

final report

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Red Meat Targets: Production of 1000kgs beef live-weight per hectare on a whole farm basis

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Abstract

One of the main profit drivers for red meat production is the quantity of red meat annually produced per hectare. In a pasture based system this animal production is driven by the quantity of pasture produced and utilised by grazing animals. Although the quantity of pasture produced varies between locations largely in response to rainfall, its utilisation appears to be universally in the range of 30-40%. Consequently there is a huge opportunity for beef producers to improve their profitability by increasing pasture utilisation.

Work using small plots at Winnaleah, in NE Tasmania, has shown 1560kg of live weight gain can annually be produced by a beef enterprise adopting best practice pasture production and utilisation. One of the main criticisms levelled at this work is that it is not based on a whole farm system.

The work reported here is an attempt to replicate the Winnaleah experience on a large scale at Cressy Research and Demonstration Station. It resulted in the annual production of 410kg live weight gain per hectare in a year challenged by drought conditions, with rainfall being 58% of the long term average. Although the Cressy environment is very different to that at Winnaleah this work can be used to establish a production benchmark on a commercial scale in this environment.

Executive Summary

Animal production benchmarks in terms of annual live weight gain per hectare are not well established for the red meat industry. Some data is available from collection and analysis of business records through specific benchmarking activities but these serve only to quantify current production rather than potential production that can be achieved through adoption of best practice pasture production and management.

Work conducted on small (1.8ha) plots in the 1000mm rainfall area of Tasmania indicates annual potential live weight production is at least 1000kg/ha. Producers are sceptical of this data because it is not based on whole farm management systems. In an effort to dispel such scepticism the work reported here was undertaken on a 160ha site at Cressy Research and Demonstration Station that receives an average annual rainfall of 630mm.

Unfortunately the first year of this project was atypical in that the station only received 368mm of rainfall making it the driest year at Cressy since records began over thirty years ago. Despite this impediment the project resulted in production of 410.2kg live weight gain/ha during the 2006-07 financial year. Although this result is only about half that achieved in other areas with higher annual rainfall it does demonstrate potential production under drought conditions and therefore sets the minimum benchmark for the Cressy environment.

Although individual producer benchmarking is not universally undertaken the results from this work can provide an aspirational target for those undertaking such work and perhaps encouragement to those not currently making such measurements. The results are applicable to production systems based on temperate perennial pasture species.

It is recommended that this work is repeated under more normal climatic conditions and the results integrated with those from the industry benchmark project.

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1 Background

1.1 Background

Trials conducted by the DPIW in conjunction with Meat and Livestock Australia have shown the potential to annually produce in excess of 1,000 kilograms of beef live weight per hectare from a beef finishing system. This level of productivity has been consistently achieved at a demonstration site at Winnaleah in north east Tasmania and recently at a site near Smithton in north west Tasmania.

This level of productivity is an industry benchmark for the 1000mm rainfall environment of Tasmania's north coast. This benchmark is however at least twice that currently being achieved by industry. Consequently producers are sceptical of the result because it has been achieved from relatively small (1.8ha) non-commercial plots. Adoption of the technology is therefore compromised because the trial areas do not relate to commercial reality.

2 Project Objectives

2.1 Project Objectives

This project aimed to:

- Over a four year period demonstrate annual production of at least 1000kg live weight gain per hectare from a large farm scale system using Cressy Research and Demonstration Station.
- Document the "production story" and promote it to industry through a range of extension avenues.
- Use the results as inputs to systems models such as Grassgro for validation and demonstration purposes.

3 Methodology

3.1 Methodology

458 weaned mixed sex British bred calves were purchased at an average live weight of 227kg. Upon arrival on the property these animals were drenched and vaccinated. A feed budget for the whole property was undertaken monthly. The grazing system based on 160ha was rotational with the aim of using hay, silage and crops to complement perennial pastures as dictated by feed budgets. The grazing area was calculated using paddock records detailing stock movements. Those areas grazed by sheep and cattle were attributed to the enterprise on a proportional basis determined by grazing time.

The cattle using intensive rotational grazing and some sacrifice paddocks where they were exclusively fed conserved fodder through the autumn and winter of 2006, consumed the available

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dry matter. Plant growth in spring 2006 was poor because of rainfall being only 58% of the long-term average. Unseasonal frosts aborted cereal and canola crops so the cattle consumed this plant material, using controlled grazing to ensure good utilisation.

The cattle were managed as five mobs with all animals weighed monthly. The target market for these cattle was local trade with specifications of carcase weight of 200-250kg and 6-10mm fat at the p8 site. Unfortunately the adverse seasonal conditions resulting in poor pasture production during spring 2006 and autumn 2007 also resulted in the target market being changed so as some animals could be sold to feedlot specifications.

This production story has been articulated mainly through more beef from pasture activities. This will continue as more data and experience is gained over the coming three years.

The data generated by this work has been used by Statham and Dingemanse (2006) in their project titled Testing simulation programs at farm and regional scales in Tasmania.

4 Results and Discussion

4.1 Results and Discussion

Table 1 summarises the project inputs and outputs.

Table 1. Feed inputs and cattle live weight production July 2006 – June 2007

Parameter	Quantity
Cattle purchased	458
Cattle sold	346
Mean live-weight cattle purchased (kg)	227
Mean live-weight cattle sold (kg)	382
Area grazed (ha) ¹	160
Hay consumed (tonnes)	121
Total live weight gain (kg)	65627
Average mob daily live-weight gain (kg/day)	0.4 – 0.6
Total live-weight gain/ha/year	410.2

Note:

1. The area used for fodder conservation was included in the area grazed.

The 2006 –2007 year was a difficult one agriculturally because of the significantly below average rainfall (368mm vs 630mm). This necessitated feeding considerable supplement and grazing crops that would normally be used for grain production. It also necessitated selling animals at market specifications different to that intended in order to avoid the property running out of feed. As a

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consequence the annual live weight gain per hectare of 410.2kg was below the target set at the beginning of the work.

Setting a target annual production of 1000kg/ha was always ambitious in the Cressy environment because this benchmark had been achieved in environments receiving an annual rainfall of at least 1000mm.

5 Success in Achieving Objectives

5.1 Success in Achieving Objectives

Although the project did not achieve its objective of annually producing 1000kg live weight gain/ha it has set a minimum benchmark for production in the Cressy environment. Observational evidence comparing Cressy Research and Demonstration Station with neighbouring properties suggests the grazing system used in this project resulted in more ground cover and available pasture after rainfall events than on the neighbouring properties.

This project will be repeated over the next three to four years in the hope of determining the benchmarks under different and perhaps more normal seasonal conditions.

The results of this work have been useful in extension activities associated with managing through drought as well as with general more beef from pasture activities.

6 Impact on Meat and Livestock Industry – now & in five years time

6.1 Impact on Meat and Livestock Industry – now & in five years time

The results from this and other work will provide producers with the confidence needed to adopt strategies designed to improve pasture production and utilisation in their own businesses. This will result in increased beef production and associated profitability. The results will also serve as a demonstration to producers of adopting best practice grazing management aimed at maintaining desired pastures during drought.

These results will also complement outputs from the red meat and wool benchmarking project currently being undertaken.

7 Conclusions and Recommendations

7.1 Conclusions and Recommendations

This work shows the minimum benchmark for annual live weight production from a temperate perennial pasture system is 410.2kg/ha in a year receiving 368mm of rainfall.

The rainfall received during the year of this work was atypically low (58% of average) hence the work should be repeated so as to more closely emulate average conditions.

It is recommended similar work be repeated under a range of environmental conditions and the results be used in extension activities addressing drought management and more beef from pasture activities promoting improved pasture production and utilisation.