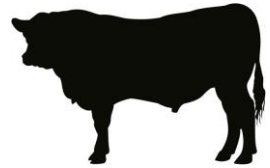
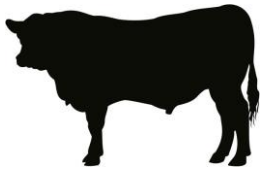


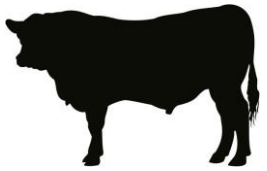
# Interbeef genomic prediction a possibility?

**Gert Pedersen Aamand, NAV**



# Challenges genomic selection in beef cattle

- Nordic populations are quite small
- Populations are only expected to give each other a limited ”help”
- Genomic selection still require lots of valid phenotypes – room for improvements for Nordic beef cattle

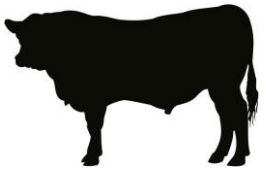


# Reference population

- **Thousands of animals with phenotypes and genotypes required to be able to make reliable genomic predictions**

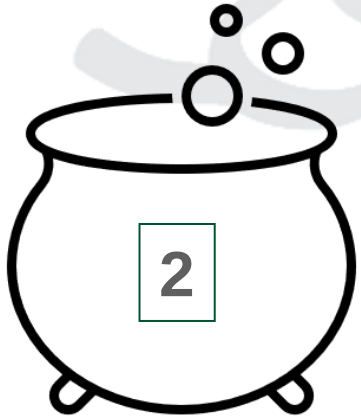
# Beef cattle genomic prediction worldwide (might not be complete)

Limousine – France
Charolais – France
Blonde AQ – France
Simmental – Germany
Blue Cattle – Belgium
Angus/Hereford – USA/CAN/AUS
Across beef breeds – Ireland

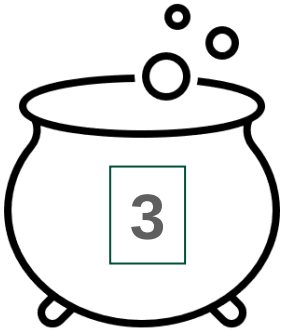


# The genomic prediction ”pot”


Interbeef incl FRA, IRL, DFS

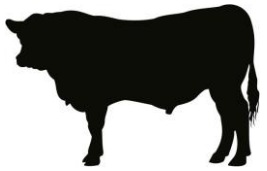



DFS all breeds




DFS single breeds


D/F/S single breeds



# Interbeef - today

**Countries:**

**Australia, Czech Republic, DFS (Denmark, Finland and Sweden), Estonia, France, Germany, Greta Britain, Ireland, Italy. Latvia, Slovenia, South Africa, and Switzerland.**

**Breeds:**

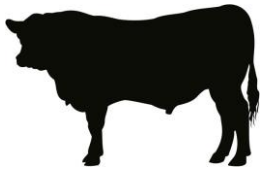
**Aberdeen Angus, Charolais, Hereford, Limousin and Simmental.**

**Traits:**

**Adjusted Weaning Weight (AWW), Birth Weight (BWT) and Calving Ease (CAE) direct and maternal effects**

**Models:**

**Traditional models using pedigree and phenotypes**



# Interbeef - future

**Countries:**

Australia, Czech Republic, DFS (Denmark, Finland and Sweden), Estonia, France, Germany, Greta Britain, Ireland, Italy. Latvia, Slovenia, South Africa, Switzerland, more countries.

**Breeds:**

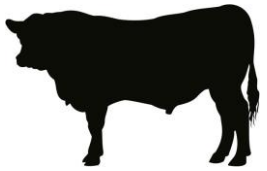
Aberdeen Angus, Charolais, Hereford, Limousin, Simmental, more breeds.

**Traits:**

Adjusted Weaning Weight (AWW), Birth Weight (BWT) and Calving Ease (CAE) direct and maternal effects, more traits (fertility, carcass)

**Models:**

Single step models using pedigree, genotypes and phenotypes



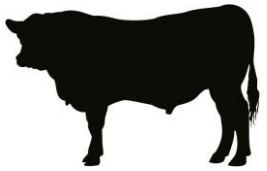
# Beef genomic prediction

**Today**

- GEBVs for DFS animals are bought by Nordic beef breeders in e.g., FRA for LIM and CHA
- GEBVs expressed on France scale and only France data included

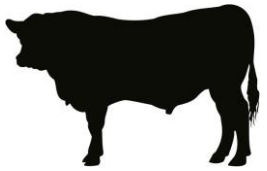
**Interbeef**

- Include pedigree, phenotypes and genotypes from all Interbeef countries
- GEBVs for all DFS animals with or without a genotype expressed on a DFS scale
- Largest value (increase in reliability) is for young animals having no phenotypes, but a genotype



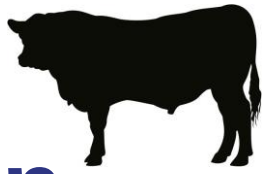
# Interbeef – genomic prediction?

- **Business model**
  - **Not an easy task**
  - **Many different country views**
  - **A fair balance should be found if it should be possible in the future**



# Interbeef – genomic prediction?

- **Business model**
  - **Fee for GEBVs – look for fair balance between partners having a lot of genotypes and phenotypes versus those who have not done any investments**
  - **Regulations to get access to GEBVs – SNP solutions will not be given away for free**
  - **Establishing Interbeef genomic prediction has a cost – how to pay for that?**
  - **Process is ongoing but impossible to say if and when a solution supported by many countries can be found**



# Future plans – genomic prediction and Interbeef

**Nordic countries should aim for:**

- **Make use of joint Nordic phenotypes, traits definitions and model from the joint Nordic beef cattle genetic evaluation and combine with as many beef cattle genotypes as possible - the biggest genomic "pot"**