

Sampling and sample storage

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New Zealand Government

Ministry for Primary Industries
Manatū Ahu Matua

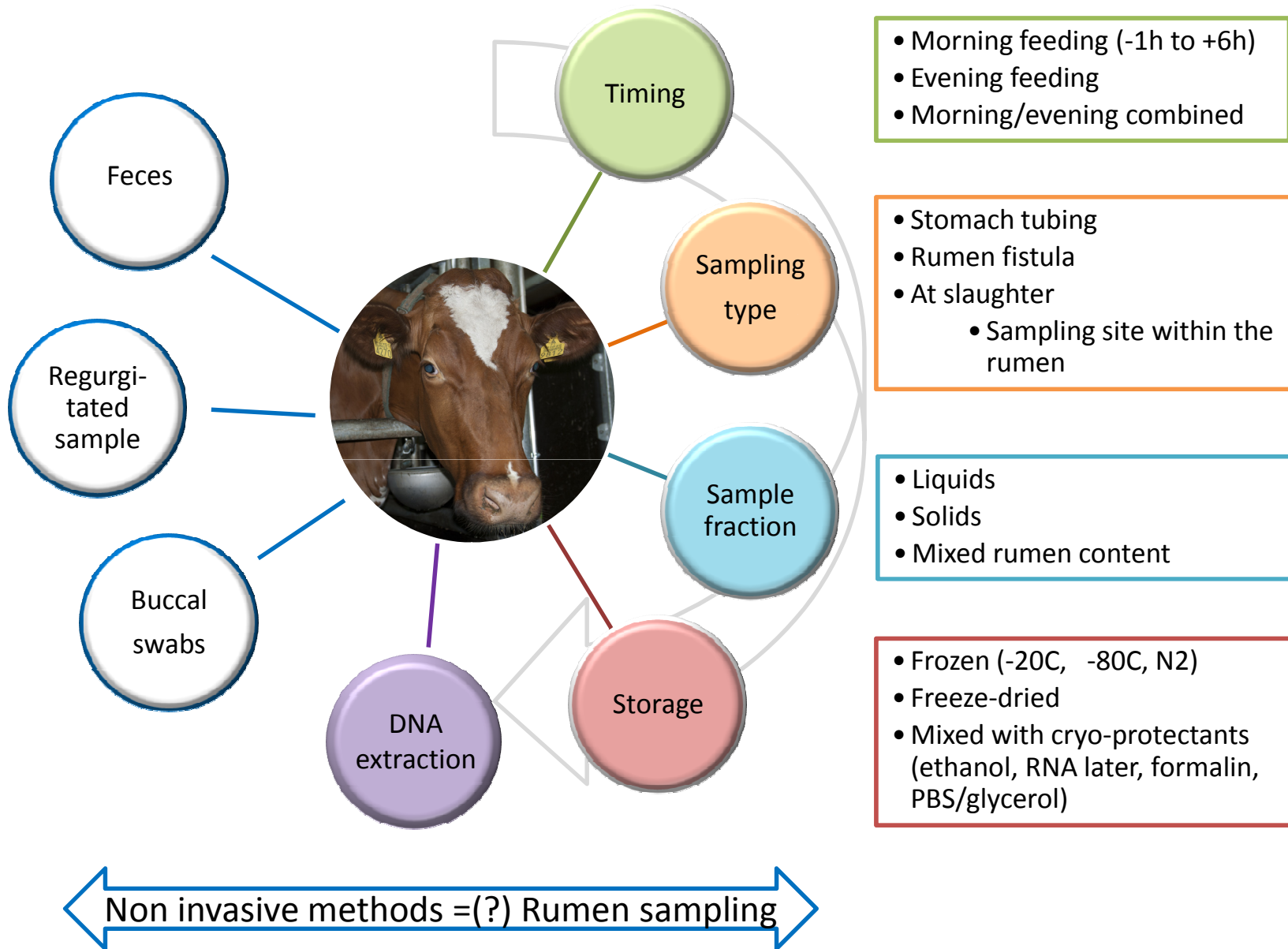


Joint RuminOmics and RMG Network Workshop

22/06/2013, Dublin, Ireland

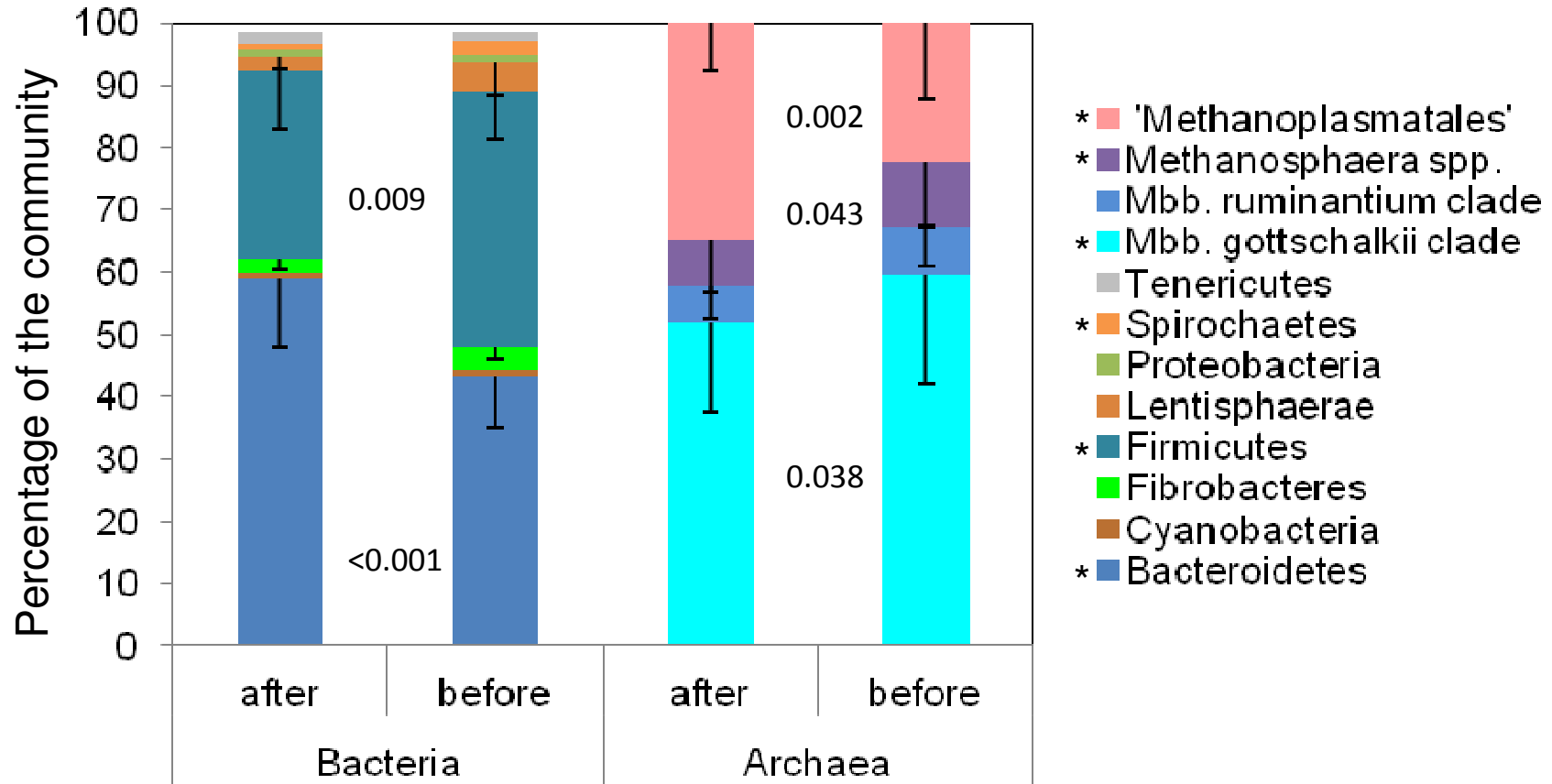


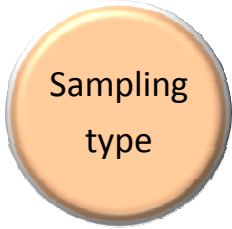
Sampling and storage options



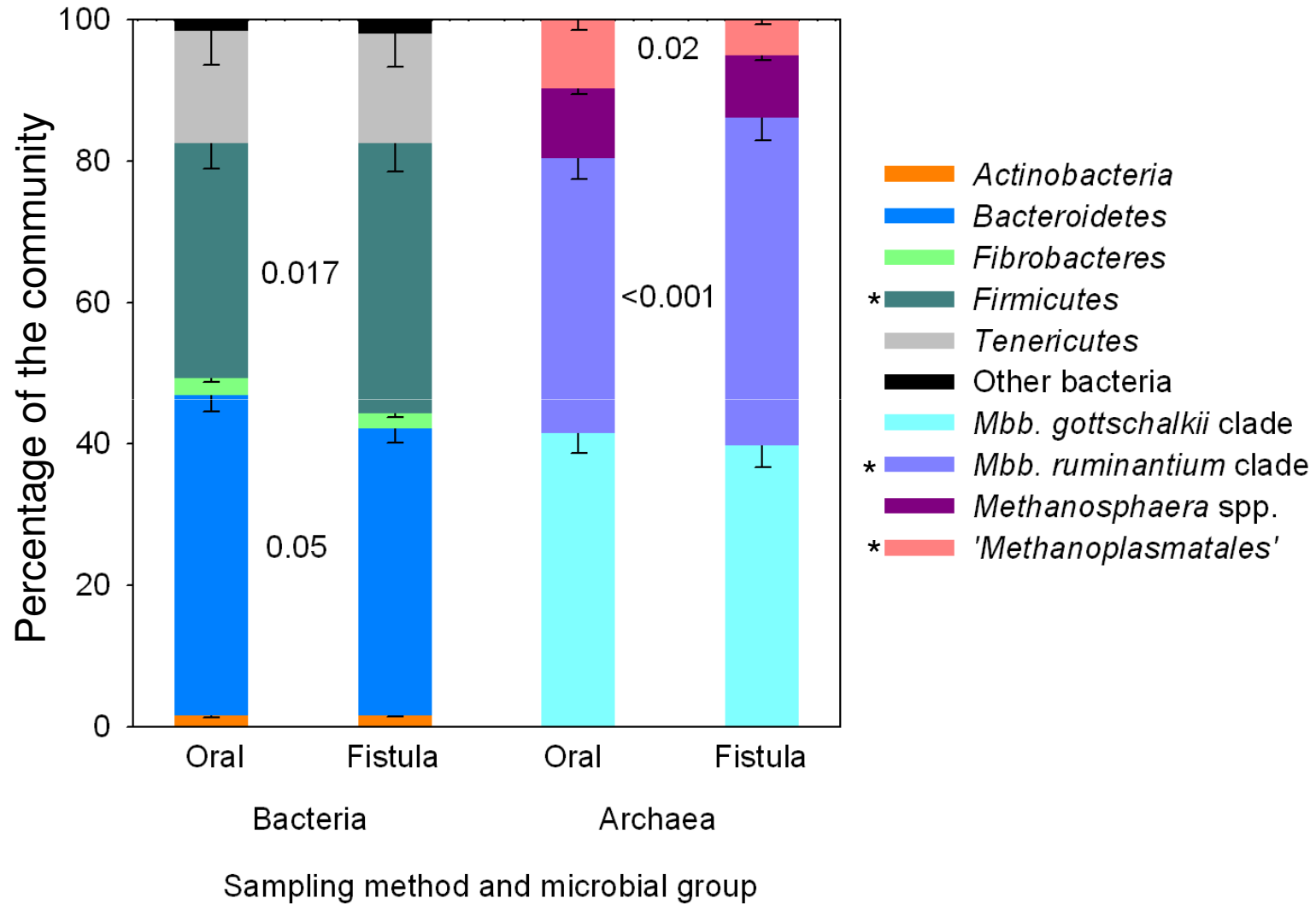


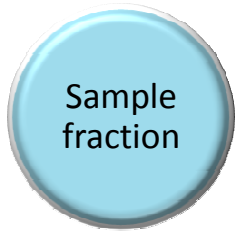
Before v after feeding



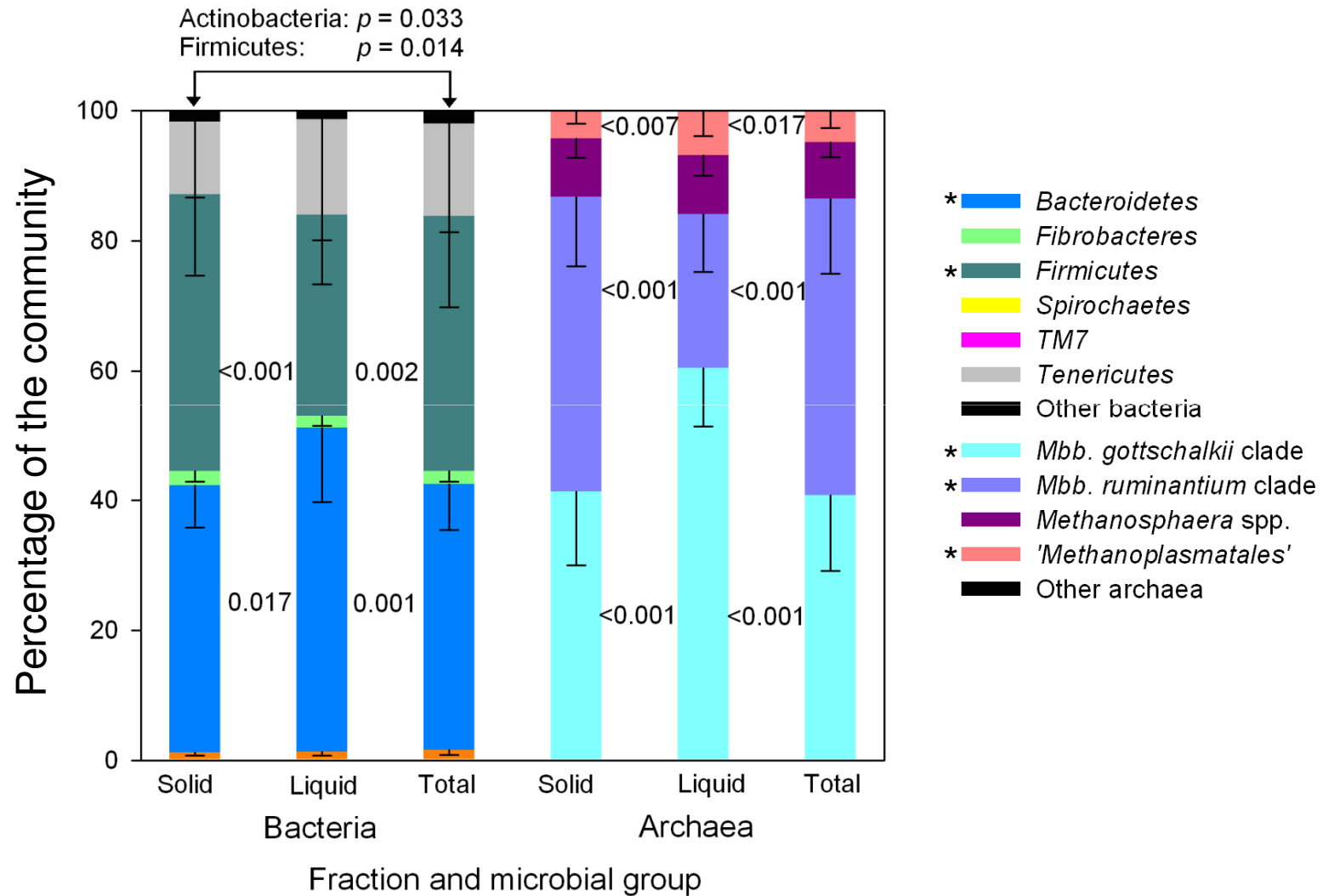


Fistula v stomach tube



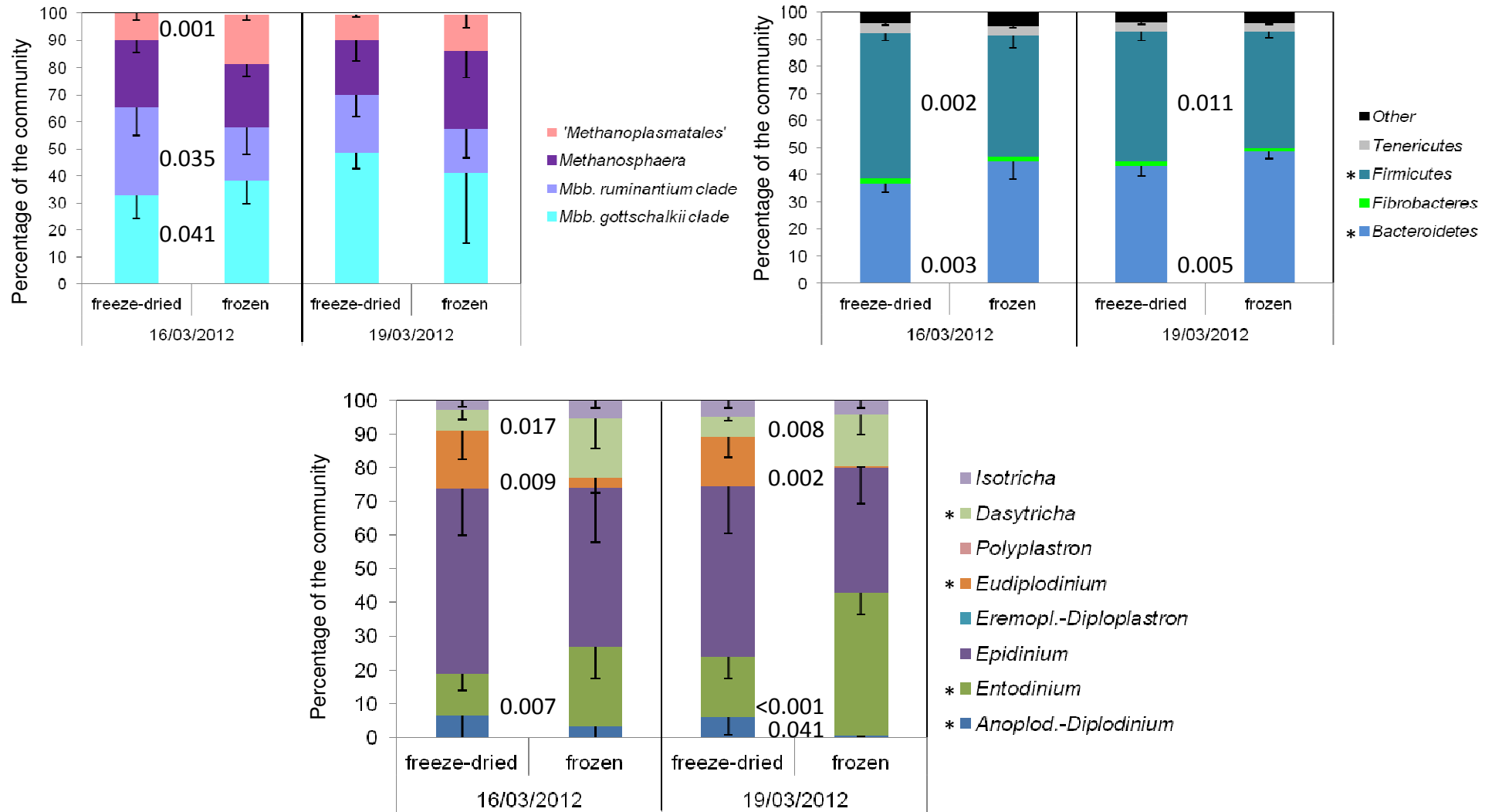


Whole v liquid v solid



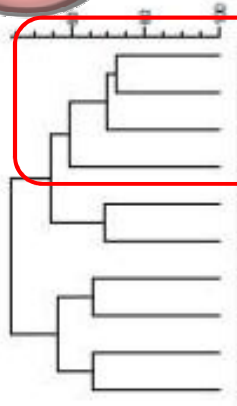


Freeze-dried v frozen only

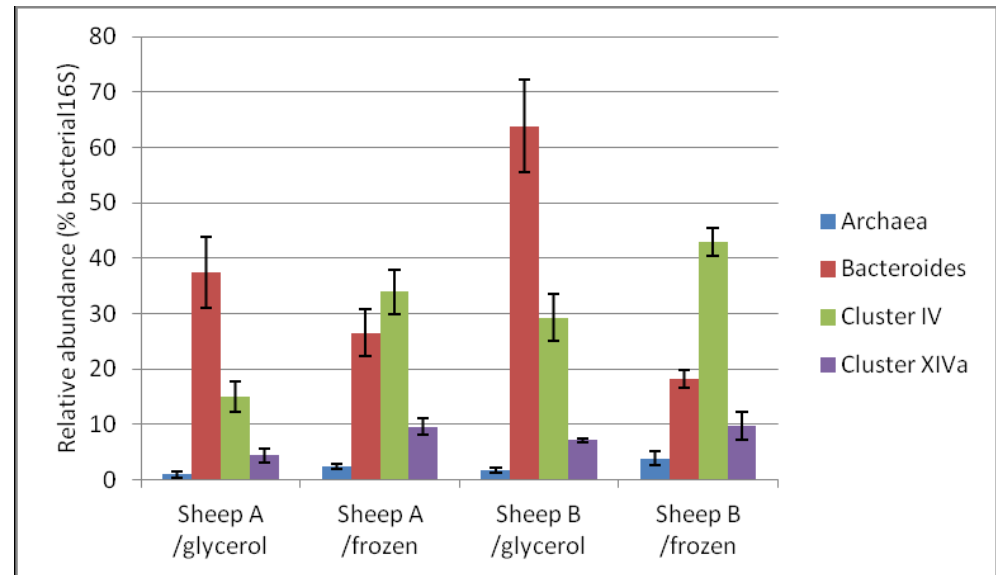
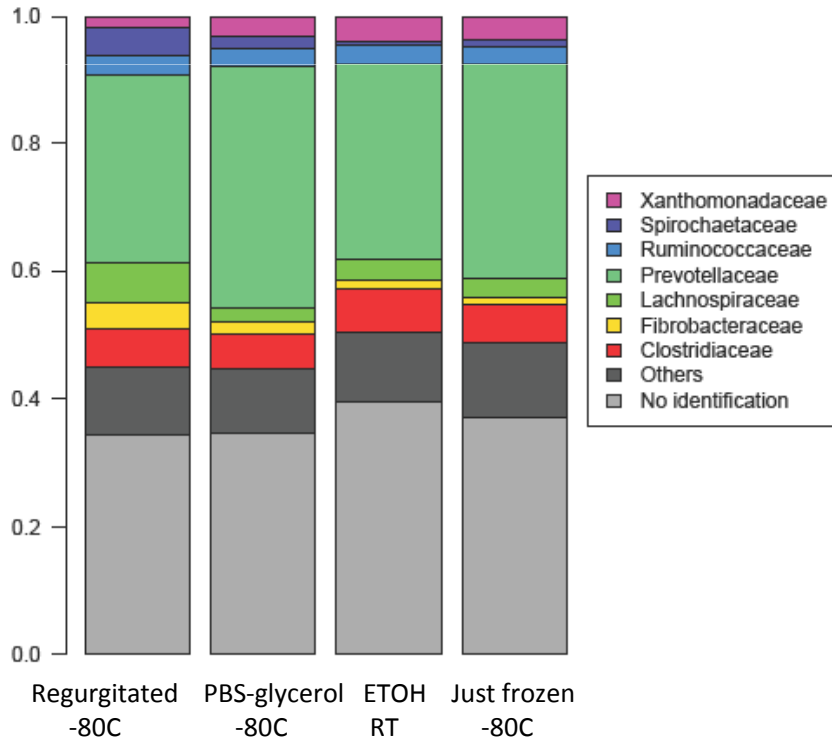




Cryo-protectants

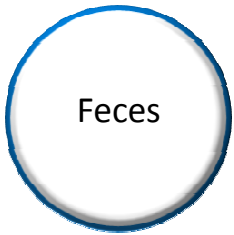


In ethanol at RT
 Without cryo-protectant in -80C
 In PBS-glycerol in -80C
 Regurgitated in -80C
 Without cryo-protectant in -80C
 Regurgitated in -80C
 Without cryo-protectant fresh
 Regurgitated fresh
 Without cryo-protectant fresh
 Regurgitated fresh

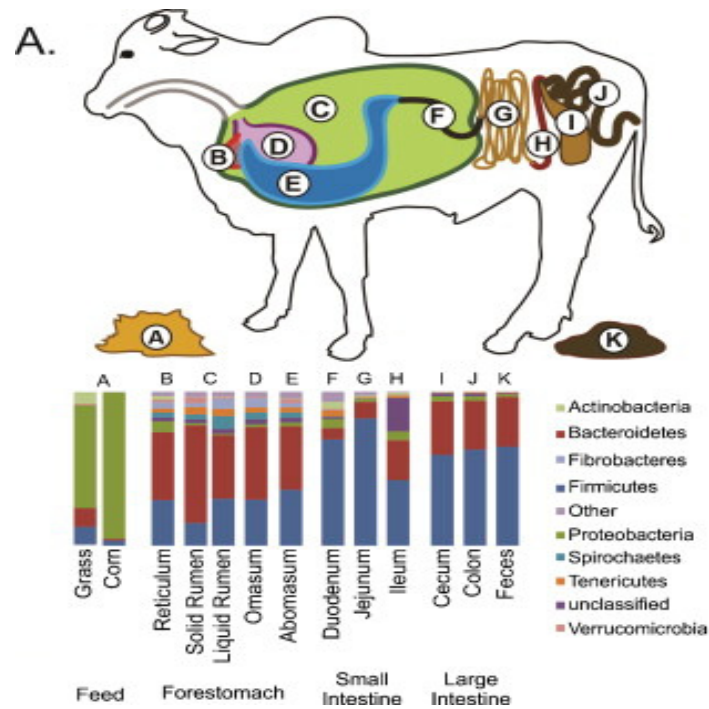


McKain et al. short communication

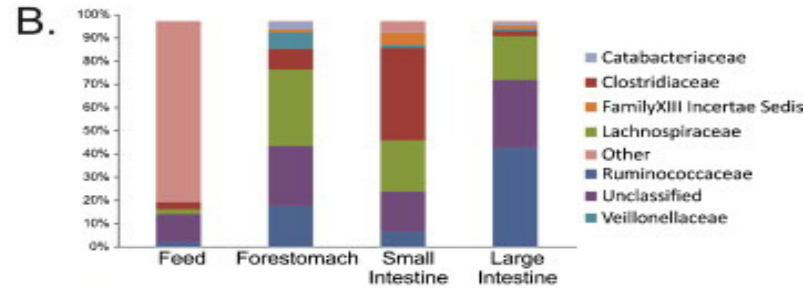
sheep, n=2



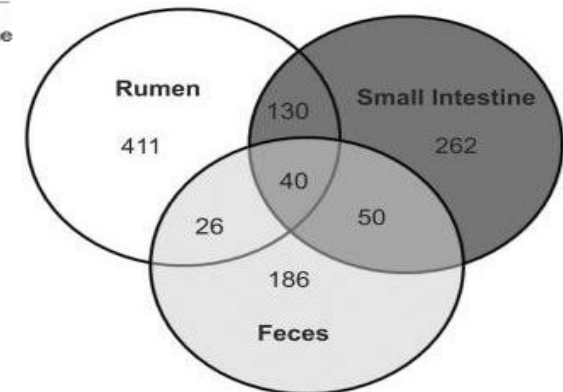
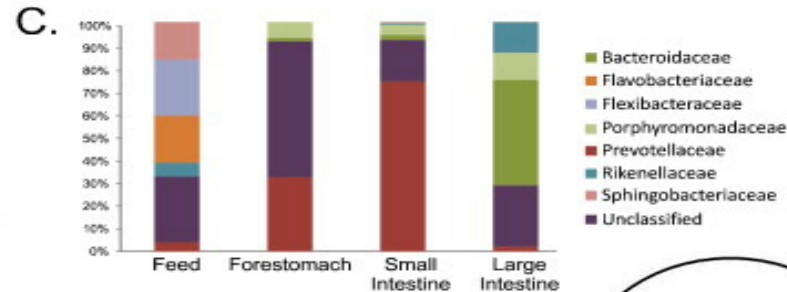
Non-invasive sample collection



Families within the *Firmicutes*



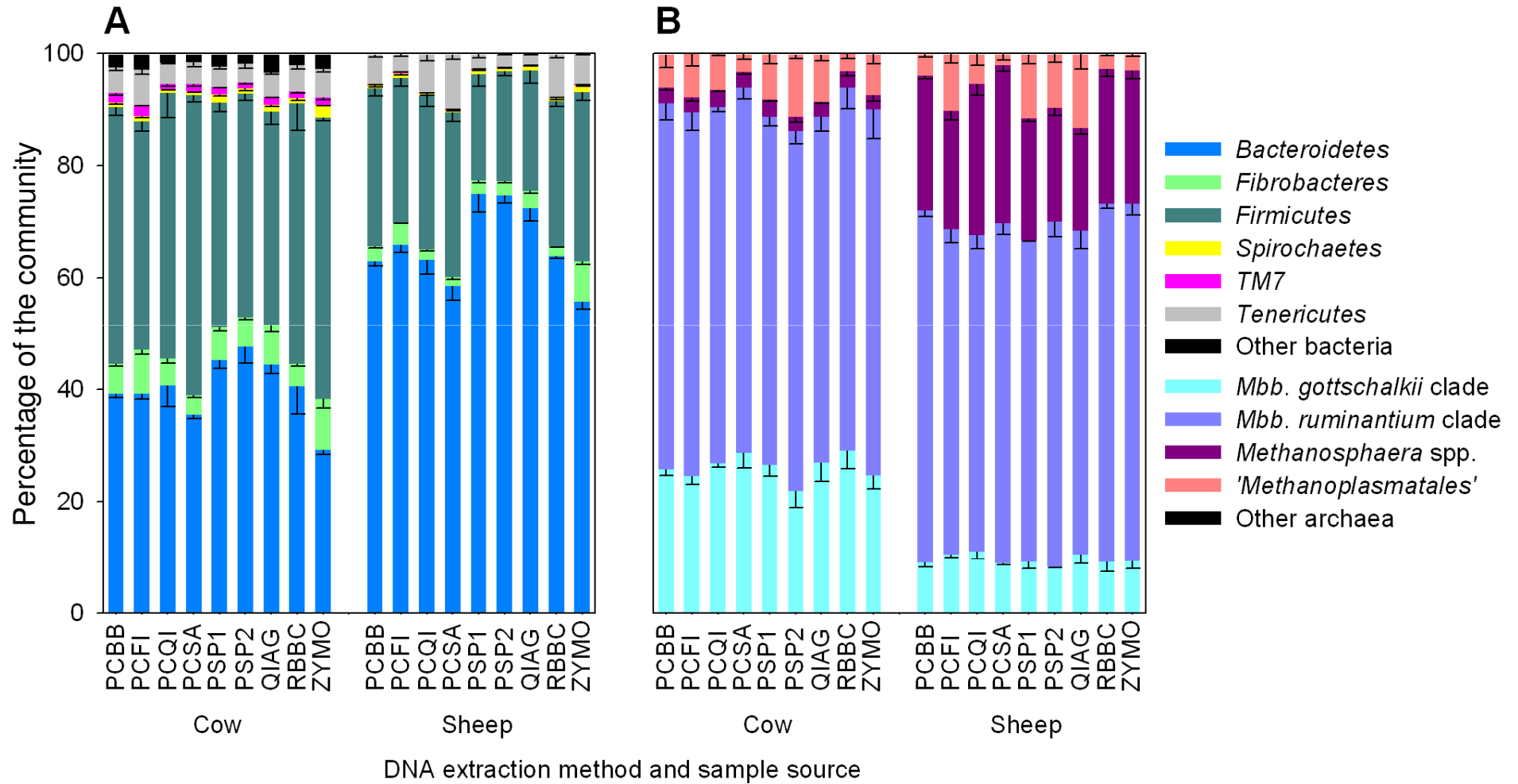
Families within the *Bacteroidetes*



de Oliveira et al. 2013 **Characterizing the microbiota across the gastrointestinal tract of a Brazilian Nelore steer.** *Veterinary Microbiology* 164: 307-314.



DNA extraction



Take home message

Every sampling technique will represent the rumen microbial community
It is not yet possible to tell which techniques truly represent the rumen microbial community

- There is no “right” or “wrong”

Design your study carefully and be aware of differences introduced by selection of even subtly different protocols

- ...especially if looking for subtle changes

Large cohort studies should strive to use the same or comparable protocols

- Global Rumen Census
- RuminOmics
- ring test

Many more downstream variables to be considered

- Primers, data analysis, taxonomic frameworks, etc.

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Other valuable references:

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