

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

ICAR, Technical session 1 - 19th June 2019

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

NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

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

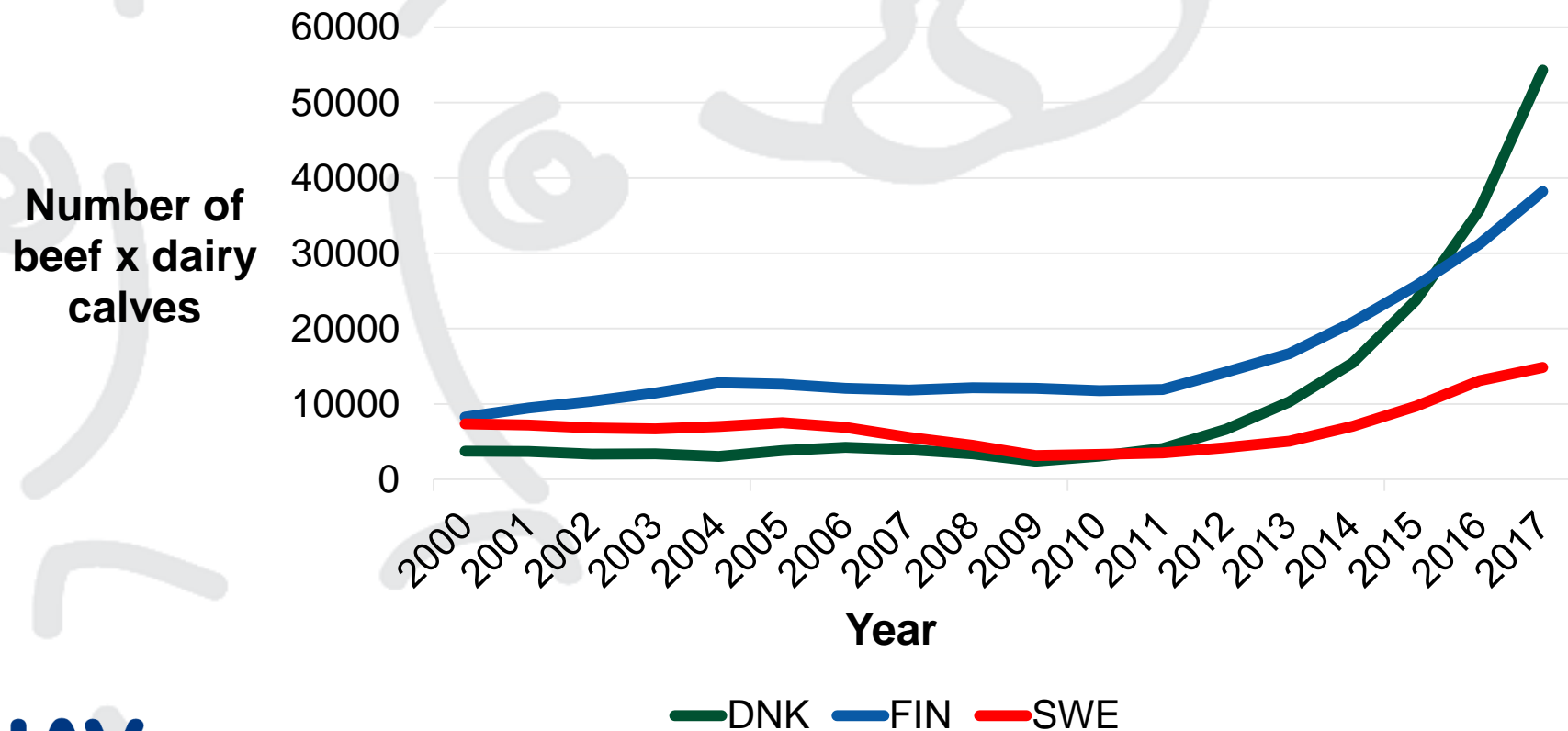


NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Why a Nordic beef × dairy genetic evaluation?



NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

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



NAV

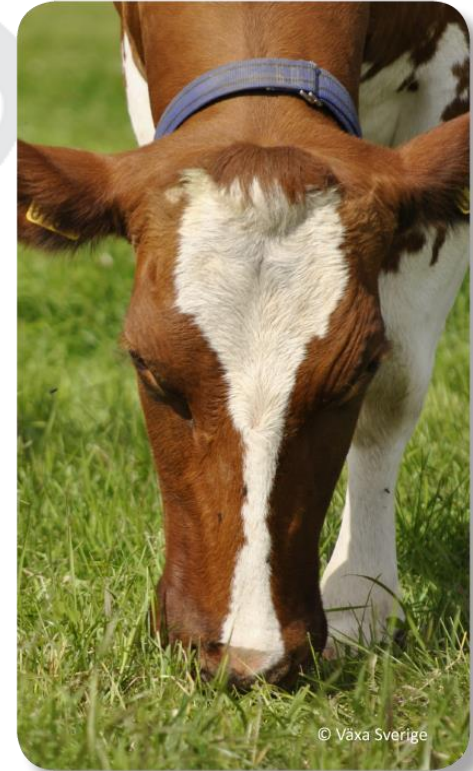


Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

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

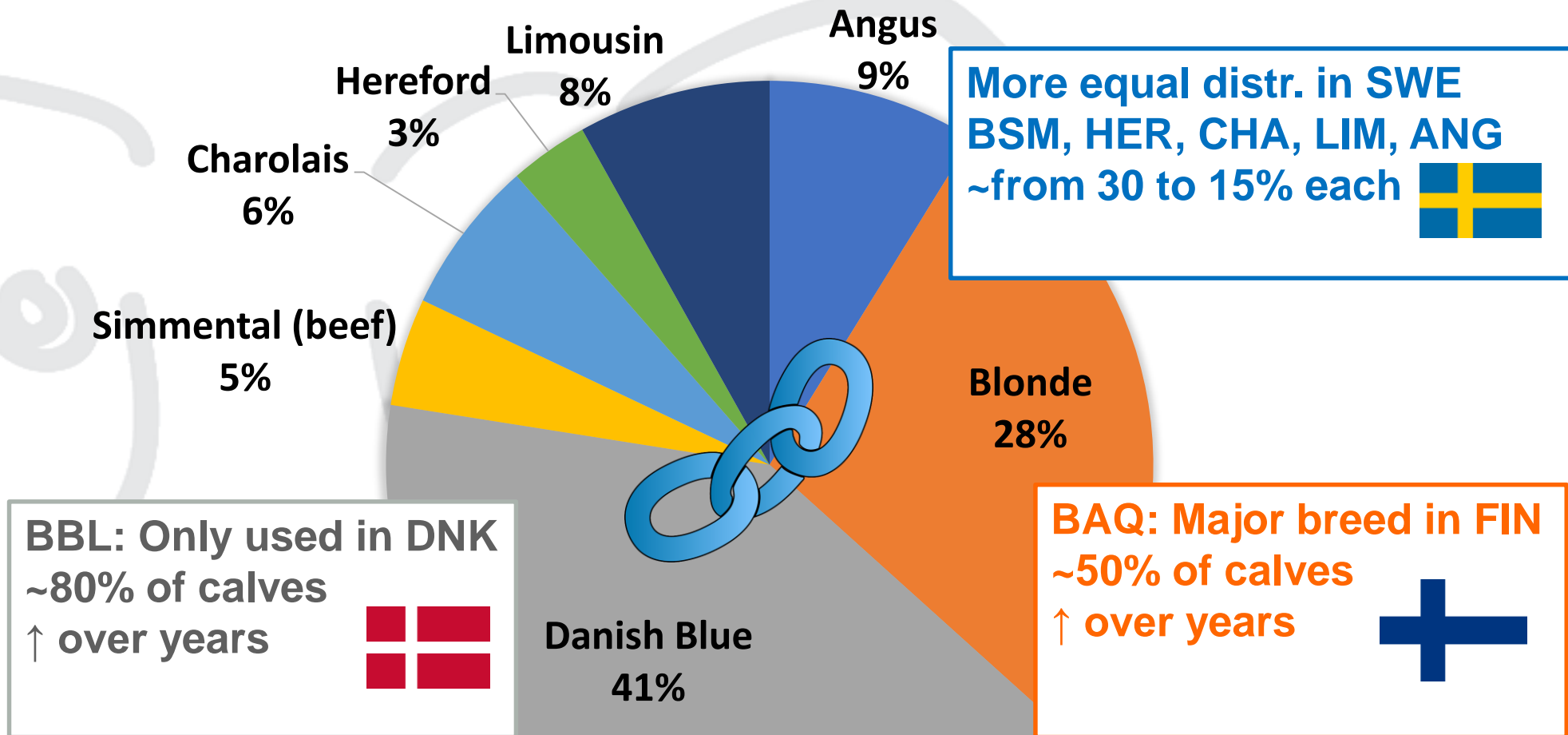


NAV



Nordisk Avlsvärderi Vurdering • Nordic Cattle Genetic Evaluation

PROPORTION OF BEEF X DAIRY CALVES BORN IN 2018 AFTER DIFFERENT SIRE BREEDS



NAV



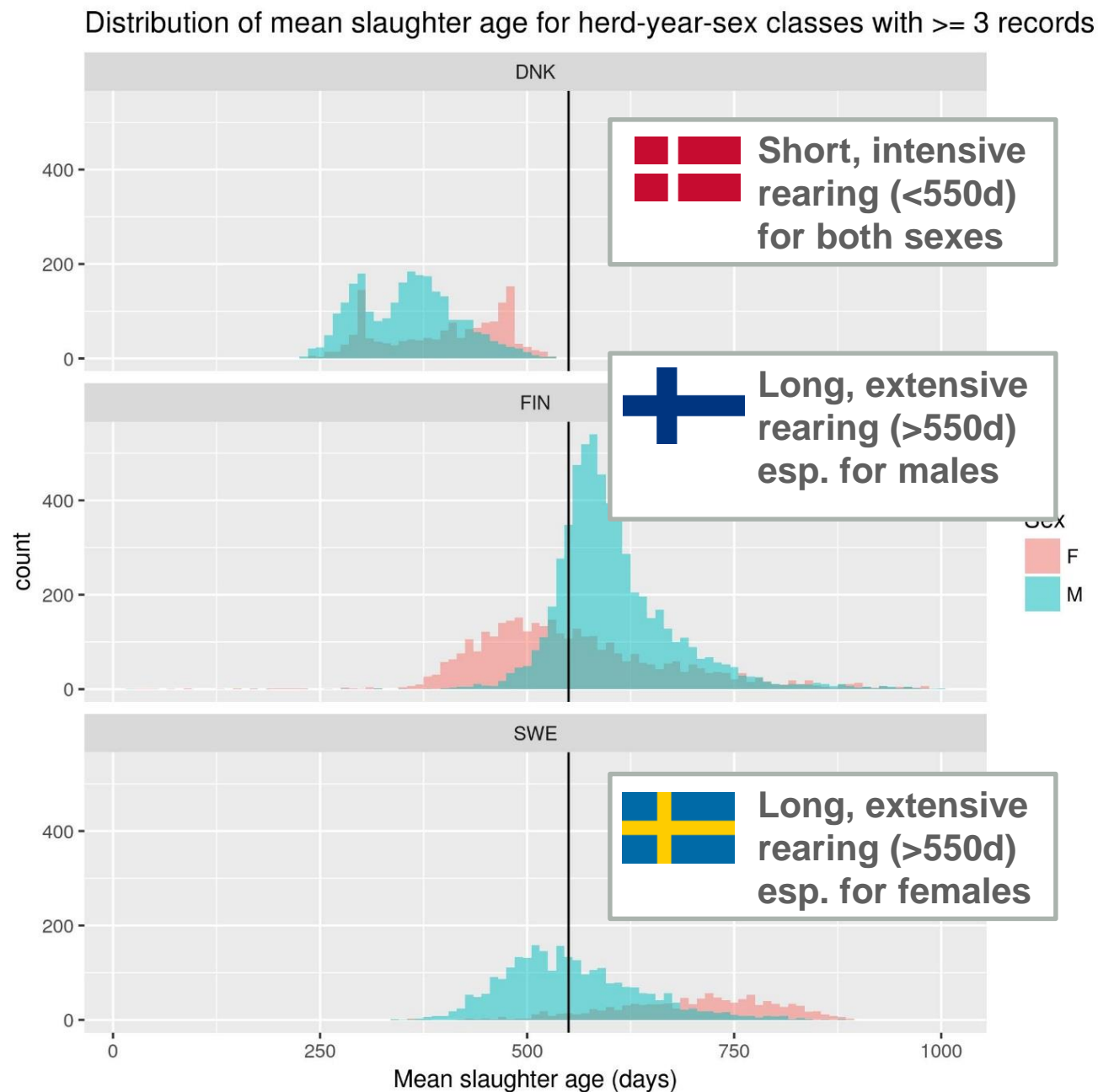
Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Differences in rearing system



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

NAV



Published breeding values

Calving traits: 4 EBV

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

NAV

***Publication rule: 50%**

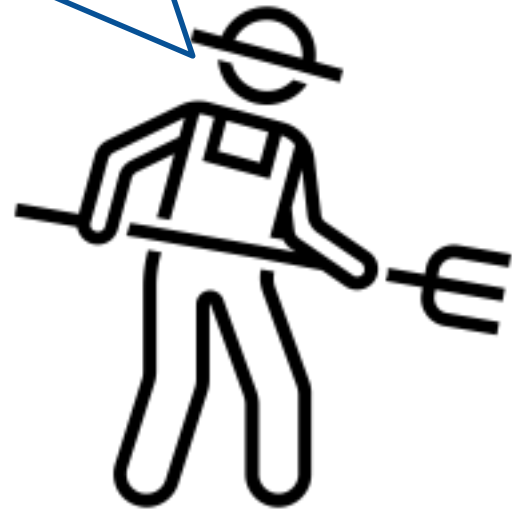


Nordisk Avlsvärderi Vurdering • Nordic Cattle Genetic Evaluation

Effects in the multiple trait models

- Sire beef breed → Adjust for breed differences, added back to sire solutions
- Herd - year
- Year-month-country
- Age calving/slaughter
- Dam breed-year-country → Adjust for breed differences and genetic trend
- Genetic effect of animal=beef sire solution

”I use always Angus on my dairy cows to avoid difficult calvings. Which bull it is doesn’t matter...”



NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

Distribution of breeding values by sire breed

- Calving traits

Relative breeding values

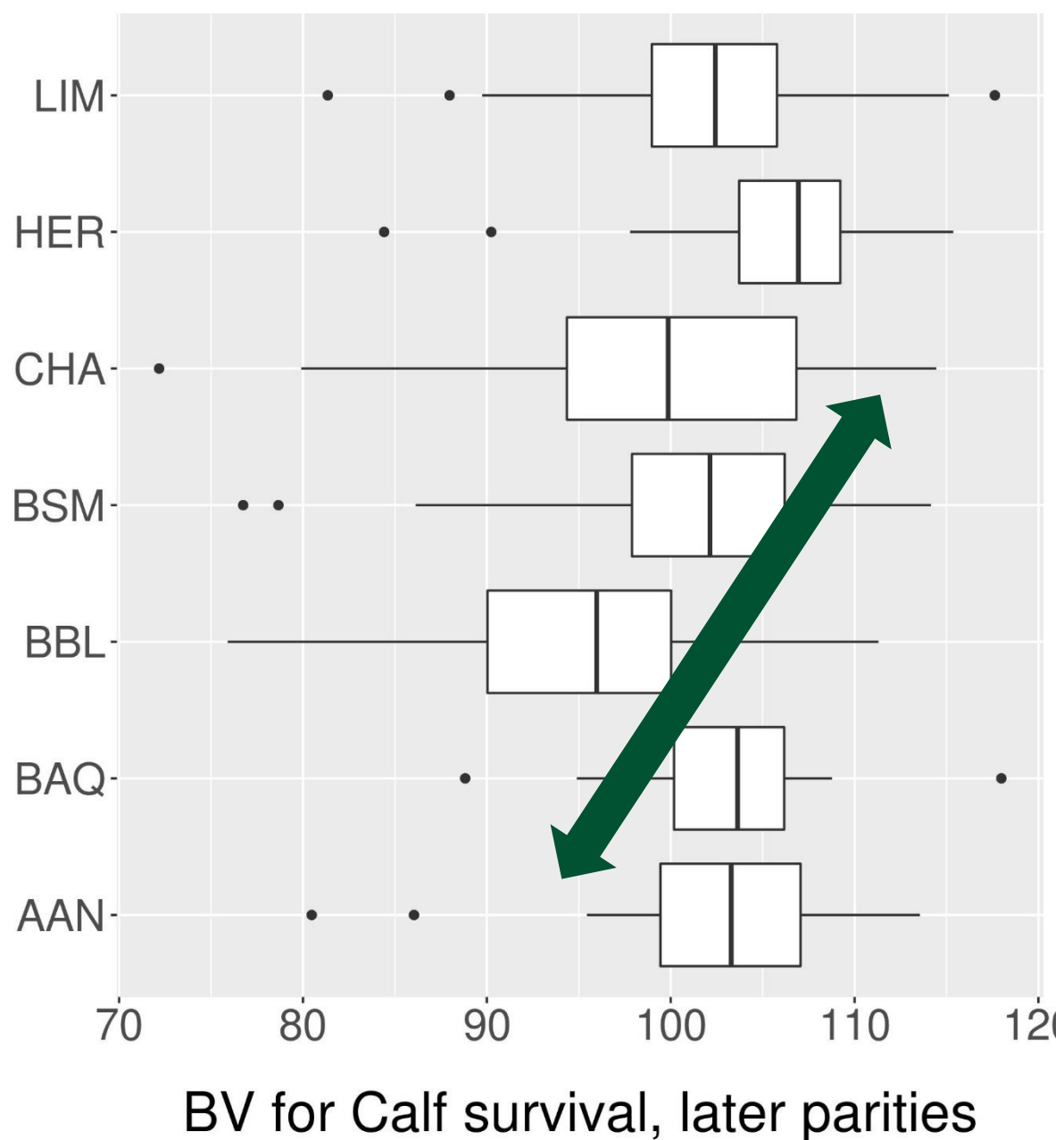
Mean=100

Std=10

NAV

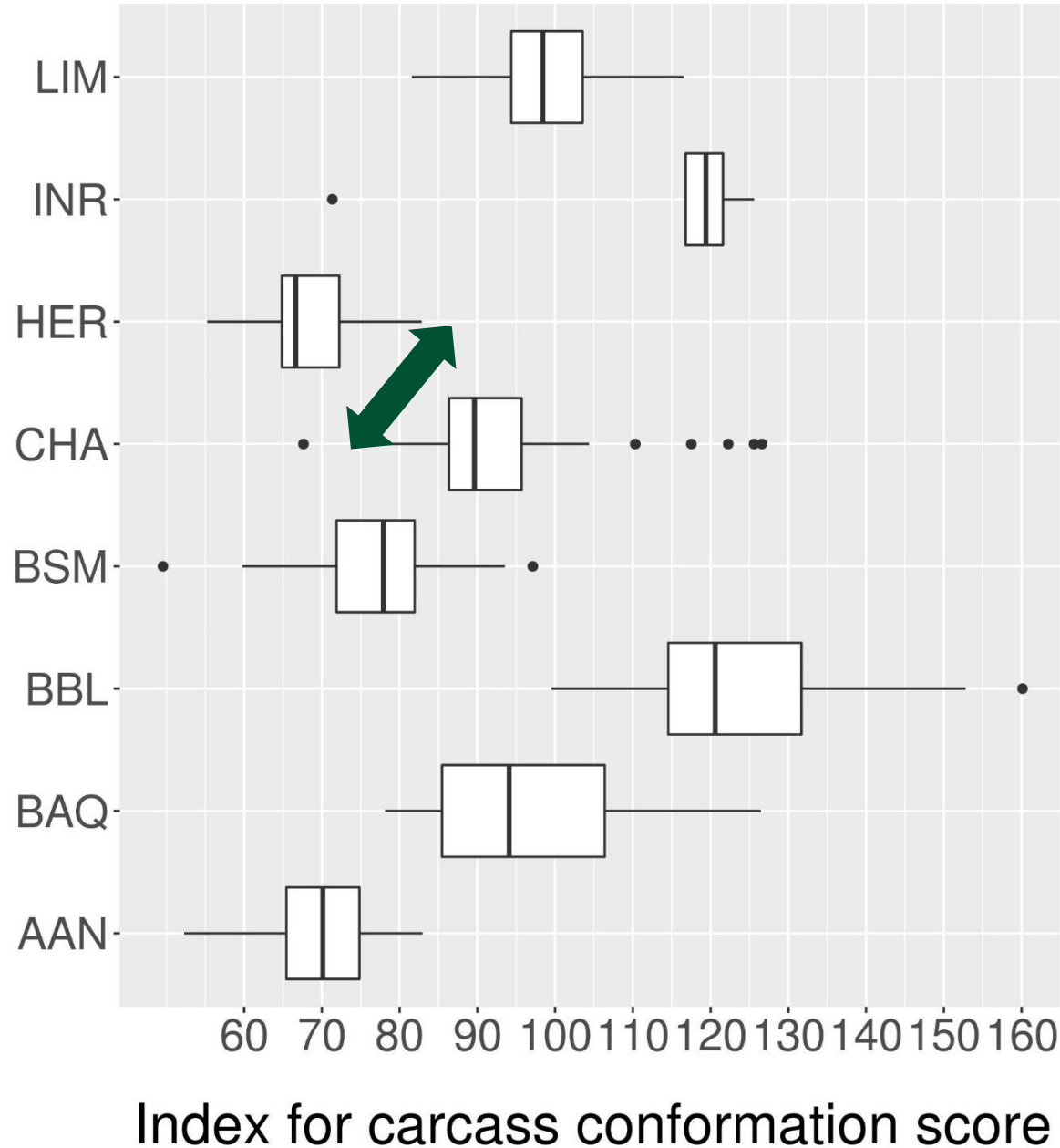


Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation



Distribution of breeding values by sire breed

- Carcass traits



NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

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**



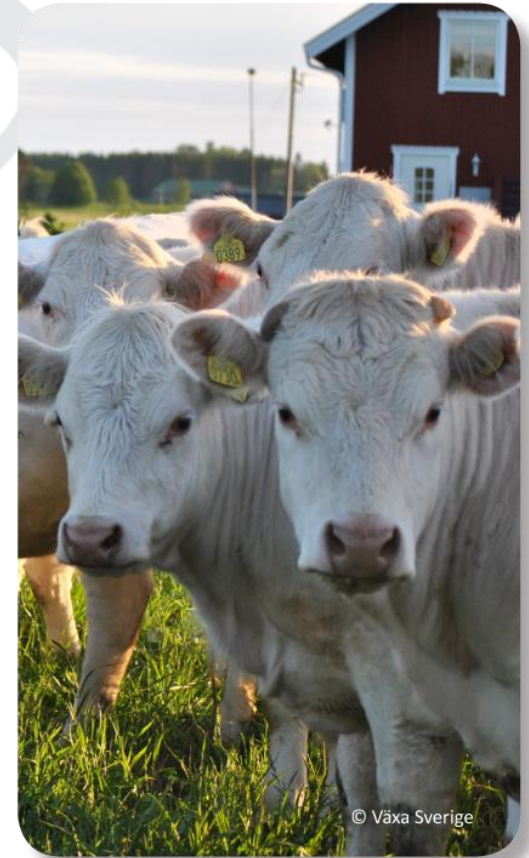
NAV



Nordisk Avlsvärdering • Nordic Cattle Genetic Evaluation

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*



NAV



Nordisk Avlsvärderi Vurdering • Nordic Cattle Genetic Evaluation

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**



NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation