

Harald Hammon

Addendum to the question round at the Dairy Nutrition Symposium 2017

Jacob Goelema

What is the contribution of grass silage (up to more than 15%) lactate levels to gluconeogenesis?

RESPONCE:

I am not aware that someone has measured gluconeogenesis in grass silage based diets and have compared this to other diets. I guess there is possibly a shift in precursor for gluconeogenesis from propionate to lactate (if any), but total endogenous glucose synthesis might be not affected! The literature tells us that increasing a precursor for gluconeogenesis does not result in elevated glucose production but shifting the use of the utilisation of the precursors.

Lieke Janssen

Do you know the requirements of biotin of the periparturient cow in serum?

RESPONCE:

There are studies around that discuss the requirements of B-vitamins including biotin in dairy cows (see Girard, R. Bras. Zootec., 46(7):614-620, 2017). However, whether this really touches gluconeogenesis is not known in my view.

David Levick

Could it be possible that specific minerals, that make the key enzymes work, become limiting at point of calving?

RESPONCE:

This is a good question as the one before for B-vitamins. I am not sure whether somebody has looked at this. But I guess that the impact is lower than we suppose.

Jörg Enemark

Is the conversion of lactate to glucose equally effective for both iso-forms (L and D-lactate)?

RESPONCE:

As you can see from the paper of Harmon et al. 1983 (Influence of Diet on Glucose Turnover and Rates of Gluconeogenesis, Oxidation and Turnover of D-(-)-Lactate in the Bovine; J. Nutr. 113: 1842-1850) there is very little conversion of D-lactate to glucose in the ruminant! So, L-lactate is much more important than D-lactate!

Gert van Duinkerken

Could new feeding strategies targeted at reduced enteric methane have a relevance for transition cows?

RESPONCE:

Of course, such strategies will touch the metabolism of the transition cow. I am not sure which strategies you mean and what you mean with "new feeding strategies", but changes in SCFA production in the rumen that affect methane production will also affect whole energy metabolism of the cow. To go more into detail it is necessary to discuss the specific feeding strategy. But most of the problem deals with the production of acetate in the rumen. Acetate synthesis leads to hydrogen production which causes methane synthesis.