

ANIMAL TEST RESULTS

BEEF CATTLE



2017

CHI GRANULE IMPROVED FEED DIGESTION AND REDUCED METHANE PRODUCTION IN BEEF CATTLE

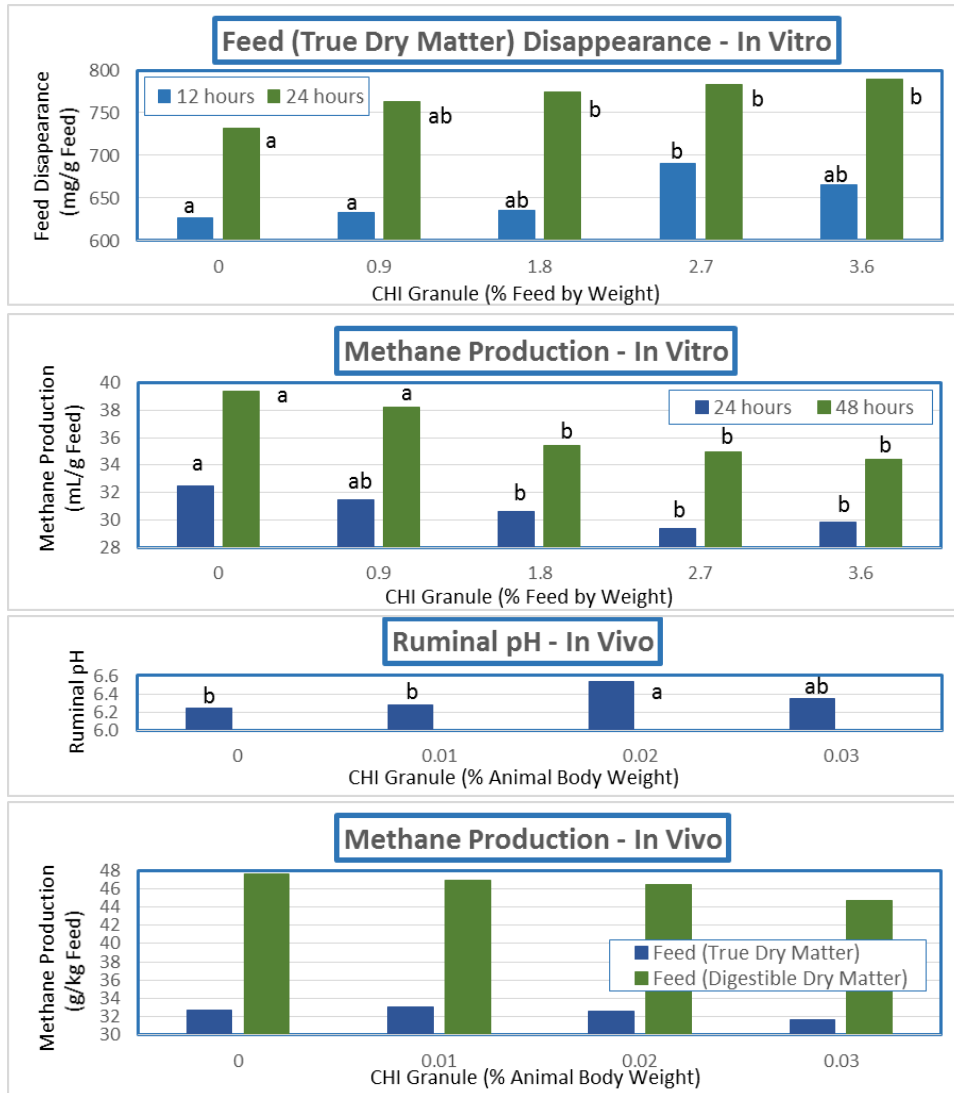
- **Objective:** To use organic matter to improve feed digestion and reduce methane production in cattle
- **Collaborator:** Agriculture and Agri-Food Canada
- **Period:** September 2016 to April 2017
- **Tested product:** CHI Granule Reed Sedge Peat
- **Location:** Lethbridge, Alberta, Canada
- **Experimental studies:** In vitro (laboratory) and in vivo (live animal)
- **Tested animals:** Angus x Hereford cross beef heifers of 780 kg body weight

■ IN VITRO (LABORATORY) STUDY

- Rumen fluid of 60% barley silage and 40% concentrate was collected in 125 mL vials
- CHI Granule Reed Sedge Peat (52% organic matter, colorimetric method including moisture) was applied to rumen fluid plus buffer from 0 (control) to 3.6% feed by weight
- Incubation times - 12 and 48 hours on feed disappearances and formation of byproducts
- Gas production was monitored - 24 and 48 hours after incubation
- Five (5) replications per treatment - 95% confidence interval

■ IN VIVO (LIVE ANIMAL) STUDY

- Diet of 60% barley silage, 35% dry rolled barley, and 5% minerals / vitamins were fed to live animals
- CHI Granule Reed Sedge Peat (52% organic matter, colorimetric method including moisture) was applied to live animals from 0 (control) to 0.03% animal body weight
- Measurements were made for feces and urine - 5 days, rumen parameters - before feeding and 6 hours after feeding, blood parameters, and methane production - 3 days
- Four (4) replications per treatment - 95% confidence interval



RESULTS

The in vitro study found that organic matter significantly increased feed (true dry matter) disappearances by up to 8%. Methane production was significantly reduced by up to 13%. The in vivo study found that organic matter significantly increased ruminal pH towards neutral. Feed digestibility did not change significantly, while detrimental effects were not observed either. Methane production was reduced by up to 6.1% of feed weight (digestible dry matter). It was hypothesized that organic matter acted as a pH buffer to rumen and a supplement that affect certain microorganisms, resulting in a better feed digestion and a reduced methane production.

CONCLUSIONS

CHI Granule Reed Sedge Peat at rates of up to 3.6% of feed weight and 0.03% of animal body weight improved feed digestion and reduced methane gas production. Higher rates of this product with respect to % of animal body weight are recommended.