Genotyping is the base of data driven dairy farming

Louwrens van Keulen, CRV

ICAR, Puerto Varas, Chile, October 2016
CRV
Cooperative herd improvement organisation

- Genetics
- Management information and solutions
- Services and consultation

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THE WORLD
GROWING POPULATION

9 BILLION PEOPLE TO FEED IN
2050
THE WORLD

PROTEIN CONSUMPTION 2015

CONSUMPTION DOUBLES

PROTEIN CONSUMPTION 2050

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THE WORLD
HALF THE RESOURCES AVAILABLE

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THE FARMER

Faces this CHALLENGE...

....strives for CONTINUITY

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THE FARMER

SOCIETY IS WATCHING

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The Dutch farmer

- Fast change in market regulations cause insecurity
  - Removal of milk quota
  - Prospect of phosphate regulations
  - Antibiotic use restrictions
- Farmers are squeezed into a corner
- Forced to farm with high efficiency and adaptability
- Little room for ‘error’
- Pressure on sustainability
Meanwhile, technology develops fast

- Technological solutions are offered to unburden farmer
- Technological devices offer optimal control → information
- 23% of Dutch farmers now have a milking robot
- Efficient management → Sensor technology
- Efficient breeding → Genomic Herd Management
Genomic Herd Management

Genomics = more information = more control

- Control and exploit genetic merit of the herd
- 65% accurate prediction of genetic merit animals 0-2 years
- Better selection of young stock – no raising of costly cattle
- Strategic and better matings
- Accelerate genetic progress
Insight: Pedigree

• The genomic test gives you next to genomic breeding values and genetic defects also parentage verification/validation.

• In the Netherlands and Flanders, we find approximately 5% registration errors

• CRV corrects the pedigree where possible
### Insight: Genetic defects

#### Genetic conditions:
Genomic testing will give you a status for:

- Redfactor
- BLAD
- Polled
- CDH
- A2 (Beta Caseine)
- Beta-LactoGlobuline
- Kappa Casein

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Genomic testing trends

USA
Reference: AGIL, USDA, Beltsville

France
CRV Precision Breeding - HerdOptimizer

The shortest way to the best herd with less of young stock
# CRV Precision Breeding package

## Components CRV Precision Breeding

<table>
<thead>
<tr>
<th>Component</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genomic testing (Female Holstein calves)</td>
<td>✔</td>
</tr>
<tr>
<td>Management Tool: HerdOptimizer</td>
<td>✔</td>
</tr>
<tr>
<td>Support consultancy (start)</td>
<td>✔</td>
</tr>
<tr>
<td>Option: SireMatch</td>
<td></td>
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<tr>
<td>Option: Semen Inclusive</td>
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<tr>
<td>Option: other (older) female Holstein cows</td>
<td></td>
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</tbody>
</table>

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What does it offer?

Genomics = more information = more grip

Better decisions in the field of e.g. fertility, udder health, nutrition etc.

= >  A marker test is similar with a cow in her 3rd lactation!
Ask the right questions

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Precision mating’s based on genomics is the future

*To which tail do you attach € 1.500,-?*
HerdOptimizer

- Support farmers with the use of genomic information of the herd
- Breeding information of the total herd
- Starts with tailor made breeding goal of the farmer
- Puts farmer behind the wheel of his breeding management
- Realtime on desktop, tablet and smartphone
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<table>
<thead>
<tr>
<th>Breeding Values</th>
<th>Compare animal to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Country</td>
</tr>
</tbody>
</table>

The (genomic) breeding values of this animal are shown below. The colors indicate how the animal scores compared to (for example) the herd average. You can choose from various comparisons using the selection box on the right.

<p>| | | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>BL Efficiency</td>
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<td>BL Health</td>
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<td>Fat+Prot</td>
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<td>Lactose kg</td>
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<td>42</td>
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<td>Milk Lbs</td>
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<td>Fat %</td>
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<td>0.10</td>
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</table>

- Efficient production
- Easy management
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CRV Precision Breeding rate (Western-Europe)

The rates includes:

- A fee per farm per month
- A fee per cow per month
- A fee per marker test

<table>
<thead>
<tr>
<th></th>
<th>Herdoptimizer incl. Sire Match</th>
<th>Herdoptimizer excl. Sire Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per farm per month</td>
<td>€ 6,25</td>
<td>€ 3,35</td>
</tr>
<tr>
<td>Per cow per month</td>
<td>€ 0,32</td>
<td>€ 0,20</td>
</tr>
</tbody>
</table>

- Genomic test € 26,60 per test

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THANK YOU FOR YOUR ATTENTION

CRV Vision:
In 2020,
50% of Dutch farmers
routinely genotypes
every newborn calf

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