INTEGRATED DATA MANAGEMENT AS A TOOL TO PREVENT DISEASES

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Background

- Many data relevant for optimization of herd health management are generated
- Many different data sources (on farm, labs, breeding, performance recording, animal health, ...)

Need of farmers
Integration of data on farm

Data from animal identification
Calving, insemination, culling information
Performance recording
Veterinarian diagnoses and treatments
Lab data (bacteriological findings,..)
Farmers' observations and actions,..
Genetic evaluation (EBVs, conformation,..)

Slaughterhouse, other health data,..
Data from dairies
Feeding information (analyses, feed plans,..)
Hoof trimming
Further data of interest for farmer,..

Data from automation (milking, feeding,..)
Communication between systems
Background

• Many data relevant for optimization of herd health management are generated
• Many different data sources (on farm, labs, breeding, performance recording, animal health, ...)
• Benchmarking – comparisons between farms,..
  • harmonization and standardisation
  • expected benefit due to integration of data
  • little communication between systems – data have to be recorded not only once
  • challenge data security concerns

Project aim: integration of relevant data to prevent diseases
ADDA „Advancement of Dairying in Austria“

Project 2014-2017

- Research along the dairy chain including partners from farmer organisations, animal health, feeding, dairy plants, food company, labs, chambers,...to universities

AREA 1 - Fundaments of milk production and safety
- Animal Nutrition
  - Rumen microbiota
  - Adverse effects of endotoxin
- Animal Reproduction
  - Improved estrus recognition
  - Paternity Test
- Udder Health & Intervention
  - Epigenetics of Fungi
  - Novel ABs
- Raw Milk Quality & Food Safety
  - Novel test spore forming microbiota
  - Raw milk quality and spoilage organisms in cheese
  - Storage of milk products in the consumer sphere

AREA 2 - Constituents of competitive milk production
- Integrated Data management tools
  - Assessing stakeholder needs
  - Relevant databases and legal aspects
  - Prototype of a novel data integration tool
- Strategies to a reduced AB use in cattle
  - Analysis of AB Usage in Mastitis
  - Bacteriological Data – Harmonization and Utilization
- Econometrics
  - Econometrics
  - E-Learning
ADDA – Subproject: Integrated data management tool

Project measures:

• Assessment of needs of farmers and veterinarians concerning use of data for herd management with focus on health
• Assessment of relevant data presently available
• Studies on added value of integration of data and central availability of data
• Standardisation and harmonization (bacteriological findings,..)
• Elaboration of data security concept
• Concept for technical solution
• Organisational concept
Survey on farmers and veterinarians
Assessment of needs: topics

- Technical equipment on farm
- Use of electronic devices and software products
- Documentation and recording on farm
- External information for herd management
- Data interfaces
- Use of data
- Need for further developments

Similar topics assessed from veterinarians
(participation around 20% of contacted farmers (1.905) as well as veterinarians (214))
Type of availability of external information

Results veterinarians

Only a small part of the information is received in a form that can be integrated via interfaces.
### Central availability of data / data exchange

#### Results veterinarians

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<thead>
<tr>
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<td>Data from milk recording</td>
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<td>Insemination data</td>
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<td>Status of infectious diseases</td>
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<td>Daily updated data on animal identification</td>
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<td>Bulk milk sample from dairies</td>
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<td>Electronic receipt on use of drugs</td>
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<td>Export to other programs</td>
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Central availability of data
Results farmers

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<td>Bulk milk sample from dairies</td>
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<tr>
<td>Bacteriological findings</td>
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<td>Result pregnancy test</td>
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<td>Status of infectious diseases</td>
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<td>Treatment data from veterinarian</td>
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<td>Other management information (BCS...)</td>
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<td>Hoof trimming data</td>
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Need for further developments
Results farmers

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<tr>
<td>Combination of existing systems on farm</td>
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<tr>
<td>Electronic transmission of veterinarian diagnoses to cattle data base (RDV)</td>
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<td>Electronic receipt for drug use</td>
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<tr>
<td>Import of results from feed analyses</td>
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<td>Export of data to other programs</td>
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</table>
Central availability of data
Vision (Egger-Danner et al. 2014)

- Other lab data (bacteriological data,...)
- Milk analyses
- MIR, ...
- Other data from performance recording (calving, culling, stillbirth,...)
- Dairies
- Other data (..)
- Artificial insemination, mating,
- Slaughter data (carcass eval., weight,..)
- Identification
- Hoof trimming
- Veterinarian diagnoses
- Treatment data
- Farmer observations
- Data from automation
- Auction sales
- Conformation
- Genome data (SNPs)
- Pooled database – interfaces – data centrally available
- Genetic and genomic evaluation
- Mating plans
- Feed control
- Data for research
- Benchmarks for other organisations (animal health,..)
- Parameters for monitoring of traits of public interest
- Parameters for monitoring of traits of public interest
- Herd management
- Use for advisors, veterinarians,..
Central availability - easy overview for farmer
Information per cow

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<td>---- 1. Belegung ---- CASHCOIN</td>
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Central cattle database (RDV)
Central availability - easy overview for farmer

Information per cow

Currently information of lab results or treatments have to be entered by the farmer – automatic integration of these data aim!
Central availability – comparisons between farms

Central cattle data (RDV) – RDV4Vet and RDV4M
Summary

• Many different data are generated on farm, but also externally which are relevant for optimization of herd health management

• Need for standardisation and communication between systems (less work for farmer; better quality of tools,...)

• Elaboration of an integrated data management tool in cooperation with the different partners involved in herd health management and prevention

• Challenges (data security, complexity, many different partners,...)

Chance of added value, which one organisation can not achieve!
Acknowledgement

- Very good cooperation between project partners within ADDA („Advancement of Dairying in Austria“)
- The funding agencies of the project:
Project partner

Research partner

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vetmeduni Vienna
Company partners
From production till processing within dairy sector
Thank you for your attention!