**Project Title:**  Identifying the relationship between production management decisions, cow production factors, and farm finances on Minnesota dairy farms

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**Proposal:** Dairy farmers have experienced volatile milk prices for the majority of their career. To combat this volatility, farmers explore strategies to increase their revenue, decrease their costs, or use a combination of these strategies to increase or maintain their profit. However, many times these financial decisions are connected to a biological component of dairy production. For example, component pricing plays a significant role in the farmer’s paycheck. Many farmers work on adjusting their ration formulation to increase their milk yield and components. This may result in increased profits if revenue increases are greater than the cost of changing the ration.

To-date agricultural economists have been unable to study this relationship outside of collaborating with animal science studies that collect biological and financial factors. **This project proposes to study the effect of dairy management decisions on milk production characteristics and financial performance.** The FINBIN database provides a rich data set that includes detailed information on the financial performance of individual farms as well as management decisions that affect milk production characteristics. Examples of dairy management special sorts collected by FBM instructors include: BST, bedding type, barn type, TMR, organic, grazing, 3X milking, robotic milking, and calving intervals. While this detailed management data is available, it is not tied to biological cow-level data, such as milk component (butterfat, protein) levels, SCC, days-in-milk, lactation number, average calving intervals, and breed, among other factors. To achieve the objective of this project, we proposes merging FBM/FINBIN and DHIA data for current FBM students that utilize both services.

**Outputs:** The output of this analysis will be used to help inform producers about how dairy management decisions have affected profitability while considering biological factors. This project will result in an Extension publication outlining best practices regarding the decision to invest in dairy technologies and new management techniques as well as an academic journal article. Minnesota is in a unique position to implement this project due to detailed records within Minnesota State Colleges and Universities Farm Business Management Education program (FBM) and the collaboration between DHIA, the University of Minnesota, and FBM. Having the ability to combine the FBM/FINBIN and DHIA data will allow us to begin evaluating the relationship between these management decisions and its effect on finances. Additionally, this will be the first dataset, to the author’s knowledge, in the country to combine biological and financial data. The success of this program could be the model the rest of the U.S. follows to complete similar analysis moving forward.