

final report

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Tatiara Co-products Lamb Finishing Ration Group

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Background

The Tatiara Co-products Lamb Finishing Ration Group saw an enormous opportunity within their local area for lamb producers to tap into newly available feed sources from the emerging bio-fuels and existing milling and cereal industries.

Crushing oilseeds such as canola for bio-fuel production is taking off in the Tatiara district with already three small scale, cold pressed bio-diesel plants in operation, or about to take off. These plants aim to source seed from local farmers and produce oil. Significant amounts of co-product will therefore be available from these plants.

The TCLFG saw potential to use this high energy canola meal product, in conjunction with other, local feed sources, such as oat husks from Bordertown's Blue Lake Milling and wheat or barley from local farmers to produce a ration suitable for finishing lambs to a high and consistent standard to meet market specifications.

The group formed to fully investigate the cost effectiveness of using such a ration on farm and to optimise the cost, versus weight gain, of using such co-products in controlled finishing units.

Project Objectives

The overall aim of the project was to maximise the cost-effectiveness of using a ration made from co-products produced in the Tatiara.

Project objectives

- Improve feed conversion ratio of weaner lambs from 6:1 to 4:1 (as fed basis) by feeding a ration consisting of canola meal, oat husks and cereal grain.
- Target growth rates in lambs of 300g per head per day (50g above district average)
- Improve the cost efficiency of weight gain
- Enhance the sustainable growth of the lamb industry in the Upper South East of SA

Methodology

Ration formulation:

San Jolly, productive nutrition was employed to formulate the treatment ration using canola meal, oat husks and cereal grain (wheat)

The formulated ration contained

- 23% canola meal
- 26.7 % oat husks
- 48.7% wheat
- 1.6% limestone

Feeding systems:

Four lamb finishers confined 100 lambs, which were randomly split into two groups of 50 lambs forming a control and treatment mob.

The lambs were introduced to grain and then entered the “finishing phase” of the trial

The treatment group were fed the co-product treatment ration formulated by San Jolly

The control groups were fed the ration the producer would normally use to finish lambs

Monitoring and recording:

All lambs in the trial were individually identified with numbered ear tags. Lambs were weighed at regular intervals from the start of the trial until sale to calculate growth rates.

Feeds used for the control mob were tested to determine their nutritional value and the amount of feed fed out recorded.

Management activities, prior to entry into the feedlot and during finishing were also recorded plus unusual or severe weather conditions and general observations.

Results and Discussion

The results from the trial were not comparable across properties due to variations in genetics and rations. Even the treatment rations were not comparable because additional fibre was fed on majority of properties to try and combat negative growth rates. This made it impossible to draw solid conclusions from the data.

Growth rates across all groups of lambs (control and treatment) in the trial were below the industry and district average of 250g per day (figure 1).

There was considerable variation in growth rates within groups of lambs between each weighing. The highest growth rate observed was 305g/head per day (over a 14 day period), however there was no feed data made available for analysis. A number of groups experienced periods of negative growth, as much as -140 g/hd/day (over 14 days), which had a significant effect on the average growth over the total feeding period.

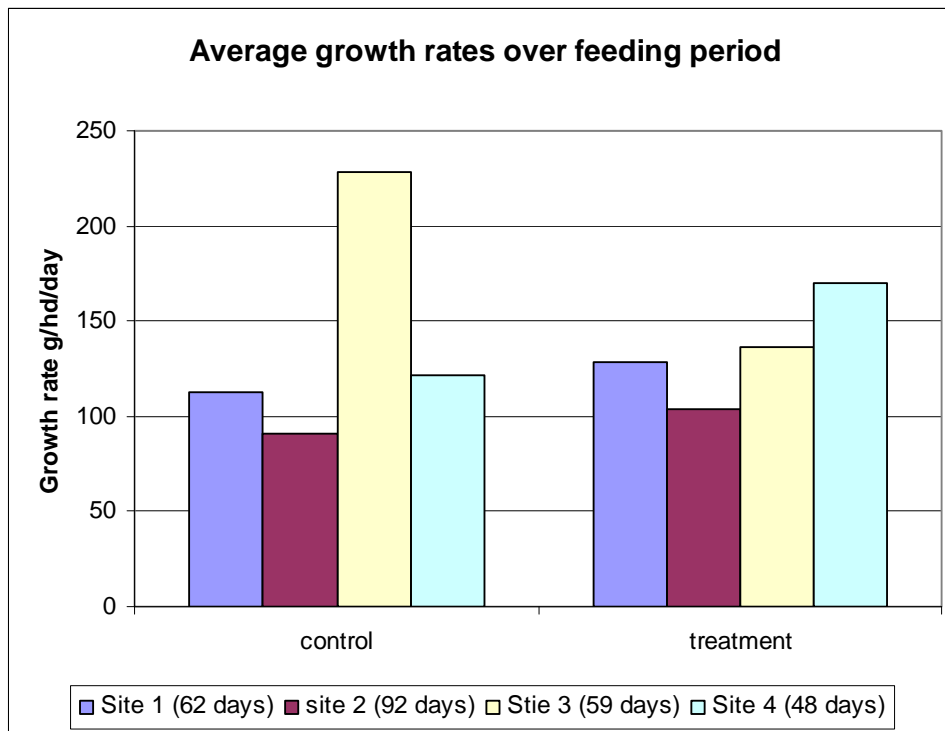


Figure 1: average growth rates of groups of lambs in the trial for the total feeding period

In most cases the ration formulations were above the requirements of lambs for the weight and age used in the trial. The formulations of the finisher rations for the control and treatment groups are shown in figures 2 & 3 below. The trial rations are compared with the recommended lamb requirements of the National Research Council (NRC, 1985; NRC 2007) for lambs at 4 months of age weighing 45 kg LW. The average entry weight of lambs into the trial ranged from 40 – 51 kg.

The formulated treatment ration was not ideal in terms of meeting the nutrient requirements of intensively finished lambs, but rather the optimum given the feedstuffs available.

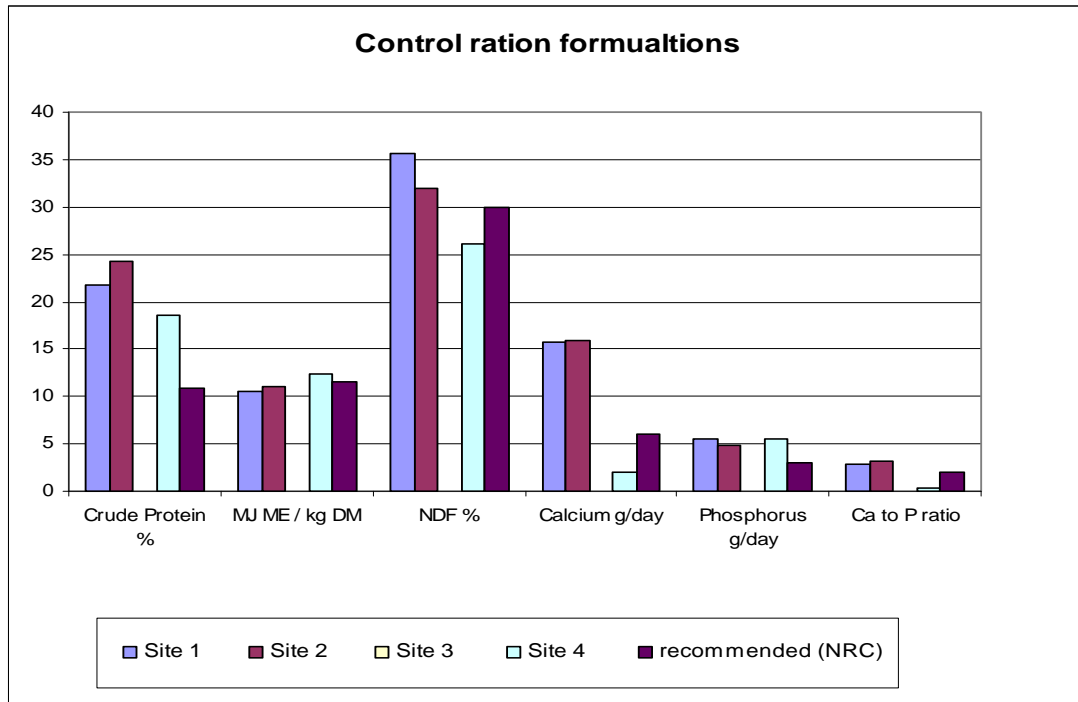


Figure 2: Control ration formulations, for all properties compared with recommended nutrient requirements

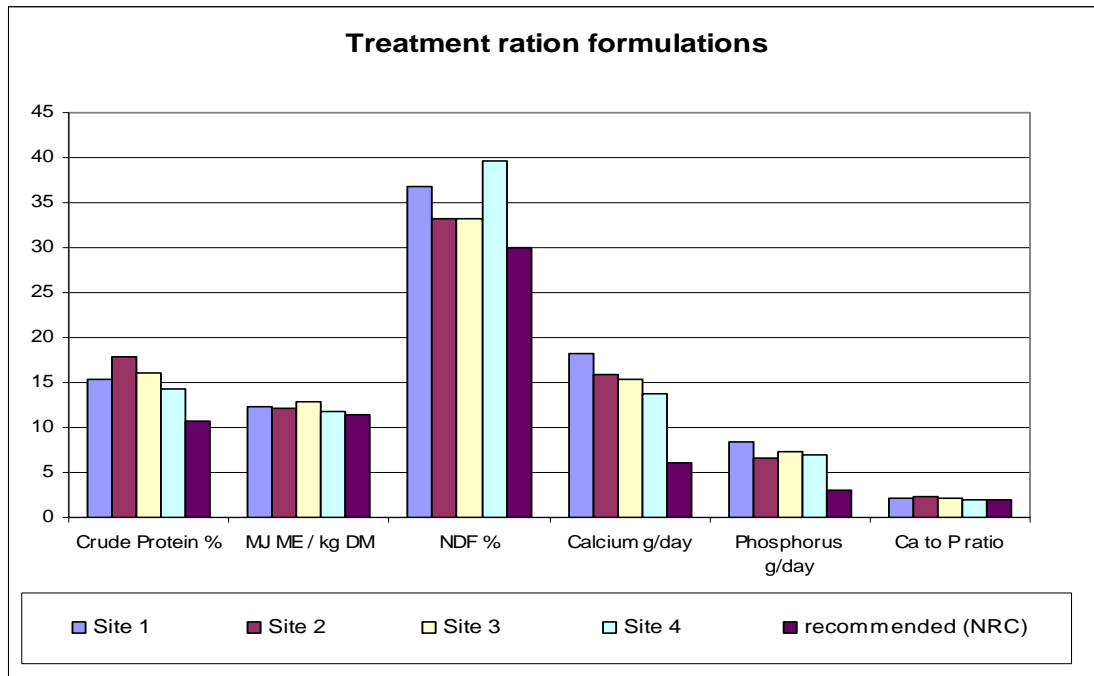


Figure 3: Control ration formulations, for all properties compared with recommended nutrient requirements

FCR ratios were high ranging from 11:1 to 34:1. The cost-efficiency of growth for all rations was below the industry standards (as at January 06), with high ration costs and poor growth rates.

Some potential reasons for the low growth rates achieved in the trial include:

- The imbalanced rations
- Crude protein levels exceeded demand (energy is required to get rid of the excess protein, therefore energy requirements are higher)
- Acidosis due to rapid introduction of the ration, as changes in the faeces consistency and grain in the faeces were observed in some groups of lambs
- Mineral deficiencies (were not accounted for)
- Size of lambs on entry and genetics

Full results are in the nutrition report generated by Productive Nutrition in appendix 1

Success in Achieving Objectives

- Improve feed conversion ratio of weaner lambs from 6:1 to 4:1 (as fed basis) by feeding a ration consisting of canola meal, oat husks and cereal grain.
 - Target FCRs were not achieved and were well above industry expectations.
- Target growth rates in lambs of 300g per head per day (50g above district average)
 - Growth rates greater than 300g/hd/day were achieved in one group of control lambs over a 14 day period, however average growth rates over the total feeding period were well below this ranging from 90.9 – 228.7 g/day.
- Improve the cost efficiency of weight gain
 - The cost –efficiency of feeding the co-product rations were well below the industry standard.
- Enhance the sustainable growth of the lamb industry in the Upper South East of SA
 - The results from this trial did not show co-products to be an option to improve the sustainable growth of the lamb industry as poor growth rates and feed conversion and high cost efficiency were well outside industry standards.

For various reasons the data from the trial was not comparable between sites and in some cases between groups. This meant that it was impossible to clearly identify the reasons why the objectives were not achieved for the project - only assumptions could be made.

What was learnt and resulting changes

While the trial did not achieve the desired outcomes, it was still a valuable experience for those involved. In particular the importance of knowing the nutritional requirements of stock and the nutritional value of feed was highlighted.

It was considered valuable to repeat the trial with common genetics, correctly formulated rations and improved data collection to obtain a meaningful result, however the group decided not to progress this at the current time.

With the ability to finish lambs using a wide range of feed types (traditional and untraditional) provided the ration is correctly formulated to meet the nutritional requirements of growing lambs and introduced correctly, they did not see the value in continuing with the trial if they were going to use what ever feed source was available and cheap at the time. What ever feeds are chosen they must stack up economically - prices and quality of different feeds varies between years. The group saw it to be more important to understand the nutritional requirements of the lambs and know the nutritional value of feeds so a balanced and cost efficient ration can be developed depending on the cost (per key nutrient unit) and availability of feed options at the time rather than trialing a single ration which may not be the best option year in and year out. For many feed lotting would only be used opportunistically - when budgets showed it to be a viable option rather than a set practice each year.

How could the project be improved

If done again the following changes would be made to the trial methodology

- Control rations to have the same nutritional value to allow comparison across properties
- Use the same genetics across properties to allow comparison
- Lambs to have the same backgrounding prior to entering the trial
- Record at least 2 weights in the backgrounding period so it is known if the lambs are increasing, maintaining or losing weight
- Use different feeds (other than wheat) to support canola meal and oat husks in the ration (wheat with these other ingredients makes the ration too hot)
- Lambs to be smaller at entry
- Run fewer sites/run all treatments on one site and team up/roster labour for monitoring

The following factors were identified as critical to ensure a successful producer group on-farm trial:

- The key questions are identified which need to be answered from the trial and building the project around these questions
- There is Input from the core group looking to host the trial and not just the group leader during development of the project (i.e. developing the concept and writing the project application) – this will ensure the needs of all group members involved are satisfied in terms of what is achieved and there is group commitment to the project. Participants will also have a clear understanding of what is required from them to make the project successful. Ideally initial discussions should start with the project leader and then a facilitated meeting occur with the group before the final application is approved.
- Input from relevant industry experts is sought during development of the project to ensure the objectives are achievable and the methodology will give the desired outcomes.
- Adequate funding is required for coordination of the project, data management and analysis and report writing.