Does MIR-based information contribute to practical decision-making on the farm?

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Mid-infrared (MIR) milk analysis has become an important technological development in modern dairy management. However, a critical question remains: do dairy farmers truly value MIR-based information, and does it contribute to practical decision-making on the farm? This presentation investigates the real-world relevance of MIR analysis from a farmer-oriented perspective, focusing on its application in metabolic monitoring and herd health management. Our main objective was to underline the technical evaluation of MIR predictive models with practical feedback from dairy producers to assess usability and impact.

Over the past decade, tools such as the KetoMIR system based on EMR standardised MIR spectral data have been implemented in routine to predict if animals are in danger based on an ample system. The preprocessing of the MIR spectral data, the KetoMIR model and the satistics for the predictions have been made in R with the help of GLMNET, pls, ChemometricsWithR and caret packages.

Due to wide spread extreme negative energy balance after calving and the demand for early detection of ketosis signs, KetoMIR is routinely used on the monthly collected milk samples at MROs LKV Baden-Württemberg, LKV Austria, LKV Nordrhein-Westfalen and LKV- Schleswig-Holstein. After 10 years of using KetoMIR, the results demonstrate that MIR-based indicators provide early and actionable insights into metabolic disorders, enabling farmers to adjust feeding strategies, reduce disease prevalence, and improve overall herd performance. Analysis of long-term data shows clear associations between KetoMIR classifications and key production parameters such as milk yield, fertility, and incidence of ketosis-related diseases. A farmer survey further reveals that while not all producers actively engage with detailed data, a majority recognize the practical benefits of MIR-derived information when presented in an understandable and farm-relevant format. The findings confirm that MIR analysis is most valuable when translated into simple, decision-support tools rather than complex technical reports. Overall, 10 years of experience indicate that MIR technology, when properly integrated into advisory systems, offers meaningful support for improving dairy cow health and farm efficiency.