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Abstract Submission Form

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Preferred presentation Oral

Preferred session Session 5: SC Milk Analysis – How to relate on farm sustainability and milk analysis?

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Title of your paper HoliCow – a new transnational approach to get the best out of DHI data collection and FT-MIR spectral data

Insert ABSTRACT text

In the past, several partners across Europe joined forces to build strong FT-MIR prediction models related to the status of dairy cows. Various European projects like OptiMIR, HappyMoo or GplusE allowed to produce a variety of equations, with different abilities to be used on farms, depending on their accuracies (like acetone, citrate, BHB, NAGase, dry matter intake, methane, etc). However, the practical application of these equations in farms is often tricky, as these predicted values are not clear enough nor easy to understand for farmers. In addition, farmers are currently drowning information: numbers, reports, graphs from different sources, in different formats and on different websites and apps.

Thus, different partners have decided to lead a project to simplify and clarify the information coming from FT-MIR spectral data, sensors and classical recorded traits and make it accessible to farmers. In addition, these partners want to produce an interactive tool, providing solutions to address the problems highlighted by the Interreg NWE project HoliCow gathering 12 partners from 6 countries (7 milk recording organizations – MRO –, 2 research centres, 1 university, 1 lobbying organization and 1 IT centre), with 3

associated partners in Austria and Switzerland. To achieve the goal of data visualization, the project gathered 41 million spectral and milk recording data into a transnational database. The spectral data sharing amongst partners was possible thanks to harmonization of data formats and spectral standardisation which is the first innovative part of this project.

A such amount of spectral data is not easily manageable in terms of processing time and storage. Thus, achieving data reduction without losing spectral variability is very important for the future statistical treatment. The method developed in the IDF-ICAR joint ExtraMIR project to create the world representative spectral database will be applied to the transnational spectral database to select a representative subset of spectra for each MRO. Then, unsupervised learning methods will be applied to predict clusters related to environment, production, fertility, health/welfare, processing ability and heat stress of the cows. The last scientific step will be the application of supervised learning methods to compute the probability of belonging to each discovered cluster, allowing the farmer to have a clear vision of the evolution of its herds and animals over time, using a spider diagram (directly visible in the MROs existing platforms).

Another objective of the project is the creation of a community solution database. The idea is to offer solutions to address the alerts highlighted in the application. These solutions will be constantly improved by the feedback of end-users (farmers and advisors), who will be able to rate the solutions provided and offer others.

Lastly, the project aims at enhancing the image of dairy farming in North-West Europe. To achieve this, different communication activities are planned locally and at the European level (open farm days, talks in schools, creation of a transnational network of farms, etc).

Enter keywords FT-MIR predictions, spectral data, milk recording, database