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**Location:** West Texas A & M University, Canyon, TX, USA.

**Length:** 200 days approx. (July 2019 - March 2020).

## **Aim:**

This study will assess the performance of the Australian formulation of ProTect C under a U.S. feeding program based on a corn-based diet. The trial will evaluate the effects on weight gain, average daily gain, dry matter intake (DMI), feed efficiency, and carcass yield of cattle.

This study builds on the findings of an earlier University of New England trial evaluating the effects of ProTect C on the transition period by focusing on the effects of ProTect C on a long-feeding trial with a very carefully managed transition. The control for this trial is a premium, antibiotic-free brand premix further fortified to ensure all vitamin and mineral levels are the same as ProTect C to evaluate how ProTect C compares to industry best practice, antibiotic-free production systems.

## **Study overview:**

The sample was a randomised, block-design trial with 108 Akaushi-crossbred steers (900 ± 50 lb. BW) obtained from HeartBrand Beef and fed at the West Texas A&M University Research Feedlot. The treatment group was supplemented with ProTect C; the control group was supplemented with a commercial vitamin and mineral premix adjusted to ensure all vitamins and mineral levels were equal.

All cattle on this trial were fed a common grower diet, containing 22% flaked corn for 57 days, from date of arrival at the feeding facility, initiating the induction process; all cattle then entered an 18-day transition period. This gradual transition period from a high fibre, grass-based diet to the full finishing ration greatly reduced any pH-related stress on the rumen environment during transition, ensuring the trial focused on evaluating the long term impact of the treatment.

## **Variables to be measured:**

Animal body weight, average daily gain, dry matter intake, feed efficiency, carcass characteristics (e.g. hot carcass weight), marbling score, quality grade, rib-eye area, back fat thickness, internal fat, yield grade, and liver scores.

## **Key findings:**

Both the treatment and control groups displayed very low levels of liver abscess (3.4% and 1.7% respectively). These levels are well below industry averages of >30%, even with the use of antibiotics.

- **Carcass characteristics**

There were no significant differences between the treatment and control groups for carcass characteristics.

- **Performance**

There were no significant differences between groups for body weight, average daily gain, and feed to gain ratio. The cattle in the ProTect group had a lower feed intake (P=0.04) than the control group from day 0 to 26 with no difference in average daily gain over the same period.

## **Limitations:**

The lack of higher resolution data such as rumen pH monitoring, VFA levels, or methane emissions limited what we could additionally learn about the rumen fermentation challenges under U.S. conditions.

The gradual transition period from a high fibre, grass-based diet, to the full finishing ration greatly reduced any pH-related stress on the rumen environment.

## **Learnings:**

ProTect C has been formulated to safely accelerate the transition from grass to grain, and manage pH throughout the growing period. Additionally, any effects on rumen pH during the backgrounding stage were not evaluated in this trial.

Collecting high resolution data on rumen pH, VFA levels, and individual animal weights throughout the trial period greatly increases learnings from studies.