Animal Science Seminar Series

When: **Tuesday 7th November, 1:00 – 2:00 pm**

Where: **Wright Lecture Theatre**

Methane emissions, nutrient digestibilities and ruminal fermentation of Angus heifers on sprouted barley fodder and feedlot finisher diets.

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The effects of sprouted barley fodder and feedlot finisher diets on rumen fermentation parameters, nutrient digestibilities and enteric methane production were investigated in a 42-d completely randomised design using 18-19 month old beef cattle (348 ± 16.1 kg). It was hypothesised that same source barley grain would reduce methane yield (g CH_4 / kg DMI) when fed as a 5-day sprouted fodder, relative to the same grain when fed in a total mixed feedlot finisher diet. Ten Aberdeen Angus heifers were allocated into two treatment groups (n = 5) and each group was offered one of two equivalent restricted intake (5.97 kg/ DM) diets containing either 25 kg 5-day sprouted barley fodder plus 2 kg wheaten chaff (SF; as-fed) or 6.8 kg commercial mix feedlot finisher (FF; as-fed). Two 24 h methane measurement periods were taken from each animal in open circuit respiration chambers on days 39 and 41. Ten grams of Cr_2O_3 was fed as an indigestible marker on days 32-41 with faecal samples taken (5 x 2) for apparent digestibility determinations. Pre-and 4 h post-feeding rumen fluid samples were collected for fermentation parameters on days 41 and 42. It was concluded that feeding the SF diet reduced both methane production (CH_4 L/d) by 29.5 % (P = 0.001) and methane yield (CH_4 / kg DM) by 24.9 % (P = 0.004) in comparison to the FF diet. DMD (%), ME Intake (MJ/kg.DM), starch digestibility (%) NDF intake (g/d) and starch intake (g/d) all differed significantly between the SF and FF diet treatments (P < 0.001) however there was no diet effect on DMI (g/d) and ADG (kg/d). Total protozoa populations (x 10^5/mL) were 88.4 % higher in the FF diet (P < 0.001) while total VFA was significantly increased in the SF treatment animals (P < 0.000). This study confirms the beneficial effects of sprouted barley fodder diets on reducing enteric methane from ruminant animals while increasing ruminal fermentation and suggests further research is warranted.

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