



## **9. Milk Analysis Workshop 2 Creating Additional Value from Milk Analysis**

### **Title presentation**

Minimisation of fertility economical loss by MIR based energy balance prediction

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### **Abstract**

The impact of the pregnancy stage of dairy cows on milk, fat and protein content is well known. During the last decade researchers underlined the possibility of spectral predictions of pregnancy stage due to the detailed milk composition which can be approached thanks to the Mid-infrared (MIR) spectroscopy. MIR is using the infrared light from the electromagnetic spectrum which shows specific absorption patterns when sent through a milk sample caused by frequency dependent interactions with the chemical bonds of the chemical milk components. MIR is a non-expensive and routinely-used method for major milk components and also for fine milk composition analysis. One of the outcomes from those researches was the proposed use of MIR pregnancy tools for choosing the better insemination period. The results were indicating that at the beginning of the pregnancy some areas of the MIR spectra were more specifically affected, than the absorption patterns of the fat or protein content. The aim of this paper is to study the impact of the energy balance at the insemination day and to underline the economic loss based on milk MIR spectra predictions. The objective was show that it is possible to help milk recording organisation advisors to use energy balance based MIR milk spectra predictions not just in healthy issues but also in choosing the right insemination period. It was observed that this approach could be used for further studies aiming to develop MIR strategies based on energy balance for management strategies for improved insemination success and the reduction of fertility economical loss.