

ICAR/IDF WORKSHOP
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VERONA ITALY

ICAR IDF WORKSHOP USE OF SENSOR DATA TO MONITOR AND MANAGE HEALTH AND WELFARE OF DAIRY CATTLE

Potential of sensor-based welfare assessment - the DeLaval perspective

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We live milk



**Milking & Sensor
systems provide
DATA &
actionable insights**



*Precision dairy farming – aiming to
improve*

- Animal welfare and health
 - Milking and milk production efficiency
 - Reproduction efficiency
 - Labor efficiency
 - Quality of life & career opportunities
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DeLaval Activity Meter Activity/Heat



DeLaval Plus behaviour analysis BA200/BA300

Rumination
Eating
Activity/Heat
Location



DeLaval Body Condition Score



BCS

DeLaval Sensor technologies support on-farm management



DeLaval milk cell analysis MCA SCC



DeLaval BioSensors Milk Solids Analysis



Fat
Protein
Lactose



DeLaval Repro™ Progesterone



Unlocking potential of sensor based welfare assessment

Investigate how sensor data can be used across herds and along chain.
Solutions were invented to support farmers with herd management.

On-farm data integration to optimize use of resources and herd performance is rapidly evolving

We are moving from single indicator to index to AI driven models forecasting e.g. risk of disease, using all available information on the farm

We need to investigate and understand the implications for guidelines and welfare assessment.

Animal welfare assessment with sensor data – a different approach

Human observer	Sensor/on-farm data based
Herd visit of 3-4 h; 3-4 x yearly	Real-time, frequent, data, patterns, alerts, indices, predictions
Cross sectional	Longitudinal
Protocol with accredited indicators & trained observers/ Five Domain Model	Adaptable protocol & analysis for different types and combinations of milking and sensor systems
Welfare indicators of longer duration (chronic), e.g. lameness, BCS, hock lesion, cleanliness	Short term and long term conditions - Incidence of abnormal data patterns - Interpretation in relation to welfare
Prevalence of conditions	Incidence of conditions/events
% animals > accepted threshold	Data analysis that delivers comparable indicators across type of sensors and combinations, based on incidences

What is needed to get from 'analog' to 'digital' welfare assessment?



- Research & innovation to develop suitable KPIs for sensor-based welfare assessment that applies to the majority of farms



- Communication, education & training



- Collaboration



- Guidelines & validation for transparency



- Data integration – within- herd data sources, connectivity and collaboration



We at DeLaval see a large potential in use of sensor data along the dairy value chain



ICAR and IDF are important stakeholders

Strong network of experts from academia and industry

Identify research gaps, facilitate research to solve them

Commonly agreed on guidelines promote uptake of sensor-based welfare assessment to the benefit of the whole dairy industry

Joined efforts and strong collaboration between all stakeholders needed!

Thanks!

We make
sustainable
food production
possible

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