

New Calf Feeding Technologies at the University of Alberta

Jennifer Haisan, University of Alberta

Background:

There is growing interest in shifting management practices for dairy calves in order to improve the growth, health and welfare of calves, as well as determine the long-term effects these changes may have on mature animals.

One approach researched over the past decade is feeding more milk pre-weaning. Although this approach has shown benefits, intensified feeding programs are not widely implemented. Feeding more milk favors the use of automation and group housing however these can pose problems with competition, cross sucking and disease transfer.

To promote and improve best practices associated with feeding calves and provide insight into feeding strategies, researchers from the University of Alberta installed new technologies for feeding calves at the Dairy Research and Technology Centre in Edmonton.

The new calf area consists of a room with individual pens where calves are fed milk automatically through a Calf Rail, as well as two group pens where calves are fed from an automated calf feeder. Currently, a long term study is underway investigating the effects of pre-weaning milk intake on calf growth and development.

The Technology:

Individual Pens with Calf Rail

Calves are housed in individual pens until 21 days of age, fed milk by the Calf Rail and have free access to starter and water.

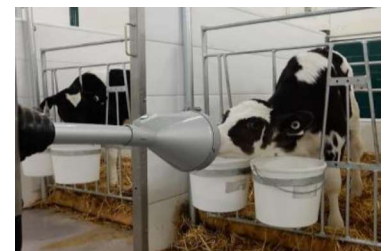
The room has 18 easy-to-clean pens, anti-slip flooring and a new ventilation system.



The Calf Rail travels on a rail to individual pens. It is programmed through an automated calf feeder and the user can choose:

- how many times per day to feed calves
- how much milk is fed per visit

Milk is delivered through a nipple which allows for calves to mimic natural behavior.



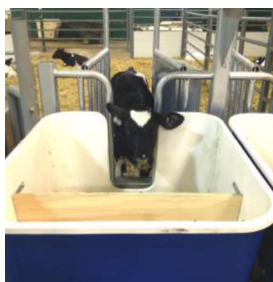
This allows for calves to be fed a high level of milk, split into several meals per day, while minimizing the labor associated with feeding calves.

Group Pens

After 21 days, calves are moved to a group pen where they are fed milk through an automated calf feeder and provided with free choice starter, hay and water.



Daily milk intake is recorded and there is a half body scale at the milk station to record daily body weights and track growth.



Starter ration and hay are fed in feed bunks that record the number of visits per day, duration of each visit and daily intake. Water bowls record daily water intake.

Calves are weaned over 10 days starting on day 48. Once weaned, they are moved to an adjacent pen similar to the pre-weaned pen without access to milk.



Preliminary Findings:

Calves are fed by the Calf Rail starting on day 3 of life and transition easily within 2 days. Calves are able to consume up to 10L of milk within the first week of life, with many consuming 10L by 4 days of age. This high level of milk intake has not been associated with increased illness in this facility. Calves transition to group pens easily at three weeks of age with no negative impact on milk intake or growth.

As a part of the on-going study, calf growth is tracked for calves fed either 5L (LOW) or 10L (HIGH) of milk per day:

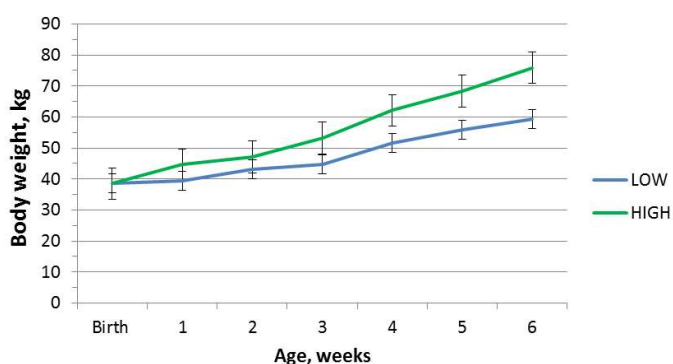


Figure 1: Body weight from birth to 6 weeks of age for calves (8 calves per diet) offered either a LOW or HIGH level of milk

Summary:

- Feeding calves a higher level of milk is advantageous for growth
- Calf health has not been compromised by feeding more milk or housing calves in groups, in this facility
- In the future, researchers hope to expand their knowledge of how feeding LOW vs HIGH milk rations during early life impacts mature animal performance

Visit www.drct.ualberta.ca for more information about the research facility and tours!

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