breedi

Accelerating production growth with genomics

breedi.app

Breedi B.V. is a full-cycle genomic selection service provider for dairy cattle and sheep producers

Accreditation:

ACCREDITED DNA DATA INTERPRETATION CENTRE

Partners:

eurofins Genomics

3
species

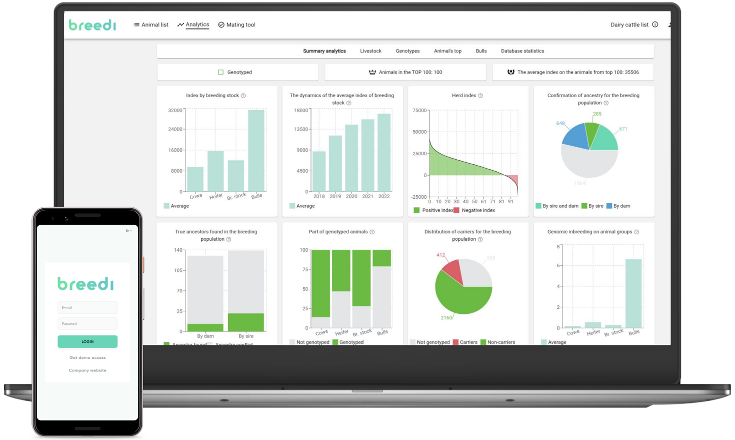
6
years of operation

8
evaluation systems developed

11
countries

1 000 000 +
animals evaluated

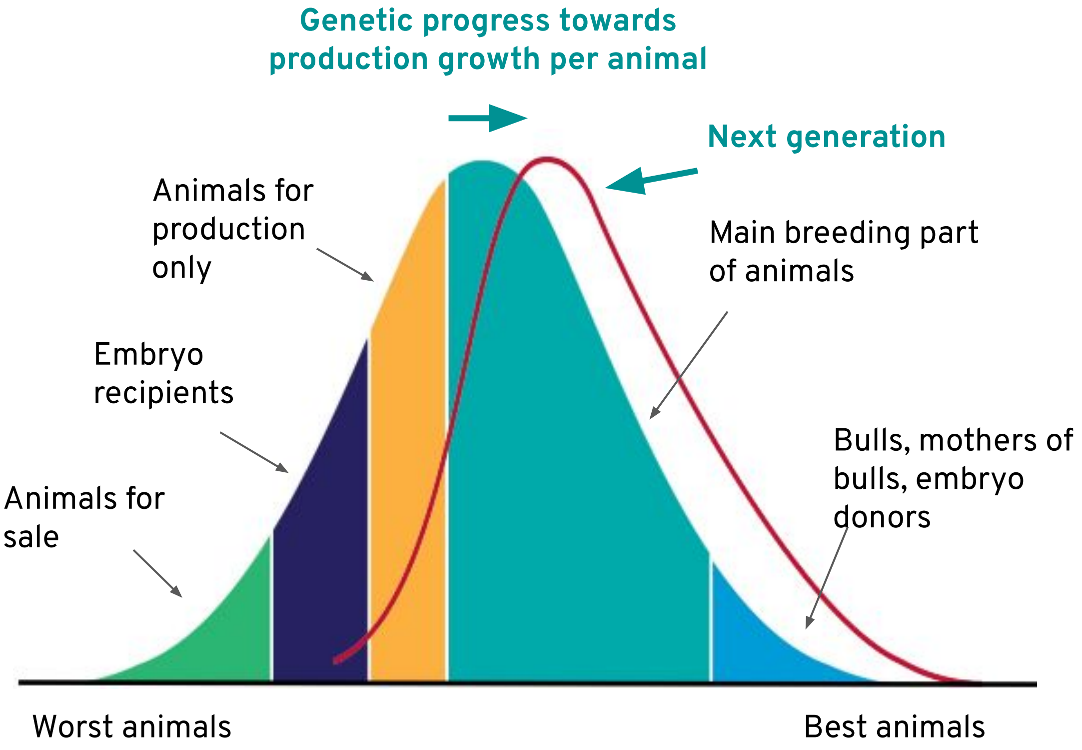
We aim to make genomic selection available to all farmers worldwide



Breeding decisions precision influence production growth rates

More precise breeding decisions

Enhanced production growth

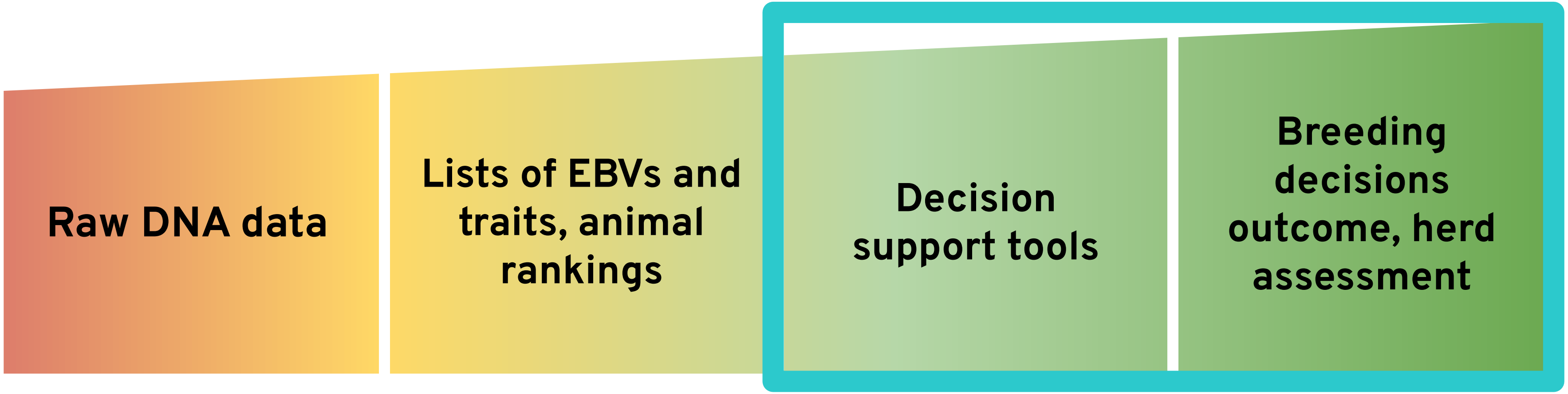


Most precise breeding decisions are made with the help of genomic selection

Choosing heifers for sale	Pedigree data from mother side **Rel = 0,2 - 0,3**	Pedigree data from both sides and sibs Genotype **Rel = 0,6 - 0,7**
Choosing cows and heifers for embryo donors or sexed semen	Own production level Pedigree from mother side **Rel = 0,4 - 0,6**	Whole pedigree, inc descendants Own production level Genotype **Rel = 0,7 - 0,99**

But why genomic selection is not adopted by all farmers worldwide yet?

- Complex scientific approach that needs special skills
- It takes time to see the result
- Farmers can’t afford to dive into all the details, they need easy-to-use tool



Case study evaluates the impact of breeding decision support and maternal herd assessment on herd genetic progress

Farmer X

- 12 000 animals
- 5 000 milking cows
- 2000 of them genotyped and evaluated
- Culling rate - 10% per year
- Use sexed semen on all animals
  - Best bull - $NM 1200
  - Worst bull - $NM -200
- Average year-to-year genetic gain in herd - about 1%
- Strategic goal - milk yield gain

With the same bulls, same culling rate, he could achieve more genetic gain - **up to +5% in milk EBV in a year**

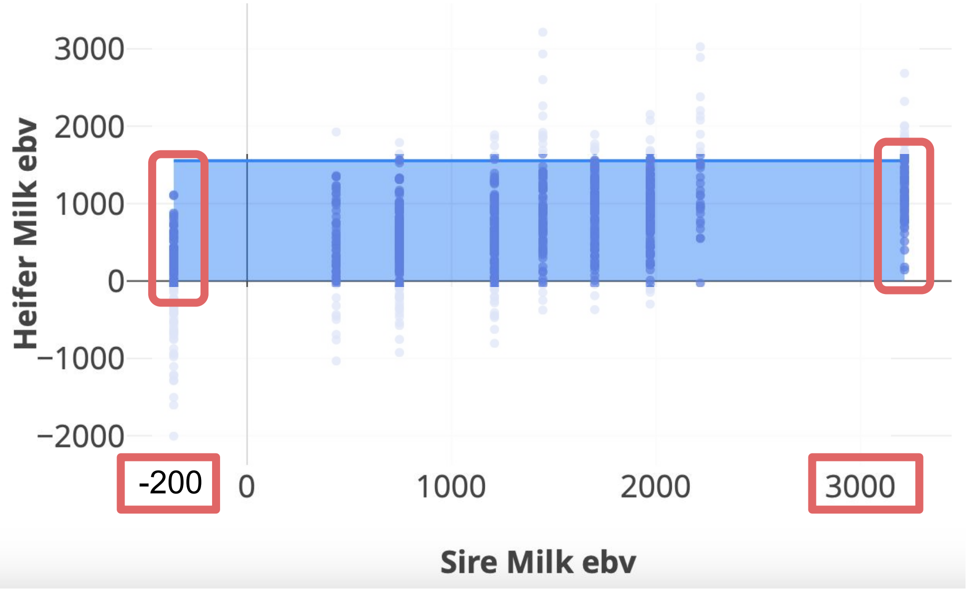
How?

By using genomic evaluations and making informed breeding decisions

We compared NM$ between genotyped heifers and their sires

Last insemination results analysis

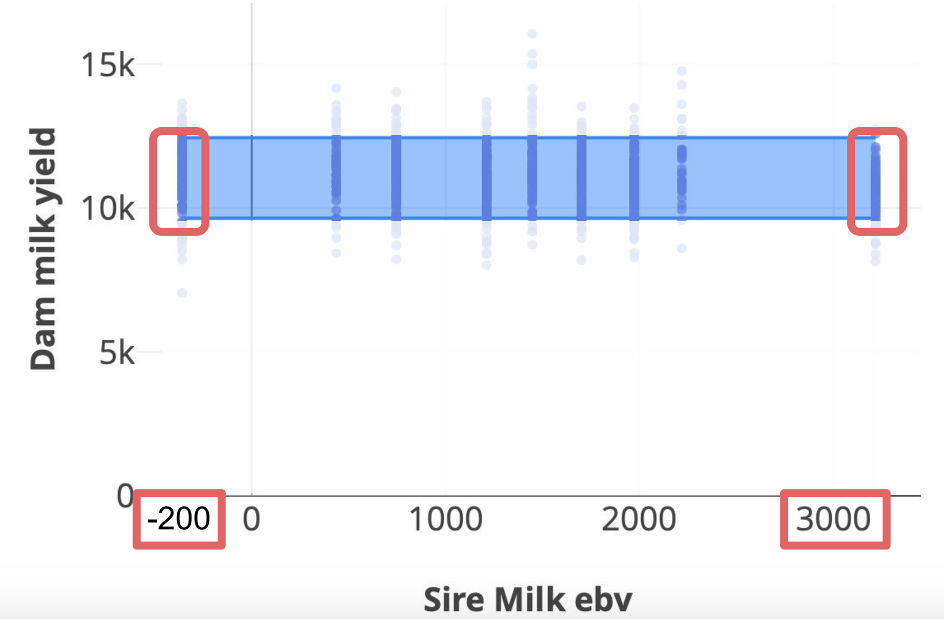
We noticed the absence of any correlation, and were asked to find a reason



The reason is that in mating decisions even mothers' phenotypes were not considered

Last insemination results analysis

There is also no correlation for other phenotypes (fat, protein, fertility, health etc)



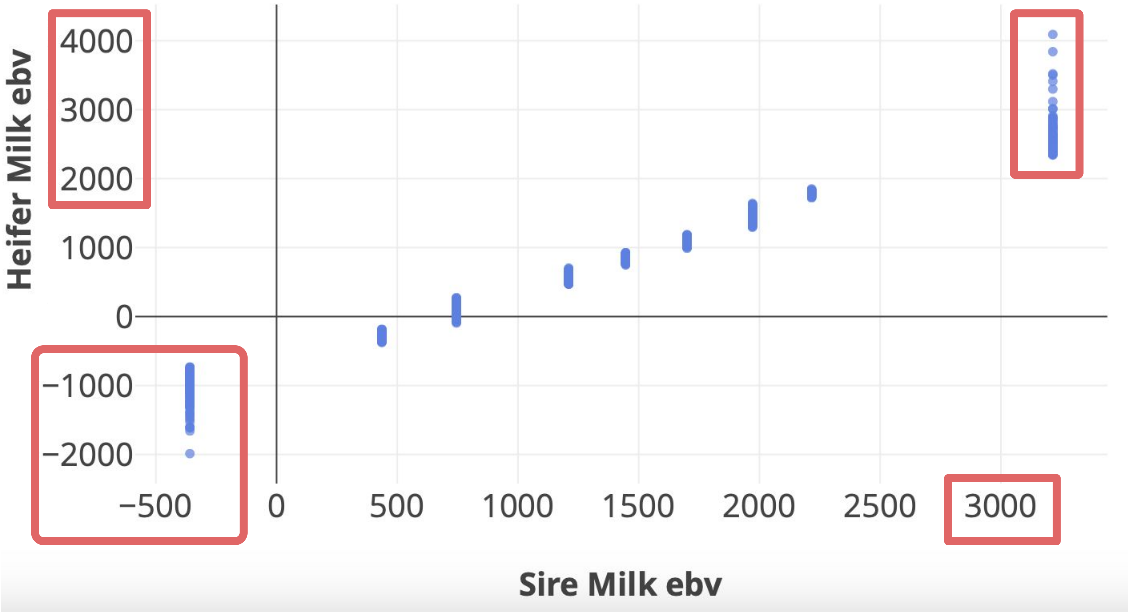
Last mating reassessment

Same bulls – different mating approach

Informed mating - based on female herd EBVs.

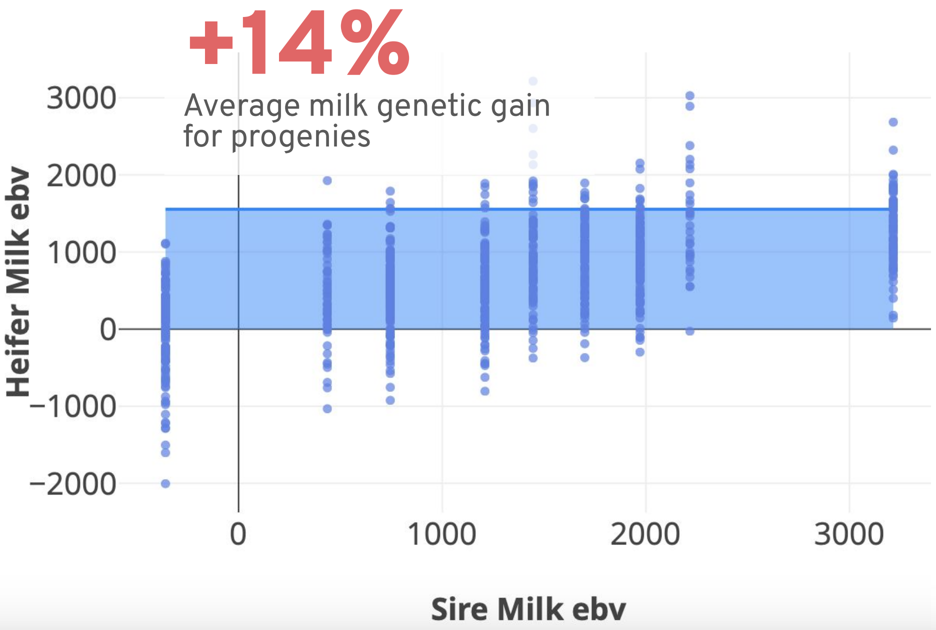
Cows are distributed in groups according to EBVs.

Bulls and cows are mated in a way to make the progenies' evaluations better than mothers'.

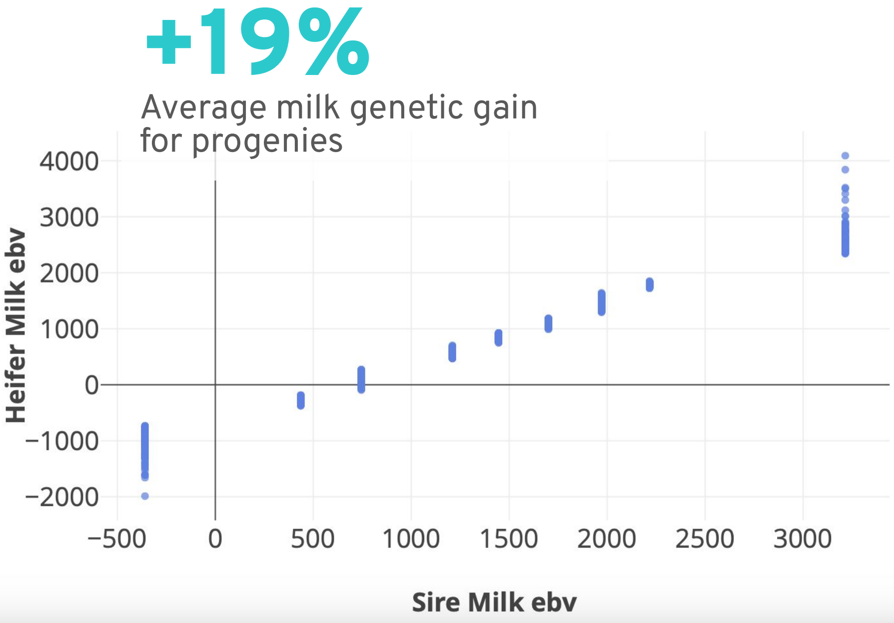


Two mating decisions with the same bulls

Initial mating, without maternal herd genomic evaluations consideration



Same bulls, but mating with genomic evaluations of maternal herd

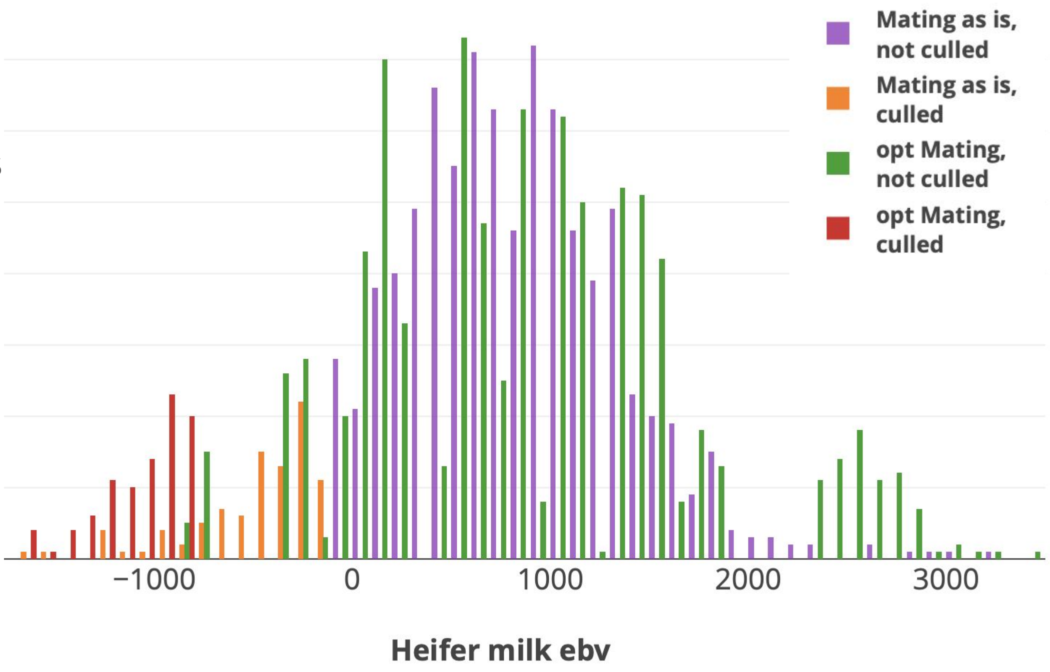


Lost/possible outcome of mating process optimization

+40kg / +5%

additional avg. milk EBV gain for progenies

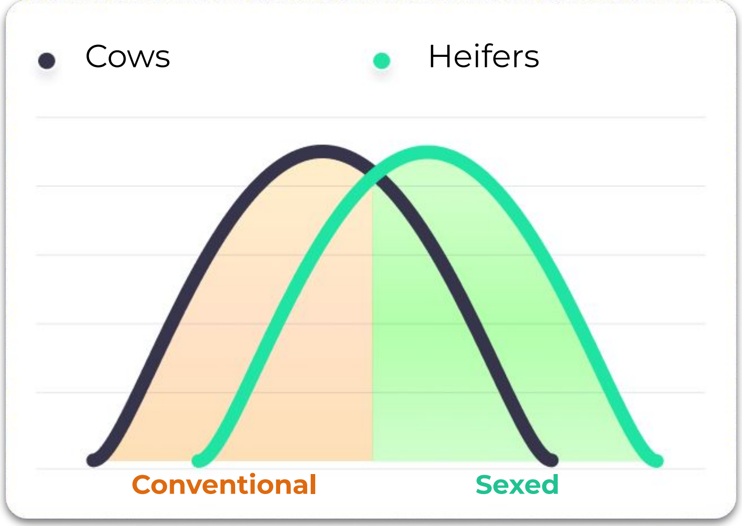
Potential **genetic gain changes from 14% to 19%** in a year because of **informed mating and culling decisions** only



This approach can be extended to sexed semen usage decisions and ET technologies

On all heifers without selection

On best heifers and cows by EBV



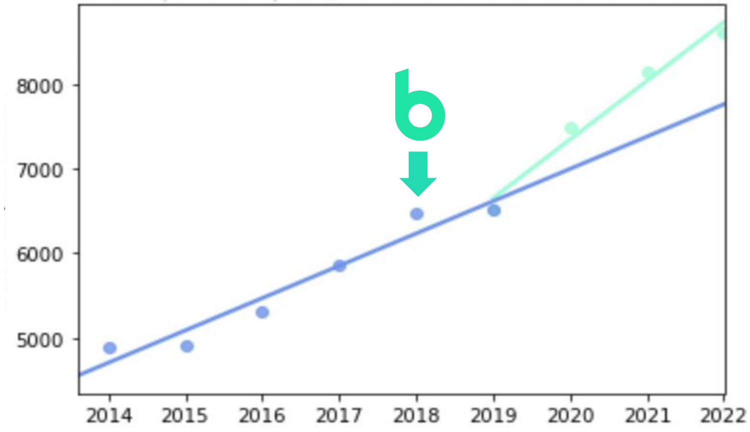
Using sexed semen on heifers whose breeding values are lower than existing cows is ineffective

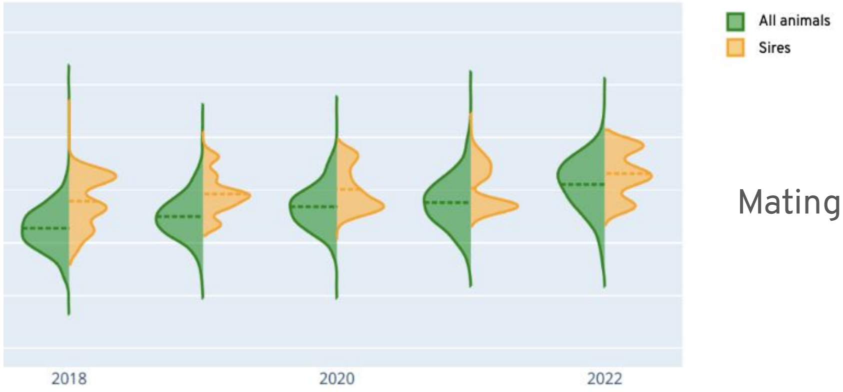
This way we increase female offspring amount from the best animals and significantly improve herd genetics

Improved mating and culling decisions enhance overall herd performance

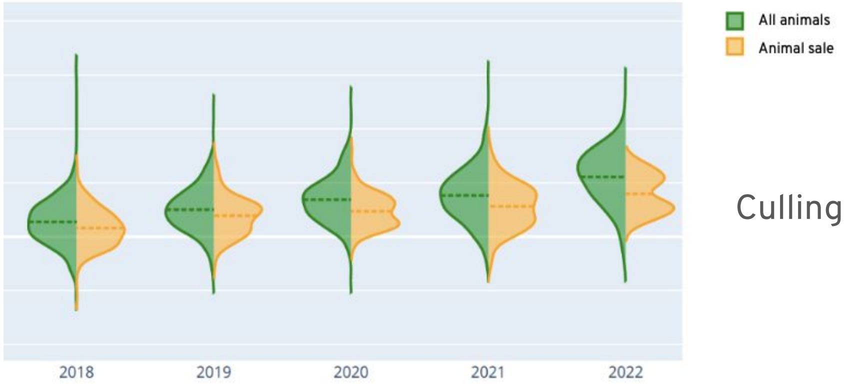
Example of a farmer that genotype maternal herd since 2018, and uses our decision support tools since 2019

Actual milk yield





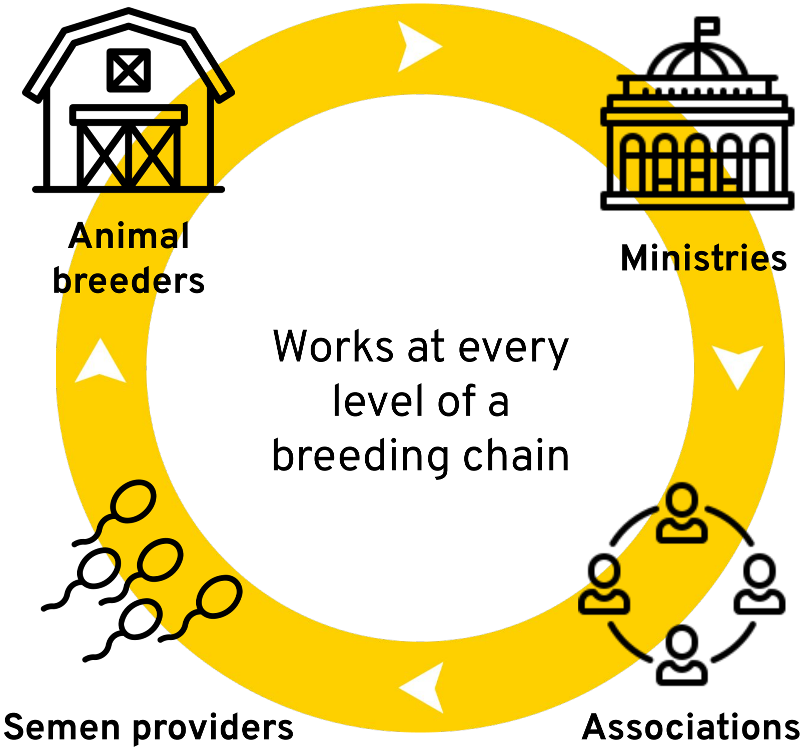
Mating



Culling

Easy-to-use and scalable full-cycle genomic selection solution

- Productive traits enhancement
- Ancestry confirmation and parents search
- Inbreeding control
- Genetic diseases control
- Breed composition calculation
- Genomic mating tool
- **All in a web app with advanced analytics**



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ACCREDITED DNA DATA
INTERPRETATION CENTRE

ICAR
ASSOCIATE
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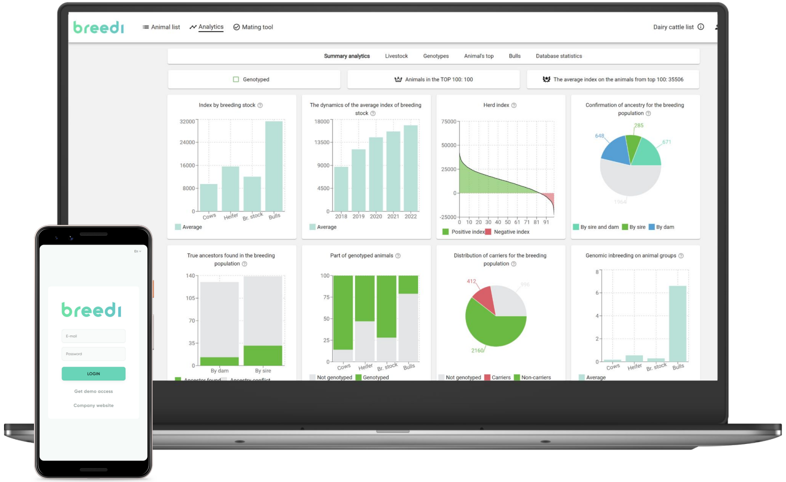
Thank you for your attention



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