Makingsure your lactating herd has sufficient blood glucose levels is necessary for optimum milk production. Milking cows need glucose to produce lactose. As cows absorb little glucose from their diet, production of glucose in the body is required using other body fuels, such as fat reserves. Your cows could develop ketosis if they don’t get enough energy from their diet and breakdown too much body fat. This could result in decreased milk production and reproductive performance.

University of Guelph researchers have discovered measuring lactating cows’ blood glucose levels can pinpoint ketosis severity. This can help determine the best treatment for your cows.

Doctor of veterinary sciences student Jessica Gordon and population medicine professor Todd Duffield have found using a human glucose meter can better diagnose ketosis, and provide more effective treatment. A glucometer tests blood sugar levels in humans with diabetes.

Gordon’s team started testing cows’ blood glucose levels to measure ketosis severity. They used a human glucometer called Precision Xtra. It is inexpensive, durable and portable, making it easier for producers to perform cow side tests. Measuring blood glucose levels lets the researchers distinguish one ketotic cow from another, says Gordon. This can save producers time and resources by letting them choose an appropriate treatment for individual cows, she says.

“Though research on ketosis has been conducted for the past 80 years, we found there is little concrete information on how to treat this difficult and common disease,” says Gordon. She says ketosis affects up to 40 per cent of lactating cows. “We’re trying to improve treatments to benefit the animals and producers.”

Gordon’s team also looked at new treatment procedures to increase blood glucose levels and treat ketosis. Eight herds in Ontario and one from Michigan were used for a clinical trial. Ketotic cows were randomly treated with Catosal, a drug comprising phosphorus and vitamin B12, and three or five days of propylene glycol. The researchers found extended propylene glycol treatment decreased levels of beta-hydroxybutyrate (BHBA) in severely affected cows. BHBA is a ketone body that increases with ketosis. Treatment with Catosal or extended propylene glycol also increased milk production in animals with low blood glucose at the time of ketosis diagnosis.

Catosal is available in the U.S. but not in Canada. However, B12 products without the phosphorus are available in Canada.

“We hope to find new treatments or better applied treatments to improve animal health and welfare, as well as productivity for the producer,” says Gordon.

Gordon wants to better understand the variation in blood glucose levels between ketotic cows. She plans to examine factors such as weight, diet and cow health, and if they could be indicators of low glucose levels.

Andrea Seccafien is a student writer with the University of Guelph’s office of research. Other collaborators on this project include population medicine professors David Kelton and Stephen Leblanc, and professor Tom Herdt at Michigan State University. This research is funded by the Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs, and Bayer Animal Health.