



We make
sustainable
food production
possible

Sensor validation from a manufacturers point of view

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We live milk

Four pillars of sustainability

A diagram consisting of four white rounded squares arranged in a 2x2 grid, each containing one of the four pillars of sustainability. The squares are outlined in blue and are positioned over a background image of a child and cows in a field.

**Animal
welfare**

**Environ-
ment**

**Farm
profitability**

**Social
responsibility**

A black and white cow is the central focus of the image, standing in a lush green field. The cow is looking directly at the camera with a curious expression. It has a yellow ear tag with the number "9263" on its left ear. The background features a clear blue sky, a few scattered clouds, and a distant mountain range. The overall scene is bright and sunny, suggesting a healthy and happy environment for the cow.

Happy and healthy cows
are productive cows

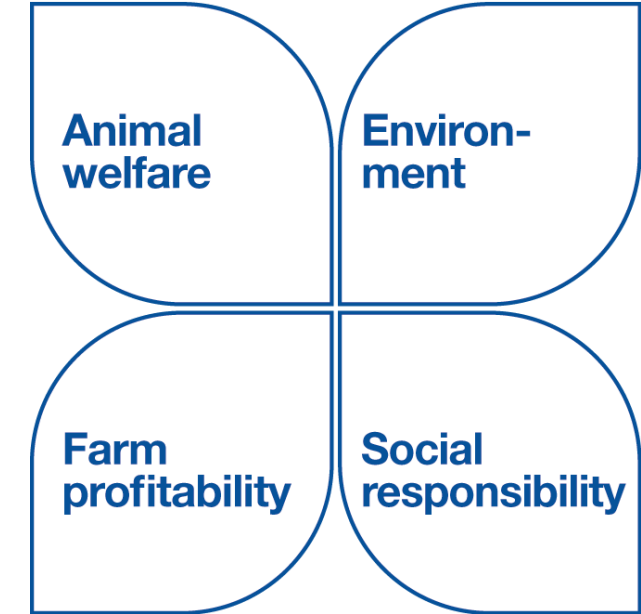
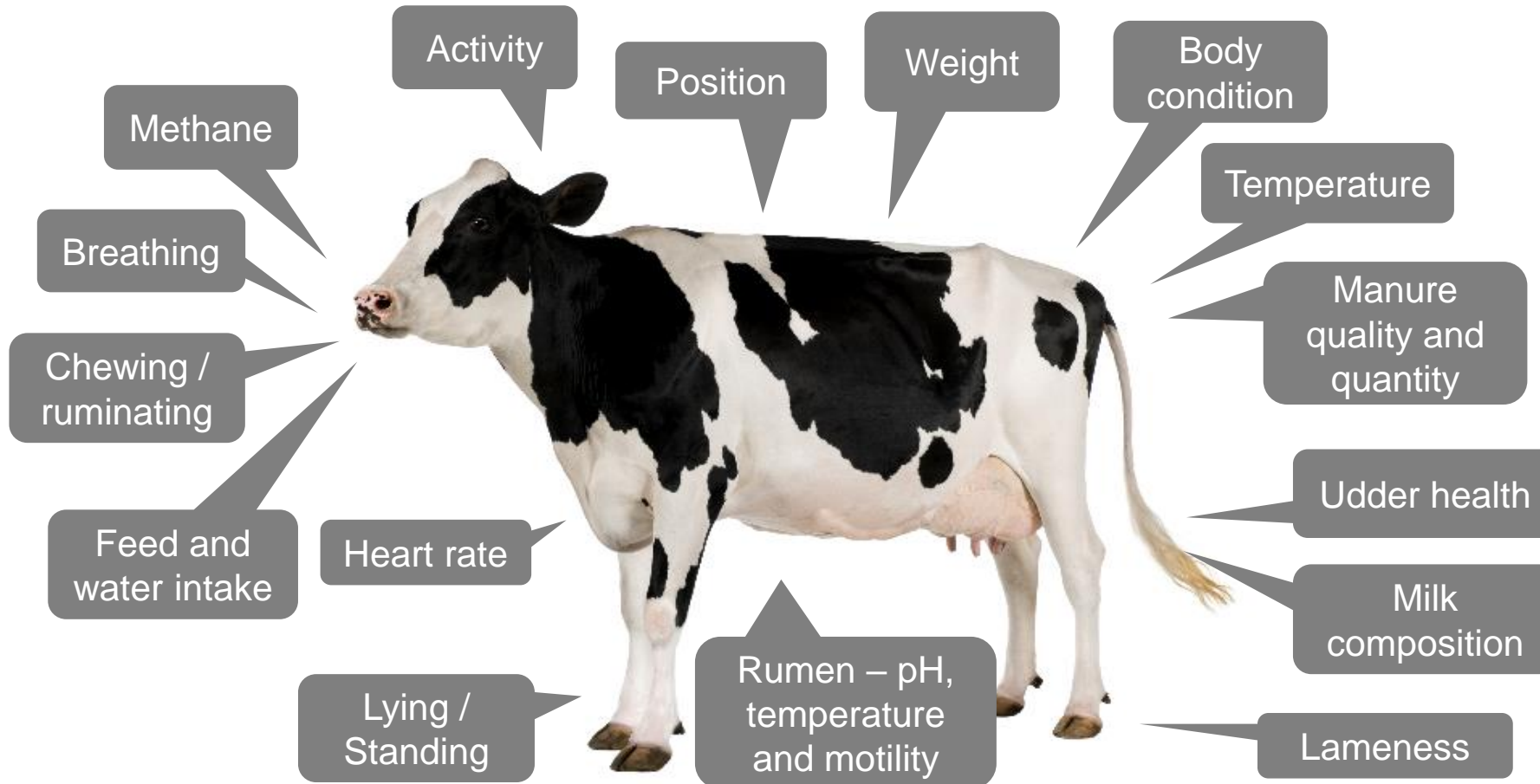
Do more, with less

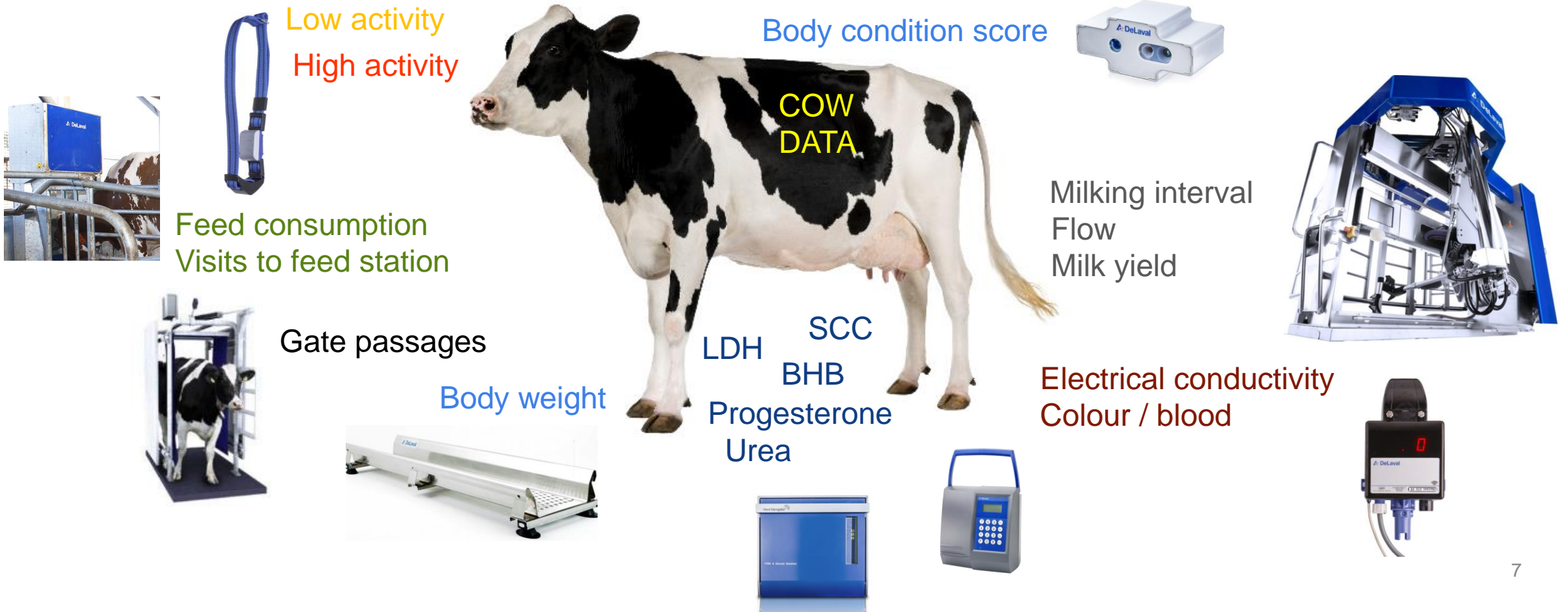
- Greater efficiency and profitability in production
- Reduced environmental footprint on farms
- Increased animal welfare
- Improved animal longevity

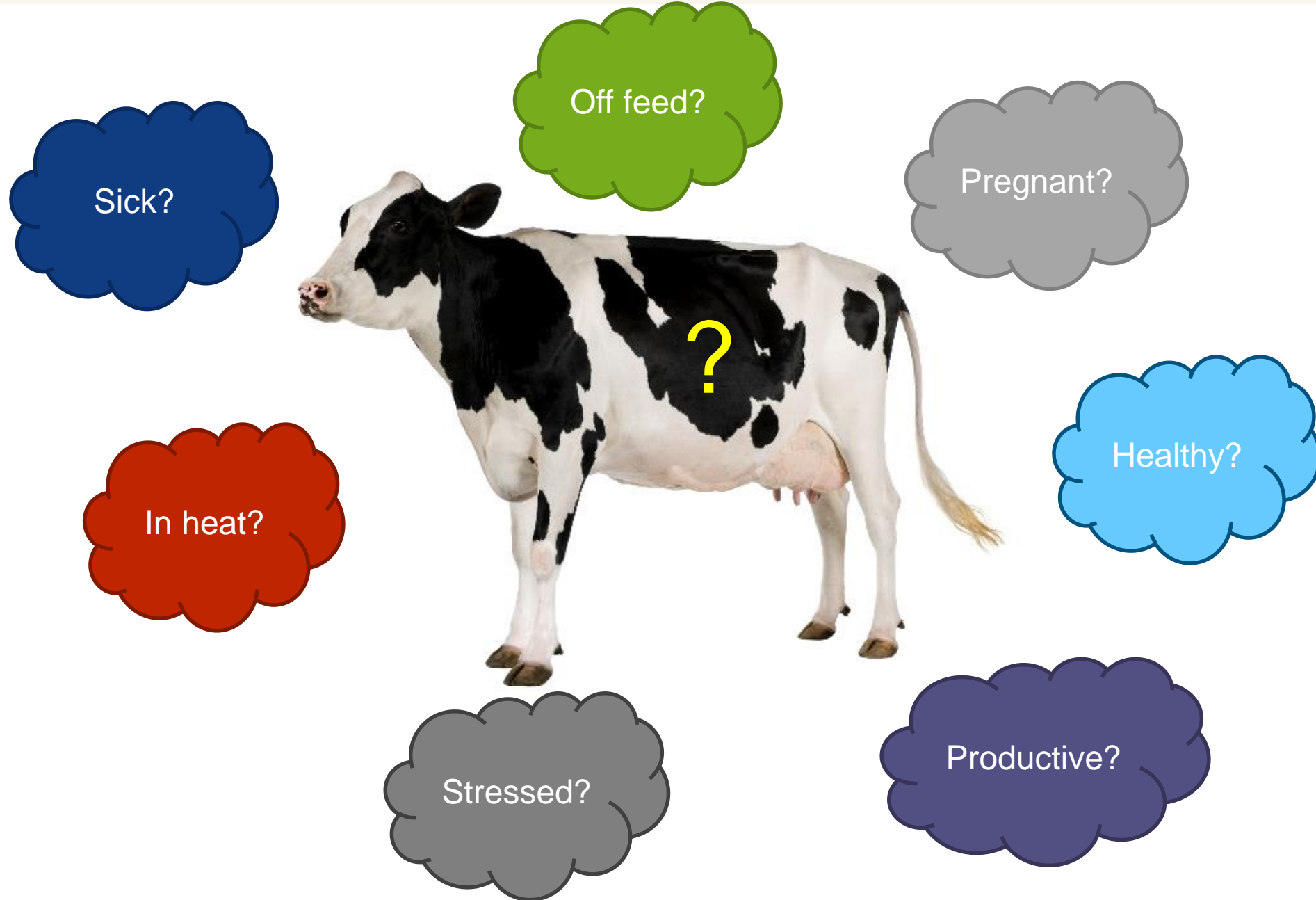


Sensors can measure a lot...

...but what makes most sense to measure?

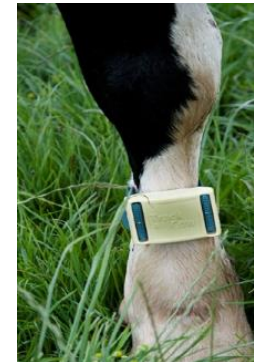






The need of sensor validation – example heat detection

Put the customer in focus



The need of sensor validation – example heat detection

Put the customer in focus



Precision

Verification

Validation

Negative predictive value

True positives

Repeatability

Standard deviation

Research

Payback time

Customer value

Sensitivity

Specificity

Farm studies

Accuracy

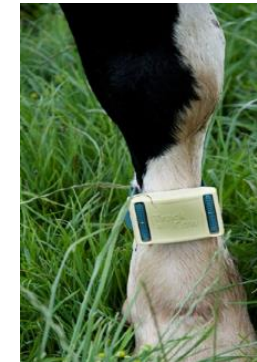
Marketing statement

False alarms

Reproducibility

The need of sensor validation – example heat detection

Put the customer in focus



The need of sensor validation

Put the customer in focus



The need of sensor validation

Put the customer in focus



The need of sensor validation

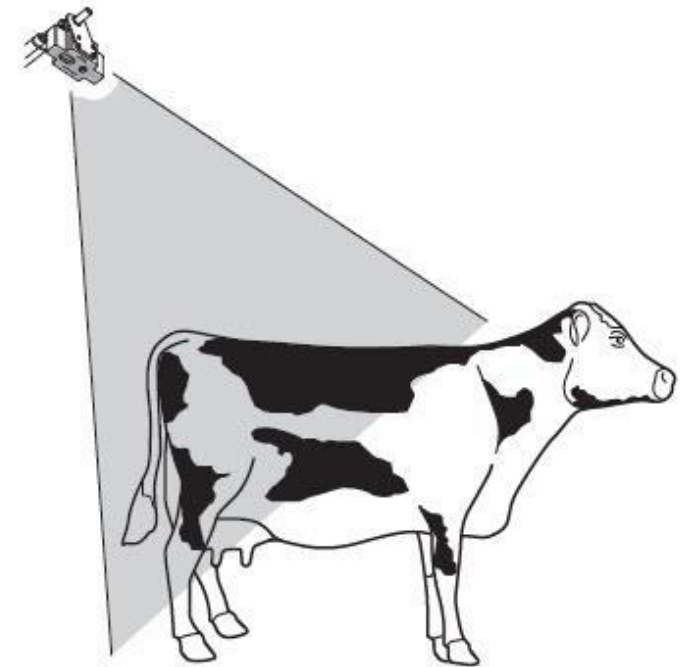
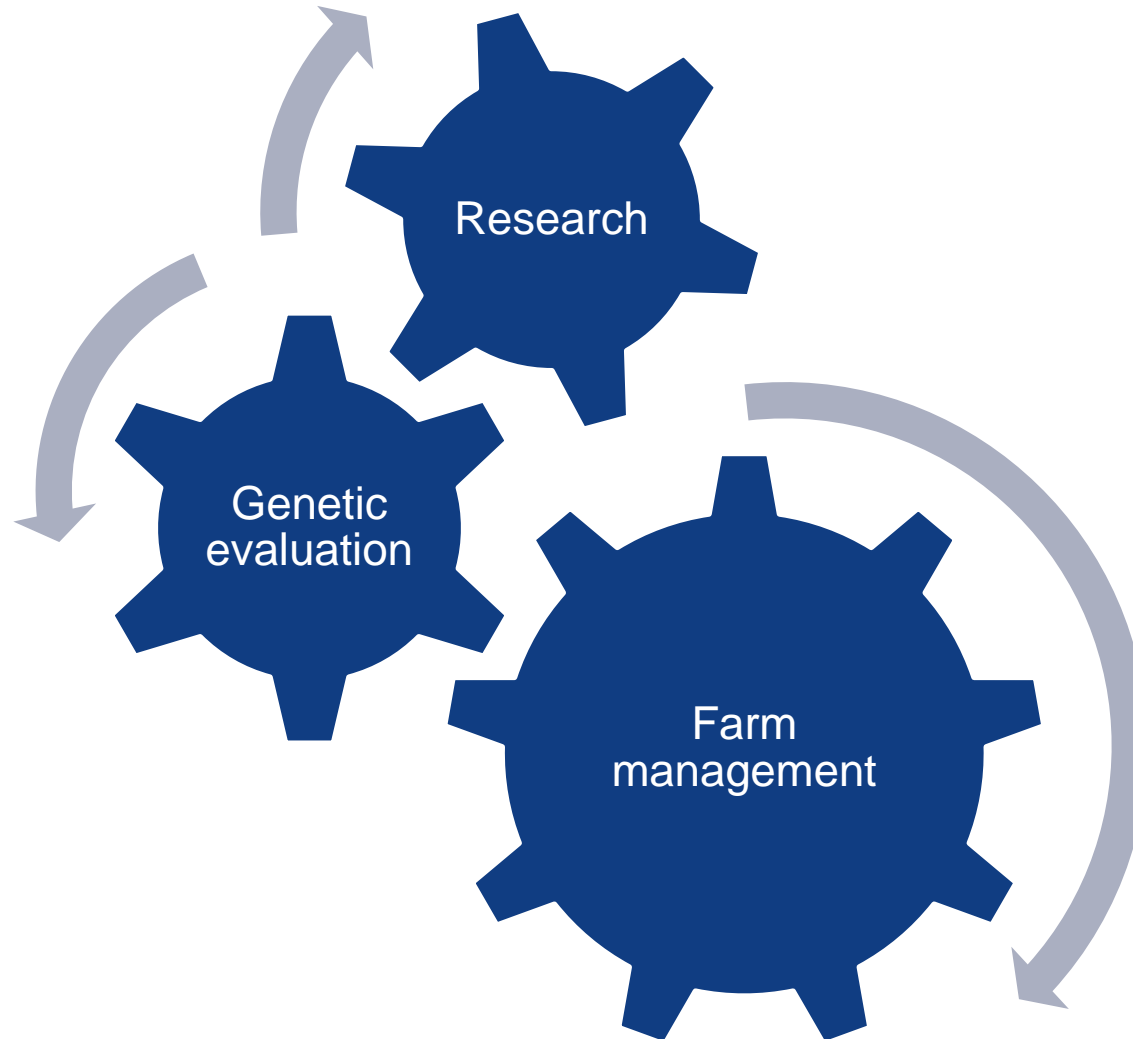
Put the customer in focus



- Conscious decision
- Proven quality
- Based on evidence
- Best suited for her specific needs and conditions

The need of sensor validation – example BCS

From a manufacturers point of view



The need of sensor validation – example BCS

Farm management



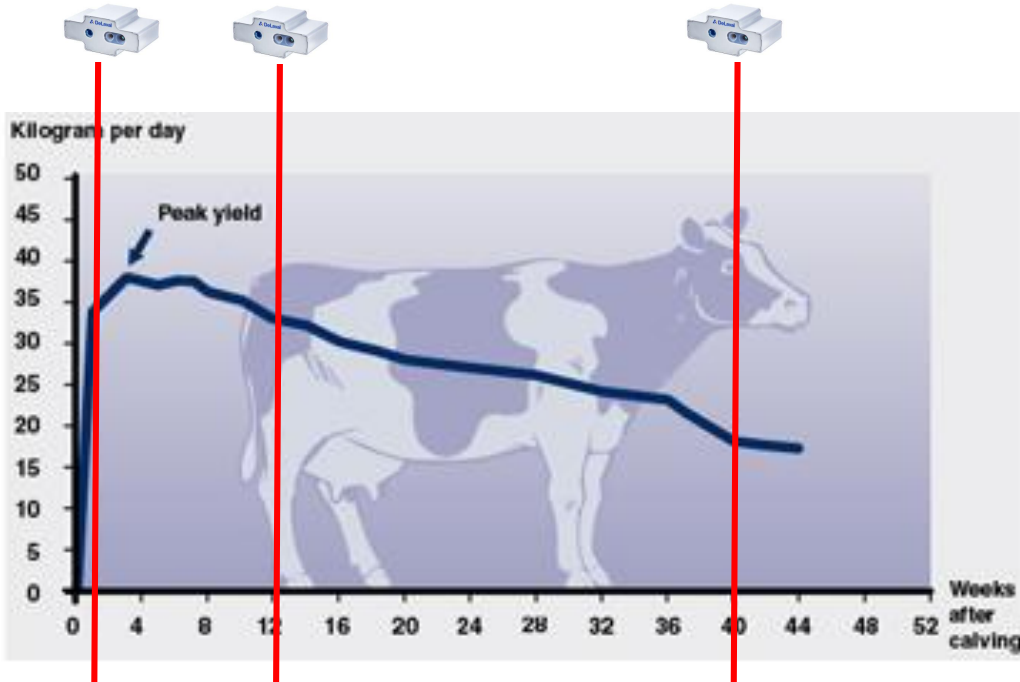
SOPs



- **Relative value** is most important
 - See trends over time
 - Dropping too fast
 - Gaining too much
 - Individual farm specific
- Absolute value not so important

The need of sensor validation – example BCS

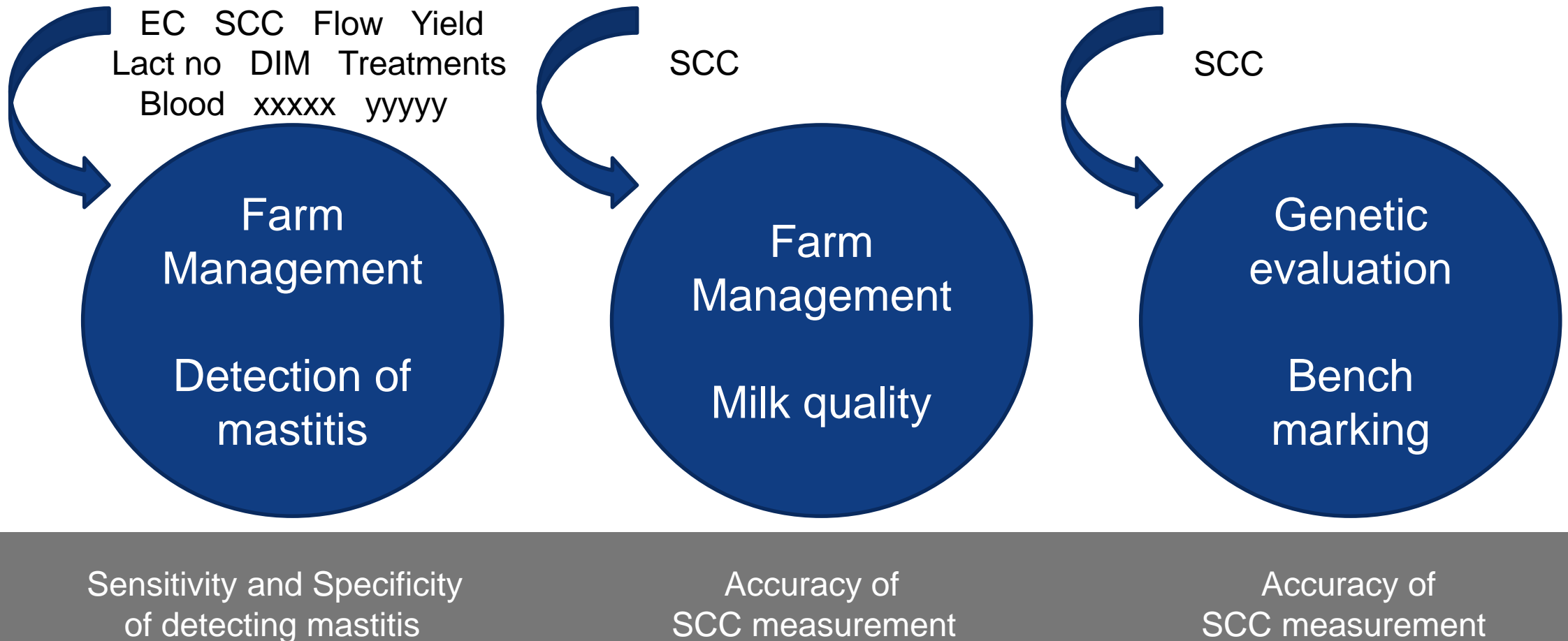
Genetic evaluation



- **Absolute value** is used
 - Measured at specific DIM
 - Model must give absolute value for many different breeds, ages, stage in lactation etc
- Relative values, trends and actions not important

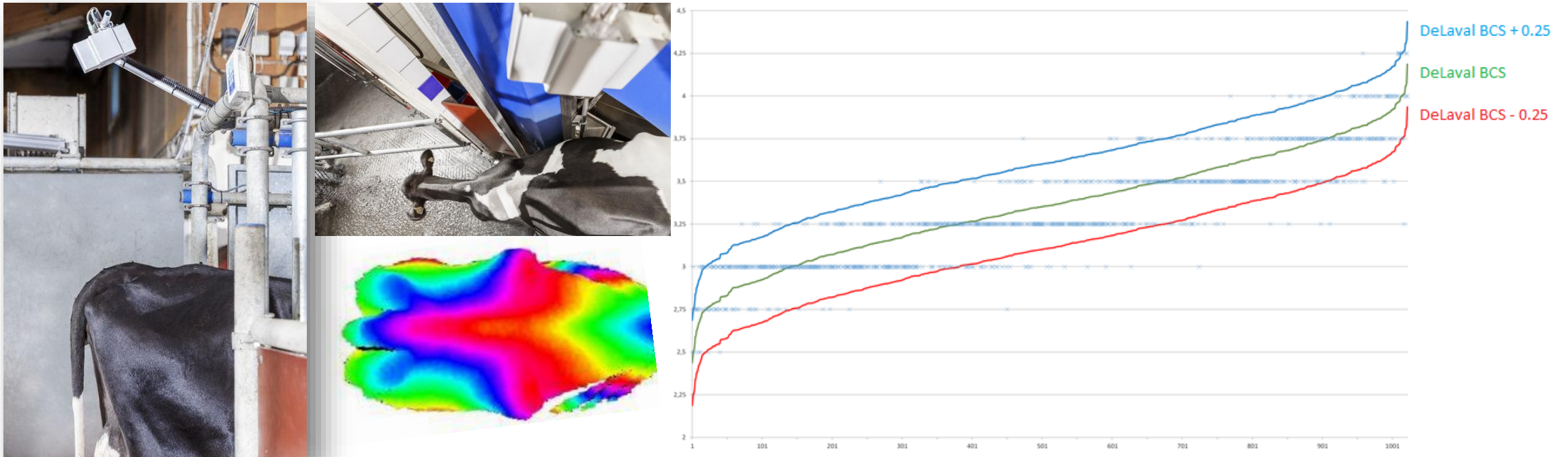
The need of sensor validation – example SCC

From a manufacturers point of view



The need of sensor validation – example BCS

From a manufacturers point of view



When the sensor is more accurate, repeatable and reproducible then the available standard

The need of sensor validation

From a manufacturers point of view

- Validation and quality stamp from independent organization
- We are measured against other manufacturers on the same terms
- We are guided in our product development, verification and validation to ensure quality sensors both for farm management, genetic evaluation and research



A black and white cow stands in a lush green field under a clear blue sky. The cow is looking directly at the camera with a curious expression. It has a yellow ear tag with the number '9263' and a blue collar. In the background, there are rolling hills, a line of trees, and a distant mountain peak under a sky with scattered white clouds.

Thank you for your attention!



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