



# Genomic testing: An industry perspective

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EAAP, Warsaw, Poland, 01-09-'15



# CRV

Cooperative herd improvement organisation

- Genetics
- Management information and solutions
- Services and consultation



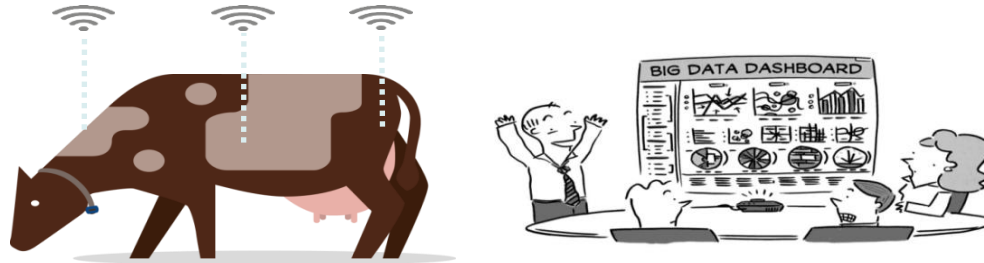
# GENOMIC SELECTION AND BEYOND

- Genomic selection has drastically changed the dairy industry
- However, now largely become the ‘status quo’
- Farmers are steadily gaining trust in ‘genomics’ as daughters of young genomic sires are starting to produce
- Still at the start of the genomic era
- New developments are emerging!



# HERD MANAGEMENT

- Market is moving from individual cow to herd management
- Rapid developments in technology + Market regulations → Precision Livestock Farming or 'smart dairy farming'
- Optimal efficient management for return on investment
- Efficient breeding → Genomic Herd Management (GHM)



# GENOMIC HERD MANAGEMENT

- Genomic testing: 65% reliability vs. 35% (Parent Average)
  - Parentage verification
  - Efficient young stock selection
  - Improved and strategic mating decisions
  - Strategic carrier matings (CVM, BY, CDH, A2, Polled, RF etc.)



**InSire**  
TalentScan



 Igenity.

**CLARIFIDE™**



# Win – Win concept: Breeding data Plus



- Genotypes cows for free
- Large discount for young stock
- GEBVs
- Breeding advice

- Collects specific phenotypic data
- Participates in conformation scoring
- Property of genotypes to CRV
- Uses 75% CRV semen

Improve reliabilities  
New traits



Genomic herd management

# VALUE FOR CRV - R&D

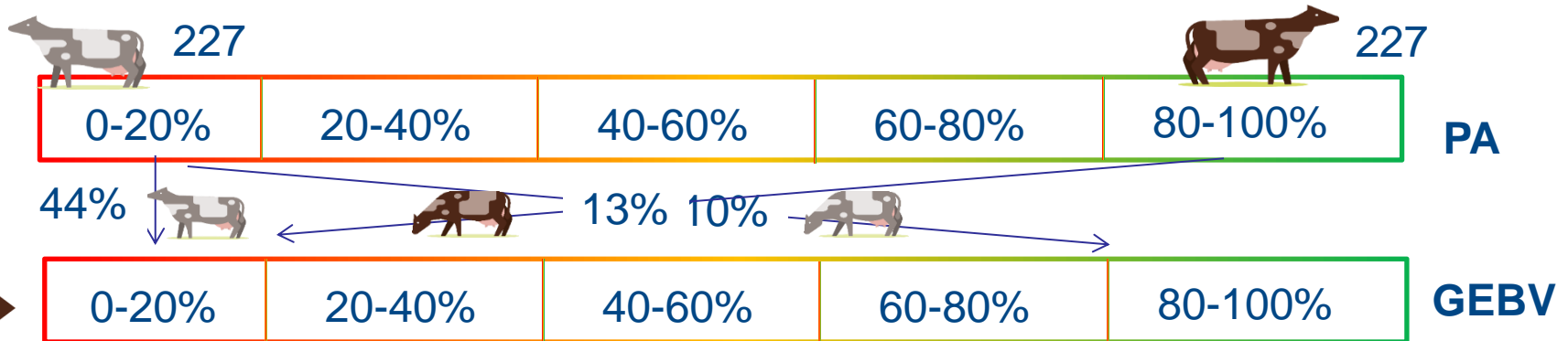
- Improving genomic reliability. Current → 0.6-0.7
  - 10,000 cow genotypes selected and added to subset of EuroGenomics reference population (20,000 bulls)
  - 23 conformation traits + claw health ( $h^2 = 0.11-0.53$ )
  - De-regression method for cows and bulls (Calus *et al.*)
- Reliability increased on average by 2%, max 8%
- |                    |      |                       |      |
|--------------------|------|-----------------------|------|
| ○ Stature:         | + 6% | ○ Body condition:     | + 1% |
| ○ Rump Angle:      | + 2% | ○ Total conformation: | - 5% |
| ○ Udder composite: | + 8% |                       |      |



# VALUE FOR FARMER - GHM



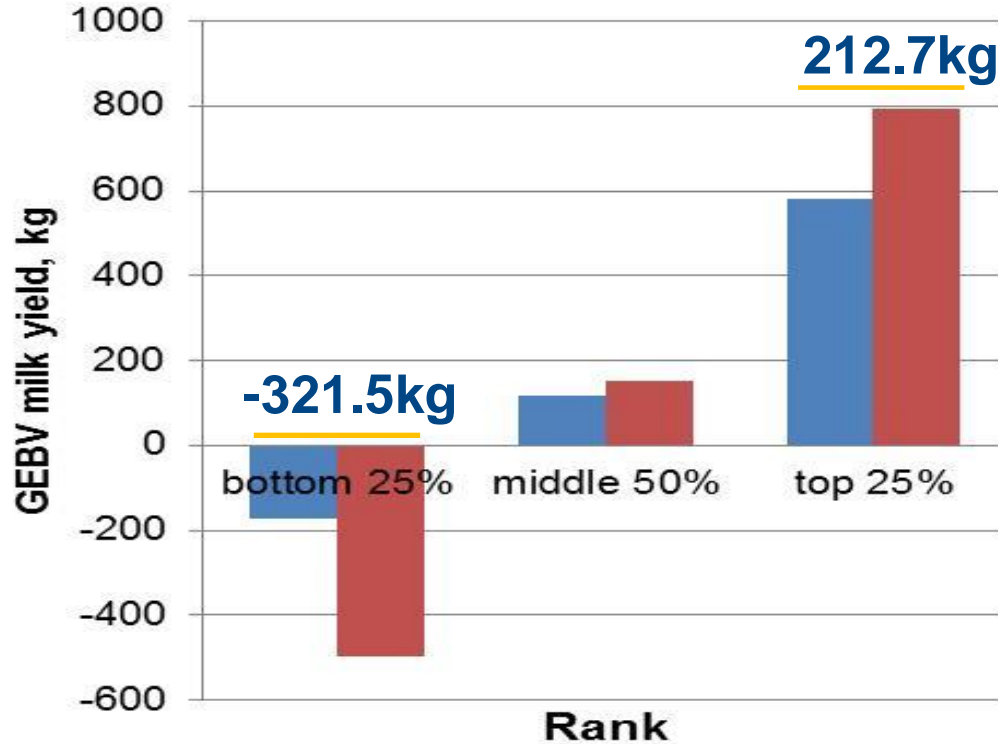
- Now 236 herds,  $\pm$  67.500 female genotypes
- Valuable data to explore benefit genomic testing
- Case example:
  - 1,133 calves, PA and GEBV for milk yield. How do they re-rank?





# VALUE FOR FARMER - GHM

- 1 (representative) farm, 82 first lactation cows.

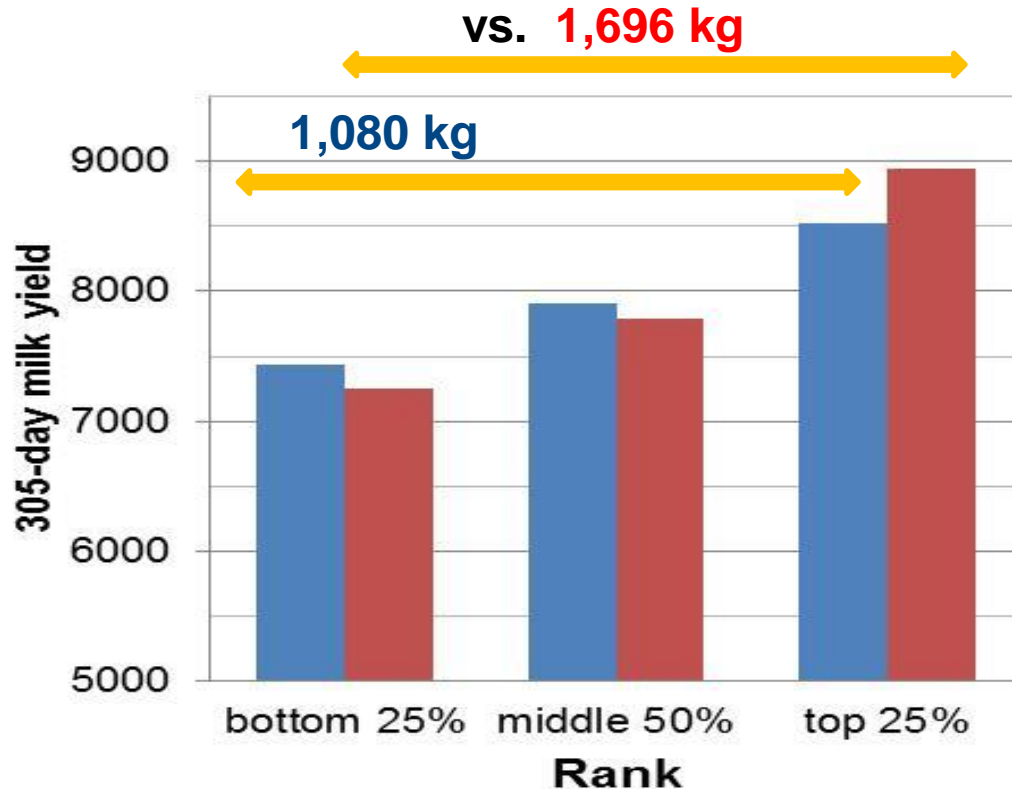


- Selection/culling based on GE BV instead of EBV:
- Gain in average GE BV of kept top 75%:

**+ 124kg**

- Average GBV if ranked by conventional
- Average GBV if ranked by genomics

# VALUE FOR FARMER - GHM



- Selection/culling based on GEBV instead of EBV:

- Top 75%, aver. 305-MY:

**+151 kg** p.c.p.lact

X 3,5 = **+528 kg** p.c.p.life

■ Actual milk yield of groups ranked by conventional

■ Actual milk yield of groups ranked by genomics

# THE ROAD AHEAD



- 100.000 cow genotypes
- Reliability + 10%
- Collection new phenotypes
- Development new traits
- Support farmer in GHM!!

- Getting used to routine genotyping
- Gain trust in genomic data
- Larger role for breeding
- Decisions based on GEBV!
- Monitor genetic level herd

# TAKE HOME MESSAGES:

1. Genomics goes beyond bulls
2. Collaboration and communication are key
3. Genomic Herd Management is the future

# THANK YOU FOR YOUR ATTENTION

## **CRV Vision:**

*In 2020,  
50% of Dutch farmers  
routinely genotype  
every newborn calf*

