



**UC DAVIS**

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## UPPER MIDWEST LARGE ROBOTIC FACILITIES

Greetings, dairy enthusiasts! In this edition, we are excited to share with you some of the knowledge we acquired during the Precision Dairy Conference that happened on June 22-23 in Bloomington MN, as well as our insights from visiting large dairies in the upper Midwest region of the US that have adopted AMS. The Precision Dairy Conference was hosted by the University of Minnesota. Dr. Marcia Endres, collaborator on this AMS project, was the conference chairperson.

DAIRY TECH  
NEWSLETTER

### TABLE OF CONTENTS

Precision Conference and  
AMS project updates • P. 2

Dorrich Dairy • P. 2

Minglewood Dairy • P. 3

You can collaborate • P. 4



During the 2 days of a hybrid meeting, farmers, academics, industry members, veterinarians, and nutritionists had the opportunity to discuss several aspects of automation on dairy farms, including milking and feeding automation, and also discuss data management on farms and the future of dairy technology. It was a productive event and we are looking forward to the next edition!

## UPDATE ON AMS PROJECT

This newsletter is part of a collaboration between UC Davis School of Veterinary Medicine, UC Agriculture and Natural Resources, and the University of Minnesota. This project is funded by the California Dairy Research Foundation. Our objective is to better understand the decision-making process when transitioning to AMS, and the most important aspects related to management before, during, and after installing the AMS. We are excited to announce that we finished the survey collection phase, and will proceed to the data analysis phase. We hope to have the results to share with you soon. Stay tuned!



### **DORRICH DAIRY** INNOVATING FOR THE FUTURE



Dorrich Dairy is owned and operated by the Vold Family: Brad Vold, his wife, Suzanne, and brother, Greg, in Glenwood, MN. They operate a 450-cow dairy and transitioned to an AMS in October 2019. The decision to switch from a double-8 herringbone parlor to seven Lely Astronaut A4 robotic boxes came from a necessity to build a new parlor aligned to the objective of reducing the labor on the farm. The improvement on retrofitting technologies was decisive for the Volds transitioning. From an economic point of view, retrofitting the barn to accommodate the robots was the best option. In this way, the Volds signed up for an unusual design in which they have two robots in the three-row pen which houses early lactation cows and any lame cows and five robots on the six-row pen.





FIG 1. SORTING AREA FOR FRESH COWS AND VETERINARIAN WORK



FIG 2. WORKING CHUTE FOR DRY-OFF MANAGEMENT



FIG 3. COLOSTRUM HARVESTING ACCESSORY

## BY CAMILA LAGE

Management on a large pen can be a challenge. But according to Suzanne, the key is patience. Although you still have a lot of work administering shots and fetching cows, adopting the robots allowed the Volds to keep the labor source within the family in addition to a full-time feed manager. Both pens are equipped with a sorting area behind the robots to facilitate management. In this way, cows can be sorted to receive specific management. The 6-row pen includes an area working chutes for dry-off management. Another feature that facilitates the management of Dorrich Dairy is an AMS accessory to harvest the colostrum of fresh cows. This feature helps the introduction of cows to the robots since the first milking while also facilitates the colostrum management of newborn calves.

Minglewood Dairy is located in Deer Park, Wisconsin. The dairy is owned and operated by Kevin and Roxann Solum, along with their children, Ryan and Kristin, and their son-in-law Jacob Quist. They milk 1,230 Holstein cows, 500 of them being milked on the AMS. They decided to give the technology a chance after extensive research on both economical and management aspects of the transition. As of now, 1/3 of their cows are milked on 8 DeLaval VMS, but their facility is ready for more robots as they plan to eventually install an additional eight units. They have already experienced many benefits, of milking their cows in the AMS: increased milk production, improved welfare, and a reduction in culling rates. Kristin says that one point that needs attention when transitioning to robots is the cost of consumables and robot maintenance, as they can be higher than expected and should be accounted for in the economic estimations. The process of deciding the best design for the facility took some time. The family wanted to maximize their production, while also using their existing facilities.

## **MINGLEWOOD DAIRY** CONFORT IS KEY FOR PRODUCTIVE COWS

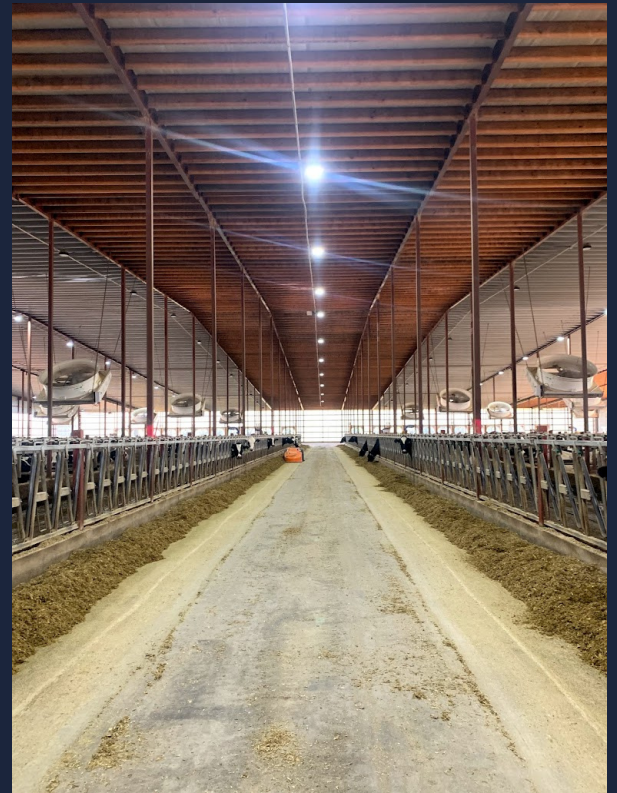


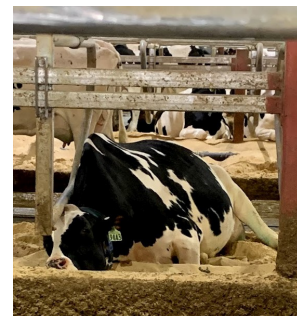




FIG 4. BOOTH-SHAPED DESIGN OF AMS UNITS

They decided to adopt a milk-first guided flow design, with 2 robots/pen that can accommodate up to 120 cows (roughly 60 cows/unit). Kristin says that the combination of the guided flow and the booth-shaped design in which the AMS units are placed on the pen helped with the traffic in the waiting area. This allows for a good milk harvest/robot per day, which is near to 6,000 pounds/day at Minglewood Dairy.

With more than 100 years of tradition, Minglewood Dairy keeps innovating as a way to keep doing what they love to do: farming. In parallel with the Dairy, they also raise some farm-fresh beef that they sell on Minglewood Eats and Treats. The farm also offers farm tours, in which the general public can get to see how the cows are milked with robots, learn where their food comes from, and enjoy a dairy treat.



## **MILTRIM FARMS**

**THE LARGEST AMS FARM IN WISCONSIN**



Miltrim farm is located in Athens, Wisconsin and is owned by Tom Mueller and his nephew and general manager David Trimmer. Currently, the dairy milks 2500 cows, of which 1100 are already being milked under AMS. Eighteen Lely Astronaut A5 are already up and running and 12 more were installed in July. We had the opportunity to visit the system and talk to Alyson Brandt, Miltrim Farms, Inc. barn manager, about the farm and its management. According to Alyson, several points were considered before the farm decided to go robotic. Challenges with future labor availability pointed 2 ways for future farm plans: either a rotary system or a new barn with AMS boxes. The later was chosen after several visits to farms that had the technology. The idea of a free-flow barn matched the concept of cow comfort that Tom and David were looking for.



Both cow traffic and people traffic were the main focus when designing the barn. Inside the barn, each free-flow pen has three boxes that are arranged in a long L-shaped design with a positive pressure ventilation system. The system aids in improving air quality and added climate control. This was an important detail for the facility since their waste management includes a barn flush system, which is not common in the Midwest because of freezing during winters. It also helps cows to be really comfortable during hot summer days.



FIG 5. LELY COSMIX P

Before the start-up of the first robots, Miltrim farms pre-trained the cows for a whole week before they started getting milked with the robots. Alyson said it took approximately a month and a half before the cows got used to the robots. Now cows are fetched each 6 hours as part of the routine. Miltrim farms invested in the Lely Cosmix P system to pre-training heifers and close-up cows and Alyson thinks it has helped with the learning process of the cows. "They start acclimating with the box and with the treatment they get when entering there", Alyson said, "So once they calve, it is much easier for them to adapt with the AMS". Having the training box is also a way to choose which heifers are going to the AMS system and which ones will be kept in the conventional system. Heifers that visit the Cosmix often are usually the ones that will adapt faster to the AMS.



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