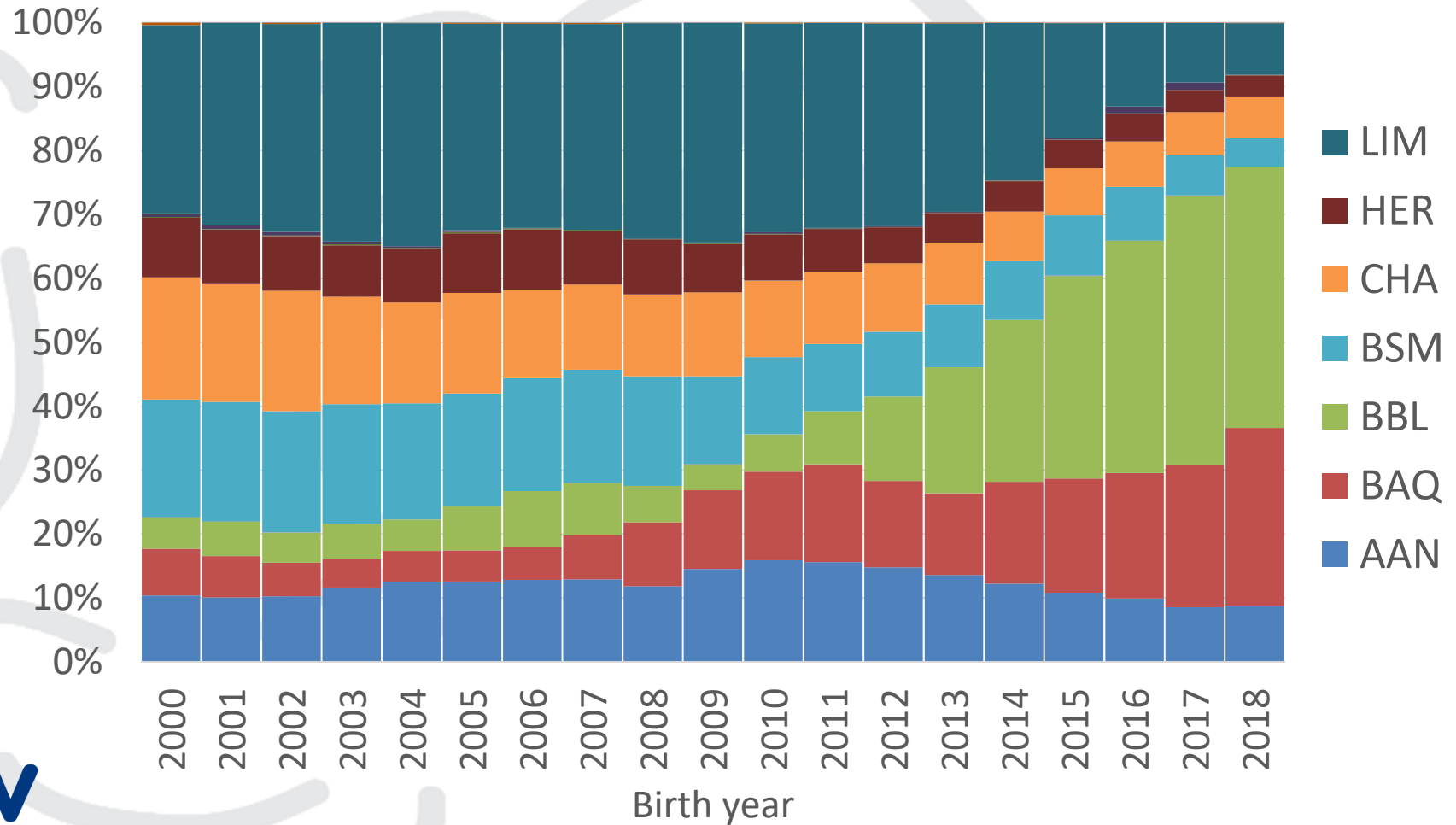
Photo: VikingGenetics

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Distribution of sire breeds

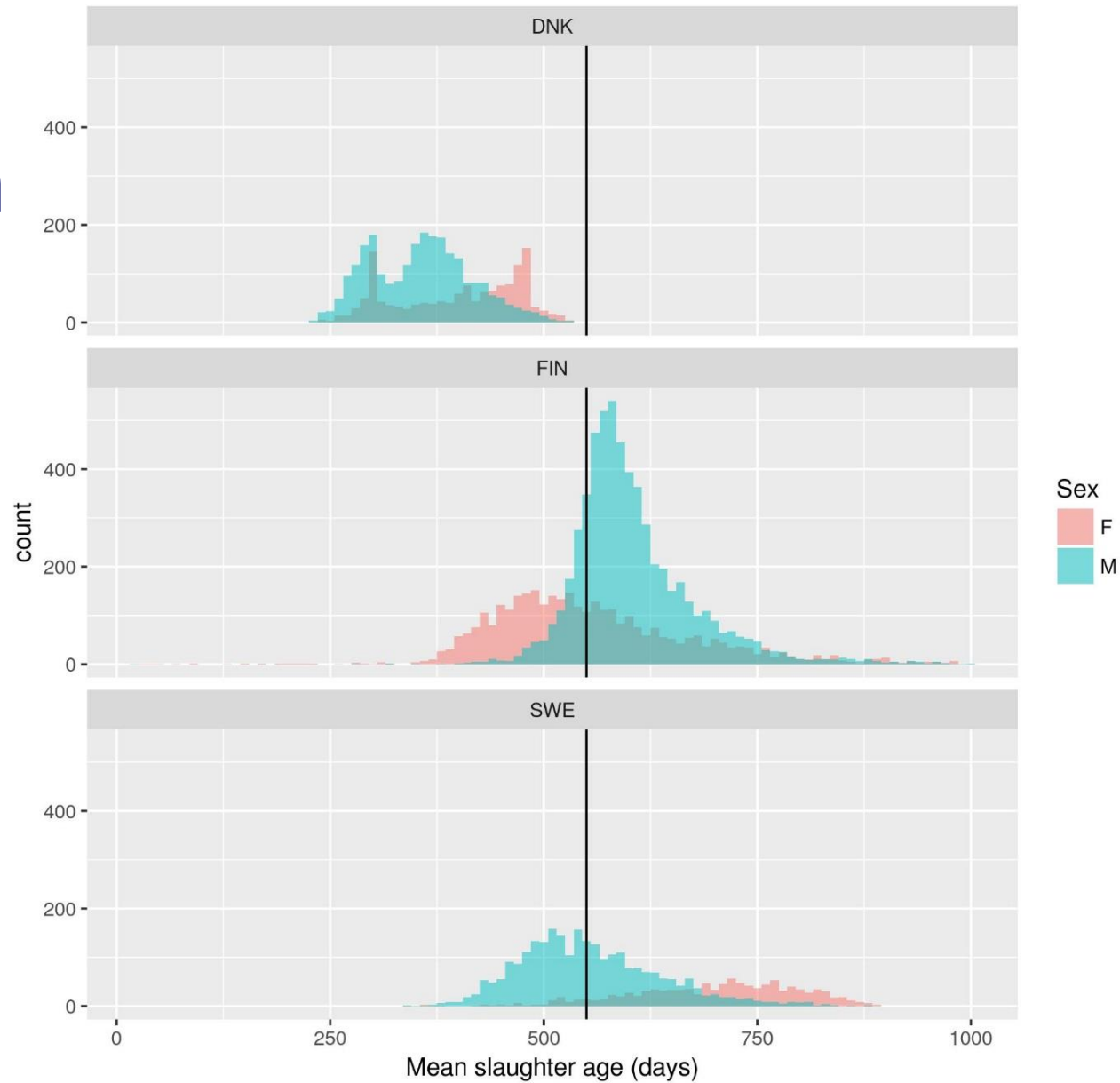


Rearing system

Differences across:

- Countries
- Sex

Distribution of mean slaughter age for herd-year-sex classes with ≥ 3 records



NAV



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

NAV



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% or 500 offspring**

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Model description

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



Correlation between traits

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

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

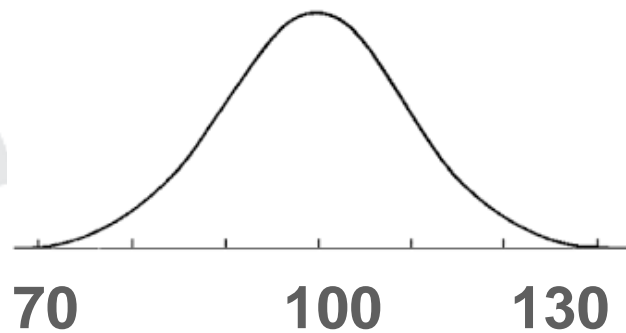
Adjust for breed
differences and genetic
trend in dairy population

NAV



Presentation of Breeding Values

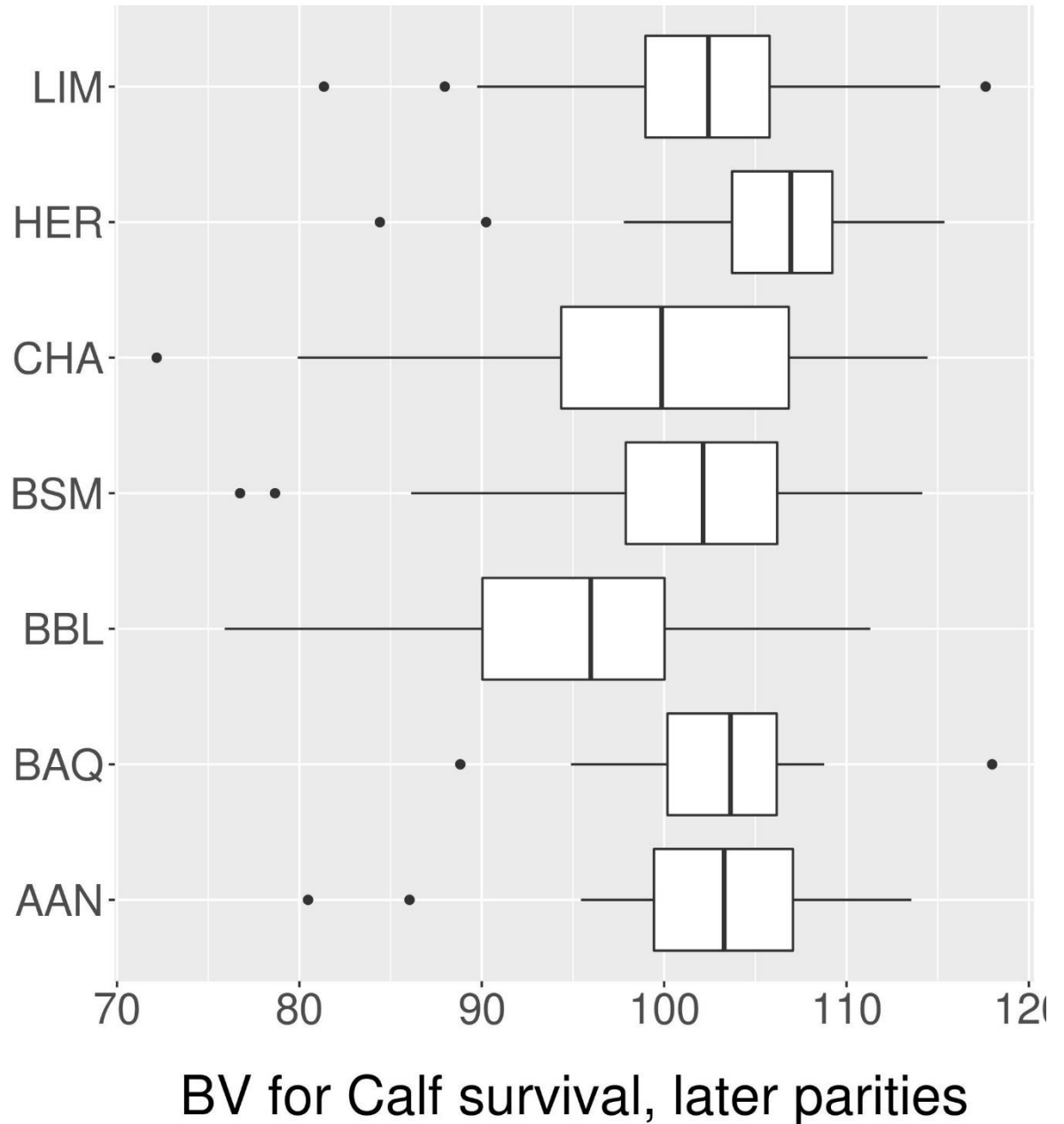
- As for dairy genetic evaluation
 - Mean: 100
 - Standard deviation: 10
- No economic index (yet)



Distribution of breeding values by sire breed

- Calving traits

Sirebreed



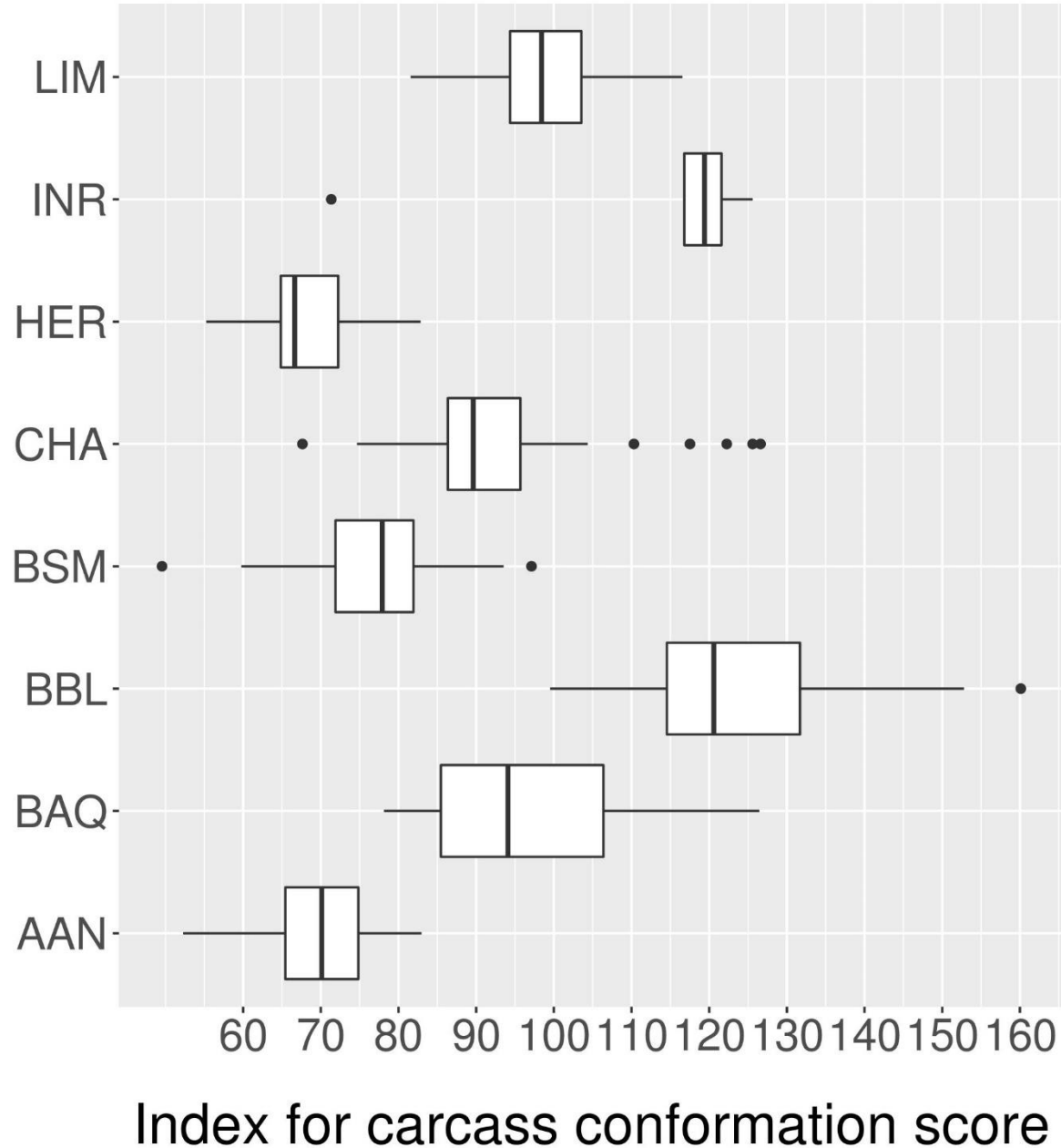
NAV



Distribution of breeding values by sire breed

- Carcass traits

Sirebreed



NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

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**

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

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

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

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**



NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation