

Agenda for Dairy Cross project meeting November 29th -30th 2023

Location: Vingsted Centeret, Skovvej 2, 7182 Bredsten <https://www.vingsted.dk/en/>

Language: English

Wednesday November 29th 2023

12:00 - 12:45: Lunch

12.45 - 13:00: Welcome / Jørn Thomasen, VG

13:00 - 14:45 AP1 Genetic values

13:15 – 13:30 Overall project deliverables - learnings and perspectives (Ole Christensen, QGG)

13:50 - 14:20 Experiences from routine evaluations (Huiming Liu, SEGES)

14:20 - 14:50 Results from validations of new BOA model (Emre Karaman, QGG and Huiming Liu, SEGES)

14:50 - 15:00 Plan for implementation of next step for genomic breeding values (Anders Fogh, SEGES)

14:45 – 15:15 Coffee break

15:15 - 16:20 AP2 Breeding schemes

15:15 -15:30 Overall project deliverables - learnings and perspectives (Hanne Marie Nielsen, QGG)

15:30 - 15:50 Heterozygosity (Lisa Hein, QGG)

15:50 - 16:20 Simulation design and breeding strategies (Alban Bouquet and Margot Slagboom, QGG)

16:20 –16:30 Break

16.30 - 17:15 AP3 Management

16:30 - 16:45 Overall project deliverables - learnings and perspectives (Søren Østergaard, ANIVET)

16.45 - 17.15 Sector analysis (Julie Clasen, SimHerd)

18:00 - 20:00 Dinner

20:00 - 21:00 Social activity

21:00 - The bar is open

Thursday, November 30th 2023

8.30 - 9:10 AP4 Communication and dissemination

8.30 - 8:50 Overall project deliverables - learnings and perspectives (Jacob Voergård, SEGES)

8:50 - 9:10 Demonstration of SimHerdCrossbred APP (Developed in AP3) and practical experiences with use of SimherdCrossbred (Julie Clasen, SimHerd)

9.10 - 10.00 Did DairyCross fulfil your expectations? How to ensure maximal value creation of results? - 5-10 minutes from each partner

Søren Borchersen (VikingGenetics), Mogens Lund (QGG, AU), Anders Fogh (SEGES)

Søren Østergård (ANIVET), Søren Østergård (SimHerd), Mads Fjordside (VikingDanmark)

10.00- 10.15: Introduction to group work and Coffee

10.15 - 11:15 Group work – Groups within each workpackage

-Learnings, -Knowledge gaps - collaboration

11:15 - 11:45 Summary of group work

11:45 - 12:00 Concluding remarks

12:00: Lunch

Plans and implementation of genomic breeding values

Anders Fogh

29. – 30. november 2023

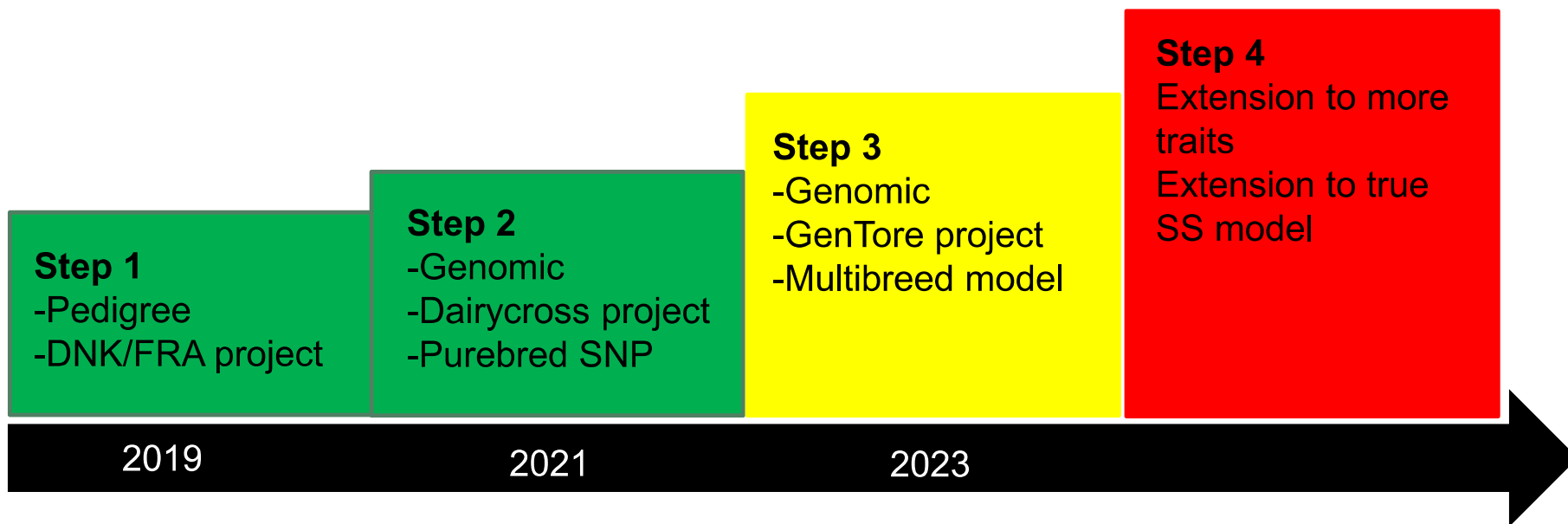
Projekt: DairyCross



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Mælkeafgiftsfonden

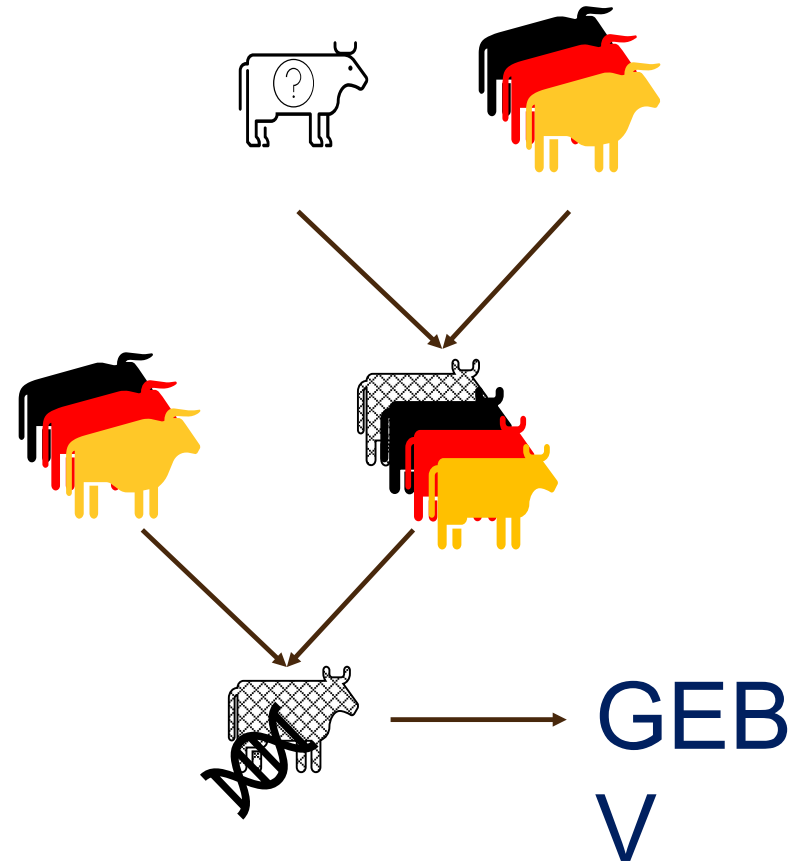


Steps in crossbred genetic evaluation



STEP 2: GEBV for Nordic crossbred females

- Genomic tested crossbred females
- Sire and MGS are RDC, HOL or JER
- For each allele we find breed of origin
 - RDC, HOL and JER



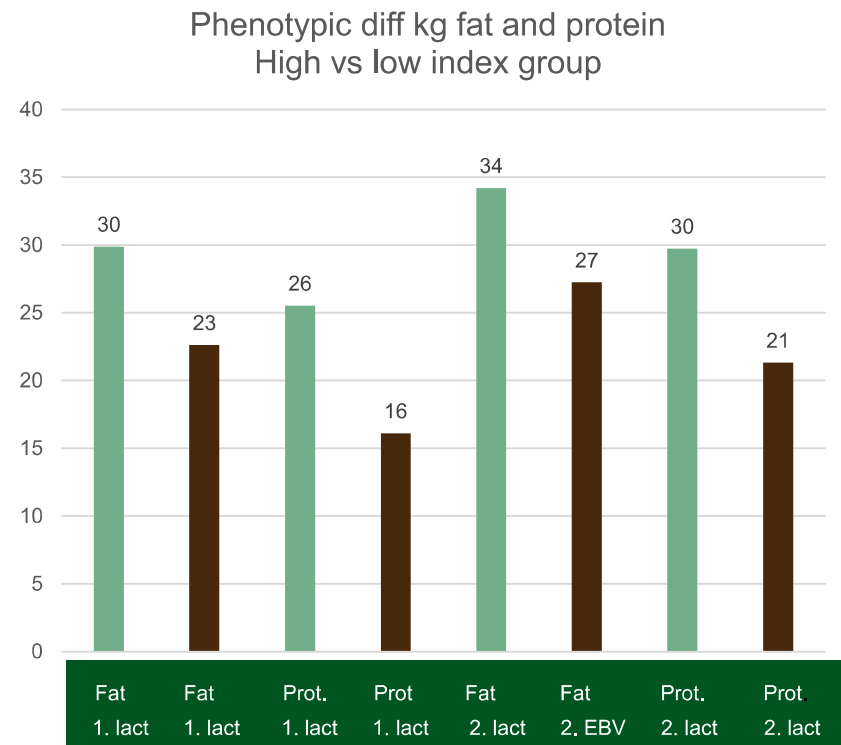
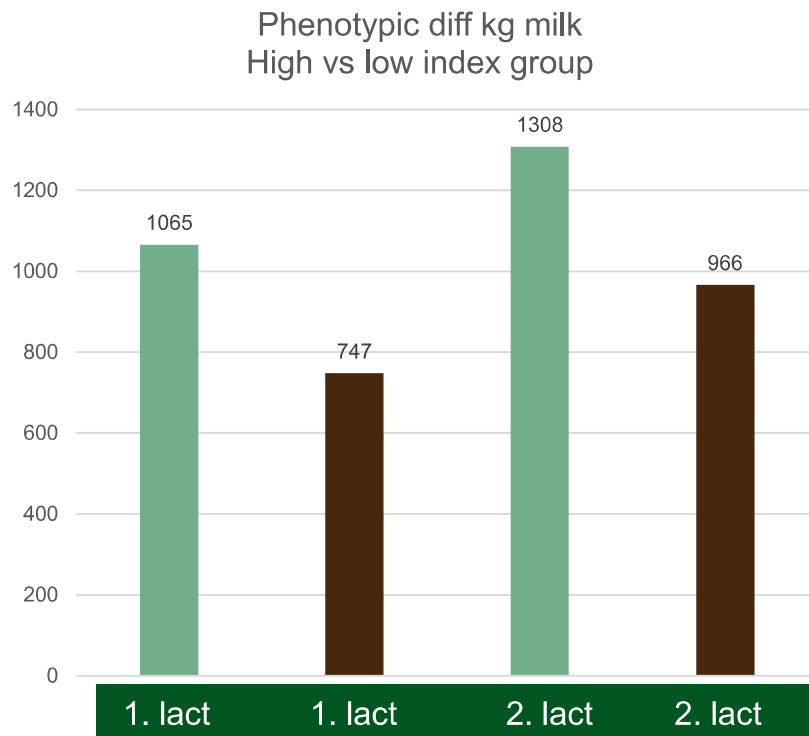
Genomic with a breed origin of allele model

$$GEBV_{BOA,i} = \sum_{b=1}^{N_b} \left(\underbrace{\mu_b \frac{\sum s_{1,i,b} + \sum s_{2,i,b}}{2m}}_{\text{Breed difference effect based on genotypes}} + \underbrace{v'_b (w_{i,1} \circ s_{1,i,b}) + v'_b (w_{i,2} \circ s_{2,i,b})}_{\text{SNP effects based on genotypes}} \right) + \underbrace{a_i}_{\text{Polygenic}}$$

GEBVs for all traits

- Yield (milk, fat and protein)
- Udder health
- Fertility
- Growth
- Direct and maternal CE,
- General health
- Claw health
- Conformation (incl all sub traits)
- Milking speed and temperament
- Longevity
- Saved feed

High vs low yield index GEBV vs pedigree index



Future crossbred evaluation

Step 1. Parent averages

Used in practice since 2019

Step 2. Genomic EBV – purebred SNP solutions (additive effects)

Used in practice since 2021

Breed differences for more traits

Challenges:

- GEBV for Montbeliarde crosses
- No phenotypic info in GEBV

Step 3. Genomic EBV – GenTore(BOA) model including phenotypes from crossbreds

Aim to implement in 2023/2024

GenTore crossbred model (Step 3)

Plan for implementation

- Only yield traits
- Promising results has been discussed and approved
 - Dairycross group
 - Blending group
- Pipeline will be finished in 2023
- More activities
 - Final approval in Nordic genetic evaluation
 - Expect NAV implementation in 2024

Next steps

- Extension to:
 - More traits
 - More breeds without reference population
 - New project or?
- Improve genomic models for crossbreed animals
 - Own information
 - Inclusion of heterosis