Helping dairy farmers to improve economic performance utilizing data-driven decision support system tools

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Dairy farming is a highly dynamic and integrated production system that requires continuous and intense, data-driven, decision-making. Several dairy farm components that include cattle, crops, soils, weather, management, economics, and environment are extremely and dynamically interrelated. Therefore, successful dairy farming management and decision-making for improving economic performance can only be achieved by effective and efficient use of meaningful data together with decision support system (DSS) tools within an integrated systems approach. This presentation will describe the development and application of a suite of more than 40 computerized DSS tools aimed to assist dairy farm managers and dairy farm advisors to improve their continuous economic decision-making and problem solving abilities. No single or special methodology was used to develop each or all of these DSS tools, but instead a combination and adaptation of methods and empirical techniques with the overarching goal that these were: heavily farm specific data-driven, highly user-friendly, grounded on the best scientific information available, remaining relevant throughout time, and providing fast, concrete, and simple answers to complex farmers' questions. These DSS are becoming innovative tools by applying high quality farm data and expert information to useful and farm-specific management decisions taking advantage of latest computer technologies. All the DSS tools object of this presentation are hosted at http://DairyMGT.info, *Tools* section and are categorized within dairy farming management areas such as: nutrition and feeding, reproductive efficiency, heifer management and cow replacement, production and productivity, price risk management and financial analysis, and environmental stewardship. The presentation will reveal practical and real-life applications of a number of these DSS tools to demonstrate satisfactory system assessment, acceptable future predictability, adequate scenario evaluation, and, consequently, satisfactory decision-making. The presentation will include discussion of the trade-offs among data amount and quality, user-friendly design, computational detail, accuracy of calculations, and bottom line performance and effective decision-making.