Creating a balanced total mixed ration is important for your cows’ health and efficient milk production. When and how your cows feed can be just as important as what you feed them. University of Guelph researchers recently studied how feed management choices may improve production and efficiency without negatively impacting cow behaviour.

Professor Trevor DeVries, from the animal and poultry science department at the University of Guelph’s Kemptville Campus, recently studied how milking frequency and feed delivery frequency impacts dairy cow behavioural patterns.

DeVries is a dairy cattle behavioural specialist. He is interested in cows consuming small, frequent meals throughout the day to produce a steady input of nutrients in the cows’ rumen. Slow consumption is more efficient. Large meals can result in substantial drops in rumen pH, he says. This drop can potentially lead to sub-acute ruminal acidosis, a digestive disorder associated with decreased milk production and low milk fat.

“We’re trying to identify desirable behaviour patterns that are conducive to greater health, efficiency and welfare,” says DeVries. “Part of that includes investigating and identifying management practices that positively influence feeding.”

First, DeVries examined how milking either twice or three times daily influences cows’ behavioural patterns. DeVries and his research team used an automated feed intake system to monitor feeding behaviour, while using electronic rumination monitors and data loggers to track cattle rumination and lying patterns.

Milk production increased by nearly 10 per cent when cows were milked three times daily, says DeVries. The extra time required for milking three times daily altered the distribution of cow behavior throughout the day. However, no impact on total daily lying or rumination time was observed, he adds.

In a subsequent study, cows were milked three times daily and fed either once, twice or three times to examine if increased feed delivery frequency influences behavioural patterns. Cows were fed immediately following milking.

DeVries found increased feed delivery frequency resulted in greater feed intake.

“University of Guelph professor found increased feed delivery frequency resulted in greater feed intake.”

“Our goal throughout these studies, and in future studies, is to have the greatest positive influence on the feeding patterns of these cows,” says DeVries. “But we have to ensure we aren’t negatively influencing their other important behaviours.”

DeVries is going to investigate optimal feed delivery times—whether before, at, or after milking—and the impact on cow behaviours, health and production.

Anna Wassermann is a student writer for the University Of Guelph’s office of research. This research was funded by Dairy Farmers of Ontario, Natural Sciences and Engineering Research Council of Canada and the Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs. Also involved in this research were professors Brian McBride and Todd Duffield, and master of science graduate Kelly Hart.