

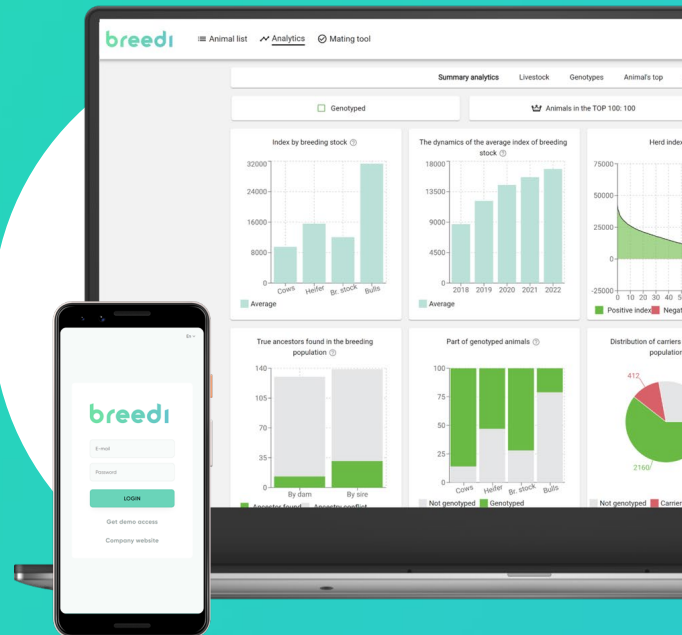
breedi

Development of analytical tool for dairy cattle genetic progress assessment



75th EAAP annual meeting
Florence, Italy, 2024

breedi.app



Genomics is effective, but how to persuade farmers to use it?



Even in the leading countries with developed genomic selection systems not all farmers use genomics!

Rates of farmers that use genomic information and evaluations when making a breeding decision

50 - 90 %

in developed markets

10 - 20 %

in emerging markets

How to ease the adoption of genomic methods in breeding?

We try to understand, what differs in countries and farms which have successfully implemented genomic selection methods from the ones that have not

So far we see great difference in the ways genomic data is provided to the farmers

Raw DNA data

**List of EBVs and
traits, animal
rankings**

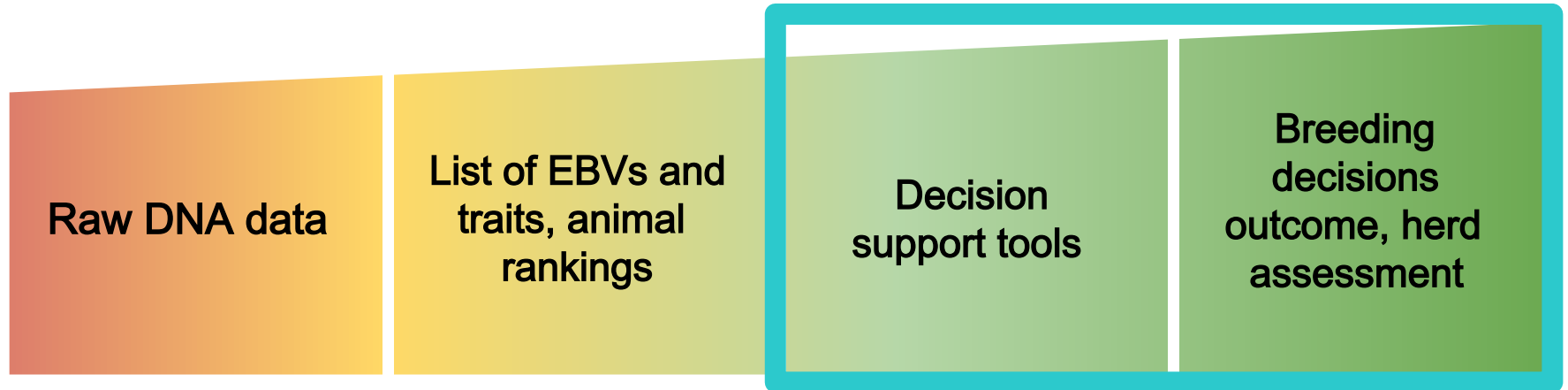
**Decision
support tools**

**Breeding
decisions
outcome, herd
assessment**

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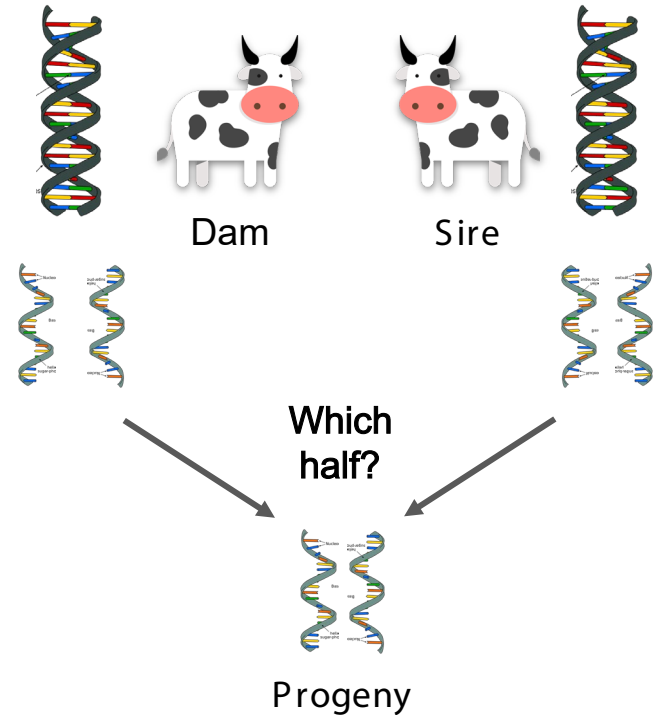
The common belief is that all progress happens because of bulls



50% of the progenies' genotype is from the dam

Without genotyping female part of the herd predictions on how herd will progress are not reliable

Do you have that common belief amongst your farmers?



Case study evaluates the impact of breeding decision support and maternal herd assessment impact to 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%

We demonstrated to this farmer that with the same bulls, same culling rate, he could achieve more genetic gain - **up to +2% \$NM growth in a year.**

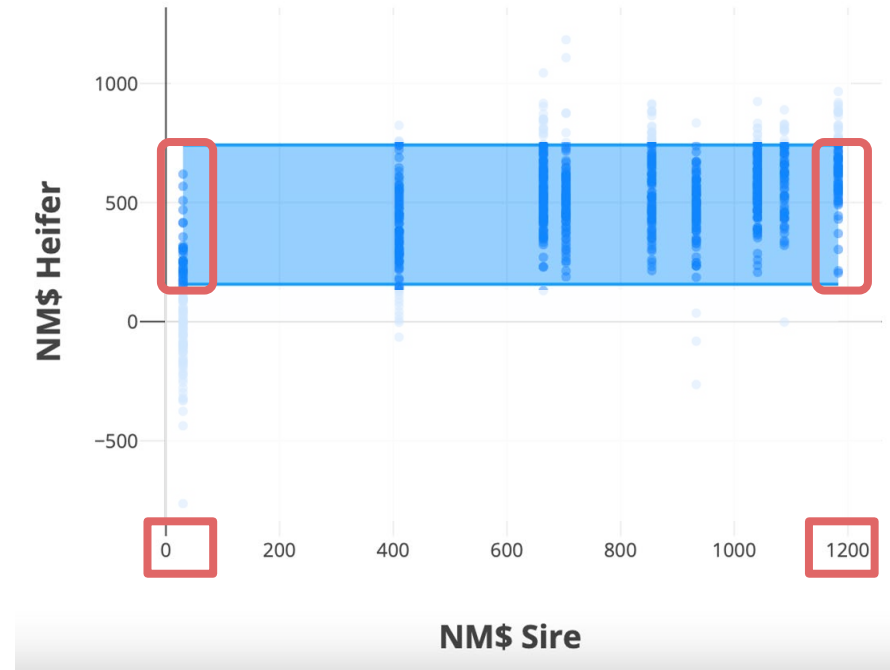
How? By using evaluations and making informed breeding decisions.

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

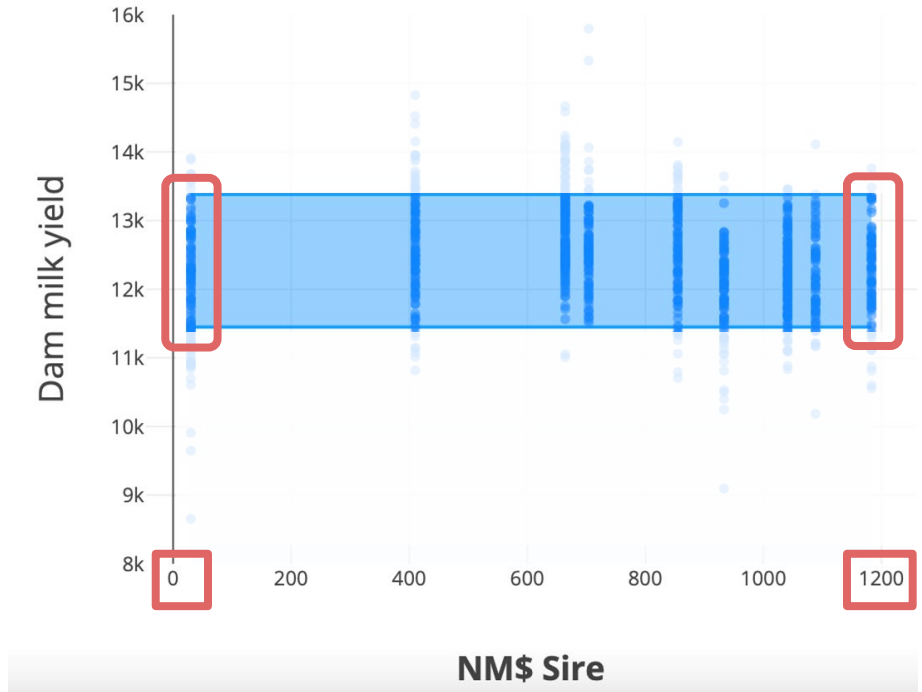


The reason is that in mating decisions even mothers' phenotypes were not considered



Last insemination
results analysis

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



Last mating reassessment

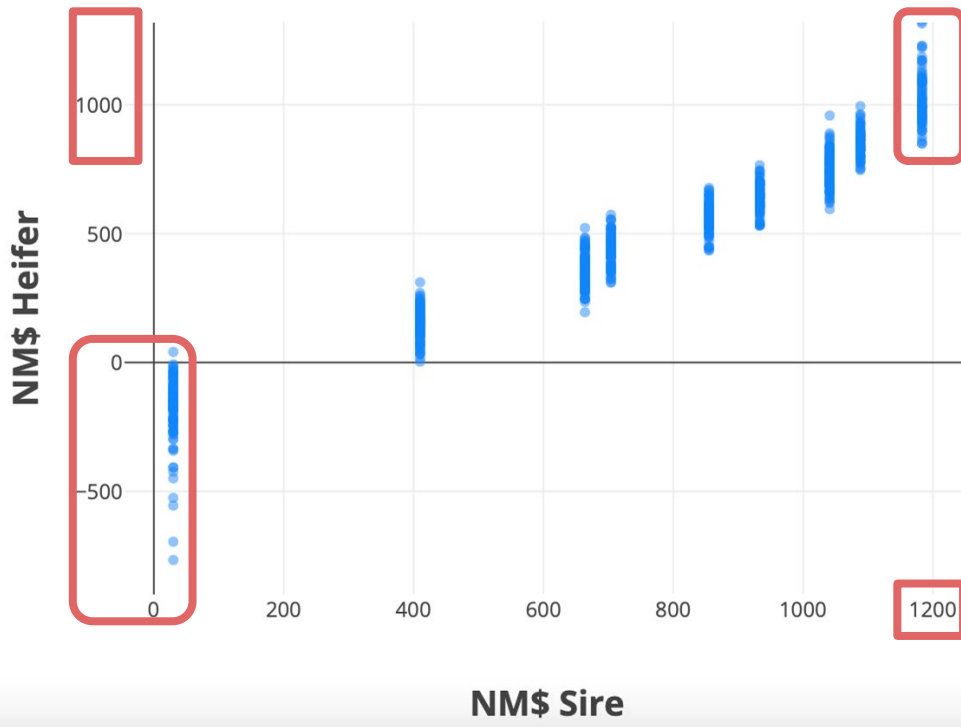


Same bulls – different mating approach

Informed mating - based on female herd EBVs.

Cows are distributed in groups according to EBVs.

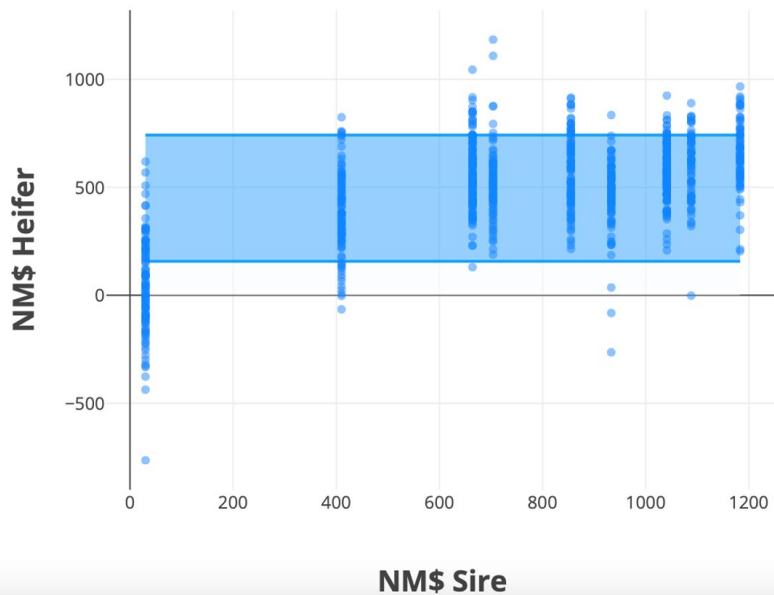
Bulls and cows are mated in a way to make the progenies' evaluations better than mothers'.



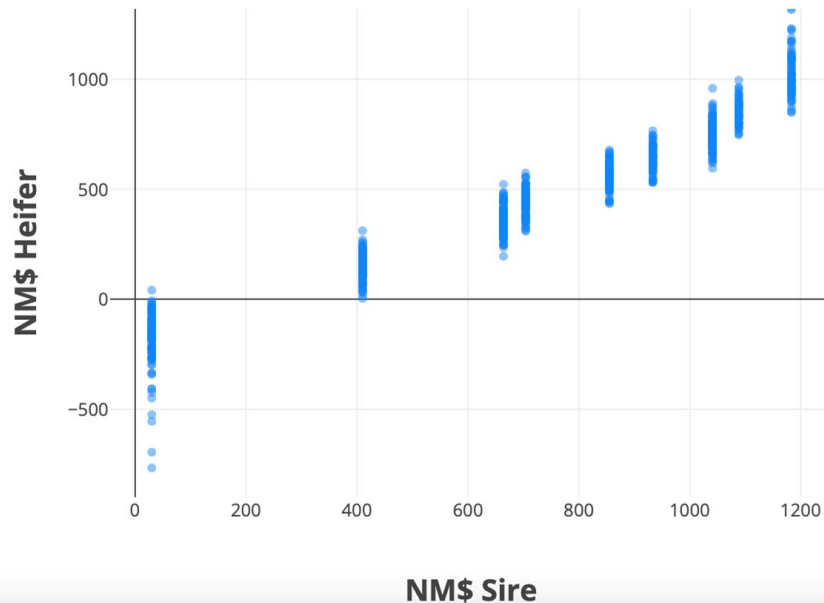
Two mating decisions with the same bulls



Initial mating, without maternal herd genomic evaluations consideration



Same bulls, but mating with genomic evaluations of maternal herd



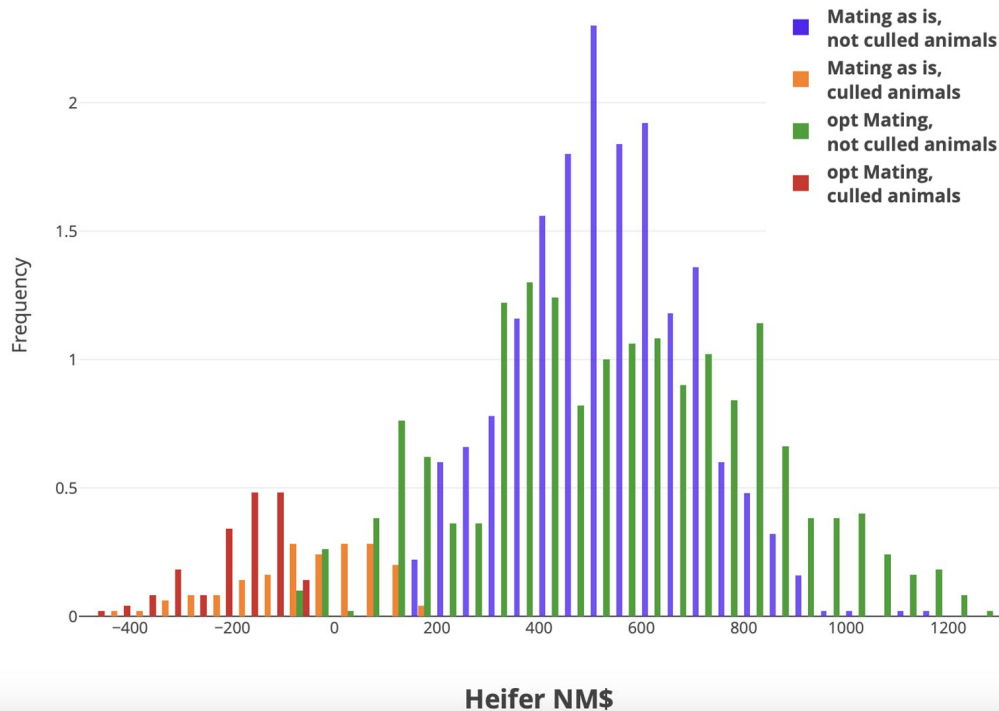
Lost/possible outcome of mating process optimization



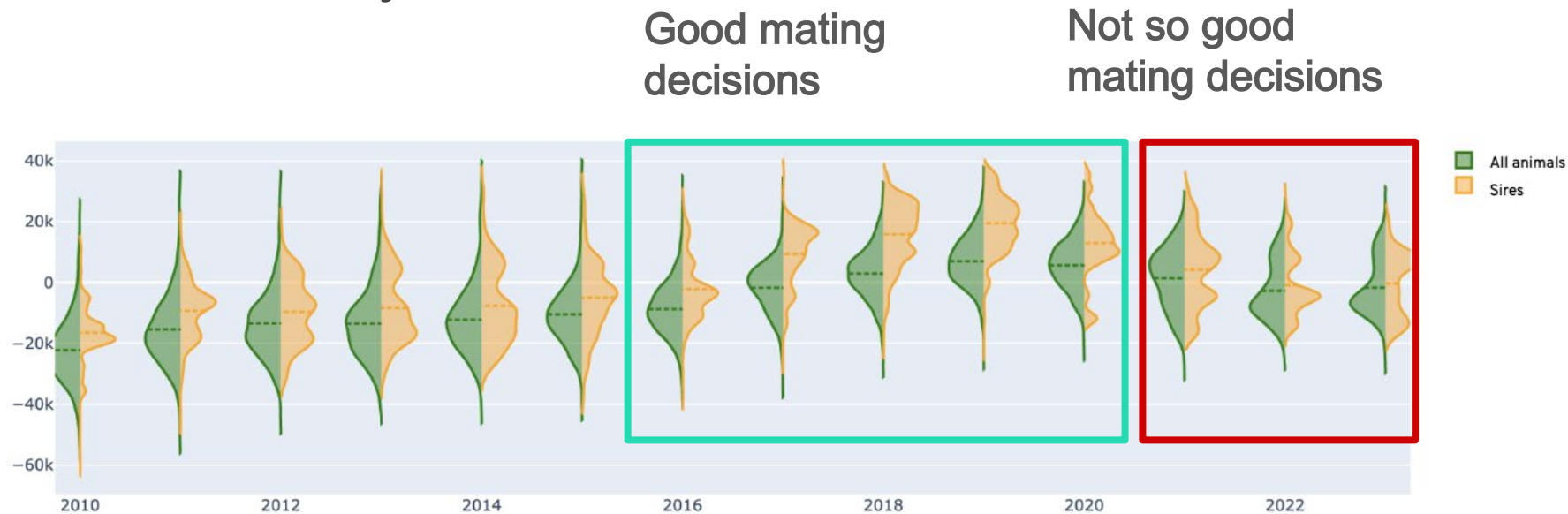
+\$60 / +2%

additional avg. NM\$ for progenies

Potential genetic gain changes from 1% to 3% in a year because of informed mating and culling decisions only



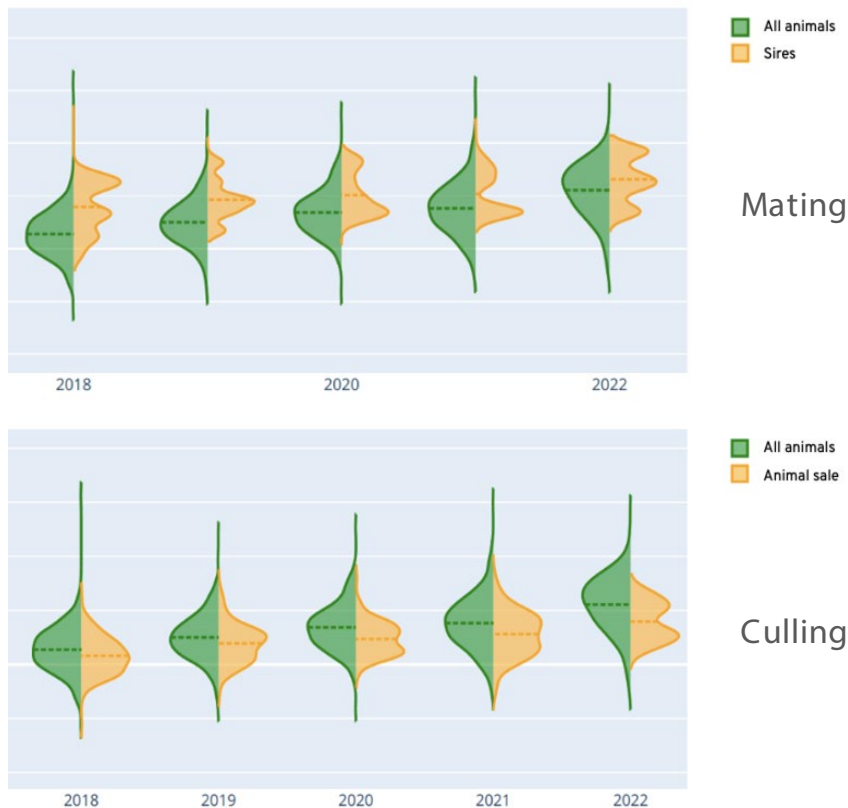
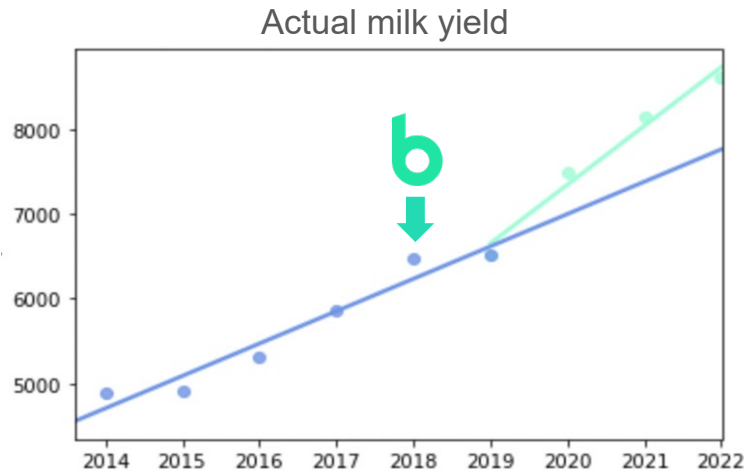
We also performed retrospective mating decisions analysis



Mating decisions were the main reason for low year -to- year genetic gain

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



Key takeaways



- Using the same original resources, a farmer can achieve greater genetic gain and profit through informed breeding decisions
- It's crucial for farmers to understand the impact of their decisions on their future herd
- Do not underestimated the way genomic evaluation data is provided to the farmer

Accessibility of genomic data impacts the adoption rate of genomic selection methods

97%

Of our customers use our tool for at least 1 breeding process

67%

Use it for at least 2 breeding processes

breedi



ACCREDITED DNA DATA
INTERPRETATION CENTRE



ASSOCIATE
MEMBER

Thank you for your attention

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