The Age of Robotic Milk

Data Output Analysis of LELY Astronaut Computer Program

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### I. Research Questions

**Why the LELY Astronaut?**
- Robotic milking is a new frontier with a potentially positive but inadequately defined impact on dairy farms and production.
- The LELY Astronaut provides a low stress environment, milk quality control, and individual cow attention.

**Stakeholder Challenges**
In absence of any product documentation, how do dairies collect, analyze, and interpret data from a robotic milker to make management decisions?
- Farmers are drowning in information and don’t have the time to investigate the program.
- How can USU Extension help farmers utilize this new technology?
- This is a new and effective milking system, and most farmers are satisfied that it increases production.
- Extension, however, needs data driven lessons learned and best practices about the LELY Astronaut to disseminate to farmers.

### II. Dissection of the Robot Program

There are 69 automated reports and 277 variables.
- First, the reports were organized into categories: Analyze, Calendar, Feeding, Health, Miscellaneous, Milking, and Reproduction.
- Second, the variables were organized into categories: Animal, Attentions, Calendar, Condition, Device, Feed, Health, Lactation, Milk, Routing, and Time.

After organizing the variables in the data, it was evident that many of the automated reports contained redundant information. If the variables and information could be condensed into fewer reports, it would maximize time efficiency and simplify the process of making informed management decisions for the farmer.

### III. Guide to the LELY Astronaut Galaxy

The information and analysis was summarized into a USU Extension Guidebook to be used by Extension agents as well as USU as they install LELY Astronauts at the USU Caine Dairy.

### IV. To Boldly Go – Future Research

Dairy robotics is a new field, one that has great promise in promoting efficiency and production of dairy cattle. There is much more to learn, and there is a large market for spreading that knowledge around.

Research will continue studying LELY Robotics at USU’s new robotic milking parlor, studying and analyzing the program, as well as expanding the research to observe animal interactions and accuracy of the robot data.

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