Improving efficiency of feed use through reduced variability in nutrient consumption in lactating dairy cows

Dairy Research Cluster Communications and Consultation Workshop
November 16, 2011
Research Team:

- Principle Investigator:
  - Trevor DeVries, University of Guelph
- Collaborators:
  - Karen Beauchemin, AAFC
  - Brian McBride, University of Guelph
  - Masahito Oba, University of Alberta
- Graduate students:
  - Amy Sova
  - Kelly Hart
- Undergraduate student:
  - Julie Fish
Project Objective:

- Use knowledge of cow feeding behaviour to reduce variability in nutrient intake and improve the efficiency of feed use in lactating dairy cows
Hypothesis:

- The efficiency of feed use improves in lactating dairy cows when feeding management strategies are implemented to promote feeding behaviour patterns that reduce within- and between-cow variation in nutrient intake both within and across days.
Objective #1

- Determine the variability in feed intake and feed sorting for individual cows, from early to peak lactation, and establish the relationship with efficiency of feed use.

- Results:
  - Sorting behaviour is consistent over time, greater for primiparous cows, and associated with lower milk fat production

Objective #2

- Reduce the risk of over-consumption of nutrients and improve the efficiency of feed use in late lactation cows

Results:

- Adding water to a dry TMR proved effective at reducing feed sorting, but did not limit feed intake enough to improve feed efficiency
Objective #3

- Reduce variability in nutrient intake, through reduced sorting, in early lactation cows

Results:
- Intake variability can be reduced, while improvements in overall intake and production can be realized through addition of a molasses-based liquid feed to TMR
Objective #4

- Examine how herd-level feeding management factors affect the relationship between feed sorting, within-herd variability in milk production, and efficiency of feed use.

- No results to date:
  - Current field trial involving a cohort of herds in Eastern Ontario
  - Upcoming controlled trials evaluating interactive effects of various management factors (milking frequency, timing and frequency of feed delivery)
Expected outcomes:

- Recommend feeding management practices that can be implemented by dairy producers to minimize feed sorting and any associated variability in nutrient intake, and thus improve rumen health and the efficiency of milk production
  - Improved welfare of...
    - Cows
    - Producers
Thank you to the partners in the Dairy Research Cluster, including the Dairy Farmers of Canada, the Canadian Dairy Commission, and Agriculture and Agri-Food Canada, for their support of this research.