

Does microbiota influence susceptibility to parasites?



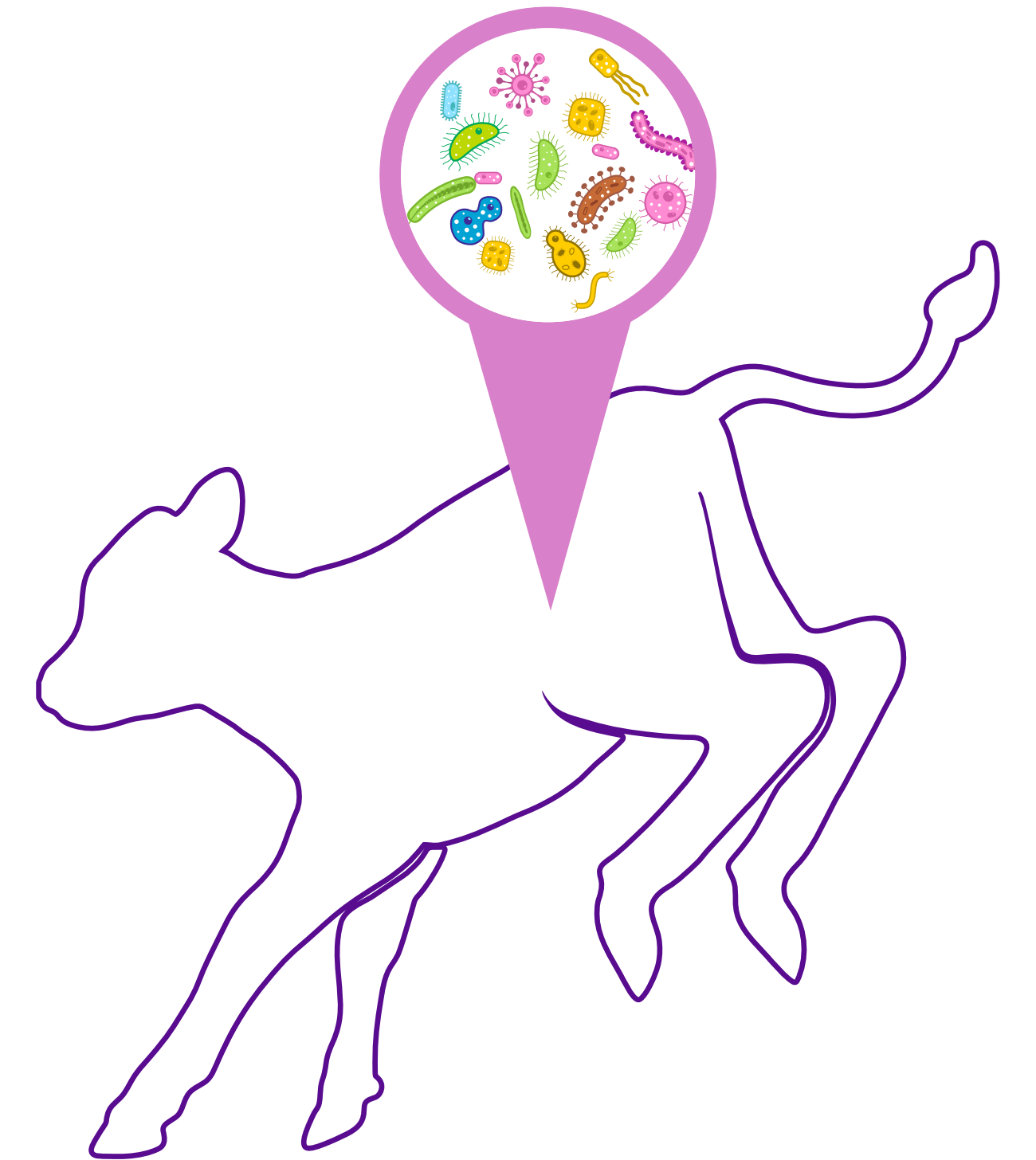
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Introduction and objective

- Calves' gut microbiota crucially shape immune development and disease resistance. Balanced microbiota (eubiosis) is vital for calf health and production
- Limited tools exist for combating bovine cryptosporidiosis, with no vaccine and few effective drugs available. Understanding microbiota-host interactions can offer insights for therapeutic interventions to improve disease resistance and production

Potential links between calf gut microbiota & *Cryptosporidium* spp. infection onset

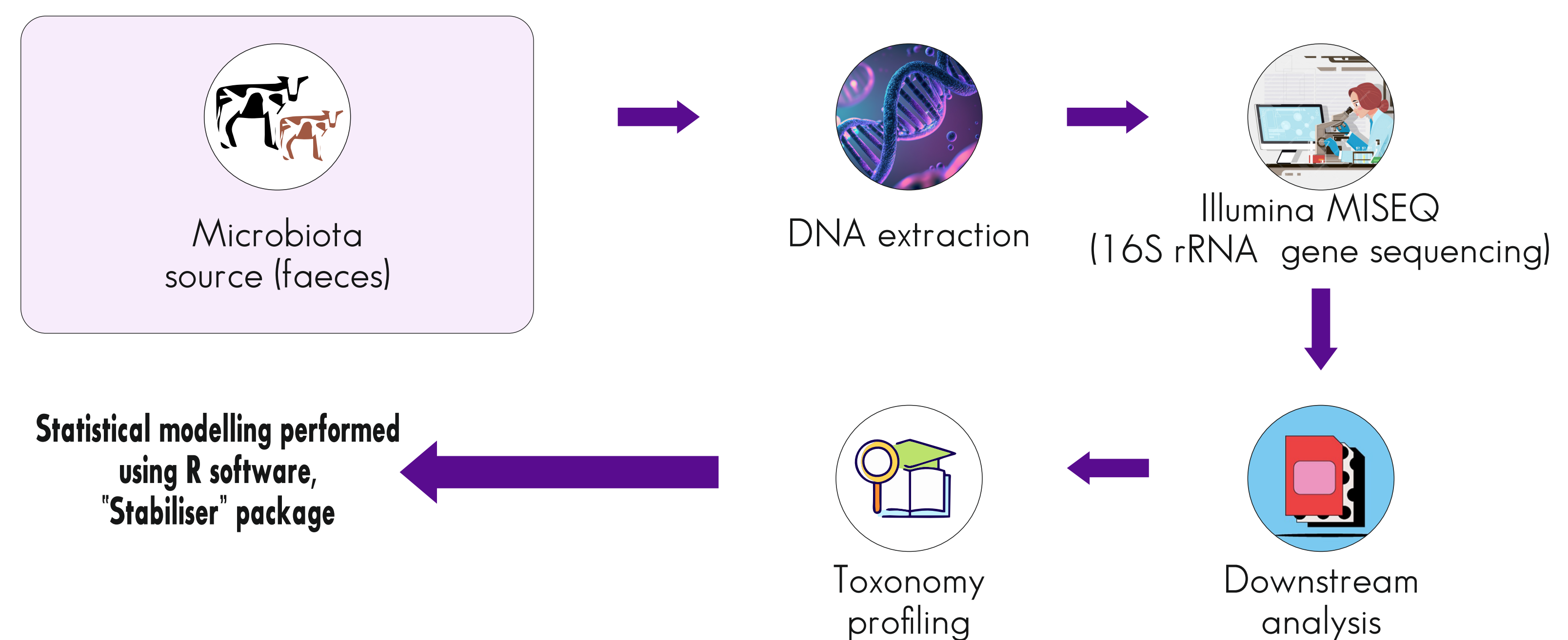


Methods

- Study conducted in Estonia at one farm with chronic cryptosporidiosis from October 2018 to March 2019
- Cohort study involving 64 female calves

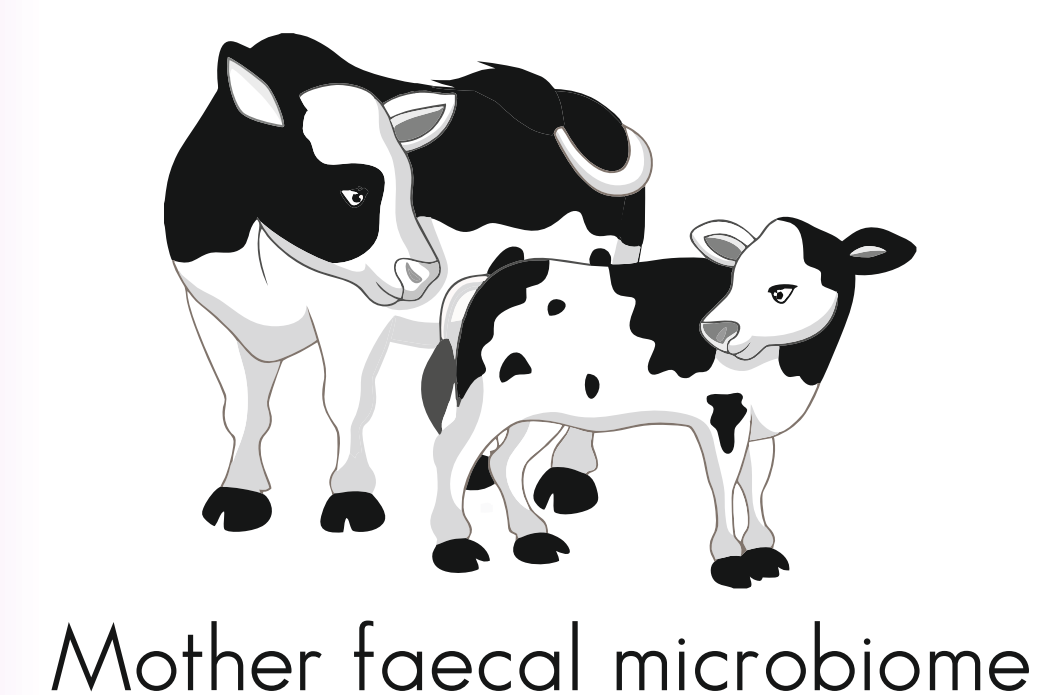
- Faecal samples from calves collected at day 10, 14 and 21 for *Cryptosporidium* spp. infection (infected / not infected) and calf microbiota at day 7

- Maternal faecal samples collected up to two weeks before calving

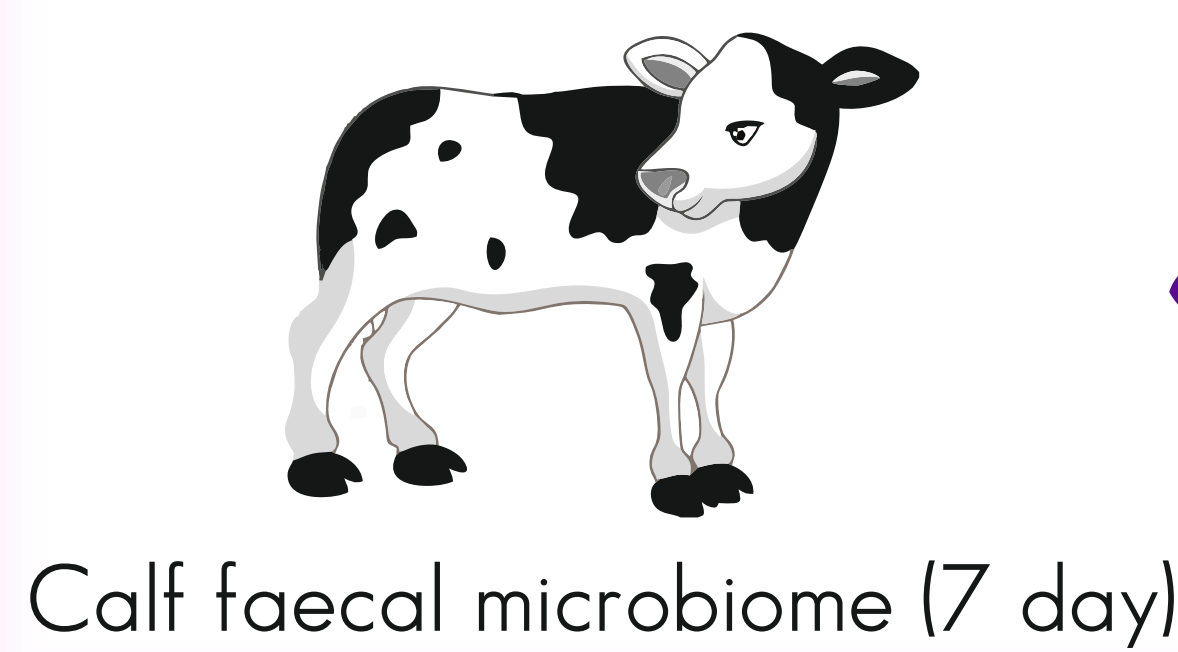


Results

Statistical modelling was performed with "Stabiliser" to identify variables that are associated with *Cryptosporidium* spp. infection as outcome variable at days 10, 14 and 21



Cryptosporidium spp. infection at day 21
(No association found with other days)



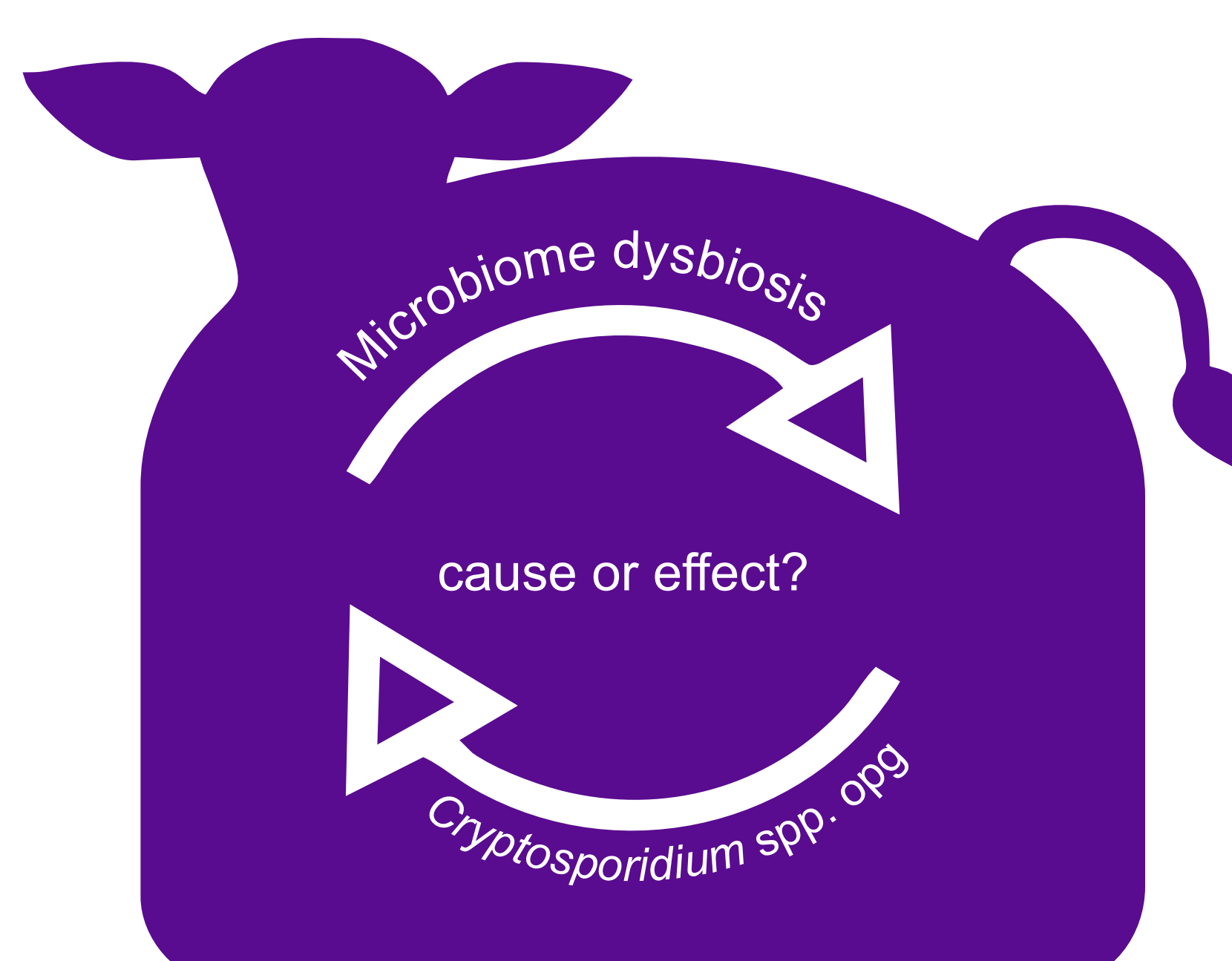
Cryptosporidium spp. infection at day 14
(No association found with other days)

Stable genera	Association
• <i>[Eubacterium] ruminantium</i> group	Positive
• <i>Bifidobacterium</i>	Positive

• <i>Veillonella</i>	Positive
• <i>Oscillospiraceae</i> (uncultured genus)	Positive
• <i>Clostridium sensu stricto</i> 1	Negative

All stable genera had values above the threshold

Discussion and conclusion



- Calf faecal microbiota at day 7 was associated with *Cryptosporidium* spp. infection at 14 days in calves
- Mother faecal microbiota may influence resilience in calf against *Cryptosporidium* spp. infection?

Our findings indicate that microbiota (calf and mother) might influence *Cryptosporidium* spp. infection in neonatal calves