

## LANDWEHR DAIRY AUTOMATED CALF FEEDER NURSERY

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### BACKGROUND

Dennis and Marlene Landwehr farm with their son, Mike in Watkins Minnesota. In 2008 the Landwehrs purchased land and buildings for use as a nursery and heifer development facility. They are currently using two automated calf feeders to deliver pasteurized waste milk to eighty heifer calves.

### CALF NURSERY MANAGEMENT

The Landwehrs use two Lely automated calf feeders to feed four pens of heifer calves (20 calves per pen) under one roof. Each pen offers 35 square foot per calf and bedded with either wheat straw or sand. The nursery barn is cross-ventilated by pulling fresh air through inlets on one side of the building with three exhaust fans per pen. Fans are sized at one 36 inch, one 24 inch, and one 16 inch fan are positioned on one side wall opposite inlets and two exhaust tubes run the length of the building. Calves are fed pasteurized waste milk from the Landwehrs daily. Calves are introduced into the automated feeder pen at 4 to 6 days of age and are weaned at 42 days. Calves have access to 8 liters of whole milk daily and are fed starter for ad libitum intake. The decision to use pasteurized milk was based on the availability of waste milk and the cost savings over the use of milk replacer. The Landwehrs estimate that the continuous flow pasteurizer will pay for itself in three years. Waste milk is brought from the dairy to the calf barn, pasteurized in a continuous flow pasteurizer, and stored in a refrigerated bulk tank until feeding. Milk is warmed in the Lely feeder to 101°F prior to feeding. Milk feeding rates are increased from 6 L/d to 8 L per day from d 6 to 14 and then decreased from 8 L daily to 5 L daily from d 35 to 42. Calves are identified at the automated calf feeder using RFID tags placed in the ear.

A texturized calf starter grain is fed in homemade feeders build out of PVC pipe that has been cut in half and mounted on steel legs. Calves reach through a post and rail fence to eat starter. Daily calf chores are accomplished by one worker who spends approximately five hours daily cleaning and maintaining equipment, feeding starter, adding bedding, and performing other routine tasks. Supplemental labor is used on days when calves are moved out of the nursery. Calves have ad libitum access to water from Jug brand water fountains that are designed to minimize splashing. Gammulin is added to the whole milk to improve calf health. Mortality rates are typically 1-2 percent. Straw is the bedding of choice for the Landwehrs calves. An experiment using sand bedding did not yield a satisfactory environment for the calves.



## **KEYS TO USING AUTOMATED CALF FEEDERS**

Maintaining proper sanitation in the calf pen is a critical component of the Landwehrs success with the automated calf feeder. A drain was installed under each nipple to drain moisture and is cited as one essential part of the automated calf feeder environment. Tubing and nipples are cleaned and sanitized daily. The roof and side walls of the calf nursery are insulated.

## **STRENGTHS OF AN AUTOMATED CALF FEEDER**

Compared with individual housing, automated calf feeders allow calves an opportunity to exercise and socialize. The automated calf feeder allows us to feed calves more efficiently with less labor. Additionally, the automated calf feeder is able to feed smaller and more frequent meals, which has led to greater daily milk intake. Pen feeding calves allows for rapid and unobstructed observation of calves from the center alley.

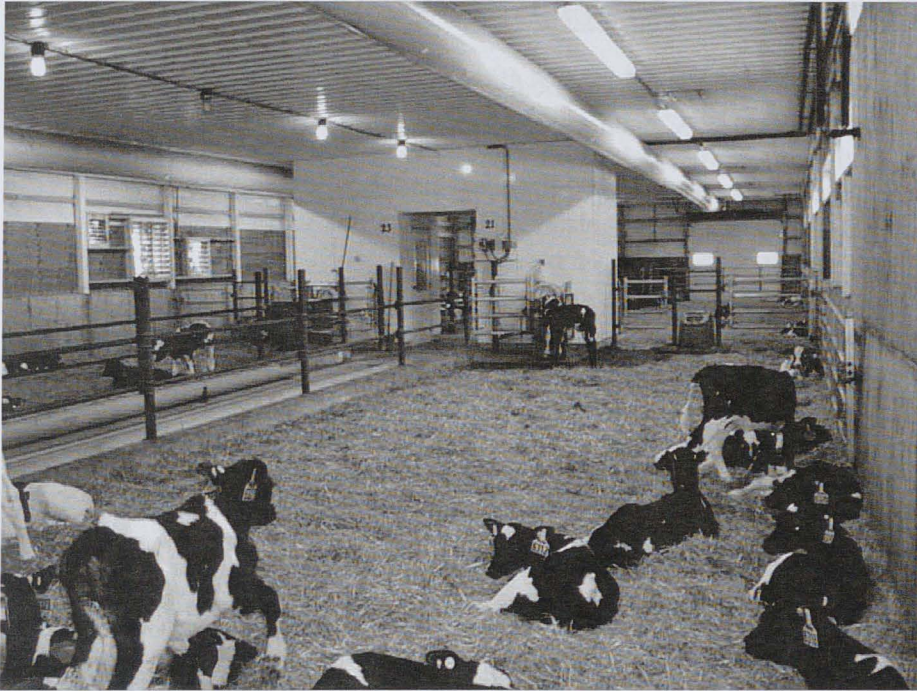
## **WEAKNESSES OF AN AUTOMATED CALF FEEDER**

Each pen was originally designed to hold thirty calves, but due to environmental constraints and calf performance, the number of calves per pen has been reduced to a maximum of 25 calves. Compared with individual housing, automated calf feeders may increase the risk for disease transmission between individual calves. Despite efforts to optimize ventilation and installation of floor drains below the nipples, the area around the milk feeders is chronically wet. Research needs to be conducted to better manage moisture around the calf feeder. Care must be taken during the winter to prevent milk in the feeding tube from freezing. The Landwehrs have constructed an enclosure around each of the automated calf feeders and supplemental heat is used to keep the feeders warm in the winter. However, freeze-up problems have occurred with the milk tube that delivers milk outside of the warm-room to the calf nipple.

## **TAKE HOME MESSAGES**

Converting an existing appropriately sized barn to an automated calf feeder barn has been successful and required less capital than building a new structure. Pasteurized whole milk is preferred over milk replacer. Maintenance of a sanitary and comfortable calf environment is critical to optimizing calf health and performance.





**Figure 1.** A look at the inside of the Landwehrs cross-ventilated calf barn.



**Figure 2.** Challenges with moisture accumulation around the automated calf feeder nipple.