nutriva GROUP

RESEARCH PROJECT – REPORT SUMMARY

PROJECT NAME	REPORT DATE
TRU Hydroponic + Milk/Meat	2019

EXECUTIVE SUMMARY

This project aims to determine the impact of Hydroponic grass on the nutritional composition of grass-fed milk and meat products. This will allow for higher energy rations in cattle diets, resulting in better animal finishing and milk production, while maintaining the nutritional profile of conventionally produced grass-fed milk and meat products.

KEY FINDINGS

The cattle for the control samples from Nutriva were fed a diet of grass haylage and the milk was collected from raw bulk tanks; these are listed in Table 1 as BED_CON_MMDDYYYY. The samples were refrigerated immediately upon receiving. Due to shipping delays, samples were not received until at least a week after collection dates. Samples were subject to settling - as such, they were mixed before sample preparation.

Samples from Lucerne and Grass Roots were analyzed in multiplicate, as listed in Table 1. The milk used was store bought and are considered processed. The Grass Roots milk was fed a diet of grass haylage. The diet of Lucerne milk is unknown but is suspected to be cereal crop.

The appearance of the lipid fractions from all sample types was mostly clear and oily, with masses listed in Table 1. Samples extractions contaminated with aqueous or precipitous layers had a more heterogenous appearance with milky color and clear droplets and had a higher mass than other samples (See KM_D1_08, Table 1). Sample extractions performed on milk more likely to have spoiled had a foul smell and brown color to the lipid droplets – these samples were KM_D2_03 and KM_D2_04.

^{1}H NMR spectra for each of the prepared lipid extractions was generated. Included in the appendix as Item A1 is the ^{1}H NMR spectrum for KM_D2_06 – unfortunately, all the spectra resulting from the analysis could not be included due to limited access to campus.

As shown in Table 3, grass-fed milk samples had a significantly lower omega n-6/n-3 fatty acid ratio than Lucerne 3% milk. In addition to this, processed grass-fed milk had a lower ratio than raw grass-fed milk. It is also worth noting that the aforementioned samples which are likely to have spoiled also had a higher % CLA in comparison to other samples (Table 3). The analysis of conventional milk (Lucerne 3%) was generally similar to the fatty acid composition referenced in literature,[3] although the % SFA relative to % UFA was higher than expected.

COLLABORATORS

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