Variation among Dairy Cows in Rumen Liquid Fermentation Characteristics

Z. Zhu[2], L. Kristensen[1], O. Højberg[2], M. Poulsen[2], J. Lassen[1], S.J. Noel[2] and P. Løvendahl[1]

Lisem.kristensen@agrsci.dk

[1]Center for Quantitative Genetics and Genomics, Dept. of Molecular Biology and Genetics, Aarhus University, Denmark; [2]Dept. of Animal Science, Aarhus University, Denmark

Aim

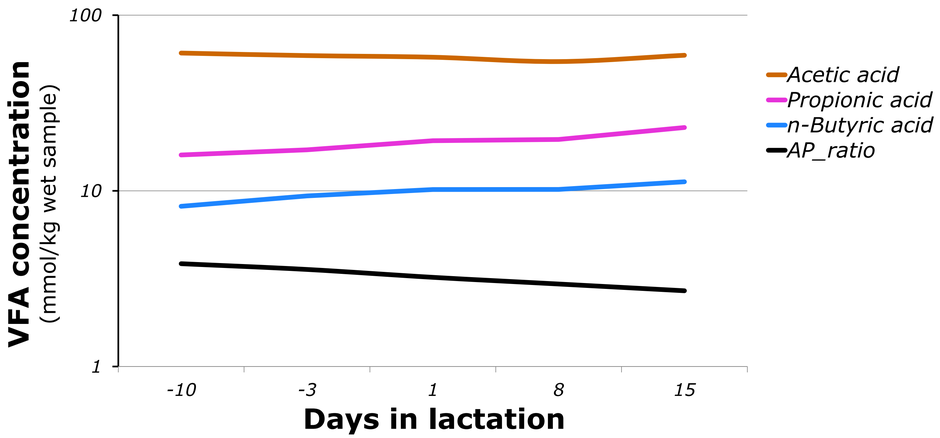
- The rumen microbiota produce volatile fatty acids (VFAs) → main energy product from fermentation
- The microbiota changes from calf to adult cow
- VFAs are used as pilot traits in a metagenomic investigation study looking at systematic changes and repeatability in rumen samples from parturition to early lactation

Materials & Methods

- One rumen sample pr. week from 10 Holstein Friesian heifers over 7 weeks
- VFAs analyzed by gas-chromatography (**A**cetic, **P**ropionic and **B**utyric acid)

Results

- Changes in VFAs at onset of lactation:
  - Small for **A**cetic and **B**utyric acid
  - Increase in **P**ropionic acid from 16 to 23 mmol/kg
  - Change in **AP**-ratio more clear!
- Estimated repeatability:
  - Low for all three VFAs (t_A = 0.03; t_P = 0.18; t_B = 0.03)
  - **AP**-ratio more pronounced (t_{AP} = 0.25) => more useful



Conclusion

- Changes in VFA concentrations are numerically small; though significant except for Acetic acid
- The cow effect is very small!

....*At least during this time period*

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REMRUM project