DCMRWG update & short-term prospects for cattle milk recording

Dairy Cattle Milk Recording WG
Presented by Pavel Bucek
Panel Discussion: “What Next?”
Friday 21/06/2019
Points for discussion

• Introduction to the working group
• Core activities
• Key research projects
• 24-hour calculation trends (based on data obtained from late 2018 to early 2019)
• Research
• Communication with industry
• Points for discussion – what will our milk recording policies be going forward?
Dairy Cattle Milk Recording WG

Members

• Pavel Bucek – Czech Republic
• Franz Josef Auer – Austria
• Xavier Bourrigan – France
• Bruce Dokkebakken – USA
• Kai Kuwan – Germany
• Juho Kyntäjä – Finland
• Yaniv Lavon – Israel
• Filippo Miglior – Canada
• Danuta Radzio – Poland
• Friedrich Reinhardt – Germany
• Carlos Trejo Jimene – Chile

• Research and/or practical backgrounds
• Directly involved in the daily management or operation of dairy herd milk recording
• Representing all important geographic areas
• WG specialises in all aspects of dairy cattle recording, from current and prospective farm systems to lactation calculations
Core priority of the working group

• Cattle milk recording Guidelines; last update – general aspects of cattle milk recording (approved February 2018)
• Update Procedure 1 – 24-hour calculations
• Make content more customer-oriented, clearer and more practical
Key projects of the working group

• Monitoring practice among MROs (surveys)
  ➢ 24-hour calculation surveys of automatic and classical milk recording systems (52 organisations)
  ➢ World Trends in Cattle Milk Recording (3 parts/46 organisations)
  ➢ South American project
  ➢ Plausibility checks project (25 organisations)
  ➢ Management of Milk Recording Organisations – Current Problems and Future Challenges (41 organisations)

• KPI development for the ICAR Certificate Quality

• Big data project (milk recording x feeding)

• Special interdisciplinary projects

• Collaboration with ICAR WGs, SCs & TFs (Accuracy Task Force & Sensors Device Task Force)
Key research projects impacting on the Guidelines

• Recalculation of the Liu method – AM/PM sampling is the industry-standard
• Research project on sampling scheme C calculations
• Detailed technical analysis of 24-hour calculations
• Comparing different 24-hour calculation methods
• Recalculation of coefficients for automatic milking systems (Galesloot method)
• Earmarking improvements for the Liu method adaptation of sampling scheme Z, a method that provides several benefits
• AfiLab Project – in-line analysis
• Comparing different 24-hour calculation methods
Communication with industry

• Technical sessions – communication and information exchange with MROs
• Practical workshop in Prague (more than 140 participants)
• Advisory services & resolving technical MR problems
• Discussing changes to the Guidelines externally beyond the group
• Promoting ICAR and WG abroad, e.g. training in Iceland and Poland, etc.
**Points for discussion – the future of milk recording**

- **Big data is an issue that needs to be discussed**
- The banking industry is an example of successful implementation = potential for new services
- Artificial intelligence, new software, deep learning and big data
- Discuss deep learning and new techniques coming on stream

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<tr>
<th>New analysis</th>
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<tr>
<td>- Availability of AMS data &amp; MRO internal data</td>
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<td>- MROs utilise laboratory data</td>
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<td>- Other heat time data</td>
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<td>- Option of combining all data including health data for analysis</td>
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<td>- MR and breeder organisations keep conformation data</td>
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<td>- <em>We will achieve higher value if we analyse data together</em></td>
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**Measurements of other important indicators:** weights, feed intake, feed efficiency, metabolic problems, ..... again more information

**Ways of combining data from AMS with other animal information**
Points for discussion – the future of milk recording

- Perform more tests at the beginning of lactations and less at the end
- Metabolic problems most commonly occur at the beginning of lactations
ICAR Dairy Cattle Milk Recording Working Group Survey: 24-Hour Calculation Methods – Global Trends

Participants

- Data were obtained from **52 organisations** from around the world
- Consisting of **90 questions**, the survey provides an analysis of all data, which were submitted between **December 2018 and March 2019**
New 24-hour calculation Guidelines

With regards to the current version of the Guidelines, rate the following statements in terms of priority on a scale of 1 to 10 (1=very low, 10=very high)

Average value from evaluation of priorities

- We need detailed descriptions of equations and examples: 8.1
- We need descriptions to be clearer and easier to use: 7.8
- We need practical examples on deriving factors and coefficients: 7.3
- We need practical comments and recommendation for use: 7.2
- We need new methods to be included in the Guidelines: 5.5
- We want a completely different approach to 24-hour calculations and would like to...: 4.6
Who is responsible for developing and implementing new methods?

Number of organisations

- Milk Recording Organisation (MRO)
- Our MRO collaborates with a research institute
- Our MRO collaborates with a research institute as well as commercial companies
- Our MRO collaborates with commercial companies
- Other
New 24-hour calculation Guidelines

• Analyse areas that are harmonised and those that aren’t – summarise results
• Identify differences in implementation
• Level of harmonisation
• Do we need harmonisation in every field?
• Is complete harmonisation even possible?
• Most MROs follow ICAR requirements, but minor differences remain
• Future direction

• **Calculation – collaboration – sharing factors and coefficients, problems with calculations and estimating factors**

ICAR Dairy Cattle Milk Recording Working Group Survey: 24-Hour Calculation Methods – Global Trends
New 24-hour calculation Guidelines

• Estimating coefficients: international project. Subject TBC.
• New services for herds using AMS
• New technologies, screening and possible additions
• Do we need new ICAR services in this field? A new laboratory for verifying the quality of estimated factors, coefficients?
• Lend support to countries in need, advisory services
• Some MROs are unable to derive equations, providing an opportunity for ICAR to offer data check and outsourcing services
Consumer orientation

• The consumer point of view will be important going forward
• BV health traits are an important form of consumer data
Further discussion items

• Future innovations of the ICAR Guidelines, e.g. individual lactation qualification in France
• Project milk recording outputs and outcomes
• Daily milk recording
• New services for herds using AMS
• New technologies

• Quality Management Systems for Dairy Farming – Opportunities & Challenges for Recording Organisations. New services for MROs.
• Validation and certification, development of quality indicators, plausibility checks for multiple data sources; checks/validations
• Standardisation and calibration are expected to play a big part
• Data storage strategies
• Integrating deep learning within MR practice
Resolving current problems & priority points for the MR Workshop

• How do we keep AMS customers happy?
• Whose milk is in the vial?
• How complex exactly is it to calculate daily yields?
Summary

• Farmers need to receive results faster, with a focus on minimising data processing centre delays
• Farmer services must be improved
• MROs need to create more value for customers, particularly in the area of herd management
• More just-in-time services with no delays, e.g. upload data one week and deliver results the next
• More services for management purposes with clearer management decisions. We must give farmers reason to be involved in the milk recording system we advocate
• We need to provide more benefits than AMS manufacturers
• Data used for genetic evaluation and management
• Only with better services can we keep abreast of business
Thank you for your attention!

https://www.icar.org/index.php/technical-bodies/working-groups/dairy-cattle-milk-recording-working-group/