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BeefCheque final report

(1995 - 2000)

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Final report prepared for MLA by:

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Department of Natural Resources and the Environment

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and Environment**

AGRICULTURE

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CONSERVATION

LAND MANAGEMENT

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TRADEMARKS

PROGRAZE was developed as a collaborative project with the Victorian Department of Natural Resources and Environment (NRE) and Meat & Livestock Australia, as part of the Temperate Pasture Sustainability Key Program. PROGRAZE is based on a program developed by NSW Agriculture but was modified for Victoria by NRE. PROGRAZE is a trademark of NSW Agriculture.

EDGE Network was developed as a collaborative project with Meat & Livestock Australia and the Victorian Department of Natural Resources and Environment. EDGE Network is a trademark of Meat & Livestock Australia.

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1. Executive Summary

This report provides a detailed account of the work carried out in the BeefCheque project in the Gippsland region of Victoria from June 1995 to June 2000. BeefCheque has been an innovative extension project for beef producers, involving cooperation between Meat and Livestock Australia (MLA), Department of Natural Resources and Environment (NRE), Beef Improvement Association of Australia (BIA), private consultants and producers.

The objective of BeefCheque was to equip producers with the skills to grow and use more pasture, produce more beef and make more money. The project involved the formation of 15 beef producer groups across Gippsland, each centred on a focus farm, and featured monthly farm walks. Each group progressed through a planned series of activities. A total of 420 producers have participated in the project, with 250 participants at any one time.

BeefCheque has been evaluated against the project's objectives using Bennett's Hierarchy, which provides the framework for this report.

Project Outcomes

From 1996/97 to 1998/99 participants in the project achieved an average of:

- 12.4% increase in pasture consumption per hectare.
- 18% increase in beef liveweight output per hectare.
- 10% increase in efficiency of pasture use (kilograms of liveweight output versus kilograms of pasture dry matter consumed).
- 18% increase in farm operating surplus.

These results are close to, or have exceeded, the targets set in the contract.

Also, these results were achieved despite experiencing three years of exceptionally dry conditions. Results for 1999/2000 were not available for this report; but because of improving seasonal conditions, they are likely to improve still further.

Some of the major project outcomes are listed below:

- By the end of the project, 75% of survey respondents were **using** five or more new grazing management practices.

- **Confidence** in using new grazing management practices increased during the project. At the mid-term mark, 56% of respondents expressed confidence in using ten new grazing management practices. This had increased to 69% by the end of the project.
- 94% of survey respondents **learnt** an average of three new grazing management skills as a result of BeefCheque. Rotational grazing, strip grazing and backfencing were nominated as the most important.
- Producer **reactions** to the project have been very positive. 92% of survey participants said they intend to continue to be an active member of their BeefCheque group.

In addition, the project has achieved the ten key indicators of success also specified in the contract. One of these key indicators was that the project must be transferable beyond the Gippsland region. This has occurred but will be the subject of a separate report.

In addition, the program has achieved:

- An on-going beef producer network in Gippsland.
- An extensive set of on-farm technical data.
- Improved producer financial management skills.
- Producers willing to undertake further training opportunities in a similar format.

Keys to Success

The project management has involved a high level of collaboration between producers, NRE, BIA, specialist consultants and other service providers. The project has also relied on time inputs by focus farmers and other volunteers.

The success of the program has been due to a number of factors. These include:

- A high level of commitment by all partners in the project.
- A comprehensive program structure that comprised an educational component, an on-farm demonstration component, a group support component, a peer support component, and a benchmark and feedback component, with most of the learning occurring in the paddock.
- The opportunity to practice the application of new grazing management skills.
- A high level of involvement of producers in the management of the project.
- Use of grazing management as the core element of the program, which is of common interest to all beef producers and is not an area of competition (as, say, marketing is).

- Use of highly skilled grazing management consultants prepared to challenge and motivate.
- Evaluation of progress through surveys and monitoring of farm performance.

Inputs and Outputs Against Contract

The project has remained within budget. Additional inputs have included the contribution of time and resources by producers (particularly focus farmers), fertiliser representatives, stock agents and other volunteers.

NRE officers monitored and collected focus farm data from the time a focus farm was set up (most in 1996) until June 2000. Also NRE officers collected and analysed both physical and financial data for all interested BeefCheque members in each financial year.

In addition to meeting contractual obligations, NRE remained responsive to calls for assistance in the face of adverse conditions. Consequently, due to the continuation of exceptionally dry conditions (and then flood conditions in East Gippsland), NRE facilitator and technical support was extended to BeefCheque groups beyond the period specified in the contract.

Challenges and Issues

BeefCheque is now an established producer network in Gippsland with producers keen to continue. However, Target 10 experience suggests that producer groups tend to fail without organisational support. Some further group support will be needed if the network is to be successfully used for further beef extension programs.

DRAFT FEEDBACK ARTICLE: 'BEEFCHEQUE – MORE GRASS – MORE CATTLE – MORE MONEY'

An innovative extension project, run over five years in Victoria's Gippsland region, has shown the way towards higher production and profits for beef producers in southern grazing districts.

BeefCheque, a collaborative project between producers, Meat and Livestock Australia (MLA), the Victorian Department of Natural Resources and Environment (NRE) and the Beef Improvement Association, has seen farm profitability rise by an estimated 20% as a result of better grazing management.

With the motto of 'Grow and use more grass - produce more beef - make more money', BeefCheque has represented the practical application of another MLA-sponsored extension product, PROGRAZE.

According to BeefCheque Project Manager Ken Lamb, the key to BeefCheque's success has been vibrant farmer groups operating around focus farms.

'The focus farm system helps producers see the impact of better grazing management. They keep going back to the focus farm, and they see the changes that have taken place since the last farm walk. This then gives them the confidence to try the same tactics on their own farms.'

'The genesis of BeefCheque was the Target 10 project, which revolutionised pasture management in the dairy industry. As beef producers, we could see there were big improvements taking place on the neighbouring dairy farms. We wanted to extend those pasture management principles to beef and sheep properties.'

'As BeefCheque farmers, we aim to use grazing strategies that best suit the growth and persistence of our perennial grasses. Through BeefCheque, producers find they can carry more stock, without having to rely on more supplementary feed.'

'BeefCheque coincided with Gippsland's worst drought (and flood) in living memory. The peer support of BeefCheque helped many to ride out the tough times.'

'BeefCheque has been so successful in Gippsland, that we came under pressure to extend it to the rest of Victoria. With the support of MLA, NRE and the Rural Industries Skill Training Centre (RIST), we have been able to set up BeefCheque Groups in the North East and South West regions of Victoria. We are also developing BeefCheque as a module under the MLA's EDGENetwork,' Mr Lamb concluded.

2 Project Details

2.1 Background to the Project

The genesis for BeefCheque arose from the initiative of a group of Gippsland producers seeking better results from their pastures. Most of the producers in the group had common interests in the BeefManager Program (conducted by NRE), Grassland Society of Victoria (GSV) and the Beef Improvement Association (BIA) and through these programs and associations had developed animal and pasture knowledge but not grazing management skills.

This group sought the assistance of the Department of Natural Resources and Environment (then called Agriculture Victoria) to develop a program for beef producers that would provide information and develop their skills in grazing management practices. A meeting to advance the program took place at NRE offices in Maffra in June 1994. The design and detail of the program was developed and refined during the next seven months, after which it was presented to Meat and Livestock Australia (MLA; then called the Meat Research Corporation).

MLA approved funding for the project in April 1995 with the condition that a Technical Transfer Advisory Group (TTAG) investigate and advise on the project. Following this initial review, while the intent of the project was maintained, the delivery method of the project was completely altered, and some of the research aspects of the project were omitted.

Delivery of the project commenced in July 1995 with the last BeefCheque group commencing in June 1996. The project roll-out occurred according to the contract and was governed by the availability of personnel to deliver the project.

The design of the project was based on the grazing management experience and practical techniques of Jeff Urie of AgChallenge. Jeff had been consulting to a group of dairy farmers for some 14 years using regular farm walks on a focus farm as the basis for his grazing management consultancy. It was evident that this procedure was successful in providing an excellent medium for delivery of grazing management information and techniques and provided high rates of adoption.

The project also used elements from the successful Target 10 dairy extension program. This extension program uses both farmer discussion groups and course work. Background research by McKinna (1994) and Felvey and Wisseman (1994) (both reported in Boomsma et al., 1996) had shown that combining discussion groups with educational components (courses) achieves significant changes in attitude and has a potentially greater impact than any of these activities in isolation. Discussion groups are also more economically efficient than one-to-one extension.

The BeefCheque project produced a marketing plan for the establishment of discussion groups, which resulted in 15 groups averaging 15 producers in each group being formed. A program format was developed that consisted of four discreet components: an information session, introductory days, PROGRAZE segments and focus farm walks. PROGRAZE is a grazing management course comprising seven segments, supported by MLA and state agriculture departments.

Two-hour information sessions were then conducted in selected areas to provide information regarding the project and commence the group building process.

The three-day introductory course, delivered at weekly intervals, consisted of:

- Day 1: How Grass Grows.
- Day 2: Animal Requirements.
- Day 3: Matching the Grass with the Animals.

PROGRAZE segments not covered in the introductory course were delivered monthly over three or four months depending on the level of information required by each group. During this period, groups inspected various members' properties in order to select their focus farm.

Following the selection of the focus farm, groups met monthly on the farm, led by their consultant, to walk the farm. During these farm walks, pasture quality and quantity were assessed along with other relevant issues, such as fertiliser requirements, health of the system and condition of the animals. These farm walks were confined to the morning. Over lunch, pasture assessments were matched with animal requirements, and a grazing management strategy for the forthcoming month was prepared. The following month, the group would check on the value of the previous month's strategy and go through the process again for the forthcoming month. (A separate document accompanying this report discusses the individual focus farms.)

Policy for the project was formed by the BeefCheque Board of Management, which was established by a representation of stakeholders in the project. The project design initially allowed for the Board of Management to meet quarterly in the first year and then half-yearly. This frequency proved to be insufficient, and the board met 18 times in the five years of the project.

BeefCheque considered that producers should contribute financially to the program for the purpose of securing some ownership in the program, as well as using producers' funds to lever dollars from other funders. Producers contributed to the cost of the project by paying a fee for three of the five years of the project (\$250 per person or farm business in year one and \$200 per year for years two and three). It is conservatively estimated that for a participant to purchase the services provided by BeefCheque would cost in the vicinity of \$2,500 per year. In the design of the project, there was no provision made for producers to recoup their fee from FarmBis

(then called the Rural Adjustment Scheme). However, the Board, responding to requests from producers, secured FarmBis support. Subsequently, producers agreed to leave their year-one FarmBis return in the project to provide further benefits from the project; and the year-three fee was waived. The individual groups now manage ongoing fees.

MLA provided the bulk of the funding for the private consultants, NRE technical staff, project management and administration. NRE also contributed funds to the project by providing extension staff to facilitate the groups. BIA was funded from MLA funds to provide administration, legal liability and board membership to the project.

A unique feature of the project was the employment of a producer as project manager. The role of the project manager involved establishing groups; delivering the information sessions and introductory days; assisting groups to select focus farms; and providing support for NRE facilitators, information and reports for the BeefCheque Board of Management, milestone reports to MLA, and general coordination of the project. The use of a local producer as project manager provided substantial benefits by gaining the confidence of potential participating producers who could hear and see a producer who had tried and used the techniques being demonstrated in the project. Other unique features of the project were the use of private consultants working with NRE facilitators, as well as the use of focus farms to allow participants to see changes taking place from a decision making process in which they were involved.

Shortly after the establishment of the project, a project management team was established. This team, comprising four persons at any one time, was formed from members of the Board of Management. The role of the team was to provide support for the project manager and the NRE program leader, to enact board policy and to make non-policy decisions between board meetings.

During the progress of the project, there were continual requests from other regions of Victoria, as well as interstate, for delivery of BeefCheque to these areas. As a result of these requests, planning for the BeefCheque Extension began in June 1999. To fund the program, an additional partner, the Rural Industries Skill Training Centre (RIST), was included in the project providing State Government training funds. The Board of Management insisted that the features that made BeefCheque successful—quality facilitators, the Focus Farm, the farm walk, producer ownership and a grazing management focus—be included in the Extension program. The major funders of the Extension have been NRE and RIST, with producers contributing, as well as MLA providing start-up and training funds. Eight groups have been established, four in the South West region and four in the North East region of Victoria.

The rest of this document reports the achievements of the project using Bennett's Hierarchy for evaluating extension projects. The seven levels of the hierarchy are explained in Section 3.1, Bennett's Hierarchy.

2.2 Project Objectives

The project objectives are to, by 30 June 2000:

1. Develop and field trial an innovative cooperative extension program for beef producers in the Gippsland region modelled on the successful Target 10 dairy industry program.
 - 2.1 Use more pasture. Increase pasture metabolisable energy harvested per grazing hectare by 25% on participating farms, e.g., from 32% to 40%.
 - 2.2 Grow more pasture. Increase pasture metabolisable energy production on participating farms by 20%.
 - 2.3 Produce more beef. Increase liveweight of beef produced per beef grazing hectare by 10% on participating farms.
 - 2.4 Make more \$. Increase operating surplus of grazing enterprises on participating farms by 10%.
3. Establish pasture growth parameters as a base for developing practical, integrated cattle and pasture management systems that implement the principles of optimum pasture utilisation and livestock productivity. These systems are to take into full account the capital, operating and non-cash costs, long term sustainability, as well as different soil and climate types.
4. Conduct regional surveys of producer attitudes and current practices to pasture and grazing management, and provide measurable benchmarks to monitor progress towards meeting the objectives of the project.
5. Provide an educational program linked to on-farm measurement.
6. Research and demonstrate decision support systems that provide a basis for feed budgeting and forward planning of stock pressure and management. (This objective was deleted after consultation with MLA.)
7. Extend BeefCheque into the South West and North East regions of Victoria using the same format and methodology used to pilot BeefCheque in the Gippsland region. (This objective was added in consultation with MLA and will be reported on separately.)

2.3 Key Indicators of Success for the Project

Ten key indicators of success for the project were outlined in the contract. These were:

- Applicable to most beef producers.
- Sustainable – producers will need to have the skills, knowledge and confidence after the project, so that it can continue without further MLA funding. The project will also need to be environmentally sustainable.
- Profitable.
- Expandable – able to include new participants beyond the 180 target within the MLA budget.
- Transferable beyond the Gippsland region, so that other beef and lamb producers can adopt the principles, but without such a high level of MLA funding.
- Need to encapsulate productivity and profitability benchmarks to measure on-farm change.
- Develop indicators to make sure the project is on track.
- Need to include return on investment and effective farm surplus, not just gross margins.
- Monitoring indicators may include other things like animal health.
- Objectives should be clear, quantifiable and time bound.

3 Achievement of Objectives

3.1 Bennett's Hierarchy

The achievements of the program are shown using Bennett's method for evaluating extension projects as a chain of events, known as Bennett's Hierarchy (Bennett, 1975).

Bennett's Hierarchy (Figure 1) is a tool that can be used to evaluate a program at any level. The further up the chain, or hierarchy, that one looks, the harder it is to measure. However, the further up the chain that one measures, the more meaningful the results. The hierarchy consists of seven levels: inputs, activities, people involvement, reactions, KASA change, practice change and end results.

7. End results	Ultimate objectives and consequences of the program (social, economic, environmental and individual)
6. Practice change	Application of KASA – have you changed how you do things? Individual innovation, structural change
5. KASA change	Change in knowledge, attitudes, skills and aspirations. Direction and extent, duration and change. What do you know, how do you feel, what can you do, what would you desire?
4. Reactions	Interest and how they liked the activities, their reactions to leadership and acceptance of the program
3. People Involvement	Number and characteristics of people. Continuity and intensity of contact
2. Activities	Education methodology and subject matter conveyed eg. Newspaper articles, demos, discussion groups, workshops
1. Inputs	Time expended, staff resources and costs

Source: Evaluation of Programs, Rural Extension Centre, Uni. of Qld.

Figure 1. Bennett's Hierarchy of Evidence for Program Evaluation

Resources expended, such as staff or time expended, come under the first step in the hierarchy, the *inputs*. These inputs result in *activities* being generated, such as discussion groups, newspaper articles etc. The activities *involve people* who in some way have *reactions* (i.e., show interest in the activity). From their involvement in and reactions to the activities, people may change their *knowledge, attitudes, skills* and *aspirations* (KASA). When these KASA changes are applied to a person's working or living situation, *practice change* is said to have occurred. *End results*, which include accomplishing the ultimate aims of the program, are achieved when the objectives of the project have been accomplished.

Levels 1 to 3 (inputs, activities, people) are the means of extension, while levels 4 to 7 (reactions, KASA, practice change and end results) are the results of extension.

The objectives of the project specified in the contract and shown in Section 2.2 are a mixture of levels as defined by Bennett. Objective 1 covers levels 1 to 3, objective 2 is level 7, objective 3 is level 3, objective 4 is level 2, and objective 5 is level 5. Similarly, the key indicators of success listed in Section 2.3 range from level 2 to level 7. In the remainder of this report, achievements will be discussed using Bennett's method.

3.2 Level 1: Inputs and Management

Project inputs came from NRE and MLA to fund, among other items, NRE employees in extension and managerial positions NRE technical/extension staff (project officers), the project manager, BIA support, consultants, producer BeefCheque board members, producers who worked on committees and subcommittees, and group facilitators. The 15 focus farmers were also essential resources for the project. Other agribusiness organisations, such as fertiliser companies, have provided some funds and in-kind support.

3.2.1 Income and Expenditure

The final financial report will be provided in the BeefCheque Final Milestone Report (No. 31) due at the end of October.

3.2.2 Personnel

Personnel who participated in the BeefCheque project and their roles and affiliations are shown in Table 2.

Table 2. Personnel involved with the BeefCheque program

Role	Affiliation and Name
Formative Committee	<p>BIA - Rod Polkinghorne (Chair), Bill Cromb, Malcolm Cock, Rob Gault, George Glasscock, Ross Pearson, Adrian Harris, Alan Clyne, Gary Rose.</p> <p>NRE - Chris Halpin, Nick Linden, Leo Hamilton, Steve Walsh, Bill Fuller</p>
Development Team	Chris Halpin, Rod Polkinghorne, Ken Lamb
Board of Management	<p>Producers - Alan Clyne (Chair), Malcolm Cock, George Glasscock, (Acting Chair 3/12/00 to 30/6/00) Adrian Harris, Ross Pearson, Rod Polkinghorne</p> <p>NRE - Jenny O'Sullivan (later as Board appointee), Chris Halpin.</p> <p>BIA - Mike Stephens, David Rutledge</p> <p>Project Manager - Ken Lamb</p> <p>Appointed later - Steve Walsh (NRE), Lou Macarthur (Producer), Neville Penrose (NRE), Matt Granger (NRE), Banjo Patterson (NRE), Jodie Russell (RIST)</p>
TTAG Team	Ian Johnsson (MLA), Gabrielle Kay (MLA), Warren Mason (MLA), Graham Anderson (Chair, Target 10), Mark Aspin (NZ MRDC), Mark Gardiner (Hassell & Associates), Peter Doyle (NRE).
Management Team	Jenny O'Sullivan (formerly NRE, and now Private Consultant), Bill Fuller (NRE), Matt Granger (NRE), Mike Stephens (BIA), Ken Lamb (Project Manager).
Group Management	<p>Private Consultants - Jeff Urie (AgChallenge), John Mulvany (AgChallenge and On-Farm Consulting), Wolfie Wagner (AgChallenge)</p> <p>NRE - Bill Fuller, Matt Granger, Steve Walsh, Leo Hamilton, Stuart White, Bruce Manintveld, Nick Linden, Ashley Wilson, John Bowman, Mark Brammar, Liz Easton, Ross Batten, Peter Stapleton.</p>

Role	Affiliation and Name
<i>Focus Farmers</i>	<ul style="list-style-type: none"> • Rosalie and Dennis Stringer (Bairnsdale) • Margaret and Tom Cumming (Buchan) • Judy and Gus McKinnon (Cann River) • Topsy and Barry Newcomen (Ensay) • Peter Bell (Fish Creek) • Anita and Max Cumming (Flynn) • Robert Atkinson (Kongwak) • Maria and Gary Rose (Maffra) • Ann and Graeme Russell (Orbost) • Chris and Max Grigg (Pakenham) • Robyn and Col Stothers (Stratford) • Sue and Lindsay Marriott (Tarwin Lower) • Peter Buratto (Norm Witt)/ Ian Bayley (Trafalgar) • Marjorie and Graham Goode / Rob Gully (Warragul) • Gordon Keddie / Ern Jenkins (Yarram).
<i>Data Interpretation</i>	Andrew Patterson (formerly NRE and now Private Consultant), Lee Beattie (NRE), Rabi Maskey (NRE), Bronwyn McDonald (NRE).
<i>Producer Facilitators</i>	Judith Henderson (Buchan), Lyn Woodbridge (Trafalgar), Joy Brand (Yarram), Jeanette Honey (Orbost), Gay Cameron (Warragul), Kate Simpson (Bairnsdale), Malcolm Cock (Buchan), Paul O'Sullivan (Tarwin Lower), Catrynes Van Der Vlught (Orbost), Graeme Stuckey (Flynn), Andy Dennis (Warragul).
<i>Facilitator Trainers</i>	Kate Mottram, Brian Greer

3.3 Level 2: Activities

3.3.1 Background

BeefCheque groups were formed across Gippsland following 15 public meetings to explain what the project was about. Groups then attended a three-day introductory course, followed by five monthly sessions of PROGRAZE. Groups then elected one of their peers to be the focus farmer for the group. Consultants then worked intensively with the focus farmer, and the group attended monthly focus farm walks. Monthly reports on focus farm activities and management decisions were posted to each group member.

After the 18 monthly consultant-led farm walks (the consultancy phase), NRE staff continued to conduct focus farm walks for a further six months. Groups then continued with focus farm walks with NRE input, developed their own programs with NRE support, or conducted a combination of these activities. These on-farm activities were supported by a combination of other extension activities.

Activities have been planned around the action learning cycle (Figure 2) imparting knowledge and skills onto producers. On-farm monitoring and support give participants confidence to trial management techniques on their own properties. There are numerous steps in the process to achieve on-farm change.

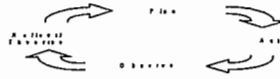


Figure 2. The action learning cycle

The activities undertaken over the five years have been grouped into core, extension support and project support activities.

3.3.2 Core Activities

Formation of Groups

Fifteen groups have been formed throughout Gippsland. They started in late 1995 to mid-1996. Groups are located at:

- East Gippsland: Bairnsdale, Buchan, Cann River, Ensay and Orbost.
- Central Gippsland: Flynn, Maffra, Stratford and Yarram.
- South Gippsland: Fish Creek, Kongwak and Tarwin Lower.
- West Gippsland: Pakenham, Trafalgar and Warragul.

Each group has completed in sequence:

BeefCheque Introductory Course-

The three-day BeefCheque Introductory Course (BCI), led by pasture-based consultants and NRE staff, covered 'how grass grows', stock feed requirements and bringing the two together. BCI provided the grounding and basic principles underpinning BeefCheque.

Story: Ken Lamb, BeefCheque Project Manager

At the Day 1 sessions, it was exciting to see the transformation on producers' faces from scepticism to enlightenment about the pasture and animal interaction.

Story: Ashley Wilson, NRE BeefCheque Officer, Leongatha

I often hear BeefCheque members say 'we have to get back to basics' when referring to pasture or animal issues. What they are really saying is related to the material covered in the three-day BCI.

NRE PROGRAZE

After the BCI, a further five sessions, held monthly, were conducted to complete the PROGRAZE course and build on the knowledge and skills developed in the BCI sessions. These PROGRAZE sessions addressed such issues as fertiliser, grazing management, pasture composition, Grazfeed (a computerised nutritional

management system for grazing animals), fodder conservation and other topics of specific interest.

PROGRAZE also provided an ideal entry point for producers who missed the initial formation of BeefCheque groups. Group members asked NRE to conduct additional PROGRAZE courses and actively encouraged their spouses, friends, neighbours and colleagues to attend local PROGRAZE courses. Visits to BeefCheque focus farms gave PROGRAZE participants the opportunity to see the animal and pasture management skills in action and discuss how on-farm decisions were underpinned by the BeefCheque grazing principles. Many participants were so enthused they joined the local BeefCheque group.

Story: Ross Batten, Fish Creek BeefCheque Group

I wanted to increase pasture utilisation on our farm more so than increase pasture production in the short term. I knew I needed PROGRAZE but attended a few local Fish Creek BeefCheque farm walks in the mean time because it was close to home and accessible. Now I have joined BeefCheque and encouraged my wife, a fellow who works for us and several of my neighbours to attend the next PROGRAZE course.

Focus Farms

Following the completion of the BCI and PROGRAZE sessions, groups selected a farm from amongst their members properties to provide a focus for the group and encourage implementation of the BeefCheque grazing principles. This focus farm was used to lead group members on monthly farm walks by a consultant. During these walks, the consultant and group members discussed with the focus farmer the pasture management techniques covered during the three-day introductory course. In addition to approximately 18 of these farm walks on the focus farm, further farm walks and discussions were led by NRE staff on other group members' farms to assist the adoption process.

Financial Analysis/Financial Analysis Workshops

An annual financial and physical analysis system was developed and has run for four years. This analysis was used by group members to compare and benchmark their performance.

The physical and financial analysis collects information via farm record books. That information is then analysed by NRE staff and presented to group meetings so participants can see the effects on the bottom line of action in the paddock.

The program has developed into a comprehensive physical and financial analysis. Although it isn't compulsory, members who participate in the analysis find it extremely useful in the management of their business.

Financial analysis workshops were run in the final three years for the four areas of Gippsland (East, Central, West and South).

Focus Farms Trials

Several BeefCheque groups have identified issues requiring local research and development. The Producer Initiated Research and Development (PIRD) program, administered through MLA, has provided a framework and financial support for producers to collectively undertake on-farm trials. BeefCheque groups participated in the following PIRDs:

- Trafalgar BeefCheque Group investigated the economics and genetic variability in feedlotting cattle on-farm to targeted markets.
- Tarwin Lower BeefCheque Group investigated trace element or mineral deficiencies in steers and evaluated various methods of applying trace elements.
- Tarwin Lower BeefCheque Group reactive phosphate rock (RPR) trial examined cost-effective techniques to apply phosphorus to acid, sandy soils, especially during a phosphorus capital application phase.
- Pakenham BeefCheque Group proposed to investigate the incidence of calf scours and methods of effective control. Although the funding for this project was approved, ethical and animal welfare implications prevented producers taking blood samples from live calves. Hence, this project has unfortunately been postponed.
- BeefCheque groups have also collaborated with other industry groups to conduct PIRDs. For example, the Grassland Society of Victoria (Gippsland Branch) is undertaking a pasture species persistence and productivity trial on the farm of the Fish Creek focus farmer.

In addition, Pivot Fertiliser Co-operative set up fertiliser test strips on the 15 focus farms to measure the response to different nutrients and application rates. Farmers were then given the skills to objectively assess the various treatments and implement similar trial plots on their own properties.

Other examples of paddock trials generally sought practical solutions for improving pasture or fodder quality, utilising the spring flush, increasing quantity of autumn and winter feed, manipulating pasture consumption by seasonal changes in livestock body condition, infrastructure design, reducing the cost structure and meeting market specifications.

Story: Nick Linden, NRE Beef Industry Officer, Maffra (relates to Maffra focus farmers Gary and Maria Rose)

'In order to cut some hay, half of the cows and calves had to be moved off the irrigated block to a dry block for a period of only four days.

'Although the feed quality was obviously poor, the dry block had an abundance of feed on it. The rationale was that there would be enough good quality feed that the cows and calves could get a pick at, that the four days on this feed would not restrict the animals' performance too much.

'The operation in question is vealer production, and we were weighing the stock every month to monitor progress.

'We cut the desired hay, and with the then growth rates of about 50 kg DM/ha/day, half the cows and calves only had to be on the dry land block for four days.

'But when we next weighed the calves, the half that had been moved to the dry block had basically gained no weight for that month. The group that had stayed on the irrigation continued to gain at the standard 1.1 kg LW/head/day. This meant that the half that went to the dry block now averaged roughly 30 kg each less than the ones that had stayed on the irrigation. The trend stayed consistent right through to weaning and sale. At a sale price of about \$1.25/kg LW, our efforts to cut hay had cost us in the order of \$40 per vealer on the dry block.

'This difference would not have been apparent to us had we not been weighing calves every month and had we not kept half of the cows and calves on the irrigation.

'In hindsight, we should never have cut the hay at the expense of animal performance, but we assumed four days on rough feed would not have an overly negative effect on animal performance.'

Ongoing Group Activity

Groups generally meet 11 times per annum. BeefCheque facilitators have given each group the opportunity to set the direction of their group. Therefore, the ongoing activities vary between groups and include:

- Conducting on-farm research trials funded through MLA's PIRD program.
- Funding consultants to continue walking focus farms.
- Discussing farm monitoring results from the farm record books.
- Participating in other group training activities, such as Farm\$mart and Storelink.
- Raising awareness of how computers can be used on farms.
- Attending Sustainable Grazing Systems (SGS) field days.

Story: Pakenham BeefCheque Group activities summarising the strategy they took since 'going it alone' (reported in BeefCheque Brief, November 1998).

- Elected an executive committee to research and plan future directions, options and make things happen.
- Elected a chairman to run special and executive meetings.
- Elected a facilitator to run farm walks and other activities.
- Elected a secretary/technical officer to send monthly updates and reports to all group members.
- Opened a bank account in the name of Pakenham BeefCheque Group.
- Successful with Farmbis funding after a lot of hard work and harassment.
- Ran a dinner meeting (third to date) as a social function and also to meet new consultants.
- Organised a local meeting with our local vet who addressed us on calf scours in particular and general animal health. It was an informative and stimulating session.
- Planned future activities after discussion with the group. We will now focus on taking a business plan approach to our walks and meetings. Group completed the FarmSmart two-day course (Laying the Foundations) and then employed consultants to further stimulate and challenge us on our monthly farm walks.
- We aim to visit every farm over the next 12 months; we will explore strengths and weaknesses of each farm and also examine financial opportunities and constraints (environment, pastures, animals, disease, pests, marketing, goals etc.).
- Still keep closely in touch with what is happening at the focus farm. The focus farmer and NRE will continue to provide us with monthly updates.
- Every month all members share what is happening on their farms: feeding, fertiliser, renovating, calving, animal health issues, marketing etc. Five minutes with each enterprise reveals a wealth of information and results in animated questions and discussions. This ensures everyone makes a valuable contribution to the group discussion and helps with a sense of group ownership.
- Four new members have recently joined the group. We all are taking responsibility in bringing them up to speed with pasture issues. They are keen and excited about being involved.
- Everyone is committed to completing financial analysis.

3.3.3 Extension Support Activities

Focus Farm Field Days

A field day was held on each of the focus farms during the project's consultancy phase in conjunction with a regularly scheduled focus farm walk. This gave the local farming community the opportunity to attend a BeefCheque farm walk and experience the pasture and animal assessment discussions. These days were generally well attended, with attendance increasing between 50% and 300%. Interested participants were invited to join their local group.

May Open Days

For the month of May in 1999 and 2000, BeefCheque groups across Gippsland again extended an open invitation for interested producers and service industry providers to attend their monthly activities. Several groups were so enthused by their involvement in BeefCheque that they funded consultants to lead their farm walks and share the knowledge generated by BeefCheque participants

BeefCheque Conferences

BeefCheque held four successful conferences in Traralgon from 1997 to 2000. These conferences were well attended by BeefCheque members, beef producers and industry representatives. The conferences allowed several hundred people to hear local, national and international speakers on a range of topics of interest to beef producers. Breakout sessions encouraged interaction between speakers and delegates, and the conference dinner provided an informal atmosphere for participants to share their farming experiences. Networking at the conferences helped create a sense of community for BeefCheque producers across all the BeefCheque groups.

Newsletters and BeefCheque Brief

Communication with BeefCheque members on issues that affected the whole project was initially achieved through a newsletter. Content included project briefings, technical information (such as changes in botanical composition), good news stories from producers adopting improved grazing management and satirical cartoons.

A TTAG report identified that communication between the BeefCheque Board of Management and group members needed to be enhanced. The board responded by developing an information sheet, the *BeefCheque Brief*. The *Brief* is a useful tool to provide rapid communication from the board or facilitators to BeefCheque members. The newsletter, referred to above, was replaced by the *BeefCheque Brief*.

3.3.4 Project Support Activities

Consultants

Consultants used in the project were Jeff Urie and Wolfgang Wagner, from AgChallenge Pty Ltd, Warragul, and John Mulvaney, from On-Farm Consulting Pty Ltd, Leongatha. The consultants were highly skilled in pasture management and brought a wealth of knowledge from practical experience with dairy farmers. Many of the skills and lessons learnt in the dairy industry were directly applicable to the BeefCheque focus farms, but these ideas often met with resistance. The major attributes shared by all the consultants were their highly developed interpersonal skills, which allowed them to confront and challenge past practices and explore barriers to change.

As a result of the project, consultants learnt about the beef industry; and they subsequently modified their approach to accommodate the differences to dairying.

NRE Group Maintenance

An aim of the project is to provide the groups with skills that will enable the groups to continue to function without external facilitation. This process is being assisted by NRE at group meetings, by specific courses for group members and by PROGRAZE courses for new members.

Group planning meetings were facilitated by NRE staff to assist groups to set their own direction. Yearly calendars of events were developed by prioritising members' learning needs. Group activities were then scheduled around these priorities.

Facilitator Training

Training was developed with the aim of providing BeefCheque group representatives with facilitation skills to enhance the longevity of groups. The course was developed by a Gippsland consultant, Brian Greer, and delivered in 1999 to 12 producers, representing the majority of Gippsland BeefCheque groups.

Monitoring and Assessment

Evaluation is an integral part of this project, with a program to establish benchmarks, monitor progress and analyse conclusions.

Both financial and physical records were analysed, and members were encouraged to use the analyses in decision-making. Participants received individual reports on the health of their farm business, plus a report summarising results across all participants. Results for 1996/97 and 1997/98 have shown that controlling costs has been the key to survival in these two years of very dry conditions in Gippsland.

In addition, NRE project officers assess monthly focus farm pasture growth, pasture cover and composition, production, and yearly productivity measures.

3.4 Level 3: People

The level of participation in BeefCheque is an important measure of the success of the project.

The project attracted a wide range of participants. Fifteen BeefCheque groups were formed across Gippsland. Public meetings were advertised, and likely prospects were mailed direct through both NRE and BIA contacts. The strong selling points used by the project manager at the information sessions were:

- The high level of Gippsland beef producer representation in planning the project and at Board level.
- The similarity of the BeefCheque project to the highly successful Target 10 project.
- The high level of commitment and funding by NRE and MLA.

Some groups were completely new, some formed from old BeefManager groups, and some were formed by existing independent groups.

The total throughput of people through BeefCheque has been 420, with a core at any one time of 250. This far exceeds the initial target of 180.

People involved in the project included producers, NRE staff, private consultants, veterinarians, fertiliser company representatives, and educational organisations, such as RIST and the Monash University Agribusiness Unit.

3.5 Level 4: Reactions

Reactions to a project reflect participants' degree of interest in the topics addressed, their acceptance of the activity leaders and their attraction to the educational methods. There are two sorts of reactions that can be gauged: reactions by farmer participants and reactions from people outside the project (external reactions).

3.5.1 Farmer Reactions

Reactions to the project by farmer participants have been very positive. Participants were introduced to the practical aspects of the project from day one of the introductory course and were challenged by consultants that there was potential to improve production. This set a very positive tone for the rest of the program.

Comments from the two NRE surveys (Appendices 1 and 2) have been very positive:

- In the first NRE survey, conducted after two years of the project, producers were asked to sum up in one sentence what BeefCheque meant to them. Comments

were positive in regard to improvement in skills, educational opportunities and improved confidence and control. One quote was as follows:

An excellent program - it has led to marked increase in pasture production and consumption, and more efficient farm management. It has also been good meeting with other farmers and discussing options with them, seeing other properties and the social contact

- In the second NRE survey, conducted near the end of the project, reactions were also very positive. 92% of participants said they intended to continue to be an active member of their BeefCheque group. Reasons given were educational opportunities, peer support and technical inputs. One quote was as follows:

Has made a huge impact on dealing with three very difficult seasons.

- At the Gippsland BeefCheque Review conducted mid-way through the project (Balm et al., 1998), anecdotal evidence was presented of the benefits of BeefCheque. Those involved in the project reported *'that they felt more in control and had greater confidence in their own ability and to try new ideas'*. Also, anecdotal evidence was presented that participants had been inspired to action. BeefCheque has provided opportunities for producers to be exposed to a really good, enthusiastic consultants (which is catching); to share ideas; and to develop a supportive network.

Story: Ian Nunn, Fish Creek BeefCheque Group

It (BeefCheque) is the best program I've seen in that it's a practical on-farm exercise. It's focused on doing things on the farm.

Story: Rob Gully, Warragul BeefCheque Group

I'm a great believer in BeefCheque. I don't know anybody who doesn't come away from every BeefCheque day without picking up something new.

3.5.2 External Reactions

External reaction has also been positive:

- The Gippsland Agribusiness Forum, a Gippsland-wide study group comprising representatives from agribusiness and government, is currently conducting an audit of agribusiness opportunities in Gippsland. During interviews conducted as part of this project, BeefCheque has been mentioned as a very good model by which to introduce change to the farming community (J. Caldwell, pers. com.).
- The reaction of statewide media (*Stock and Land*, *Weekly Times*) has been very positive, with numerous articles on the project.
- Reviews of the project by the Technical Transfer Advisory Group have also been positive.
- The project is used as a model for regional producer developments in the national SGS project.
- There is evidence that agribusiness is copying the BeefCheque message. For example, Incitec is using the motto of 'Grow more, graze more, gain more'.

3.6 Level 5: Changes in Knowledge, Attitudes, Skills and Aspirations

KASA refers to the knowledge, attitude, skills and aspirations that influence the adoption of practices that help achieve the targeted outcomes. Changes in KASA can occur when people react positively to their involvement in program activities. The main evidence for KASA change comes from the two NRE surveys conducted midway and at the end of the project (Appendices 1 and 2).

Both NRE surveys have shown evidence of positive changes in knowledge, attitudes skills and aspirations as a result of BeefCheque:

- 92% of respondents said they intended to continue with BeefCheque – a very positive attitude to the project.
- 94% of respondents had an average of three important management skills they had learnt as a result of BeefCheque, with grazing techniques, such as rotational grazing, strip grazing and backfencing, nominated as the most important.
- 77% of respondents in the NRE final survey said they intended to continue with BeefCheque because of the educational opportunities it provided; approximately 39% in the mid-term survey gave that response.
- Confidence in using grazing management practices also increased during the project. At the mid-term mark, on average 56% of respondents expressed confidence in using ten new grazing management practices. This had increased to 69% by the end of the project.

Story: John Mulvany, BeefCheque Consultant

Awareness and integration were the critical issues in BeefCheque – the plant/animal interaction, which hadn't been done before. Other programs have compartments on pasture, compartments on livestock. BeefCheque represented integration. It made them aware of the components in the system and interaction between the components.

Rob Bell (Fish Creek focus farmer) is a great example of working these issues through. We developed a nifty system – we asked what feed is required? Is pasture available? Is the pasture nitrogen responsive? If we haven't got pasture available, where do we go? I remember vividly, in the drought, building basic rations for vealers. That was driven by growth versus consumption and the manipulation of these two things.

Story: Graeme Russell, Orbost BeefCheque Group

Orbost focus farmer Graeme Russell says that, without the knowledge gained from PROGRAZE and BeefCheque, he would have probably 'given it away'.

'The first thing I learned from BeefCheque was not how many cattle I was running, but how many kilograms of beef I'm producing.

'Even the drought two years ago was good for us because it taught us how to manage feed in a dry year.'

Story: Beryl Dodds, Kongwak BeefCheque Group

We've had drought years, and we learned to use sacrifice paddocks. BeefCheque gave us information to survive. We got a premium for our vealers by grain feeding them on a small area. PROGRAZE gave us the yardsticks. Our neighbours had to destock.

Story: Joy & Peter Brand, Yarram BeefCheque Group

Peter and I became full time farmers in 1990 when we took over my parents' property. Up to that time we had helped my father and discussed things with him but never really learned anything about pasture management. We found 'farming' a challenge, but the knowledge required seemed to come from experience (often over a lifetime), and we were floundering. We were on a learning curve you couldn't jump over!

We were invited to join the Yarram BeefCheque Group by Leo Hamilton in May 1997. Over the next few months, despite drought conditions on the focus farm, we learned about pasture management, how to calculate pasture quantity and identify some pasture species. Eventually we realised that we could go farming by calculator (in a sense) and that lack of experience didn't have to hold us back in our cattle and pasture management decisions.

So we began dividing up our largest paddocks of about 25 hectares down to about 12 to 15 hectares average, then began shifting troughs to the centre of paddocks and installing permanent single-wire fences to enable us to quarter them. We have put in kilometres of new lane ways to improve stock handling.

By eating out paddocks, we have been able to keep fog grass and other weeds under control and understand that even weeds are 'green feed' under dry conditions. We were prepared to push the cattle harder and make them eat the less palatable species and accept some loss of cattle condition in the process.

3.7 Level 6: Practice Change

To achieve the desired outcomes for the project (see Section 2.2), management practices needed to change. The main practice change required was grazing management. Other desirable changes were that producers monitored the physical and financial performance of the farm business and that they continued in BeefCheque groups after the project was completed.

3.7.1 Grazing Management Changes

As outlined in Section 3.3, 'Level 2: Activities', the aim of the project was to achieve changes in grazing management by:

- A semi-formal learning component – which was PROGRAZE.
- A demonstration component – demonstration of using the principles outlined in the course. This was done by the grazing management consultants working with the focus farmers to use grazing management changes to achieve an improved farm outcome. BeefCheque group members were able to observe the management and practice changes and then use the appropriate changes on their own farm.
- A reinforcement component – NRE personnel continued to facilitate focus farm and other group meetings to reinforce practice change.
- A feedback component - BeefCheque participants were given reports on the monthly situation on focus farms and the management decisions taken.
- A physical and financial monitoring component – each BeefCheque participant was offered a physical and financial analysis of their own farm performance if they completed the BeefCheque farm record book and sent in two data input sheets.

Two NRE surveys (see Appendices 1 and 2) show that there was a large change in grazing management practices. At the mid-way mark, over 50% of respondents to the survey had tried up to eight new grazing management practices or 'activities'. By

the end of the project, 63% of respondents were **using** more than eight new practices or activities. Moreover, the per cent expressing confidence in using these activities had increased on average from 56% to 69%. The main grazing management activities were:

- Estimating pasture quantity.
- Calculating average farm pasture cover in kg pasture dry matter.
- Calculating pasture growth in kg pasture dry matter.
- Estimating pasture quality.
- Building a feed wedge.
- Managing a winter feed wedge.
- Controlling the feed wedge.
- Calculating a feed budget.
- Rotational grazing.
- Strip grazing.
- Backfencing.

These changes in grazing management have resulted in an average increase in pasture consumption of 12.4%. In areas less affected by the exceptionally dry conditions, consumption increased by as much as 31%.

The management changes have been introduced by dairy industry grazing management consultants and NRE extension staff. They involve creating a winter feed wedge to optimise pasture growth, then eating into this wedge before the start of spring. In many cases, producers have modified the 'system' to suit their own management. Management techniques used are described in detail in the focus farm reports document, which accompanies this report.

Story: Graham Osborne, Pakenham BeefCheque Group.

I tried the dairy-type rotational system – building up a winter feed wedge with daily shifting of steers – and learnt a lot out of it. I have since modified it to suit my management. On a distant bush block, I have a monthly rotation. I don't have to find the cattle: they are queuing up for the next change! On the home block I rotationally graze steers but push them harder than the traditional 'dairy system' and still rely on some compensatory gain in spring to get to the market weight and condition I want.

Story: John Timmins, Tarwin Lower BeefCheque Group

'We were pushed kicking and screaming to rotational grazing'.

John tried it in a couple of paddocks, by mobbing up a group of 300 heifers and dividing a 150-acre paddock into 25-acre paddocks. The stock were block grazed, and he found that daily shifts worked best.

He can now rotationally graze 80% of the farm; and last winter (1999), paddocks were run on a two-month rotation.

He was convinced when he saw rotational grazing work on the focus farm in the wettest winter in memory (1996).

Story: Nick Linden, NRE Beef Industry Officer, Maffra

Good summer rain in 1998/99 had given the Stratford focus farm of Col and Robyn Stothers an unseasonal surplus of feed into mid-summer. In order to retain some pasture quality, dry standing feed had to be removed from the bulk of the farm. With restrictions on stock numbers and fodder conservation abilities, it was not possible to remove this dry standing feed from all of the farm.

One paddock had to be locked up and let go rank to try to push the problem into a small area of the farm, rather than have it invade the rest of the farm. We anticipated the extended lock-up would significantly damage the pastures. Shading of pastures would prevent any tillering and pasture density would drop, but this was worth tolerating if it confined the problem to a small area of the farm.

This may have occurred, but there were other benefits: when it came to graze the paddock, a low-priority stock class was chosen (dry cows) so animal performance would not be sacrificed. The cows were then restricted to a quarter of the paddock with electric strip fenced and forced to eat as much dry feed as possible in a short time. The cows were then moved to a new quarter of the paddock and the same treatment enforced upon them.

Looking at the paddock in the autumn has shown spectacular results. The density of the cocksfoot plants has increased significantly from new seedlings developing from seed. As well, the vigour of the existing cocksfoot plants has been improved.

We reckon that had the pasture not been heavily crash grazed over a short period of time, the results would not have been as good. The impact of mouths and hooves has really helped to rejuvenate a run-down cocksfoot pasture.

Story: Nick Linden, NRE Beef Industry Officer, Maffra

A mob of steers and heifers, reared on the Cann River focus farm of Gus and Judy MacKinnon during late winter 1999, were being prepared for the domestic trade.

They were being fed silage on top of basically ad lib high-quality pasture. The silage was feed tested, so we knew exactly what the energy content was (7.7 MJ ME). It was expected to be low because it had come out of an old pit that was suspected to be leaking.

The steers and heifers were being weighed monthly to monitor their weights and weight gain. At an average weight of around 400 kg, the animals were only gaining about 0.7 kg per day, whereas they should have been gaining at least 1 kg per day.

We concluded the reason was the cattle were substituting silage for quality pasture. If you put silage in front of the animals, they will eat it, even if the quality of the silage is less than the quality of the pasture. Because the silage is a lower feed quality (less digestible) than the pasture, the cattle could not physically eat as much silage as they could grass. This means that pasture intake was reduced. These cattle could probably consume 9 kg of dry matter of high quality pasture at maximum intake. But if they are getting 2.5 kg of silage per day, then pasture intake will only be 7.5 kg of dry matter.

3.7.2 Physical and Financial Monitoring

One of the key indicators of success for the project was the ability to encapsulate productivity and profitability benchmarks to measure on farm change.

The level of producer participation in monitoring through the BeefCheque farm record book has been variable. The peak participation was in 1996/97 when 90 producers, or 36% of BeefCheque producers, participated. Forty producers, or 16%, participated in 1998/99. This level of participation is equivalent to the Target 10 program, where a response rate of approximately 27% was achieved when a similar program was introduced. Participation has not improved over the life of the project. One of the reasons for the low level of uptake is likely to be that the farm record book was attempting to achieve a number of objectives. These were:

- Individual feedback to producers on their financial position plus relevant physical indicators.
- BeefCheque group data for comparative analysis. This was used at group meetings and at sub regional workshops.
- Collection of data to measure the progress of the project towards meeting its objectives.

To meet all these requirements a lot of detailed information was required so the book was perceived to be too complicated and uptake was therefore reduced. There were other reasons for the low uptake and the reasons for these are discussed in a separate report by Rabi Maskey (see Appendix 3).

Maskey's report also outlines methods of improving the uptake of physical and financial monitoring by producers.

Story: Bruce Shenfield & Jaan Enden, Pakenham BeefCheque Group

Last year (1999), the Pakenham group received a FarmBis subsidy to employ consultants Paul and Jenny O'Sullivan to conduct a financial analysis and benchmarking program.

'There was complete openness among the group members who participated,' according to Bruce Shenfield.

'Some of us had higher brought-in feed costs, others had bigger fertiliser bills, and we were all able to benefit from sharing the information. As a result of this exercise, we have changed the way we deal with our surplus heifers. They were previously sold as unjoined fat stock – now we market them as joined.'

3.7.3 Sustainability of BeefCheque

Another key indicator for success of the project was that BeefCheque could continue after the end of the project (see the key indicator on sustainability in Section 2.3). A key element is the continuation of BeefCheque groups. Support for groups has come through the provision of Working in Groups (WIGS) courses. Also, members representing 12 groups took up the offer of facilitator training. In the final NRE survey (Appendix 2), 92% of participants said that they intend to continue to be an active group member. The seeds have been planted and success should be achieved, particularly if some assistance is given to plan for ongoing programs. The experience of Target 10 is that discussion groups will fail without some level of support.

Story: Beryl Dodds, Kongwak BeefCheque Group

Although I was sceptical, Working in Groups (WIGS) taught us about group commitment.

3.8 Level 7: End Results

3.8.1 Target Productivity Increases

The productivity increases achieved are described below. However, the Gippsland region experienced exceptionally dry conditions for most of 1997 and 1998; and these dry conditions continued into 1999, especially in Central Gippsland and parts of East Gippsland (see Figures 1 and 2 in Appendix 6). These conditions limited the achievement of the productivity targets for the project.

Three data sets are used in the discussion of the productivity results for Objectives 2.1, 2.3 and 2.4. They are based on BeefCheque farm record books maintained by the participants. (A discussion of the collection of this data is provided under 'BeefCheque Farm Record Book' in Section 3.8.3). The data sets are:

- Data Set 1: results from 9 properties in 1995/96, 52 in 1996/97, 48 in 1997/98, and 35 in 1998/99.
- Data Set 2: the above data set minus data from 1995/96 because of the low number of returns in that year (data received from 29 properties but only 9 provided complete data).
- Data Set 3: records from 16 farms with complete data for three continuous years (1996/97 to 1998/99). Thirteen of these farms (81%) were in West or South Gippsland; three (19%) were in East or Central Gippsland.

Data for Objective 2.2 was gathered on the focus farms.

Increase Pasture Use by 25% (Objective 2.1)

Background: A key driver of grazing management in the BeefCheque Project was increase in pasture consumption. This was to be achieved by a better understanding of how ryegrass and clover grow; modification of management to optimise pasture growth, particularly in winter; and use of stock and fodder conservation strategies to utilise extra pasture grown and to maintain pasture quality in spring.

The concept of a simple calculation of pasture consumption was developed by NRE's dairy extension team for the Victorian dairy industry extension program Target 10. The concept is described by O'Brien and Curtis (1994) in a pasture management booklet for dairy farmers. Briefly, the dairy pasture consumption is based on a calculation of the metabolisable energy output (butterfat production) and then adjusted on an energy basis for any change in stock numbers, any bought-in feed and any conserved fodder not used. The total energy used is then converted to kilograms of pasture dry matter by dividing by an assumed energy value of pasture.

The concept was modified by Walsh and others for use by BeefCheque groups prior to the start of the project. One model was based on the output from different grazing

enterprises using data from GrazFeed; the second was based on stock numbers only, expressed as DSEs. After an initial trial with both models with a BeefCheque group, the second model (see Appendix 4) was adopted as the model most likely to be used by producers.

The original target for increase in pasture consumption was 10%. Evidence from the first three years of the Target 10 project (Boomsma et al., 1996) had shown that the Target 10 dairy extension project had achieved an increase of 21% in pasture consumption by 1994/95. In discussion amongst consultants, NRE and the BeefCheque board, the original target was raised to 25% six months after the start of the project.

Achievements: Data Set 2 shows an apparent average 14.8% increase in pasture consumption across the project from 1996/97 to 1998/99, from 5.4 to 6.2 tonnes of dry matter per ha. This is shown in Figure 3. However, the average figures are distorted by the greater representation of the 'higher rainfall' areas of West and South Gippsland in the 1998/99 data.

The most reliable figure for change in the higher rainfall areas comes from Data Set 3. Pasture consumption on the 13 West and South Gippsland farms in this data set increased from 5.42 tonnes per hectare in 1996/97 to 6.5 tonnes in 1998/99, an increase of 19.9%. This result is supported by the three focus farms in West Gippsland, which increased by 31%.

The situation for East and Central Gippsland is less clear. The available data for farms in East and Central Gippsland from Data Set 2 indicates that, on average, pasture consumption did not change (4.9 tonnes per hectare in 1996/97 to 4.85 tonnes in 1998/99). On these two estimates, the project average would be 19.9% (higher rainfall areas) plus 0% (low rainfall areas), or 10%.

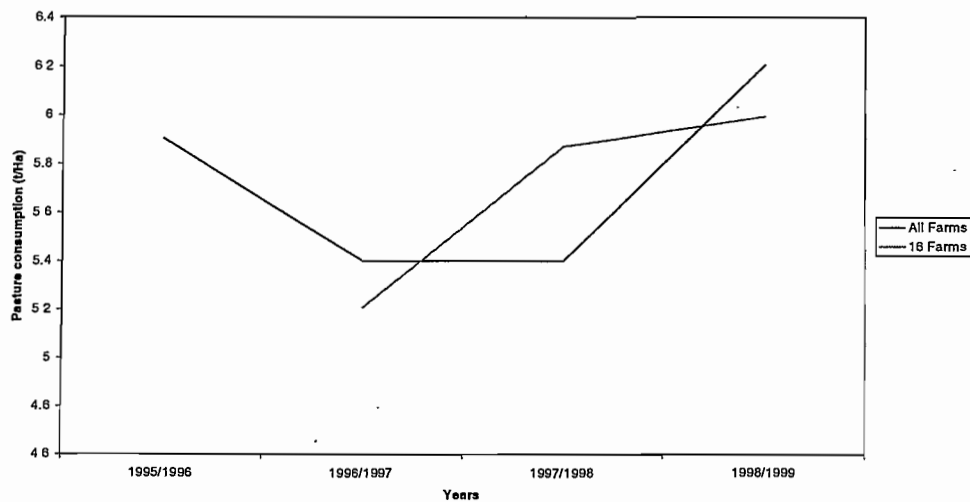


Figure 3. Pasture consumption (1995-1999)

Discussion: The exceptionally dry conditions had a major impact on the average results achieved, and results varied across the Gippsland region. The areas of the region most badly affected by dry conditions were Central and East Gippsland. On average, their figures did not improve from 1996/97 to 1998/99. However, it is remarkable that the average of farm records only decreased by 6% during the worst year of 1997/98. The three focus farms in the West Gippsland area, on the other hand, although also dry, had slightly better conditions overall; and their pasture consumption increased by 31%.

Conclusions: The target objective was nearly reached in those areas (West and South Gippsland) that, even given the exceptionally dry conditions, had some potential to improve. For those areas that endured the worst of the dry conditions, it is remarkable that consumption did not fall further. With two estimates of change in the project of 10% and 14.8%, **an estimate for the change for the project is +12.4%.**

Pasture consumption has been an excellent device for focusing BeefCheque participant attention on pastures rather than animals. It was particularly useful in the initial PROGRAZE sessions when participants calculated their own figures and the range of results achieved could be highlighted.

Story: Ivan Prentice, Trafalgar BeefCheque Group

BeefCheque led to a change in my grazing management to rotational grazing, which has resulted in an increased stocking rate.

I am now running cows and calves at the same rate as I was previously running steers.

I am making better use of grass, and have a better understanding of soil fertility through PROGRAZE and BeefCheque.

Story: Bernie Watt, Tarwin Lower BeefCheque Group

Bernie describes the highlights of BeefCheque as better management of grasses. He is now strip grazing; previously, his farm was set stocked. He says he can grow twice the feed he grew before.

Story: Alan Coulter, Tarwin Lower BeefCheque Group

Alan says BeefCheque has helped him 'match inputs with outputs' on his farm.

'I used to put on super based on whether there was money around – as a bit of a luxury.'

'I realise now that that was a mistake.'

'We also now hand feed stock earlier to build up the feed wedge for winter'.

Story: Andrew Sutton, Buchan BeefCheque Group

Our paddocks range in size from 200 acres to 10 acres, but we still use the same principles. It just means that we may have more cows in the larger paddocks. The benefits are clear to see, though; and it really is the best way to utilise all of the grass. To make management as easy as possible, we make sure that the next grazing paddock is alongside where the cattle are. Then, it's just a matter of opening the gate and the cattle catch on very quickly to where the good feed is.

Increase Pasture Grown by 20% (Objective 2.2)

Background: Before considering how pasture growth rates are determined, it is important to describe the method of estimating pasture volumes. During the PROGRAZE phase of the project, participants are introduced to the use of the 'pasture stick' to estimate volumes. This involves throwing the pasture stick in a random fashion across a paddock, measuring pasture heights, and using a conversion table to relate the heights to pasture quantity in terms of kg dry matter per hectare. Pasture density and quality are also taken into account when making estimates of pasture quantity. Over time, participants and NRE staff became confident in making visual assessments without reference to the pasture stick.

Pasture growth rates are determined in one of two ways. Calculating them both ways provides a good indication of the accuracy of the figures.

Measured growth rate is derived from paddock observations but will only work when the paddock has not been grazed in the past month. This method was also applied when it was known how many days since the paddock was last grazed, and pasture mass at the conclusion of grazing, i.e.:

$$\frac{\text{Herbage mass today (kg DM) - mass at the last farm walk (kg DM)}}{\text{Days since the last farm walk}}$$

Calculated growth rate is based on the rise or fall of the average pasture cover, relative to how much the animals have consumed and how much supplement has been fed.

Thus the calculated pasture growth is:

- Animal consumption in kg of dry matter per hectare per day.
- + Change in average pasture cover in kg of pasture dry matter.
- - Supplements fed in kg of dry matter per ha per day.

If supplements are fed in significant amounts, the dry matter figure may have to be adjusted on a metabolisable energy basis.

To facilitate these calculations on farm walks, a BeefCheque farm walk record sheet was developed (see Appendix 5).

Other pasture measurements: Whilst not stipulated in the BeefCheque contract, the BeefCheque Board of Management approved the collection of data relating to the botanical composition of pastures on focus farms. It was anticipated that improved grazing management would lead to enhanced pasture quality in terms of pasture composition and digestibility, as well as quantity (PROGRAZE, 1999). NRE officers assessed the botanical composition of pastures from late winter to spring on each of the focus farms for each year of the project. Assessments involved the use of the PROGRAZE pasture stick, thrown randomly numerous times across each paddock. The pasture plant nearest the nail at the end of the stick was identified and noted. Plants were identified as either ryegrass, clover, other improved grass species (such as phalaris or cocksfoot), unimproved grasses, annual grasses, broadleaf weeds or other weeds.

Achievements: The pasture growth rates, as measured across the BeefCheque focus farms, failed to show a consistent trend from the start to the completion of the project. There was, however, some consistency in pasture production between focus farms in Central and East Gippsland (Figure 4).

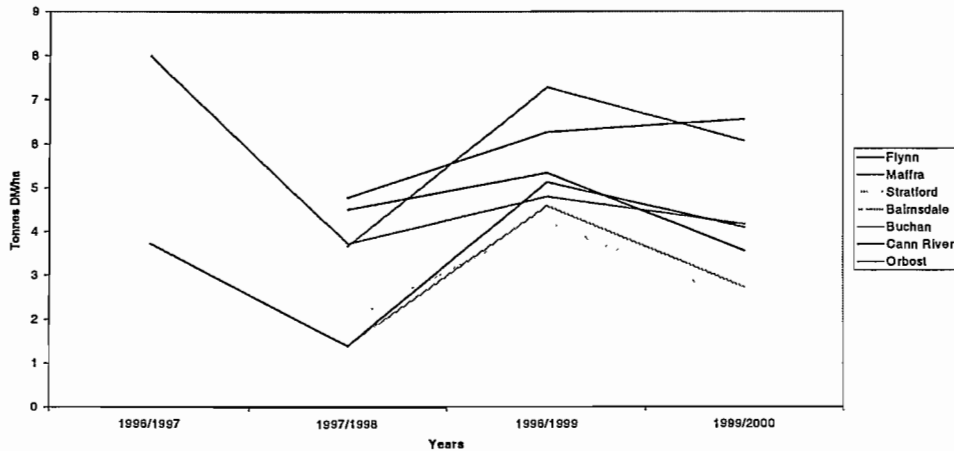


Figure 4. Pasture Production (Central and East Gippsland Focus Farms)

As with annual pasture production, there appears to be no discernible trend in pasture botanical composition (Figure 5) over the life of the project; however, again there appears to be some consistency in variation between the focus farms in Central and East Gippsland (Flynn, Maffra, Stratford, Yarram, Bairnsdale, Buchan, Cann River, and Orbost).

Discussion: Variations in annual pasture growth and botanical composition on Central and East Gippsland focus farms generally coincided with seasonal conditions. Annual pasture production recovered in 1998/99 following the drought year of 1997/98 but then slumped again in 1999/00, reflecting the dry summer and autumn of that season. This was mirrored in changes in pasture botanical composition.

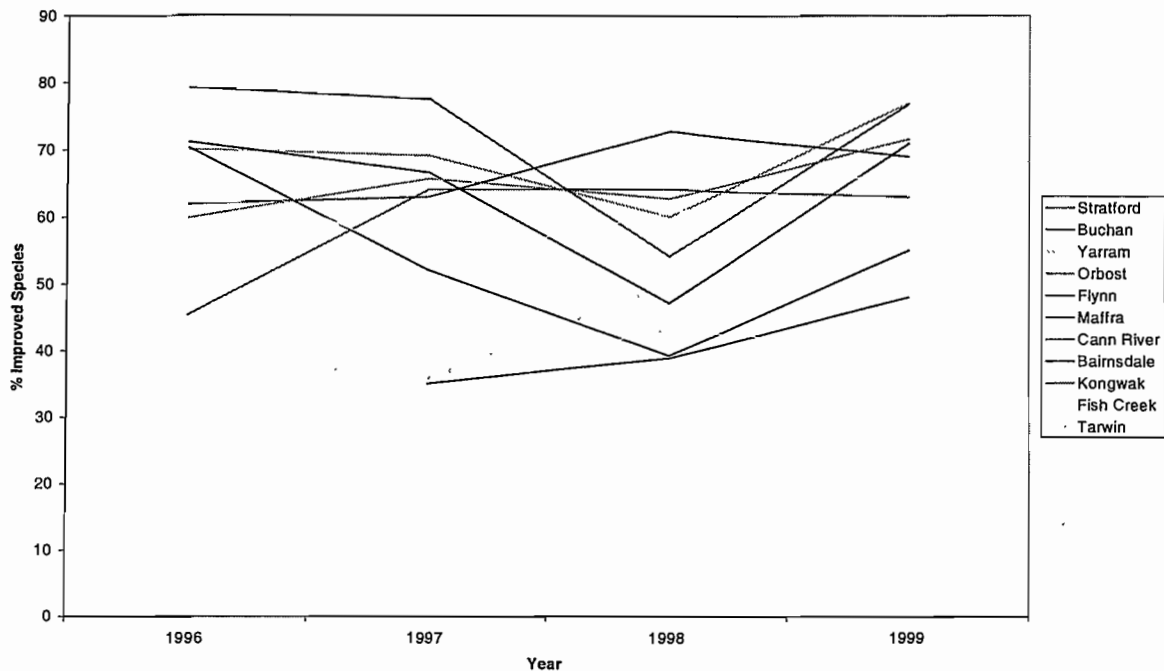


Figure 5. Pasture Botanical Composition (Focus Farms in Central, East (except Ensay) and South Gippsland)

Story: Mark Brammar, BeefCheque Officer, NRE Leongatha

The changes [in botanical composition] were evident within the first six months of the project.

Almost on every focus farm, the effort was directed at cleaning out the pasture - that is, removing the dead material. The consultants were dynamite on it! In our area, that dead material was never carried over after that time - you were left with quality pasture after that.

Pasture management led to improved composition. It's amazing how short a time it took. You need a season or two to give it the chance to respond. Good grazing and reasonable fertiliser and it's away. Fog grass thrives on lax grazing.

Conclusions: Pasture growth rates, as measured on the BeefCheque focus farms, did not show any discernible trend, either positive or negative, over the life of the project. It is therefore impossible to say, from the data collected, that the project has achieved the goal of increasing pasture metabolisable energy production on participating farms by 20%. What is apparent is the impact of seasonal conditions on pasture production; and given the project period has included extremes of drought and rainfall, it is likely that seasonal variations could mask the impact of grazing management on pasture growth. Improvements in pasture digestibility (MJ/kg DM) were measured on individual focus farms (see focus farm reports document accompanying this report)

Increase Beef Liveweight per Hectare by 10% (Objective 2.3)

Background: Liveweight output per hectare was an important productivity indicator for the BeefCheque project and was calculated from records from those producers who completed the BeefCheque farm record book. Liveweight output was calculated for cattle enterprises and sheep enterprises as follows:

- Liveweight produced on farm is the [total liveweight end (30 June) + total liveweight sold + any liveweight moved out] minus [total liveweight start (1 July) + any liveweight moved in].
- Total liveweight output per hectare is the beef + sheep output divided by the area of the farm.
- Beef liveweight output is the beef output divided by the beef area. The beef area is calculated by multiplying the area of the farm by the proportion of total DSEs that are beef DSEs.

As the number of sheep run on BeefCheque properties was generally low, total liveweight output per ha and beef liveweight output per ha are usually very similar.

Achievements: The average total liveweight output of BeefCheque properties in Data Set 2 was 342 kg/ha in 1996/97 and 463 kg/ha in 1998/99, which is a 35% increase (Figure 6). However, in 1996/97, 62% of properties were from the lower rainfall areas of Central and East Gippsland, whereas in 1998/99, only 26% of properties were from Central and East Gippsland, and farms making up these results did change from year to year.

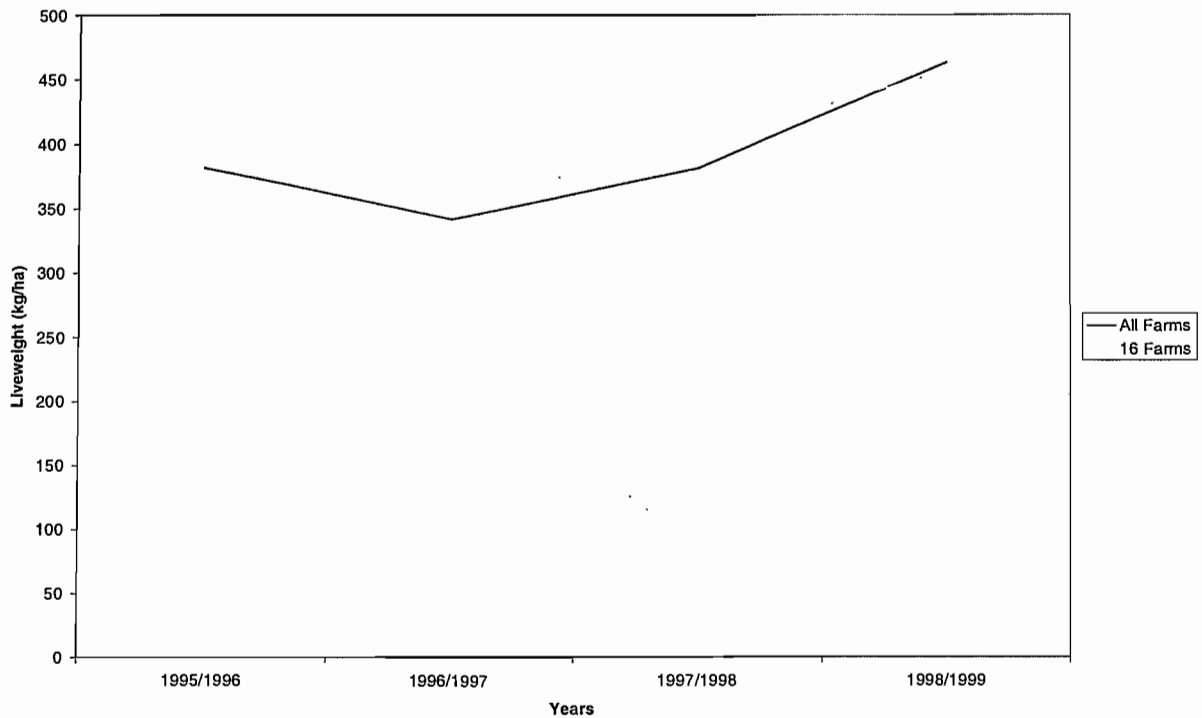


Figure 6. Liveweight Output

The average *total* liveweight output for the 16 farms in Data Set 3 was 354 kg/ha in 1996/97 and 456 kg/ha in 1998/99 (Figure 6). This is an increase of 102 kg/ha, or 29%. The figures for *cattle* liveweight output were similar (355 kg/ha in 1996/97 and 453 kg/ha in 1998/99), with an increase of 98 kg, or 28%. Most of this data set (13 farms) is from West and South Gippsland.

The situation in Central and East Gippsland is less clear. Based on Data Set 2, the average increase in liveweight output was 26%; however, the farms contributing data from these areas changed substantially from 1996/97 (32 records) to 1998/99 (9 records). More consistent data from four focus farms in Central and East Gippsland (Bairnsdale, Buchan, Orbost and Flynn) shows an increase of 6% (from 324 to 343.5 kg/ha.) However, the situation on these farms was very variable because of seasonal conditions: two of these farms increased in liveweight output and two decreased.

Data for the first year of the project (1995/96) is limited, with reliable data from nine farms only. Six of these farms also have records for 1996/97. These records show that the average liveweight output from 1995/96 to 1996/97, on these six farms at least, increased in one year by 13%.

Discussion: As well as the total liveweight output, it is interesting to look at the liveweight output in relation to the pasture consumption. One calculation is to divide the pasture consumption per hectare by the liveweight output per hectare to give an

apparent kg pasture dry matter consumed per kg of liveweight output. Another efficiency factor is the kg of liveweight output per 100 mm of rainfall. For the 16 farms in Data Set 3, kg of pasture dry matter per kg of liveweight output (kg DM/kg LW) appeared to improve: it decreased from 14.7 kg DM/kg LW in 1996/97 to 13.2 kg DM/kg LW in 1998/99, a 10% improvement in efficiency. This figure may be worth following on individual properties as a check on the efficiency of increasing stocking rate. The efficiency of rainfall use also appeared to improve, increasing from 42 kg liveweight output per 100 mm of rain in 1996/97 to 58 kg in 1998/99.

Conclusions: In summary, evidence from the BeefCheque farm record books indicates that the average increase in liveweight output per hectare achieved during the project was 29% in West and South Gippsland and perhaps 6% in Central and East for an **estimated project average of 18%**. This is above the target set for the project of 10%. The efficiency of rainfall use for liveweight output also appeared to improve.

Story: Bruce Shenfield and Jaan Enden, Pakenham BeefCheque Group

We used to rotate our stock, but not to the extent we are doing now – with cattle behind electric tapes. Before BeefCheque, our carrying capacity was probably 23 to 24 DSE; now we are at 31.2. We are carrying more stock and turning them off heavier, and we have the flexibility to manage different classes of stock differently.

Story: John Timmins, Tarwin Lower BeefCheque Group.

John compares the before and after situation: 'From set stocking and no nitrogen to nitrogen applications and daily shifts, we witnessed a 100% increase in carrying capacity. We can't afford not to do it.'

Increase Farm Operating Surplus by 10% (Objective 2.4)

Background: The evidence for change in farm operating surplus comes from farm data supplied by BeefCheque participants who completed the BeefCheque farm record book (Data Sets 2 and 3). A summary report is provided in Appendix 6.

The system of analysis follows closely that used by NRE for the South West Victorian Monitor Farm Project (SWVMFP), which has been collecting farm data each year since 1970 (see, for example, Beattie, 1999). SWVMFP calculates a number of financial benchmarks from this data, but the most relevant for this BeefCheque objective are net farm income, farm operating surplus, return to assets and beef gross margin. These are defined as follows:

- *Net farm income* is defined as gross farm income minus enterprise and overhead costs. (Gross income is total income including allowance for inventory changes.)
- *Farm operating surplus* is the net farm income less an allowance of \$30,000 per family unit for owner/operator time and management input.

- *Return to assets* is farm operating surplus divided by the value of total assets.
- *Gross margin* is gross income minus enterprise costs for a specific enterprise.

Achievements: From the average of records in Data Set 2, farm operating surplus per ha increased from -\$334 in 1996/97 to -\$183 in 1998/99 (Figure 7). **This is an improvement of \$151.**

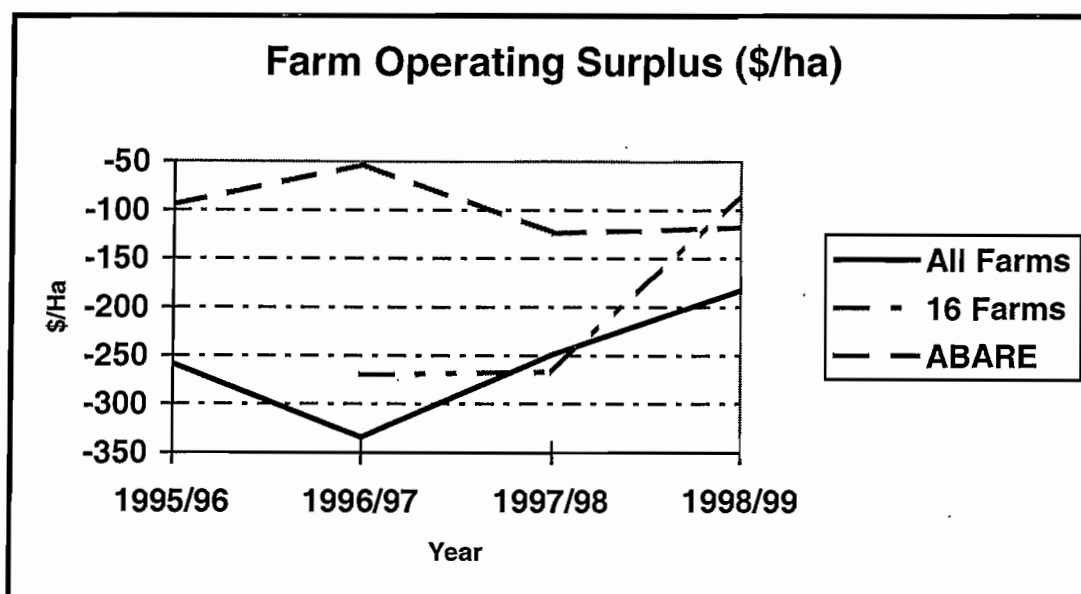


Figure 7. Farm Operating Surplus per Hectare

For the 16 farms in Data Set 3, farm operating surplus showed a similar increase, from -\$270 in 1996/97 to -\$84 in 1998/99 (Figure 7). This is an improvement of \$186. However, most of these farms (13) were in the higher rainfall areas of West and South Gippsland.

Within Data Set 3, farm operating surplus for the West and South Gippsland properties appeared to increase (from -\$294 to -\$33 per ha, or \$261) while it decreased for the Central and East Gippsland properties (from -\$163 to -\$302 per ha, or -\$139). Since, over the term of the project, approximately equal numbers of participants came from either West and South Gippsland or Central and East Gippsland, it is likely to be more accurate to average these numbers. This shows an **improvement of \$61 per ha** across the term of the project.

A similar trend occurred across the project in return to assets and gross margin. Average return on assets increased from -6.3% in 1996/97 to -1.6% in 1998/99, and average beef gross margin increased from \$167 to \$280 per ha, an improvement of 68%.

Evidence for the degree of change outside the project has been sourced from ABARE data for Gippsland and from the SWVMFP data on grazing properties (mainly sheep plus some beef) for the Western District of Victoria.

The data from SWVMFP shows that net farm income has been stable, ranging from \$93 to \$104 per ha from 1995/96 to 1997/98, and \$90 in 1998/99. Return to assets has declined from 2.6% in 1995/96 to 1.8% in 1998/99. However, most of these properties run mainly sheep.

Beef gross margins in the SWVMFP are at a lower level than Gippsland. They ranged from \$42 per ha in 1996/97 to \$140 per ha in 1998/99. Beef gross margins per DSE in the SWVMFP have increased from 1995/96 to 1998/99 by 70%. Limited evidence suggests the Gippsland gross margin per DSE may have increased at a faster rate.

Average ABARE data for Gippsland shows an increase of \$11 per hectare in net farm income from 1995/96 to 1998/99, from -\$1 to \$10 respectively. In comparison, the net farm income for BeefCheque rose from -\$37 per hectare in 1995/96 to \$84 per hectare in 1998/99. Farm operating surplus for ABARE has actually fallen slightly from -\$95 per hectare to -\$118 per hectare from 1995/96 to 1998/99, while BeefCheque farms have risen from -\$259 to -\$183 per hectare over the same period (Figure 7). A direct comparison of farm operating surplus results between ABARE and BeefCheque is difficult due to differences in the amount of owner/operator allowance that is allowed for in each survey, although the BeefCheque properties are performing better now than they were four years ago.

Discussion: The evidence presented shows that average net farm income has increased over the life of the project. Seasonal conditions and cattle prices have influenced the result. The project average net income declined from \$16 per ha in 1996/97 to -\$6 per ha in 1997/98 due to poor seasonal condition and lower cattle prices. Seasonal conditions have been characterised by below average rainfall over much of the project area coupled with extreme flooding in East Gippsland in June 1998.

Returns have improved in 1998/99 with the return of improved (but still below average) seasonal conditions and improved cattle prices. In all cases, the rate of improvement for the BeefCheque project appears greater than that shown by data from ABARE.

An often-mentioned stumbling block for producers looking to improve their profitability through increasing production is that their costs will increase. This effect can be examined by considering the cost of production per kilogram of liveweight produced and sold (Figure 8). Data generated through BeefCheque indicates that, initially, the cost of producing each kilogram sold rose considerably, especially considering that, in the second year (1996/97), the kilograms of liveweight sold climbed from 272 kg to 425 kg. This increase in liveweight sold was significantly

below the liveweight produced in 1995/96 as farms began to increase their stocking rates in response to their improved management. With the onset of the poor seasonal conditions in 1996/97, considerably more liveweight was sold than produced, and the cost of production also rose sharply.

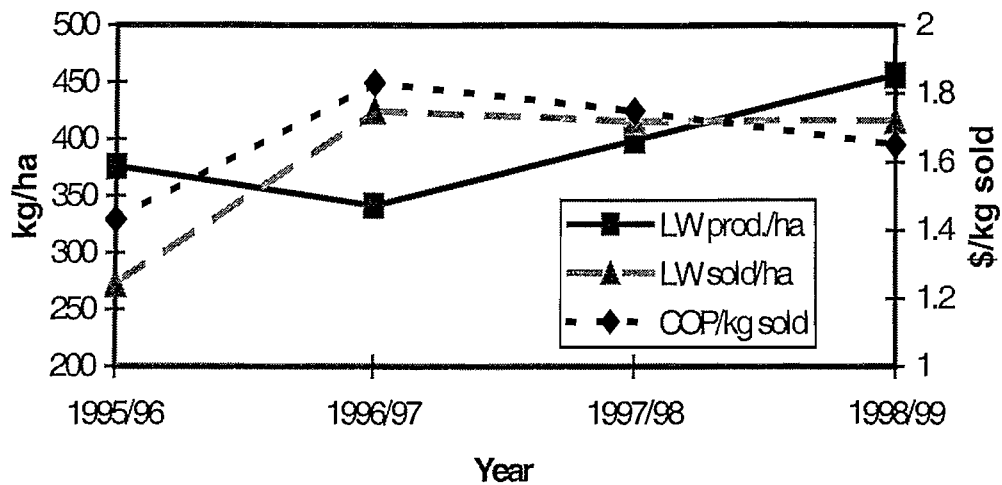


Figure 8. Liveweight produced and sold versus cost of production

By assuming that most of the rise in the cost of production due to seasonal conditions can be attributed to increased cost of supplementary feeding, it is apparent that there is also some other factor involved in the rising cost of production. Supplementary feeding only increased by 3 cents per kilogram of liveweight sold from 1995/96 to 1996/97 and by a further 4 cents in 1997/98. However, the cost of production rose by 40 cents in 1996/97, and then began to decrease slowly in the following two years.

It therefore follows that the bulk of the increase in the cost of production can be attributed to investments in farm improvements (such as fencing and fertiliser) and additional livestock undertaken to improve productivity. From the BeefCheque Farm Monitoring Yearly Reports (summarised in Appendix 6), it can be seen that per hectare expenditure on fertiliser and repairs and maintenance has risen, as has the depreciation allowance.

Also to be considered must be the effect that market prices have had on the profitability of beef production. This can be seen in the data on beef cattle profitability per kilogram of liveweight sold from 1996/97 to 1998/99 presented in Appendix 6.

By removing the owner/operator allowance and interest payments from this data, the effect of market prices on net farm income can be examined. By looking at the three years from 1996/97 to 1998/99, where the kilograms of liveweight sold per hectare

has been fairly static (425 kg/ha, 416 kg/ha and 417 kg/ha respectively), the effect of each factor can be considered separately. Consideration of this data suggests that from 1997/98 to 1998/99, there was an improvement in net income per kilogram sold of 30 cents. Of this difference, 8 cents is due to lower costs per kilogram, 7 cents to inventory build up and 15 cents to higher average market prices (from 95 cents to 110 cents). Thus if the market price had remained constant, there would have been a net improvement of 15 cents per kilogram sold.

Conversely, from 1996/97 to 1997/98, costs and inventory changes led to a 15 cent increase in this 'adjusted' cost of production. Thus, using this method over the three years, there was no net difference in the profitability per kilogram of beef sold. Some explanation of this will fall on the seasonal conditions encountered, some to the costs involved in undertaking BeefCheque principles as discussed earlier, and some to the 'loosening' of the purse strings as prices and conditions improved.

It also must be appreciated that, over this time period, liveweight production has increased significantly (from 342 kg/ha to 463 kg/ha), and it would appear that most of this increased production is now being retained on the farm to increase stocking rates. When this extra production is sold in the future, it seems reasonable that the costs per kilogram sold will fall.

Moreover, even when seasons are favourable and prices are not affecting the result, it can take many years for the investment in increased productivity to have a positive effect on net income. Improvements such as extra fencing, extra fertiliser and extra stock to utilise extra grass grown, if they are being financed from normal farm cash flow, will have a negative effect on net farm income for a number of years. This can be illustrated by the experience from a farm in South Gippsland:

Story: Paul O'Sullivan, Tarwin Lower BeefCheque Group

Historically, our place was run at district average stocking rates with poor feed utilisation through the spring. There was lots of dry matter residue at the end of summer, leading to poor feed quality in autumn. The historic phosphorus application was 8 kg P/ha – based on the traditional 'bag to the acre'.

We started making changes in 1993. The first year or so, we spent money on subdivisional fencing. We found we needed more stock, so retained a portion, which lowered our income for that year.

When we felt we could better manage our feed, we applied more fertiliser to grow more grass. We then had to increase our stock numbers again. Sheep were more profitable at the time. We had to borrow money to buy in stock. This coincided with the slump in cattle prices and bad seasons!

This situation went on for a couple of years. We found we were spending a heap more money, but our income stayed the same.

*Then the lamb market became very good and cattle prices improved. Costs stabilised at that higher level, but income significantly improved. **It took from 1993 to 1998 for this to occur.***

If we hadn't spent the money early in the piece, we would have been in a much worse position when prices dropped.

The thing that got us through was the fact that we had a plan in place of what we wanted to achieve. It got us through when the road got bumpy.

Conclusions: The estimate of **average increase in farm operating surplus** above shows two estimates of \$151 (or 45%) and \$61 (26.7%), which is an **average increase of \$106 (or 36%)**.

After allowing for market prices to have accounted for 50% of the improvement, **the average increase in farm operating surplus, net of market price increases, is estimated to be \$53, or 18%** This more than meets the **project target of +10%**.

The farm operating surplus figure is likely to improve in 1999/2000 because of improved seasonal conditions over most of Gippsland. The exception is Central Gippsland, which still remains unseasonally dry.

Story: Rob Bell, Focus Farmer, Fish Creek BeefCheque Group

The build-up phase was the most difficult, with bad seasons and prices.

The BeefCheque Group gave us the balls to try it – it fired me right up!

It [BeefCheque] helped us out of a low-profit situation a few years ago. We are getting better value from our fertilisers, and our cattle are quieter.

The only thing to fear now is a really wet winter – but we do have options. We can't change seasonal conditions, but we can plan for them.

I've found I've got more time now – I'm working smarter, not harder.

3.8.2. Develop a Practical, Integrated Cattle and Pasture Management System (Objective 3)

The method of calculating pasture growth has been outlined in Section 3.8.1.2.

The main principle behind the practical, integrated cattle and pasture management systems that were developed during the project was the principle of optimising perennial ryegrass growth by allowing this ryegrass to grow to the three-leaf stage before grazing. This principle is discussed in O'Brien and Curtis (1994) and PROGRAZE (1999).

The grazing management strategies adopted were based on a rotational grazing system. A rotational system is relatively easy to adopt on a dairy farm because

management has to contend with relatively few mobs of cattle, land area is usually not large, and fencing on a dairy farm has usually been organised for a rotational system. On a beef farm, there are usually more mobs of cattle, fencing is usually not set up for rotational grazing, and the land area is much larger.

Grazing management systems to cope with these differences were developed by consultants and focus farmers during the monthly focus farm walks. This usually resulted in a smaller number of cattle mobs, some flexibility as to what constituted a cattle 'mob', and some lateral thinking about how paddocks could be further subdivided using electric fencing.

The main principle of grazing perennial ryegrass at the three-leaf stage was achieved by manipulating the average amount of pasture (pasture cover) on the farm on a seasonal basis. In autumn, the aim was to increase the average pasture cover, hold this level (feed bank) in winter, graze into the feed bank at the end of winter, control pasture growth in spring to maintain a dense sward, and remove dry pasture residues by the end of summer.

The techniques employed by individual focus farmers to do this are described in detail in the focus farm report document that accompanies this report. The main techniques employed were feed rationing, supplementary feeding, strategic fertiliser applications, management of stock condition, timing of weaning, pasture topping, fodder conservation, and various feed allocation strategies, such as electric fencing.

To gather the data on which to make grazing management decisions, focus farm walks were conducted monthly. Data was collected on pasture cover on the farm, animal feed requirements, and supplements fed for the past month. This data was then used to calculate pasture growth and days of feed ahead. The data was also used for forward feed budgets, in discussion with the focus farmer and the BeefCheque group.

A template and instructions for the calculations used by the consultants was developed by W. Fuller, NRE, in 1996. This is called the BeefCheque Farm Walk Record Sheet (Appendix 5).

To enable beef producers to collect and understand the data, the necessary skills had to be provided by the BeefCheque program. These skills (and other issues regarding BeefCheque discussion groups) have been described by Linden (1999). The skills include plant factors, animal factors, and animal and plant interactions.

The provision of these skills was needed not only for normal grazing management decisions but also for making feeding and selling decisions as a result of the exceptionally dry conditions experienced during most of the project.

3.8.3 Conduct Regional Surveys of Attitudes and Practices and Monitor Progress (Objective 4)

Focus Farm Monitoring

As well as being the focus for BeefCheque group monthly meetings, focus farms were also an important source of physical data to monitor change over time. Measurements taken by NRE project officers were:

- Monthly pasture cover, by visual assessment over the whole farm.
- Monthly stock feed requirements.
- Monthly pasture growth. This was calculated by two methods: firstly, by calculation using average pasture cover, supplements fed and stock requirements; and secondly, by visual estimation of change in those paddocks not grazed.
- Yearly measurement of botanical composition.

This data is shown in the focus farm reports document accompanying this report (summarised in Appendix 6), and the results are discussed elsewhere in the report.

BeefCheque Farm Record Book

To collect financial data from BeefCheque members, a financial analysis software package was developed for the 1995/96 year by a private contractor. Unfortunately, the computer program would not release inputted data. Bill Fuller (NRE Beef Officer) then developed the farm record book in 1996 to record both financial and physical data. After completing the farm record book, BeefCheque participants forwarded two data input sheets for processing. This enabled both financial and physical data to be analysed. A spreadsheet program was developed by NRE that allowed production of the financial and physical productivity measures used elsewhere in this report. A summary of four years of data is shown in Appendix 6.

The farm record book aimed to address a number of objectives. These were:

- Individual feedback to producers on their financial position together with key physical indicators.
- Financial and physical data for comparative analysis at group meetings and workshops.
- Collection of data to measure the progress of the project in meeting its objectives.

Each participant received an individual report. Group data was also provided for discussion by individual groups, and subregional reports were produced for subregional workshops held in 1997/98 and 1998/99 (Patterson, 1998; Beattie,

1999).

An internal evaluation of the farm record book was conducted in 2000 by Rabi Maskey and is provided in Appendix 3.

NRE Evaluation Surveys, 1997 and 1999

The BeefCheque system relies on producers observing management and practice change on the focus farm and then using appropriate techniques on their own farms. NRE conducted a survey two years after the commencement of the project to gauge how much practice change was actually taking place on BeefCheque farms. By this stage, most BeefCheque group members had been through a PROGRAZE course and were at or near the end of 18 visits to the focus farm with the consultant.

BeefCheque participants were asked to complete a 3.5-page self-completion questionnaire at a November or December normal BeefCheque group meeting in 1997. This survey showed that participants were trying a considerable number of new grazing management activities (see Appendix 1).

The survey was repeated by the groups in December 1999 or early 2000 to see if, after trying these practices, participants were continuing to use them. Alternatively, had the use of these practices slipped back? Experience has shown that practice change can slip back when practice change is not reinforced. The 1999 survey showed that practice change on BeefCheque farms has continued at a high level with increased confidence (see Appendix 2). This shows that reinforcement measures in the program plus the general environment of BeefCheque, which is supportive of change, have been successful.

Evaluation by Agribusiness Research Unit, Monash University

The two primary objectives of this evaluation were:

- To measure change with those involved in the BeefCheque program.
- To measure the spin-off effects amongst producers not directly involved in the BeefCheque program.

The evaluation consisted of three stages. These were market research with three focus groups, a baseline survey and a final survey.

Stage 1: The market research in March 1996 established that it would be useful to measure change, over the period of the project, in three areas. These were production versus marketing, cost minimisation versus productivity and animal versus pasture as a profit driver.

These three areas were incorporated into a 'pasture index' to be used in the next two stages.

Stage 2: The baseline survey consisted of a survey in 1996 of 200 beef producers not in BeefCheque. In addition, BeefCheque participants completed the same survey.

Stage 3: This has not been completed at this stage.

3.8.4 Provide an Educational Program Linked to On-farm Measurement (Objective 5).

The aim of the educational program in BeefCheque was to provide educational opportunities and relevant technical inputs in a supportive environment. The educational program was provided initially by PROGRAZE. This was followed by on-farm demonstrations of putting the principles into practice by specialist consultants (and later NRE) working with focus farmers, with group members observing and participating at monthly focus farm walks. Consultants, NRE scientists, group members and other professionals provided relevant technical inputs, with the paddock as the classroom. The supportive environment was the BeefCheque group and the support given to groups (WIGS courses, facilitator training) and the farm environment.

On-farm measurement was provided by specific measurements by NRE project officers, monthly reports on the focus farms, and yearly monitoring and analysis of performance via the BeefCheque farm record books.

BeefCheque was delivered in groups in an adult-learning, non-threatening, on-farm environment. Members met on a regular basis on a focus farm and 'walked' the paddocks assessing pastures, livestock and the required pastures, and feed on offer, to meet livestock growth, gain or maintenance rates.

The program was delivered to groups, each group having a minimum of 10 members, and was facilitated by an experienced NRE facilitator. The facilitator attended all group activities. In addition, each group had access to a technical expert who attended about half the group meetings.

As well as looking at pastures and livestock, participants spent time looking at the financial results of their action. To make these discussions useful, participants were encouraged to participate in a financial and physical analysis of their farm business.

Story: Beryl Dodds, Kongwak BeefCheque Group

Support from our group gave us confidence. Learning about how grass grows, plus confidence from the group. It's been very important to be able to adapt the principles [of PROGRAZE] – we have been assisted in this by being in our group.

What Were the Prerequisites?

There were no prerequisite qualifications to participate in the program. Participants who were familiar with grazing management principles or who had completed PROGRAZE or Triple P were able to go straight into groups. Participants who were not familiar with PROGRAZE were able to undertake a PROGRAZE course as part of BeefCheque.

Focus Farm

Because BeefCheque was dedicated to managing in a dynamic and rapidly changing environment, participants needed to be able to look at the same paddocks with the same livestock on the same farm on a number of occasions over time. Regular visits to the same focus farm allowed participants to have an impact into the decision-making on that farm and to return to witness the resulting outcome. Over time, a close bond was formed between the group and the focus farmer. It's important to stress that in the end each focus farmer was free to choose to ignore the advice given by the group; and ultimately, was the focus farmer who was responsible for decisions and the actions that flowed from them.

When choosing a focus farm, the important factors affecting the choice were found to be that the focus farmer must:

- Be prepared to have a go at adopting BeefCheque principals.
- Have a farm that is reasonably representative (not the biggest or best or smallest etc.).
- Be convenient for the group to get to.
- Have adequate and reasonable facilities.

Story: John Mulvany, BeefCheque Consultant

Running a focus farm is a nightmare for a consultant, until people recognise how they are supposed to work. Once people become used to their role, that is, to look through the eyes of the focus farmer, with his objectives but their ideas, an offshoot is that they look at themselves differently. They become more receptive themselves – it breeds an openness that means they don't miss out on opportunities.

If they hadn't had focus farms, i.e., just discussion groups, it wouldn't have worked. Act, observe, review – any discussion group doesn't have that system.

I was apprehensive about it initially. The beef situation is such a challenge – the number of mobs, lack of infrastructure, a lot of people with strong lifestyle objectives – a lot of negatives. When it became clear there were no absolute rules and that the group and the focus farmer set the direction, it meant responsibility was spread across the group. Outcomes varied enormously across focus farms. There was flexibility under the umbrella of looking at pasture and animal interactions.

Technical Expert

Each group had the services of a technical expert available to it. The technical expert led the farms walk and the discussion and was equipped to answer questions on soils, plants, fertilisers, livestock, grazing and feed manipulation.

All the technical experts used in the project had considerable experience in their field; brought a practical, down-to-earth approach to the activities; and added motivation to the groups.

Story: Rob Eppelston, Yarram BeefCheque Group

It all started a couple of years ago when I was persuaded to come to a BeefCheque farm walk after talking to [BeefCheque] member at a social function. With a bit of spare time in the autumn, I reluctantly agreed.

During the first couple of walks, a certain fellow named Jeff [Urie] got my attention (not just because he always wore shorts, even in winter). His enthusiasm and preaching on pasture management issues were always backed up by many success stories. Time after time we questioned his methods, but he would always shoot us down with facts and figures to prove his way was right.

Well, after a few walks with Jeff, I got thinking. I enrolled in the next PROGRAZE course and divided a small 6.5-hectare paddock into 15 cells and strip grazed it to test these theories myself. Over the last couple of seasons, the paddock, which used to run 8 DSE/ha, has now been running 12 DSE/ha during the drier mid summer-winter periods and 35 DSE/ha during the late winter-early summer periods.

All I can say is it definitely works when there is enough moisture for the grass to grow. If you could irrigate in the drier times, it seems to be very sustainable.

Satisfied with the theory, and because we have no irrigation, I am currently in the process of dividing a 32-hectare paddock into five blocks. (These blocks can be stripped grazed, three strips per block if desired, giving 15 strips total). Stock will be moved once per week giving a four-week break to each block. The intensity won't be as high as true strip grazing, but I feel will be more sustainable in a non-irrigated property that has very dry summers and good winter-spring periods.

Meetings

At the first meeting of each group, the project manager (Ken Lamb) joined the facilitator in outlining the program in detail and ensured that group needs were understood.

There was an explanation of the principles of pasture production, grazing animals, animal needs, and pasture and animal assessment.

Right from the beginning, participants began to practise assessment of pastures and animals and recorded these assessments.

Once the group started to work well together, there was room for further activities to be introduced. These included nutrition, genetics, fodder conservation, paddock subdivision, water quality and a range of business issues.

Goal Setting

The program encouraged individual participants and the groups to spend some time working out what they really wanted out of their farming and their group and, where possible, to direct group activities to these areas.

Physical and Financial Analysis

The program developed a comprehensive physical and financial analysis. Although it wasn't compulsory, members who participated in the analysis found it extremely useful in the management of their business.

The physical and financial analysis collected information via the farm record books. That information was then analysed so participants could see the effects on the bottom line of action in the paddock.

Summary

Participants found the program instructive and motivational. The detail was tailored to suit each group, but the overall aim remained constant:

- Grow More Grass
- Utilise More Grass
- Produce More Beef
- Make More Money

Story: Joy & Peter Brand, Yarram BeefCheque Group

Both Peter and I believe that we would not have survived the last three years of drought had we not become part of BeefCheque. When we started out, the farm was divided into about 23 paddocks; but now we have about 54 individual areas to graze on. Not only has BeefCheque taught us a lot, it is also given us an important source of farmers to tap into for advice when necessary and allowed us to make a lot of farming friends.

3.8.5 Other End Results

The project has also had a number of other beneficial outcomes that are difficult to measure or quantify:

- An innovative, cooperative extension program for beef producers has been successfully developed and trialed in the Gippsland region. The main reasons for success were that the program offered relevant learning opportunities and technical inputs in a supportive environment.
- The BeefCheque name has widespread recognition in Gippsland (J. Caldwell, pers. com.).
- A beef producer network has been established that is likely to be receptive to further educational programs, especially if the teaching method and style are the same as have been employed in BeefCheque to date.
- Grazing management and budgeting skills have been developed that should assist producers to better manage difficult seasonal conditions. The peer support and NRE support that was available through three very difficult dry years was especially appreciated.
- An extensive set of useful technical data has been produced from 14 of the 15 focus farms over five years.
- An aim of the BeefCheque Board of Management, not stated as an objective of the project, was to provide an opportunity to enhance the information level and skills of professionals involved in the project. Both the consultants and NRE staff have increased their skills and knowledge in the practice of grazing management.
- Financial budgeting techniques and skills have been introduced to participants but need further development.
- Individuals in the program have developed a range of skills other than grazing management. This varies from management expertise to computers to skills in other enterprises (such as dairying).
- Producers have been exposed to a wide range of private and public agribusiness professionals and are now more likely to use them where appropriate.
- Producers have benefited both work-wise and personally through participation in such programs as the WIGS course and from interaction within their group and with other groups.
- Despite the name, some 20% of BeefCheque participants have sheep in their grazing system. These participants acknowledge that the BeefCheque techniques apply equally well to their sheep grazing enterprise as to their beef enterprise. There was a logical extension of the project into the sheep industry,

resulting in BESTWOOL 2010 groups using the program and funding it from their own resources.

4. Conclusions

The BeefCheque project has met or come close to the objectives set for it. This is largely the result of a strong commitment by all players in the project because all players have had strong ownership.

The following comments relate to the specific objectives and key indicators of success set out in the contract and shown at the start of this report.

4.1 Objective 1: Develop and Field Trial an Innovative, Cooperative Extension Program for Beef Producers in Gippsland Modelled on Target 10

The BeefCheque program has been innovative in the use of a number of elements to achieve the specific outcomes specified in objective 2. These elements were an **educational** component, an **on-farm demonstration** component, a **peer support** component, and a **benchmark** component. As detailed elsewhere in this report, these elements have involved specific course work, focus farm walks, a high level of support given to the BeefCheque groups right through the project, and monitoring and evaluation through the project.

The on-farm demonstration component has been an important component as, according to O’Keeffe (1996), graziers develop their attitude to a new practice by trying it first. It is therefore important that the first experience is a successful one and that there is opportunity for follow up if there are any problems. The many opportunities given in BeefCheque during focus farm walks to see the effect of grazing management changes made it much easier for producers to then try these changes on their own property and to discuss any problems.

The project has also been innovative by having a high level of producer involvement in the management of the project, with a beef producer as project manager and a producers forming the majority of the Board of Management. It has also been innovative in its use of both public and private providers and the training offered to group members (WIGS, facilitator training).

The BeefCheque name is now well known and well regarded in Gippsland (J. Caldwell, pers. com.). The BeefCheque name now offers a very suitable vehicle for the delivery of further beef extension activities.

4.2 Objective 2: Use More Pasture (+25%), Grow More Pasture (+20%), Produce More Beef (+10%), Make More \$ (+10%)

The achievements in this area should be seen against the exceptionally dry conditions in Gippsland for most of the project period, particularly in Central and East Gippsland. From July 1996 to June 1999 (36 months), rainfall was below average for 27 months in the whole of Gippsland and was at times significantly below average. Also in East Gippsland, June 1998 was subject to severe flooding.

4.2.1 Pasture Consumption (Target +25%)

Evidence from the BeefCheque farm record books has shown that the target increase in pasture consumption for the project of 25% was almost reached in those areas (West and South Gippsland) that, even given the exceptionally dry conditions, had some potential to improve.

The process of calculating pasture consumption has been an excellent one for focusing producer attention on pastures rather than on animals. It was particularly useful in the three-day introductory course when participants calculated their own figures and the range of results could be highlighted.

85% of respondents to the second NRE survey (Appendix 2) believe they have increased pasture utilisation since joining the program.

4.2.2 Pasture Growth (Target +20%)

As described in the conclusions to 'Increase Pasture Grown by 20% (Objective 2.2)' in Section 3.8.1, the project was not able to show any discernible trend in pasture growth. Some of the possible reasons for this are:

- Large seasonal variations experienced during the project (drought and floods) may have masked the impact of grazing management on pasture growth.
- Measurement techniques used in the project were not sensitive enough to measure small changes in pasture growth.
- The grazing techniques used in BeefCheque to keep pastures in under control in spring (by keeping them in the vegetative stage for longer) has the effect of increasing quality but reducing pasture growth in late spring.

The project has resulted in an increase in liveweight output and therefore metabolisable energy harvested. This is likely to have occurred from a combination of increased digestibility, increased pasture utilisation and perhaps an increase in pasture growth (particularly in winter).

4.2.3 Beef Liveweight Output (Target +10%)

Evidence from the BeefCheque farm record book indicates that the target was reached in South and West Gippsland (+29%); and even given the seasonal conditions, liveweight output in Central and East Gippsland still increased by an estimated 6%. Overall project achievement was an estimated +18%.

Beef liveweight output has been a very useful non-financial indicator of improvement in the project. It is also a useful check on the pasture consumption figure (there is not much point increasing pasture consumption unless liveweight output also improves).

4.2.4 Operating Surplus (Target +10%)

This was the hardest indicator to evaluate because of the effects of changes in market prices coupled with poor seasonal conditions. Also, the number of farms completing the financial information varied from year to year.

However, evidence presented in the report shows that average farm operating surplus has increased over the life of the project. The average increase was \$53, or 18%.

88% of respondents to the second NRE survey (Appendix 2) believe the program has or will result in higher returns.

The increase in farm operating surplus is expected to continue because of improvement in seasonal conditions. Also, any increase in farm operating surplus can be delayed because of the increased costs of extra fertiliser and farm structures (fencing, water) that can be incurred when changing or improving grazing management practices. It takes time for the improved productivity to show up in net farm income.

The difficulty of calculating a farm operating surplus for all participants over five years, suggests that physical indicators are a more reliable indicator of overall performance. Accurate financial data may be best collected by using a subset of the participants.

4.3 Objective 3: Develop a Practical, Integrated Cattle and Pasture Management System

The BeefCheque farm walk record sheet (Appendix 5) has developed from the focus farm walks. It is a practical method for evaluating the current feed position and an excellent basis for discussion of short- and medium-term management options. The farm walk approach could be developed into an excellent module on grazing management. A description of the whole approach would also make an excellent farmer-friendly publication.

The BeefCheque program has been successful in demonstrating new grazing techniques.

In the second NRE survey (Appendix 2), feed budgeting has been nominated as an area needing more practice and would be a useful area for a refresher activity.

The grazing management principles on which the project is based rely on the growth stages of perennial ryegrass (one-leaf [too soon to graze] through four-leaf [should have grazed earlier]) rather than the height of the ryegrass. From the commencement of the project, Gippsland has experienced four years of below average rainfall; and through the regular farm walks, it became evident that perennial ryegrass plants could reach their desired grazing stage at a much lower height than previously understood. It had generally been agreed that ryegrasses should be grazed at the three-leaf stage, which was often determined by the height of the grass rather than physically counting the leaves on tillers. However, through the dry periods, much of the ryegrass reached the three-leaf stage when only 50 mm high and, if grazed, would regrow, albeit to a similar low height.

4.4 Objective 4: Conduct Regional Surveys of Attitudes and Practices and Monitor Progress

4.4.1 NRE Surveys, 1997 and 1999

Both NRE surveys show that a high level of practice change has occurred in the program (see Appendices 1 and 2). The second NRE survey shows that 75% of respondents are using five or more new grazing management practices.

The surveys also show participants continue to be very positive about the program, with 92% of respondents saying they intend to continue with BeefCheque.

4.4.2 Focus Farm Monitoring

The focus farms have been extensively monitored, and a useful data set has been produced. The data on pasture growth will be very useful data for future feed budgeting and would make a useful addition to any publication on this topic.

4.4.3 BeefCheque Farm Monitoring: The Farm Record Book

The farm record book had a number of objectives to meet (individual feedback, comparative analysis, and monitoring of the project). These objectives have, to a certain extent, been in conflict. A separate report (provided as Appendix 3) has suggested ways of improving the uptake of the farm record book by individual producers. Briefly, these are produce a better designed and more targeted record book, use producers who are using it to promote it, and invest more resources for its efficient implementation. To achieve a high level of success, the same degree of planning and producer involvement as that provided for the grazing management program part of the program is likely to be needed.

4.5 Objective 5: Provide an Educational Program Linked to On-farm Measurement

The BeefCheque program has been successful in linking educational messages on grazing management with on-farm management changes and then measuring the effect of these changes.

The key has been the focus farm. Grazing management principles were outlined in the three-day introductory course and the following five sessions of PROGRAZE. The practical use of these principles was then demonstrated by consultants and NRE staff on the focus farms. A key element of the success of BeefCheque has been the use of the paddock as the classroom. As outlined by O’Keeffe (1996) and others, most graziers prefer the ‘trial and error’ style of learning. With BeefCheque, producers have been able to experience the focus farmer trying out new grazing management practices, then try these practices themselves. At follow-up focus farm walks, producers can compare their experience of the new practices with the focus farm experience.

The focus farms have also enabled producers to experience grazing management practices in action over time and over a wide range of seasonal conditions. Thus, grazing management changes are reinforced.

This ‘experiential’ style of learning would be important in any future extension projects.

4.6 Achievement of Key Indicators

The following comments relate to the key indicators (KI) of success for the project.

4.6.1 KI 1: Applicable to Most Beef Producers

The BeefCheque groups successfully covered all of Gippsland, which is diverse in climate, property size and range of producers.

4.6.2 KI 2: Sustainable - BeefCheque Can Continue Without Further Funding and Is Environmentally Sustainable

Most groups intend to continue. Environmental issues will be addressed with a PROGRAZE Update course. The main environmental issue is nutrient runoff, and proper use of fertilisers has been discussed during the project.

4.6.3 KI 3: Profitable

Increase in net farm income was achieved. 88% of respondents to the second NRE survey (Appendix 2) said they believed the program has or will result in improved returns.

4.6.4 KI 4: Expandable Beyond a Target of 180

BeefCheque was based around the formation, in 1995/96 and 1996/97, of 15 groups of 15 producers each, a total of 225 producers. Some 420 producers have been through the program, with 250 producers being active in the project at any one time. Producers have left the project as a result of properties being sold, producers and managers leaving the district, producers changing their beef or sheep enterprise to dairy, and property subdivision. Producers have also joined after the start of the project as a result of the positive publicity that has continued through the life of project.

4.6.5 KI 5: Transferable Beyond the Gippsland Region

BeefCheque has been extended to the South West and North East regions of Victoria.

4.6.6 KI 6: Need Productivity and Profitability Benchmarks

Productivity and profitability benchmarks were developed through the BeefCheque farm record books.

4.6.7 KI 7: Develop Indicators to Make Sure the Project Is on Track

Indicators that indicated the project was on track were success of the groups, growing membership, and surveys conducted that included measures of success and satisfaction with the project.

4.6.8 KI 8: Need to Include Return on Investment and Effective Farm Surplus, Not Just Gross Margins

These were included in the BeefCheque farm monitoring system (BeefCheque farm record book).

4.6.9 KI 9: Monitoring Indicators May Include Other Things Like Animal Health

A range of other indicators was developed and reported in group comparative analysis, such as DSE per 100 mm rainfall, DSE per 25 mm over 250 mm, cost structure etc. Animal health was measured informally during focus farm walks.

4.6.10 KI 10: Objectives Should be Clear, Quantifiable and Time Bound

Achievement of objectives has been measured in the report.

5. Recommendations

- The BeefCheque name has developed wide recognition in Gippsland through the farming press and has developed strong loyalty with participants. In a marketing sense, it could be said to have developed the characteristics of a brand. The funding providers should consider how they could capture the marketing benefits that a brand can bring. From the point of view of the consumer, he or she is more likely to respond more favourably to a brand they have some allegiance to rather than to a new brand. The BeefCheque name now offers a very suitable vehicle for the delivery of further extension activities.
- Given the difficulty of collecting financial data across the project, more thought should be given to tracking physical measures across the project and tracking accurate financial data from a subset of producers with adequate resources to monitor and collect the information.
- Collecting detailed financial information across the project has been an uphill battle and needs a rethink. BizCheck and Enterprise Health Check are alternatives that will be offered through the MLA's EDGENetwork. It may be that enhancements to that program could offer physical monitoring, as well as financial monitoring. A better-designed and more targeted farm record book is required. The recommendations from R. Maskey's review of the farm record book (see Appendix 3) should be matched against any modules available under the EDGENetwork.
- There is a core of producers who now do the full BeefCheque monitoring. This is very useful Gippsland beef industry data and should be maintained. It is recommended that this monitoring continue with a core of specific cooperators but with improved quality control. This data could be collated in a similar fashion to the South West Victorian Monitor Farm Project.
- The BeefCheque farm walk approach should be written up as a farmer-friendly publication. Consideration should be given to development of a grazing module under the EDGENetwork.
- Feed budgeting should be offered as a follow-up activity, perhaps under the PROGRAZE Update module.
- Pasture growth data from the focus farms should be incorporated in a publication on feed budgeting.
- A key player in the project has been the focus farmer. More support needs to be given to focus farmers in the future. This could take the form of a quarterly or half-yearly review with focus farmers on a subregional basis. Also, future programs should give more support for collecting financial data.

- The 'experiential' style of learning should be incorporated in any future extension projects.

6. References

This report refers to other reports and aids used in the extension process. These are available from the Department of Natural Resources and Environment, should the reader of this report wish to receive further information.

Publications

- Balm, K., McWaters, V., Fuller, W., and Walsh, S. (1998) Gippsland BeefCheque Review, Integra Pty Ltd. Internal Report
- Beattie, Lee. (1999). BeefCheque Analysis, 1998-99, Gippsland. Department of Natural Resources and Environment, Victoria. Internal report.
- Bennett, C. (1975). Up the hierarchy. *Journal of Extension* 13 (2), pp 7–12.
- Boomsma, J., McDonald B. and Walton, M. (1996). Target 10: The First Three Years. Agriculture Victoria.
- Fuller, W. (1995) BeefCheque Farm Record Book. Department of Natural Resources and Environment, Victoria.
- Linden, N. (1999) Process of Running and Maintaining BeefCheque Discussion Groups. Department of Natural Resources and Environment, Victoria. Internal report.
- O'Brien, G., and Curtis, A. (1994). Pasture Management for Dairy Farmers. Department of Agriculture Victoria, Melbourne.
- O'Keeffe, M. (1996). Evaluation of BeefCheque: Stage 1, Qualitative Research. Monash Agribusiness Research Unit. April. Internal report.
- Patterson, A. P. (1998). BeefCheque Analysis, 1997-98, Gippsland. Department of Natural Resources and Environment, Victoria. Internal report.
- PROGRAZE (1999). Prograze for Victoria. Department of Natural Resources and Environment, Victoria. 2nd edition.

Personal Communications

- J. Caldwell, AgChallenge (consultant to Gippsland Agribusiness Forum), meeting, June 2000.

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On farm

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BeefCheque focus farm reports

(1996-2000)

On farm

Final Report prepared for MLA by:

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Natural Resources
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AGRICULTURE
RESOURCES
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M.728 “BEEFCHEQUE”

Focus Farms Reports (1996 – 2000) Central and East Gippsland Focus Farms

Reports based on monthly farm walks, other collected data and observations made
by NRE staff and BeefCheque Group members

Edited by Mark Brammar, NRE Leongatha

Written by Mark Brammar and Stuart White, NRE Maffra

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BAIRNSDALE BEEFCHEQUE FOCUS FARM

1. Background

Focus Farmers:	Dennis & Rosalie Stringer
Starting Date:	September 1996
Consultant:	Wolfie Wagner/Jeff Urie, Ag-Challenge
Location:	Ridgeway Lane, Forge Creek
Property Size:	Total of 293 ha on 4 blocks
Average Rainfall:	650 mm
Soil Type:	Grey loam/Grey brown sandy loam
Stock (Sept 1996):	200 cows/calves, 42 springing heifers, 40 steers, 30 heifers, 130 ewes, 185 lambs
Calving:	25% July/August, 75% September/October
Lambing:	April and August
Replacement Policy:	Self replacing Angus herd
Market:	Fat lambs, vealers, stores, bullocks
Stock (June 2000):	140 July calving cows, 44 springing heifers, 400 ewes and lambs

2. Focus Farm Objectives & Production Aims

- Improve herd genetics
- Improve pastures
- Improve grazing management
- Cull poorer producing cows
- Increase water points for ease of grazing management

3. Production Summary

Performance measure	1995/96	1996/97	1997/98	1998/99	1999/00
% DSE cattle	95	85	89	77	NA
% DSE sheep	5	15	11	23	NA
Stocking rate dse/ha (cattle & sheep)	20	21.0	16.4	12.0	NA
DSE/ha (cattle & sheep)/100mm rainfall		3.1	5.7	3.4	2.3 NA
Total liveweight output (kg/ha)	290	252.3	264.0	281.6	NA
Total liveweight (kg/ha/100 mm rainfall)		44.6	68.6	55.0	53.2 NA
Pasture consumption & conservation (t DM)		NA	4.9	4.21	3.66 NA
Pasture grown (t DM)	NA	NA	1.408	4.583	2.728
Pasture grown (t DM/ha/100mm rainfall)	NA	NA	0.316	0.841	0.536

4. Main Achievements

- 4.1 Maintaining paddocks as much as possible in a suitable state to produce maximum amounts of quality pasture, and take advantage of favourable growing conditions.
- 4.2 Good use of cost-effective supplements to maintain stock during periods of low rainfall as well as immediately following good rainfall, to assist pasture recovery.
- 4.3 Pasture productivity in relation to keeping stock on-farm, versus agistment or selling, during tough times.
- 4.4 Strategic use of nitrogen fertiliser to boost pasture growth.
- 4.5 Increased number of paddocks and water points for ease of grazing management

5. Summary of Activities

Pasture Management

Implementation of rotational grazing of paddocks, to provide control over pasture consumption and maximise pasture growth, particularly during periods of low rainfall.

In 1996, when there was a spring feed surplus, the paddocks were prioritised so that the best paddocks were managed to maintain pastures in the productive, vegetative state. Poorer quality pastures could be left to go long and stalky (sacrificed) if necessary.

Use of slashing/topping to help remove clumps and stalky grass during late spring, in conjunction with controlled grazing. Pastures slashed as low as possible to achieve maximum benefit of quality regrowth. Stock were not pushed too hard when grazing these paddocks, so that they could select the better quality feed and leave the stalky, clumpy pasture.

The importance of not allowing pastures to be “backgrazed” during strip grazing was proven during relatively dry conditions in September/October 1997. In one paddock the use of a back fence resulted in a difference of 600 kg dry matter pasture cover between the first grazed and the last grazed section of the paddock. This meant that an extra 2400 kg of pasture feed had been grown over the period the stock were grazing the paddock.

Avoiding grazing paddocks too low, during periods of low rainfall (particularly during summer and autumn), to assist pasture recovery following adequate rainfall. This was put into practice to its greatest extent during the drought period of 1997/98. Average pasture cover was not allowed to go too low (below 800 kg DM) at any stage, although there was “blowing” of soils in some paddocks on occasion.

Allowing the pasture cover to increase following the autumn break, by continuing with supplementary feeding and a slow grazing rotation. Supplementary feeds used at various times were corn and maize silage, corn cobs, pasture silage, hay, barley/pea silage, carrots and beef cubes.

In 1997, conditions remained very dry throughout the winter and spring and supplementation was continued to give paddocks a chance to grow sufficient pasture to allow pasture cover to reach a satisfactory level for the start of July calving. There was also a heavy reliance on agisting stock off the property during the summer of 1996/97 and throughout the following year. By February 1998, all the cattle were agisted off the property. Only 109 ewes and 5 bulls remained.

Grazing and fertiliser were used to improve the pasture composition of a paddock. This was instead of cropping, followed by re-sowing. The paddock initially was fog grass dominant, with some rye grass and clover.

A simulated grazing trial was set up to determine the effects of autumn grazing intervals on winter growth rates and production. Results indicated that grazing at reasonable intervals produced more feed than leaving the area locked up for a long period.

Turnips were used to help fill the summer feed gap in 1996/97. The crop was poor and low-yielding but nevertheless, it helped feed the weaners.

A number of paddocks were over sown with various varieties of short-term ryegrasses in spring 1998, following the drought. They assisted in filling-in bare soil and proved to be very productive. They responded well to summer rains during 1998/1999, providing a considerable quantity of fresh feed.

A notable fact was the very good survival of ryegrass plants through the drought. This was thought to be due mainly to the decision to destock, and hence avoid overgrazing.

Stock

In April 1998, after a few months of most of the stock being agisted off the farm due to drought conditions, there was a need to bring home some of the cows and calves. After calculating costs of a couple of options, it was decided that the cheapest option would be to wean the calves early and provide supplementary feed of silage and beef cubes. This would allow the calves to continue growing at 0.5 kg/day or better. The dry cows could be strip grazed and allowed to gradually lose body condition.

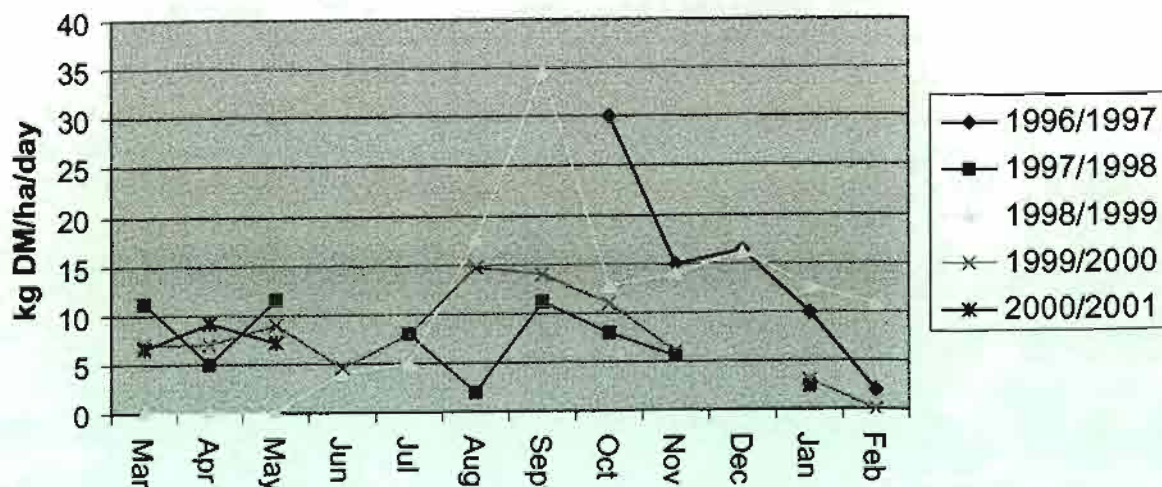
The relative costs of agistment, versus feeding cows and calves at home, were also calculated. It turned out to be much cheaper (and easier), with agistment costs at \$6 per head, to agist stock if possible.

6. Pasture Growth Rates

Kilograms of Dry Matter/ha/day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		11.1	0	7	6.6
Apr		5	0	6.9	9.1
May		11.6	0	8.9	7.1
Jun		NA	4	4.6	
Jul		8	5	8.0	
Aug		2	17.5	14.8	
Sept		11.1	34.7	14	
Oct	30	7.9	12.8	10.9	
Nov	15	5.6	14	6	
Dec	16.4	NA	16.2	NA	
Jan	10	2.4	12.5	2.9	
Feb	2	NA	10.7	0	

**Bairnsdale Focus Farm. Pasture Growth Rate.
Oct 1996 - June 2000**



7. Pasture Cover

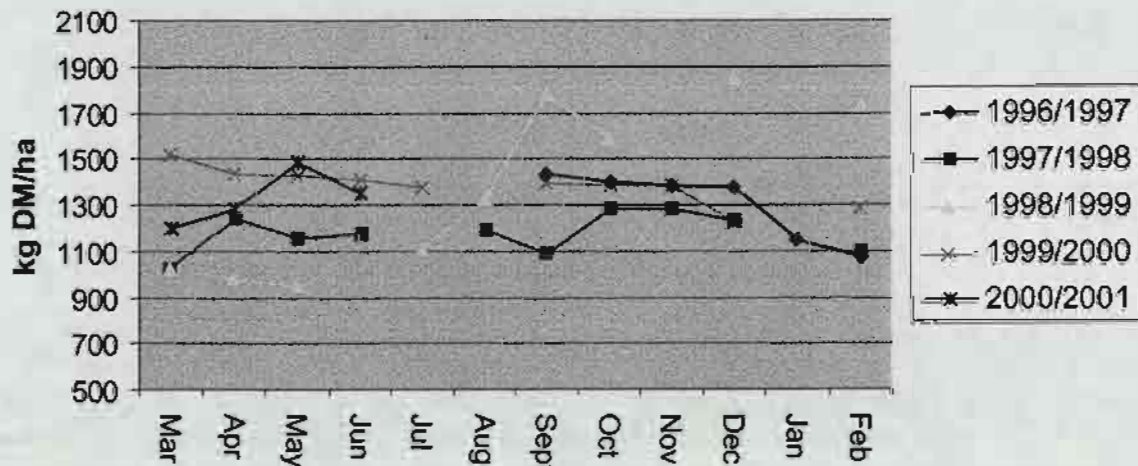
Kilograms of Dry Matter/ha

1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
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BeefCheque Final Report (1996 – 2000)

Mar		1020	1020	1519	1198
Apr		1238	980	1438	1281
May		1156	950	1423	1486
Jun		1171	NA	1412	1348
Jul		NA	1104	1379	
Aug		1191	1324	NA	
Sept	1433	1090	1780	1389	
Oct	1403	1279	1588	1387	
Nov	1387	1280	NA	1388	
Dec	1380	1234	1850	1221	
Jan	1146	NA	NA	NA	
Feb	1076	1099	1731	1282	

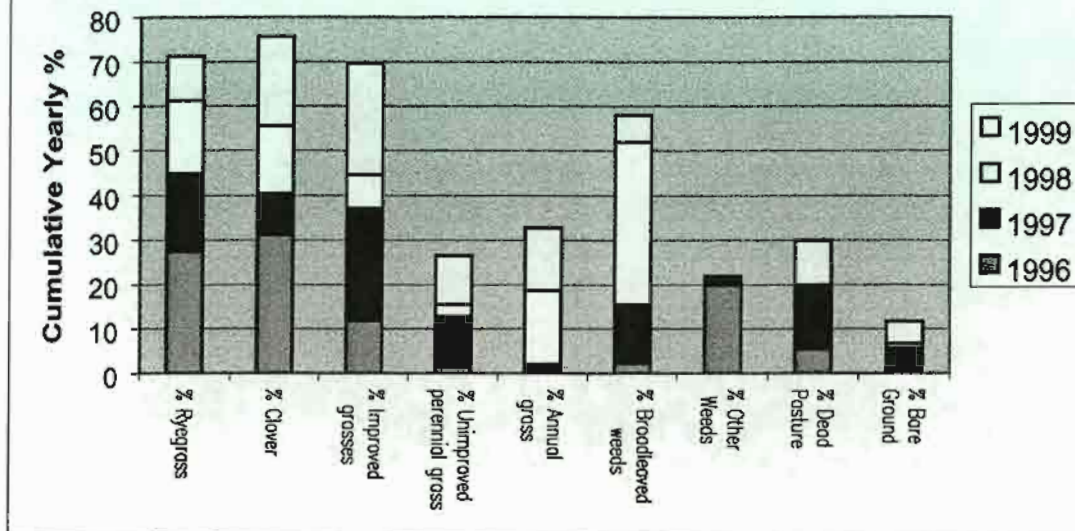
**Bairnsdale Focus Farm. Pasture Cover.
Sept 1996 - June 2000**



8. Botanical Composition

	% Ryegrass	% Clover	% Improved grasses	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Other Weeds	% Dead Pasture	% Bare Ground
1996	27.4	31.1	11.8	1.6	0.2	2.3	19.8	5.5	0.4
1997	17.5	9.3	25.2	11.3	1.9	13.2	2.1	14.5	5.2
1998	16.4	15.2	7.6	2.6	16.6	36.5	0	0	1.1
1999	10.0	20.0	25.0	11.0	14.0	6.0	0	10.0	5.0

**Bairnsdale Focus Farm.
Pasture Composition. 1996 - 1999**



9. Soil Tests

	Spring paddock	Reid's 3 paddock			Road Paddock		
	1996	1998	1999	2000	1996	1998	1999
pH	5.8	5.5	6.2	6.3	6.1	5.5	5.7
P	4.2	12	6.9	6.7	5.7	14	13
K	137	NA	NA	NA	117	NA	NA
S	4	NA	NA	NA	5	NA	NA

10. Fertiliser Use

Urea was used to boost pasture growth during periods of low pasture growth. For instance, about 4 tonnes of urea were used during autumn and winter of 1997, despite lower than normal rainfall. Pasture growth rate responses at times were observed to be quite marked, such as an additional 450 kg DM/ha (a 10:1 response) in one month in one paddock during July 1997. The cost per kg of additional dry matter produced was calculated on this occasion to be 10 cents/kg. This was a lot cheaper at the time, as a supplement, than hay or beef cubes (both 25 cents/kg DM).

Use of urea during spring 1997 assisted ryegrass to produce more tillers in comparison to areas where nitrogen was not applied. This was in part due to the lack of clover growth in pastures throughout 1997, due to the dry conditions.

Fertiliser Inputs:
Kilograms per hectare of elemental nutrients

	1995/96	1996/97	1997/98	1998/99
N kg/ha	2.1	16.3	5.1	10
P kg/ha	17.1	24.4	10.8	14.3
K kg/ha	32.2	24.3	1.6	27.8
S kg/ha	20.6	25.6	8	17.9

11. Rainfall

	1997	1998	1999	2000
Jan	41	19	41	33
Feb	15	27	68	21
Mar	74	15	37	63.5
Apr	11	20	72	42.5
May	40	11	23	98.25
Jun	43	164	23.5	
Jul	19	26	22.5	
Aug	11	27	25	
Sept	33	25	33	
Oct	39	56	39.5	
Nov	44	88.5	20.25	
Dec	44	58	55.3	
Total	414	536.5	460.0	

12. Comments From the Focus Farmers and the Group

“Have subdivided paddocks further for ease of management.”

“Was able to work out stock energy requirements and therefore feeding costs during drought.”

“Group members very supportive of each other.”

“I now know when to change strategies due to monitoring the amount of feed ahead and pasture growth rates.”

“I now know the importance of the effect of backgrazing.”

“I didn't get into BeefCheque soon enough.”

“Now I'm producing better stock.”

“Stock and pastures have improved and there is more grass since I subdivided paddocks”

“Now I run larger mobs of sheep and the ewes are joined in one mob.”

“I can now identify pasture species.”

“It puts me under more stress wondering about pasture heights and animal numbers!”

BUCHAN BEEFCHEQUE FOCUS FARM

1. Background

Focus Farmers:	Tom & Margaret Cummings
Starting Date:	March 1996
Consultant:	Jeff Urie, Ag Challenge
Location:	Buchan Road, Buchan
Property Size:	128 ha
Average Rainfall:	800 mm
Soil Type:	Dark Brownish Grey Sandy Loam (35% over limestone)
Stock (June 1996)	54 April calved cows, 43 dry cows (August calving), 36 weaners, 3 bulls
Calving:	March/April and August
Replacement Policy:	Buy in heifers
Market:	Vealers
Stock (June 1999):	45 dry cows, 39 calving heifers, 60 weaner calves, lambing ewes, 3 bulls

2. Focus Farm Objectives & Production Aims

By 1999, produce 100 vealers per year at an average liveweight of 350 kg. This would be an increase of 35% over 1995/96 production

3. Production Summary

Performance measure	1995/96	1996/97	1997/98	1998/99	1999/00
Stocking rate dse/ha	10.6	17.0	12.3	13.3	NA
Stocking rate dse/ha/100mm rainfall	1.3	2.3	1.6	1.6	NA
Liveweight output kg/ha	200	288.3	260.4	250.6	NA
Liveweight output kg/ha/100mm rainfall	24.6	38.5	34.6	30.3	NA
Pasture consumption & conservation (t DM/ha)		3.0	4.26	2.45	3.52 NA
Pasture grown (t DM/ha)	NA	3.720	1.393	5.135	4.100
Pasture grown (t DM/ha/100 mm rainfall)	NA	0.497	0.201	0.621	0.578

4. Main Achievements

- 4.1 Subdivision of larger paddocks, use of electric fencing, and introduction of rotational grazing
- 4.2 Maintaining pasture quality throughout the year in all paddocks, including those with a high proportion of kikuyu. This was achieved with a combination of controlled grazing and pasture topping, as required.
- 4.3 Working towards achieving pasture cover targets for the start of winter calving.
- 4.4 Recognition of the priority mobs of stock at any given time.
- 4.5 Maintaining stock condition and calf growth rates during tough conditions through careful management of both stock and pasture.
- 4.6 Consideration of farm profitability in the longer term, rather than just short term gains.

5. Summary of Activities

Pasture Management

Setting a pasture cover target of 1650 kgDM/ha for joining time of autumn calving cows (June/July). This would allow these stock to be on a rising plane of nutrition, as well as helping to “finish” the calves of the August calving herd. The pasture target was achieved in 1996 but not in 1997, due to lack of autumn/early winter rainfall and hence low pasture growth rates.

Turnips were used to help fill the winter feed gap in 1996. Strategies were introduced to strip graze turnips properly and safely. The turnips in this year contributed substantially to feed availability during winter. Pasture cover, without turnips taken into account, was 1325 kgDM/ha at the end of June and feed availability with turnips included was over 1700 kgDM/ha (8 tonne/ha crop on 5.5 ha).

The larger paddocks were permanently subdivided to assist in pasture management

Electric fencing was introduced quickly to the farm to open up the options for block grazing and reduce subdivision fencing costs.

Rotational grazing, and block grazing of paddocks with back fencing, was implemented in the first couple of months of the project. This improved pasture production during months of slower pasture growth and allowed rationing of feed during periods of low pasture availability such as in August.

It was found that grazing paddocks with a high proportion of kikuyu, heavily and often, resulted in higher quality leaf material and less, low quality, stolon material.

Pasture topping was used at times to remove residual pasture clumps and seedheads after grazing to help keep pasture in a vegetative state during spring. In summer 1998/1999 some paddocks were slashed to increase utilisation of rank feed and to promote quality regrowth. This was considered to be quite successful, with the benefits being worth the extra cost.

A broadleaf herbicide (Tigrex), was recommended by a visiting pasture expert at one of the farm walks, to control capeweed in a newly sown paddock which was too young to be spray grazed without significant damage. This was done and the results were very good, as indicated by the amount of capeweed in a corner of the paddock missed when spraying. However it was noted that there was a lack of clover in this paddock over the following months, maybe as a result of the effects of the herbicide.

Fertiliser

Urea was used in autumn (1996) to promote pasture growth in paddocks around the turnip paddock for the future priority mob of autumn calving cows and calves during winter. This strategy proved to be very successful in boosting pasture growth in these paddocks and lifting the average farm pasture cover quite quickly. Urea was thereafter used strategically on the farm to increase pasture growth, most commonly during autumn and winter.

After plant tissue testing in 1998, it was determined that the lucerne was boron deficient. Boron was applied with super. This revitalised the paddock, taking it from virtually needing to be re-sown, to a healthy and productive stand of lucerne. Boron was also applied to a pasture paddock diagnosed as boron deficient at about the same time. There were no apparent effects of the boron applied to this paddock

Stock

Recognition of which are the priority mobs of stock at any given time. For instance, calves which are being "finished" prior to sale, or cows feeding young calves and needing to have a good milk production.

In March 1997, pasture availability was low and it looked unlikely that the majority of the spring calves would attain sufficient liveweight for vealers. The decision had to be made between finishing the spring calves, or increasing the condition of autumn calving cows (particularly prior to joining in winter), plus increasing the farm pasture cover generally for the benefit of all stock. The decision was made in favour of longer term production over the short term, which would ultimately give greater returns.

1997 was a very dry year, with low pasture growth rates throughout autumn, winter and spring, and therefore low pasture availability. Despite this, the condition of the autumn and spring calving cows was generally very good (C.S. 3 to 4). This was an excellent effort, particularly considering the relatively poor condition of the autumn cows earlier in the autumn. Tight control of pasture grazing had a lot to do with this result. Another good result was that the autumn calves in October 1997 had averaged 1 kg per day average liveweight gain.

In 1996, the august calving cows which failed to get pregnant before end of July, were replaced with cow/calf units and joined to fit in with the April calving mob. Calculations were carried out to show that this was a profitable option.

Pellets were used during continuing very dry conditions in early 1998, as a supplementary feed for finishing the autumn vealer calves.

In January 2000, the August calving cows and heifers were pregnancy tested, with the pleasing result that out of 40 heifers and 58 cows, only 1 heifer and 2 cows were empty. The joining period was only 7 weeks. The plan had been to reduce the stock numbers by taking out the empty cows and heifers. Instead, the high joining percentage allowed culling on the basis of below average calf weaning weight over the past two years.

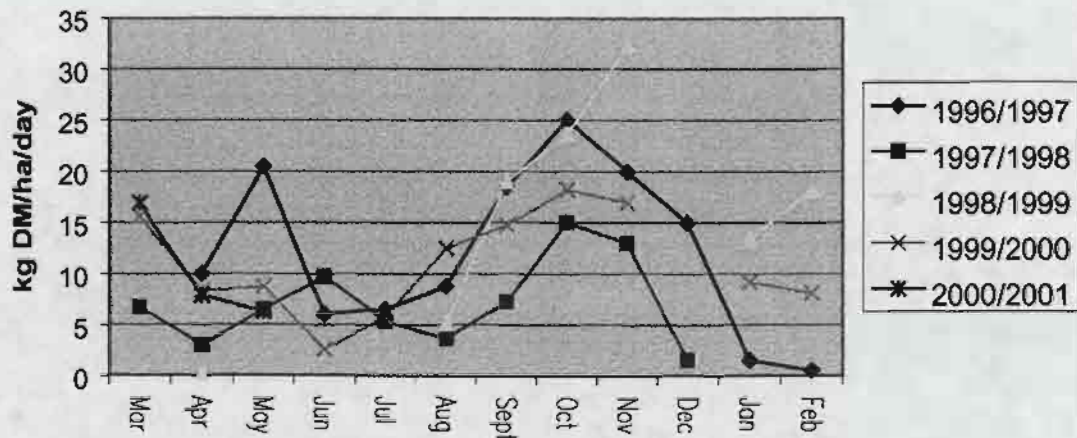
The consensus as to why there was such a high joining percentage was that it was the result of a combination of factors such as the cows being in close proximity to the bulls and improved cow nutrition. Tom and Margaret were very conscious of having cows on a rising plane of nutrition prior to joining. The improved pasture composition over the farm over the BeefCheque project would have helped in this regard.

6. Pasture Growth Rates

Kilograms of Dry Matter/ha/day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		6.7	NA	15.6	16.9
Apr	10.0	3.0	0	8.3	7.9
May	20.5	6.5	NA	8.7	6.3
Jun	6.0	9.7		2.5	NA
Jul	6.5	5.3		5.8	
Aug	8.8	3.6	5.1	12.5	
Sept	18.5	7.2	19.0	14.7	
Oct	25.0	15.0	23.6	18.2	
Nov	20.0	13.0	32.3	16.9	
Dec	15.0	1.5	NA	NA	
Jan	1.5		13.4	9.2	
Feb	0.5		18.1	8.1	

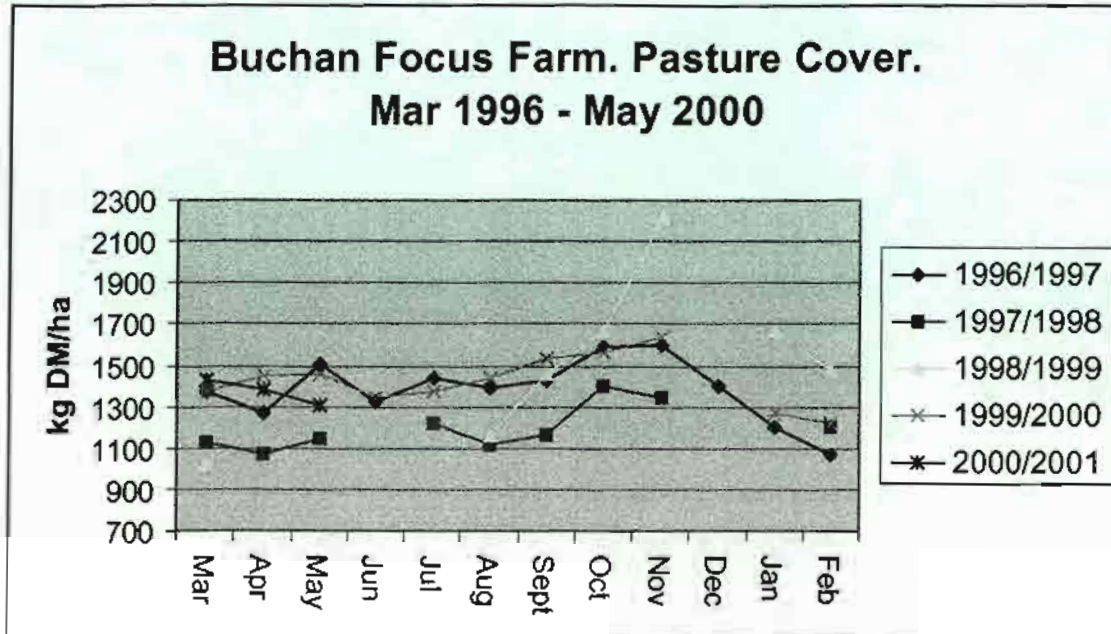
**Buchan Focus Farm. Pasture Growth Rate.
April 1996 - May 2000**



7. Pasture Cover

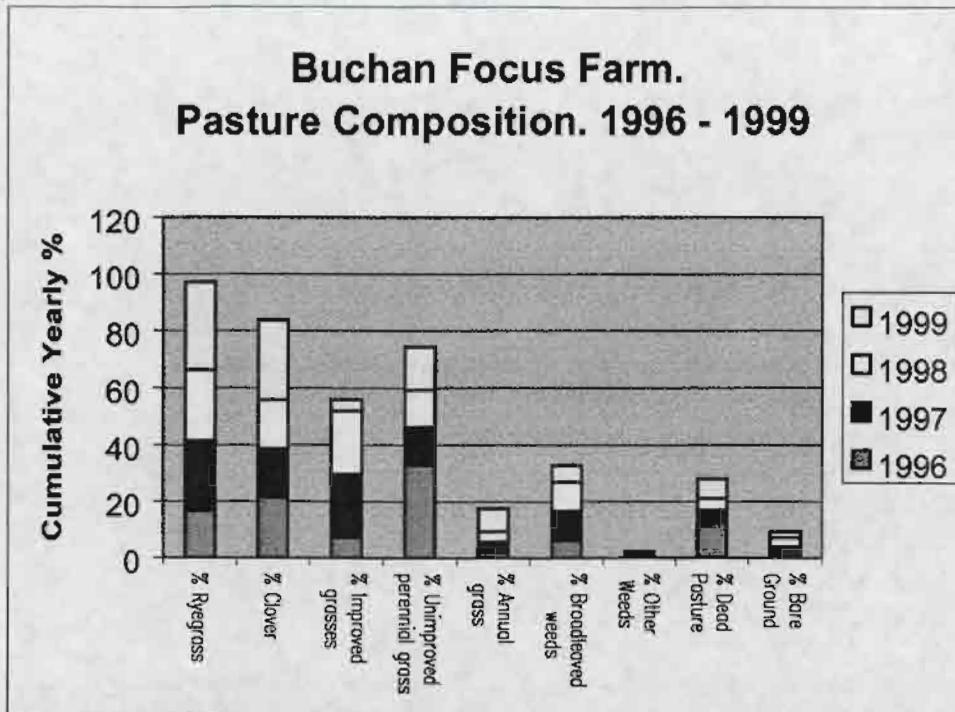
Kilograms of Dry Matter/ha

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar	1370	1130	1021	1369	1428
Apr	1270	1071		1445	1385
May	1508	1142		1454	1305
Jun	1325	NA		1341	NA
Jul	1440	1216		1372	
Aug	1390	1119	1164	1438	
Sept	1425	1168	1453	1535	
Oct	1586	1399	1665	1565	
Nov	1599	1343	2212	1637	
Dec	1405	NA	NA	NA	
Jan	1205	NA	1665	1266	
Feb	1070	1205	1481	1222	



8. Botanical Composition

	% Ryegrass	% Clover	% Improved grasses	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Other Weeds	% Dead Pasture	% Bare Ground
1996	16.5	21.5	7.4	32.9	1.9	6.2	0	12.5	0.7
1997	24.8	17.1	22.2	13.2	3.8	10.3	1.1	4.3	3.2
1998	24.8	17.1	22.2	13.2	3.8	10.3	1.1	4.3	3.2
1999	31.0	28.0	4.0	15.0	8.0	6.0	0	7.0	2.0



Pasture composition improvement was seen within the first year, with increased ryegrass in all paddocks. This trend continued each year.

9. Soil Tests

	Windy Hill Paddock		Middle Paddock	
	1997	1998	1997	1998
pH (water)	5.5	5.3	5.5	5.5
Olsen P	11	14	13	19
Potassium	530	280	195	130
Sulphur	7.1	15	22	6

10 Fertiliser Use

Fertiliser Inputs:

Kilograms of elemental nutrient per hectare averaged over whole farm

	1995/96	1996/97	1997/98	1998/99
N (kg/ha)	0	7.8	6.6	2.1
P (kg/ha)	10	8.7	17.3	4.7
K (kg/ha)	0	31.1	13.6	8.4
S (kg/ha)	10	8.2	20.7	5.4

11 Rainfall

	1997	1998	1999	2000
Jan	61	39.5	99.5	60
Feb	14	29.5	70	59
Mar	65	35.5	65	77
Apr	11	9.5	62	57
May	30	30	21.5	98
Jun	58	372	52	92
Jul	24	59.5	19	21.5
Aug	15	78	23	
Sept	55	38	62.5	
Oct	7	71.5	56.5	
Nov	37	153.5	26.5	
Dec	38	56	70	
Total	415	972.5	627.5	

12 Stock Performance

Stocking rate increased markedly in the first year of the project but dropped back in the following year due to the drought conditions. Liveweight production followed a similar trend. Even during the worst of the drought, however, both stocking rate and liveweight production were still above pre BeefCheque levels. There has been a steady increase in both parameters over the period 1997 - 2000 with stocking rate now 34.9% above the 1995/96 level.

13 Main Conclusions

The Cummings have used the BeefCheque project to help in modelling their beef enterprise along the lines of the dairy industry's degree of pasture utilisation. "Beef farms utilise as little as 30 – 35% of pasture, while the best dairy farms are up to about 75%"

The project has helped the Cummings tackle the previously identified problems of inadequate fencing, poorly managed pastures and low cattle fertility.

Working with the BeefCheque group has provided an extra impetus to implement changes.

14 Comments From the Focus Farmers and the Group

"BeefCheque improved our focus on pastures and how to manage them for higher productivity. BeefCheque is very rewarding for us and can be for others"

"We have changed from set stocking to rotational grazing."

“We now know how and where to access information.”

“We realise the real value of pasture and the needs of our animals.

“More stock, better condition, better pasture.”

“New lease of life.”

“We are now more confident to change.”

“BeefCheque farms stand out in the district.”

“Can now tackle problems in a systematic and methodical manner.”

“We are now in a better position to talk to the bank re loans.”

“Have learnt how grass grows and that it does grow in winter.”

CANN RIVER BEEFCHEQUE FOCUS FARM

1. Background

Focus Farmers:	Gus & Judy McKinnon
Starting Date:	September 1996
Consultant:	John Mulvaney, Onfarm Consulting Pty Ltd
Location:	Cann Valley Highway, Cann River
Property Size:	Block 1 – road/river + riverside, 141 ha effective grazing area
	Block 2 – Bush, 52 ha effective grazing area
	Block 3 – Home, 17.5 ha effective grazing area
	Total 210 ha
Average Rainfall:	900 mm
Soil Type:	Sandy Clay Loam
Stock (Sept 1996)	141 winter calving cows (being joined), 54 autumn calving cows 17 cull cows, 32 winter calving heifers (being joined), 3 steers, 11 Bulls
Calving:	March/April and June/July
Replacement Policy:	Self replacing herd
Market:	Vealers
Stock (June 1999):	71 calving cows, 39 cows and calves, 9 joined heifers, 22 weaner heifers, 80 steers and 6 bulls.

2. Focus Farm Objectives & Production Aims

1997: Upgrade main vealer herd to Angus x Simmental cows with a Belgian Blue or Charolais terminal sire. Vealers 200 – 220 kg Over-The-Hooks

3. Production Summary

Performance measure	1995/96	1996/97	1997/98	1998/99	1999/00
Stocking rate dse/ha	NA	19.6	21.2	NA	NA
Stocking rate dse/ha/100mm rainfall	NA	2.3	4.2	NA	NA
Liveweight output kg/ha	197	256	708	NA	NA
Liveweight output kg/ha/100mm rainfall	NA	22.9	82.2	NA	NA
Pasture consumption & conservation (t DM/ha)	NA	NA	4.85	8.22	5.45 NA
Pasture grown (t DM/ha)	NA	NA	4.785	6.272	6.553
Pasture grown (t DM/ha/100 mm rainfall)	NA	NA	0.556	0.708	0.692

4. Main Achievements

- 4.1 Putting pasture management into practice. Utilising the principles of how grass grows, has allowed the farm to produce more, and better quality, pasture and conserved fodder. Paddocks are now rotationally grazed.
- 4.2 Developing an understanding of feed budgeting and utilising this to plan ahead.
- 4.3 Regular weighing of stock to keep track of weight gains and assist in making adjustments to stock feeding to achieve stock production targets.
- 4.4 Aiming to increase soil fertility and consideration of the best fertiliser blends to use.
- 4.5 Strategic use of nitrogen fertiliser to boost pasture growth.

5. Summary of Activities

Pasture Management

Through BeefCheque, Gus and Judy have learnt the principles of how grass grows, and have learnt to put these into practice. The farm now exclusively uses rotational grazing. There is extensive use of temporary electric fencing for strip grazing of paddocks.

During the consultant phase of the project there was an emphasis on feed budgeting – going through the figures of stock requirements and pasture/supplement availability. Gus and Judy can now plan ahead; they know where the cows are going next – next day and next month.

One example of feed budgeting was the setting in early autumn 1997 of a target pasture cover figure of 1700 kgDM/ha for start of the winter calving in June. Discussions on how to achieve this included a slow grazing rotation and utilising silage to supplement the pasture. Also, application of urea in four paddocks was discussed and then carried out. The target was achieved on Farm 1, despite drier than expected seasonal conditions holding down pasture growth rates. The pasture feed bank on Farm 1 was very good quality that year and was used to carry all but 36 cows and calves through to spring by carefully restricting grazing. When September came, the pasture cover was still adequate to allow pasture growth rates to pick up quickly with warmer soil temperatures and adequate rainfall. Paddocks were able to be shut up for silage early and still have enough paddocks growing well enough to adequately feed the stock

Spring 1997 turned out to be short. Despite this there was nearly double the fodder conservation of previous years. Silage and hay were made in the same month. As a result, there was plenty of supplementary fodder on hand to get stock through the dry summer and autumn that was to follow. Sacrifice paddocks in autumn, with silage/hay being fed, helped build pasture cover prior to the winter once again. A good result was achieved in 1998, with pasture cover again averaging around 1700 kgDM/ha in June on the better paddocks. This

quantity of pasture, at a good quality, was adequate to avoid the need for further use of silage for the rest of the winter.

There was emphasis on calculating supplementary feed requirements along with pasture requirements of stock at the time of shutting up paddocks. The conservative, predicted growth rate on the pasture area remaining available for grazing, must at least equal stock requirements after paddocks are shut up. The silage/hay is then being made from a genuine surplus of feed. One advantage of making silage, and particularly making it early, is that paddocks can be taken out of the rotation while growth rates are high, then returned to grazing when growth rate slows. Hay is cut from paddocks which are shortest at time of locking up, in order to preserve clover content, assist in retaining pasture density and reduce over-maturity of the seed heads. This situation also avoids wasting feed and there is very little poor quality, dry, stalky feed left on the farm at the end of spring

A further advantage of managing the grazing in spring was that the situation of stock grazing short, potentially bloaty pasture could be avoided by having the pasture longer at time of grazing. Ideal is 2200 to 2300 kgDM/ha.

During times of good pasture growth, when stock are well fed and are going into paddocks with relatively long feed, they can leave behind a lot of clumps. Forcing them to eat these clumps after they have eaten the more digestible and nutritious pasture, would result in lowered animal performance. If, however the pasture is topped before the stock enter the pasture, the stock will quickly clean up the paddock, with very little feed wastage and good animal performance. This was carried out on the focus farm as required, such as in spring 1998. An alternative is to slash the pasture after grazing, which retains the quality of the pasture and maintains growth rates. Follow-up grazing with a lower priority mob, with or without slashing, is a third alternative.

Another aspect of managing pastures when a surplus threatens pasture quality, is that the speed of rotation of stock through paddocks can be increased, and the residue after grazing raised, from say 1200 to 1500 kgDM/ha.

Managing pastures containing a high proportion of Kikuyu is made easier by using rotational and strip grazing. This is particularly the case where spring surplus is utilised as silage and hay. The Kikuyu is grazed while it is still of reasonable quality, before it becomes too long and rank. Smaller paddocks and strip grazing allow it to be quickly grazed evenly and short. Paddocks can be grazed as frequently as required.

The benefits of good pasture management under favourable conditions were very evident during autumn 2000. High pasture growth rates were being obtained and pasture cover lifted to an impressive 1800 kgDM/ha. Most of this pasture was quality regrowth and there was a high proportion of clover over the farm. This result was obtained using grazing management and some pasture topping.

Stock

Probably the biggest management change due to BeefCheque was emphasising larger mobs; in particular the main vealer herd of upwards of 160 cows, and grazing on rotation. Smaller mobs were still used while the bulls were out at joining in late winter.

A close eye was kept on the liveweight of calves during the project. Calves were weighed often. Targets for calf weight were set. For instance in 1998 the target for January was 230 kg. Only 8 calves didn't make this weight. The cows and calves not making the liveweight target were sold soon after. Generally, the calves performed better during the BeefCheque project than in previous years. The autumn drop calves, for instance, were 30 kg heavier on average in March 1997 than the previous year. They maintained this performance in 1998, being only 2 kg lighter, on average, than in 1997. This group were fed on turnips in late summer/early autumn during the project. And this produced some useful lessons. It was found in the first year of grazing turnips that some cows/calves did not get enough to maintain a satisfactory calf growth rate when there was only a short strip of turnips offered each day. The following year a longer, narrower strip was offered, with better results. Good calf weight gains (1.0 to 1.3 kg liveweight /day) were achieved each year when grazing turnips.

Keeping track of weight gains of fattening steers during winter 1999 produced an example of a supplement (silage), which was lower quality than the available pasture, reducing the rate of weight gain of stock. Calculations were done, based on analysis of the silage, to show that intake of the silage reduced the total amount of metabolisable energy available to the animals and also reduced total quantity of intake due to its lower digestibility.

The carrying capacity of the farm increased during the project. An example of this was in Spring 1997, when it was considered by the focus group that the farm could be carrying an extra 30 cows & calves. Fodder conservation at this time was well up on previous years and since the stocks of conserved feed were so good, it would be better to carry more stock than to be conserving so much feed each year.

Fertiliser

The aim with the fertiliser applications was to gradually increase soil phosphorus and potassium levels. Fertiliser application was split between autumn and spring. The ideal application of fertiliser blend was calculated, taking into consideration existing soil fertility and potential productivity of each paddock. However, there was always the consideration of the total cost of applying fertiliser over the whole farm at the desired rates. Therefore, alternative rates of application were discussed in case the dollars were not available, keeping in mind the aim for the farm.

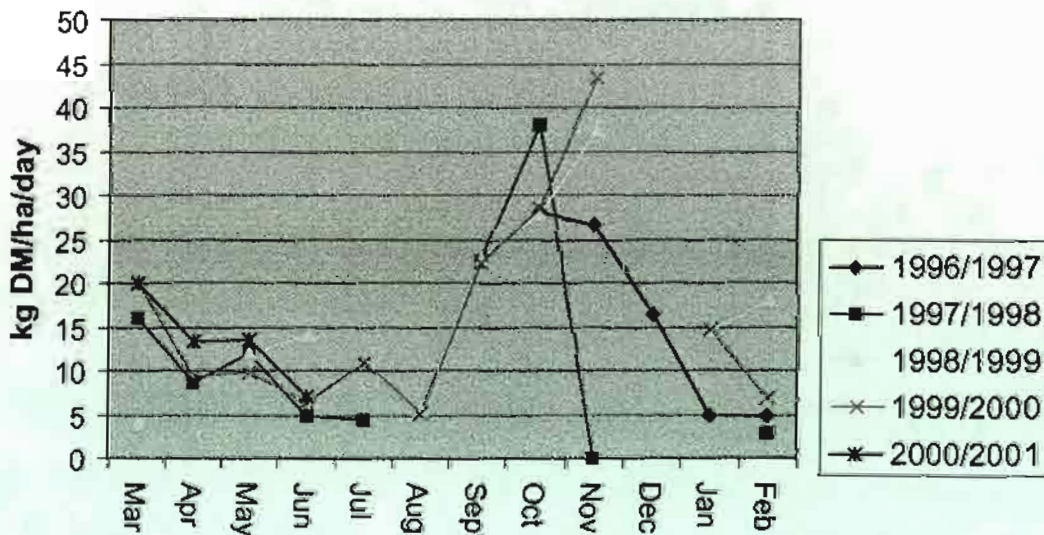
Urea was trialed on the farm during the project, to boost pasture production during autumn and winter. The benefits of using urea to boost silage paddocks and turnip crops in spring were discussed.

6. Pasture Growth Rates

Kilograms of Dry Matter/ha/day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		16.0	4.0	19.9	19.9
Apr		8.6	NA	9.3	13.3
May		12.0	12	9.8	13.5
Jun		5.0	14	6.5	7.1
Jul		4.5	NA	11.0	
Aug			5.5	5.1	
Sept		22.4	22.7	22.3	
Oct	28.0	38	27.7	28.5	
Nov	26.6	22.0	37.3	43.3	
Dec	16.5	NA	NA	NA	
Jan	5	NA	14.4	14.7	
Feb	5	3	17.9	6.9	

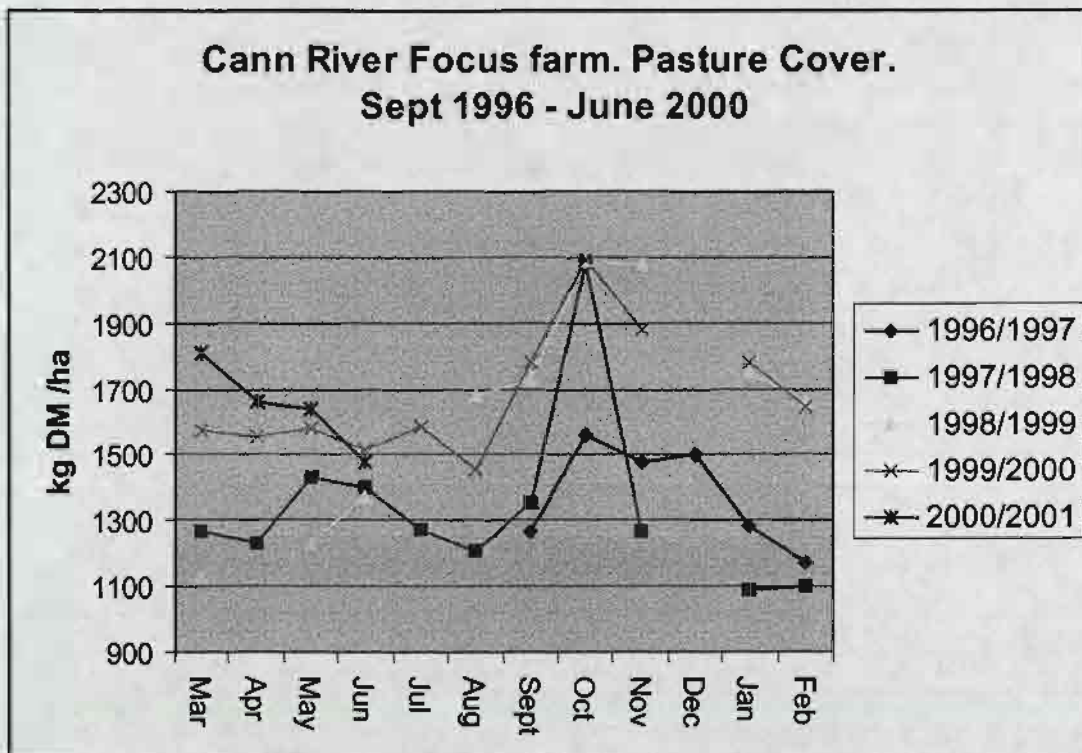
**Cann River Focus Farm. Pasture Growth Rates.
Oct 1996 - June 2000**



7. Pasture Cover

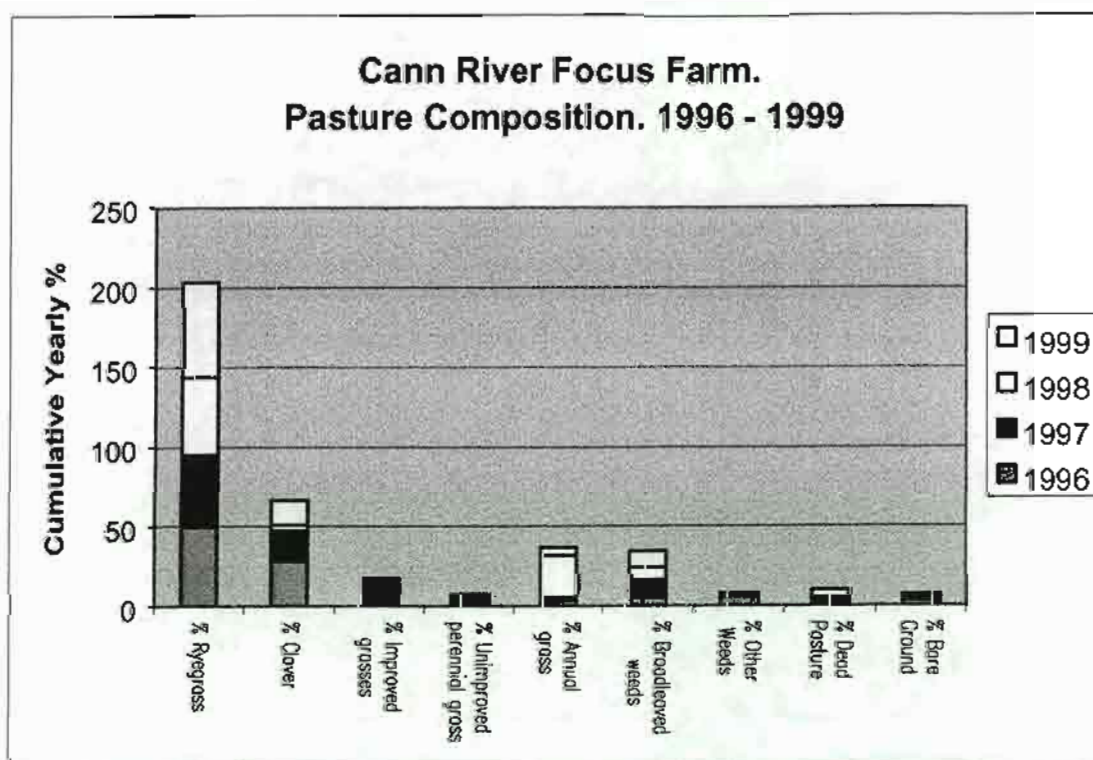
Kilograms of Dry Matter/ha

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		1264	1130	1576	1807
Apr		1230	NA	1553	1664
May		1430	1228	1581	1639
Jun		1400	1370	1516	1476
Jul		1270	NA	1585	
Aug		1205	1681	1458	
Sept	1265	1357	1728	1783	
Oct	1562	2084	2087	2095	
Nov	1480	1267	2075	1883	
Dec	1505		NA	NA	
Jan	1286	1087	1753	1778	
Feb	1170	1100	1662	1642	



8. Botanical Composition

	% Ryegrass	% Clover	% Improved grasses	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Other Weeds	% Dead Pasture	% Bare Ground
1996	49.6	28.5	1.1	1.0	3.3	5.4	5.8	1.6	3.6
1997	45.8	19.0	12.7	3.7	2.1	11.2	0.4	3.5	1.4
1998	48.3	3.4	2.4	0.7	26.2	7.7	1.9	0.0	1.3
1999	59.8	15.5	1.5	2.5	5.2	10.1	0	4.8	0.9



9. Soil Tests

	Tom's paddock		Channel	Island	House	Top
	1995	2000	1996	1996	2000	2000
pH	5.2	5.6	5.8	5.7	5.5	6.5
P	22.4	39.6	14.4	14.4	14.8	20.7
K	141	178	117	117	141	126
S	8.9	13.1	4.1	5.5	19	28.3

10. Fertiliser Use

Fertiliser Inputs:

Kilograms per hectare of elemental nutrient averaged over the whole farm

	1996/97	1997/98	1998/99
N kg/ha	24	0	0
P kg/ha	31	26	30
K kg/ha	35	20	0
S kg/ha	26	30	23

11. Rainfall

	1997	1998	1999	2000
Jan	46	47	123	110.4
Feb	16	17	49	65
Mar	86	31	65	100.8
Apr	50	56	126	84.8
May	88	53	30	
Jun	76	341	47	
Jul	42	46	53	
Aug	26	86	50	
Sept	72	37	42	
Oct	74	68	70	
Nov	42	116	55	
Dec	60	93	137.3	
Total	678	991	847.3	

12. Main Conclusions

This farm had a good fertiliser history. It was already set up with a laneway servicing a number of paddocks on the main farm. The challenge was to demonstrate the benefits of BeefCheque principles on a farm that was, by local standards, already well managed.

This was achieved, with the group quickly realising the effects of backgrazing and the benefits of rotational grazing. Despite the dry seasons, the stocking rate on the focus farm increased over the life of the project.

The Focus Farmers decided to lease the main part of the farm in 1999, and destocked accordingly. They maintained the autumn calving herd and weaner mob on the remaining

part of the farm. The lessee was a member of the BeefCheque group and was happy for the whole farm to continue as the focus farm.

12. Comments From the Focus Farmers and the Group

“We have moved to rotational grazing of stock. Now we let pastures recover after grazing and not get too long.”

“I was heading towards rotational grazing, and BeefCheque came along at the right time. I now have a better understanding of grazing management. My stock numbers have increased by 25% and now there is no fog grass.”

“It was very positive with a practical focus, compared to field days where information is not acted upon. I have subdivided paddocks and we are now actually managing the farm.”

“The Focus farm helps apply knowledge.”

“It has helped identify problems and then find answers.”

“Valuable group discussion and very important social interaction and sharing of knowledge.”

“Now I think from the pasture and animal nutrition point of view.”

“BeefCheque adds value to other programs such as Prograze and Storelink.”

“I now know about the needs of pastures and also animal needs.”

“ I have learnt feed budgeting skills and the basics of ryegrass tillering etc”

“The message has been re-enforced all the way through and I now have the confidence to run on my own”

“These skills are linked directly to financial performance.”

“Tough years have really tested this system.”

“This is the first Department initiative that has had a positive impact on the bottom line.”

ENSAY/SWIFTS CREEK BEEFCHEQUE FOCUS FARM

1. Background

Focus Farmer:	Barry & Topsy Newcomen
Starting Date:	September 1996
Consultant:	Wolfie Wagner/Jeff Urie, Ag-Challenge
Location:	Ensay
Property Size:	336 ha
Average Rainfall:	650 mm
Soil Type:	Grey loam
Market:	Ensay calf sales

2. Summary of Focus Farm Activities

Pasture Management

Paddocks were prioritised in order of composition and growth potential. Rotational grazing was implemented and the best paddocks grazed when required to maintain quality, reduce seed set and growth of weeds. Poorer quality paddocks could then be sacrificed if necessary, ie. left out of the rotation.

Weed Control

A problem with large amounts of unpalatable and poor quality *Microlaena* growth in one section of a particular paddock was reduced quickly with a combination of paddock subdivision, hard grazing and burning to remove trash. This was done in mid spring and there was good germination of grasses and clovers afterwards. Six to eight weeks later, this part of the paddock was carrying a good quantity of fair quality feed and was in a state where sheep would graze it evenly. (Note that *Microlaena* has a similar digestibility to *phalaris* – apart from the dead seedheads and dry clumps – but is not as palatable)

Couch grass growth in summer was a problem in some paddocks. It was considered that the problem was partly the result of paddock size being too big and mob sizes being too small. There wasn't enough grazing pressure to control the couch.

Another problem grass is *Vulpia*. It was shown that heavy, timely grazing could dramatically reduce seed set of this relatively unpalatable and undesirable grass. Grazing management in combination with added fertiliser produced rapid and considerable improvements in pasture composition in one paddock. Cocksfoot and clover increased greatly at the expense of *Vulpia*.

Slashing of *Vulpia* can also reduce seed set and has the added benefit of encouraging stock to selectively graze and clean up the slashed areas.

The "spraygrazing" technique was used in spring 1998 to try and control capeweed and silvergrass. Glyphosate at low rates was used to set back the weeds and improve

palatability. The technique was only partly successful in this instance due to too low a rate being used – the silvergrass was not affected sufficiently. An application of the herbicide “sprayseed” was used a month later and was successful.

Adverse Conditions

Conditions during 1997 and the first half of 1998 were very dry and Exceptional Circumstances were eventually declared. There was very little pasture growth through this period, and as a result the farm was only occasionally walked, and pasture cover figures were not recorded. There was also a period during June to October 1997 when there were no farm walks. Stock survived on supplementary feeding only. Pasture management was concentrated mainly on preventing the removal of what little pasture cover there was. Avoiding bare soil was necessary to minimise soil erosion and allow quicker recovery of pastures when rains did eventually come. Management strategies were developed, aimed at containing the physical damage of the drought to the period of dry weather. If the paddocks had been allowed to “blow”, due to lack of pasture cover, the physical effects of the drought would have been much more long term. Maintaining a long rotation during very dry conditions will not have a great deal of impact on production in the short term, but will have a significant impact in the longer term through faster pasture recovery and better growth.

Another major climatic event occurred in June 1998. Very heavy rains occurred over a few days, heralding the end of the drought, but also resulting in major soil erosion. Paddocks which had been fairly bare, due to the drought, lost a lot of topsoil along with organic matter in the form of animal dung, and hence soil nutrients. The steeper paddocks in the area were worst affected. The focus farm itself was not too badly affected, but some group members had paddocks which required re-sowing. Government assistance was provided to farmers in the affected areas for rehabilitation of paddocks. There was a break of several months in the Focus Farm walks due to NRE officers being committed to providing damage assessment and advice to flood affected farmers.

Fertiliser

At the start of the project, a grazing management and fertility trial was established in one paddock where there was a large difference in soil fertility between two distinct sections of the paddock, due to stock camps. The paddock was fenced into three paddocks, consisting of 2 ha of stock camp (ridge area), with the remainder split into two paddocks of about 6 ha each. Soil tests were carried out. The two 6 ha paddocks were topdressed with either 125 kg/ha or 375 kg/ha superphosphate. Pasture species composition was fairly good with adequate cocksfoot, phalaris and clover at the start of the trial. Six months into the project, the two trial paddocks were further subdivided into four paddocks each, with strict rotational grazing.

It was noticeable that during the drought, the paddocks being managed for the fertility trial continued to grow pasture, admittedly at times at a very low rate, and carry stock when most of the farm had to be de-stocked. These paddocks were some of the best on the farm to start with, but the result showed how good management and adequate fertiliser allowed paddocks to make use of any available moisture to grow pasture.

Results presented in late 1998 from the fertility trial indicated that before it became too dry, the high fertiliser side produced greater total liveweight gains per hectare. These gains were lost during the dry period, despite compensatory weight gains by the steers on the high fertility side when pasture feed again became available.

A problem was noticed in spring 1998 in one of the lucerne paddocks. Plants in two thirds of the paddock were yellowing and unhealthy. Soil and plant tissue samples were taken and tested. The problem appeared to be a low soil pH, and application of lime was recommended.

Stock

Stock were given priority depending on their requirements at different times. For instance, spring cows and calves during late spring and lambs leading up to the end of the year, prior to sale.

In January 1997, the property was compulsorily destocked of all sheep, due to the presence of Ovine Johne's disease. The Focus Group was able to help Barry and Topsy determine an appropriate stocking rate for the property over the next 12 months, using 100% cattle. The stocking rate was determined according to what the farm could carry over the winter, based on predicted pasture growth rates, feed requirements of stock classes and the given area.

During 1997 and early 1998, much of the discussions on the farm visits were concerned with supplementary feeding of stock and meeting energy and nutritional requirements. Costs of supplementary feeds in terms of cents per megajoules of energy were also discussed.

In May 1998, with virtually no pasture available on the farm, and facing the prospect of no further growth until at least spring, there needed to be a decision made on keeping stock, versus selling now and re-stocking in Spring. It was decided that it would pay to keep the August calving cows/heifers and fully feed them until Spring pasture growth began, rather than the alternative of destocking and then purchasing cow and calf units in Spring. The disadvantage with this option was not having any income for over a year and having to increase debt to pay for extra feed costs. This increase in debt may be impossible to service even on return to normal conditions.

3. Pasture Growth Rates

Kilograms of Dry Matter/ha/day

	1996/1997	1997/1998	1998/1999	1999/2000
Mar		8	NA	9.6
Apr		0	NA	0
May		6	NA	
Jun		NA	NA	

Jul		NA	NA	
Aug		NA	NA	
Sept		NA	NA	
Oct	9	0	17.7	
Nov	14.4	NA	10.3	
Dec	NA	NA	NA	
Jan	NA	NA	7.8	
Feb	0	NA	4.7	

4. Pasture Cover

Kilograms of Dry Matter/ha

	1996/1997	1997/1998	1998/1999	1999/2000
Mar		NA	NA	1885
Apr		NA	NA	2046
May		NA	NA	1826
Jun		NA	NA	
Jul		NA	NA	
Aug		NA	NA	
Sept		NA	1446	
Oct	1156	NA	1664	
Nov	1184	NA	1677	
Dec	1303	NA	1770	
Jan	NA	NA	NA	
Feb	NA	NA	1907	

5. Main Conclusions

This Focus Farm had disappointing results due to a complex combination of factors including drought conditions throughout a large portion of the project period, and the effect of these conditions on the local landowners. It was maybe seen that, at the time, BeefCheque was putting too much emphasis on grazing management when farmers had other issues on their minds. The prevailing conditions also made it very difficult for group members to readily see the impact of grazing management on pasture production. After all, if there is no rain then pasture will not grow no matter what you do! Nevertheless, the farm walk notes do provide some insight into the relevance and application of the grazing management principles promoted by BeefCheque, even under extreme conditions.

There is not a lot of data available from this Focus Farm, apart from the information contained in the farm walk notes.

The focus farm was not walked for a period of many months during the drought as there was no pasture growth. The group still met, however, and question and answer sessions were held with the consultant at the monthly meetings. Group members state that the advice given at these sessions helped them to deal with the drought.

After the consultant phase and pasture growth was again evident the group began to again carry out pasture estimates across the farm.

Due to the drought the group had not had a good demonstration of BeefCheque principles and they lobbied for further time with the consultant. The consultant did attend one more session, which was widely advertised but poorly attended.

The group decided to reform and start again, but to date there hasn't been another Focus Farm established. Since January 2000 the group has been involved in a number of sessions to re - visit days one and two of the BeefCheque introductory phase. Sessions have also been completed on "Understanding Soil Tests" and "Bull Selection".

FLYNN BEEFCHEQUE FOCUS FARM

1. Background

Focus Farmers:	Max & Anita Cummings
Starting Date:	June 1996
Consultant:	Jeff Urie, Ag-Challenge
Location:	Flynn
Property Size:	Block no. 1 - 320 ac (128 ha effective grazing area) Block no. 2 – 400 ac (160 ha effective grazing area) Total 720 ac (288 ha)
Average Rainfall:	680 mm
Soil Type:	Brownish grey, sandy clay loam
Stock (June 1996):	410 Cross bred April lambing ewes 320 Cross bred August lambing ewes 250 Poll Dorset stud ewes (April/May lambing) Weaner ewes, Ram lambs 86 Cows/calves (March/April calving) 65 Weaned calves 7 Bulls
Calving:	Mid June – mid September
Replacement Policy:	Self replacing herd
Market:	Fat lambs, vealers, wool
Stock (June 1999):	85 cows and calves, 30 heifers and calves, 42 weaner cattle, 5 bulls. 100 stud ewes, 157 merino ewes, 700 crossbred ewes and lambs, 120 ewe lambs, 180 ewe weaners, 40 ram lambs, 30 fat lambs, 20 rams.

2. Focus Farm Objectives & Production Aims

August 1996:

- Increase overall stocking rate from 13.8 DSE/ha to 20 DSE/ha.
- Increase spring lambing from 40% of flock to 60% over 2 years and have less than 20% of --carryover lambs
- Lift fat cattle numbers
- Improve pasture composition (Increase clover content and decrease fog grass)

3. Production Summary

Performance measure	1995/96	1996/97	1997/98	1998/99	1999/00
% DSE cattle	53	54	39	44	NA
% DSE sheep	47	46	61	56	NA
Total stocking rate dse/ha		13.4	14.9	18.9	16.2 NA
Stocking rate dse/ha/100mm rainfall	2.0	3.0	3.8	2.6	NA
Total liveweight output kg/ha	NA	406.8	342.2	359.7	NA
Liveweight output kg/ha/100mm rainfall	NA	81.4	68.4	57.6	NA

Pasture consumption & conservation (t DM/ha)		3.45	3.66	4.86	4.14	NA
Pasture grown (t DM/ha)	NA	NA	4.510	5.345	3.557	
Pasture grown (t DM/ha/100 mm rainfall)	NA	NA		0.881	0.703	
	0.456					

4. Main Achievements

- 4.1 Managing pastures to prevent the carryover of rank, dry feed into summer and autumn. The benefits of better quality pasture during summer, and faster growth after autumn rainfall were clearly demonstrated.
- 4.2 Heavy use of supplementary feed, combined with use of sacrifice paddocks, to take pressure off pasture during periods of low rainfall, and particularly after the autumn break to allow pastures time to grow.
- 4.3 Quickly grazing paddocks with large mobs, combined with smaller paddocks and use of strip grazing, to maximise pasture re-growth
- 4.4 Allowing priority stock access to the best quality feed available, to increase weight gains and meet liveweight targets.
- 4.5 Use of the “spraygrazing” technique to control capeweed
- 4.6 Use of nitrogen fertiliser to boost pasture production when needed

5. Summary of Activities

Pasture Management

When the Focus Group started, initial efforts were directed at utilising excess feed to create extra income, by agisting dairy cows. There was a certain amount of rough, dry feed on the farm at the beginning. The stock were put into larger mobs, as far as possible, to more quickly clean out paddocks. By November 1996, it was noticeable that the best quality paddocks were those that had been eaten out hard and allowed to regrow. These paddocks were also growing at the fastest rates in a fairly ordinary spring. The need to ‘clean out’ some paddocks continued as spring progressed, with long, rank feed present. It was decided that the use of the system of two mobs following each other was slowing pasture regrowth. There was a need for bigger mobs and/or smaller paddocks (temporary fencing), or pasture topping pre or post grazing.

There was also a noticeable carryover effect from good pasture management in spring, on pasture growth the following autumn. Once again, the best pastures, and the ones being grazed most evenly in autumn, were those that had no residual dry feed.

Single wire electric fences were often used to block graze paddocks with dry cows when pasture was being rationed during dry conditions or if paddocks needed dry feed to be eaten off.

Larger paddocks were permanently subdivided to assist grazing management.

Once paddocks had been 'cleaned out' in summer/autumn and there was no growth occurring due to dry conditions, the stock were kept off paddocks as much as possible, and in large mobs, with heavy feeding of supplementary feed. Moving stock around under such conditions would just be "changing the scenery".

The group was taken through the exercise of determining whether, and when, to lock up paddocks for hay/silage. You need to decide how much fodder is required, and then calculate how much area is required to produce it. Would the balance of the farm then be able to grow at the required rate to adequately feed the stock on hand?

A big advantage of the above exercise combined with controlled grazing under a rotational system, is that surplus feed becomes confined to specific, manageable areas of the farm which you can then do something with. There is also a reasonable wedge of quality pasture over the rest of the farm to feed the stock. As the spring progresses, there is an emphasis on maintaining pastures in a vegetative state. This system greatly assists in such control. Otherwise pastures produce seed heads, with the subsequent lowering of pasture quality and productivity over summer.

Stock

The need to offer quality pasture to priority stock, such as vealers, was shown in spring 1996, when a weighing of these calves showed that they had only gained at 0.75 kg/day when they should have been gaining at about 1.5 kg/day.

Calves were weaned early (eg. in January for spring calves) when pasture availability was dropping rapidly due to dry conditions.

Dry cows, dry ewes, or wethers were used at various times for removing dry feed from paddocks, while priority stock such as weaners or fattening lambs had access to the higher quality pasture.

A dry autumn in 1998, with significant rainfall not occurring until May/June resulted in low pasture cover throughout this period and the need for considerable supplementary feeding of cows/calves and ewes/lambs. There were discussions held on the nutritive value and pros and cons of various feeds. Also, how much to feed different classes of stock and the comparative costs compared with alternatives such as agistment and use of urea. Oats were considered one of the best feeds for sheep and substantial quantities were fed.

There was also considerable feeding of supplement in the form of hay, silage and oats in late autumn/early winter 1999. Stock were confined as much as possible over this period. This strategy paid off with good pasture growth following May rainfall, on ungrazed areas of the farm.

Oats were used again in autumn 2000 to supplement the ewes, replacement ewe lambs and fat lambs, since the autumn break once again came late, and conditions were dry with very low pasture availability.

Fertiliser

Discussions were held on how much fertiliser should be applied to bring soil fertility up to sufficient levels according to how much pasture had to be produced to maintain particular stocking rates. Mention was also made of how much soil nutrient a hay crop removes.

Calculations of the farm fertiliser requirements in autumn 1997 showed that the proposed rate of 250 kg of 2:1 would not allow a lift in soil fertility at the current stocking rates. However, although it was felt desirable to lift soil fertility, the current returns from the beef enterprise did not justify increased application of fertiliser.

Urea was used to boost pasture growth during periods of limited pasture availability, such as during the generally dry winter of 1997 and early winter 1998 following a late break. Responses to these nitrogen applications were good, with at least a 5:1 response after only 20 days in 1997 and between 9:1 and 12:1 in 1998. Having this nitrogen on the paddocks allowed maximum benefit of rainfall when it did occur. In 1997 this extra pasture was put to good use in feeding the autumn ewes/lambs, and for cows/calves as well as ewes/lambs in 1998.

Weeds

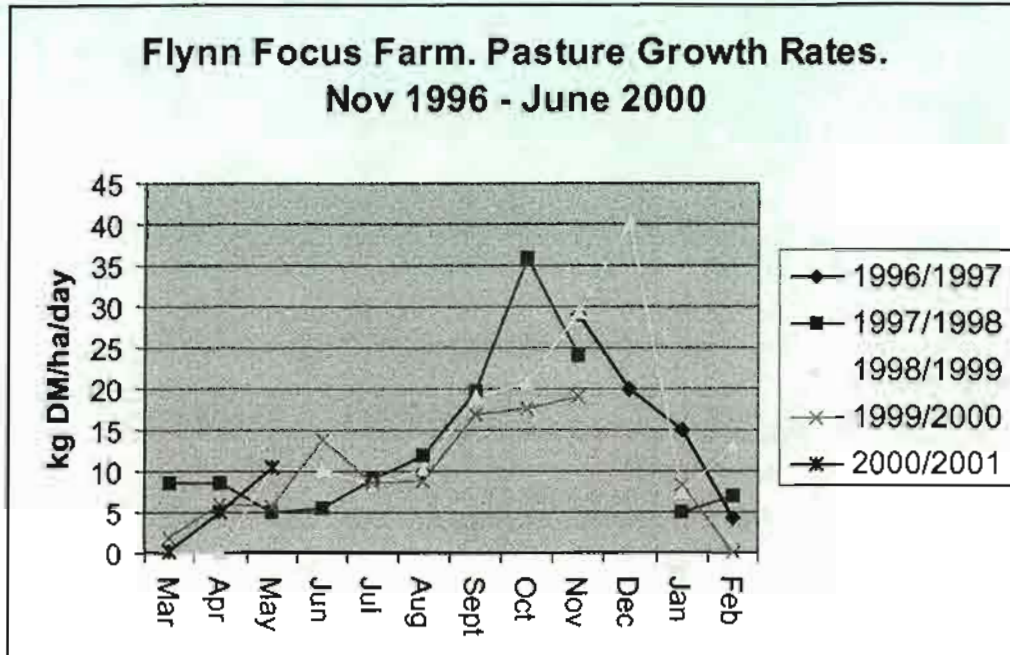
The spraygrazing technique was used in early winter 1998 to control significant germination of capeweed over large areas of the farm. The herbicide was applied either by plane or from the ground. The results were generally very good once the paddocks were grazed. The capeweed control was commenced much earlier than the previous year and more paddocks were treated. Results in 1997 were good despite some areas not being sprayed until October. However, in 1998 the results were dramatic, particularly on the earliest sprayed paddocks, with almost complete removal of capeweed and increased ryegrass. The effectiveness of the spraying was still evident in 1999, with minimal capeweed in previously sprayed paddocks, contrasting with heavy capeweed in missed strips.

6. Pasture Growth Rates

Kilograms of Dry Matter per hectare per day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		8.6	0	1.9	0.2
Apr		8.5	0	6	4.9
May		5	10.4	5.6	10.5
Jun		5.5	10.2	13.7	NA
Jul		9.1	8.4	8.5	
Aug	10	11.9	10.2	8.7	
Sept	NA	19.8	19	16.9	
Oct	NA	36	20.7	17.7	
Nov	29	24	29.4	19	

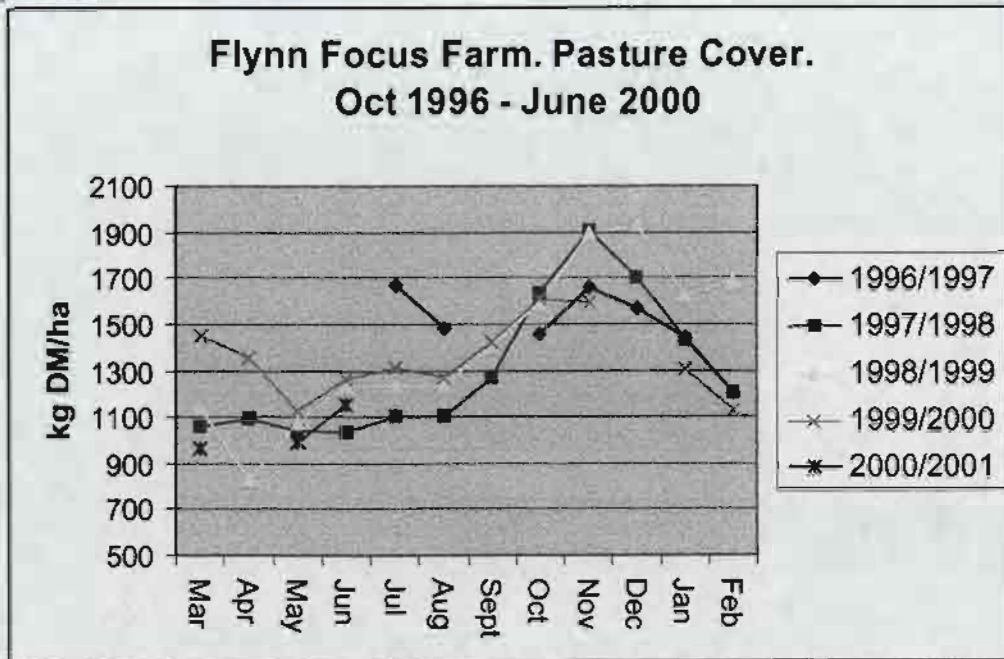
Dec	20	NA	40.3	NA	
Jan	15	5	7.5	8.4	
Feb	4.4	7	13.2	0	



7. Pasture Cover

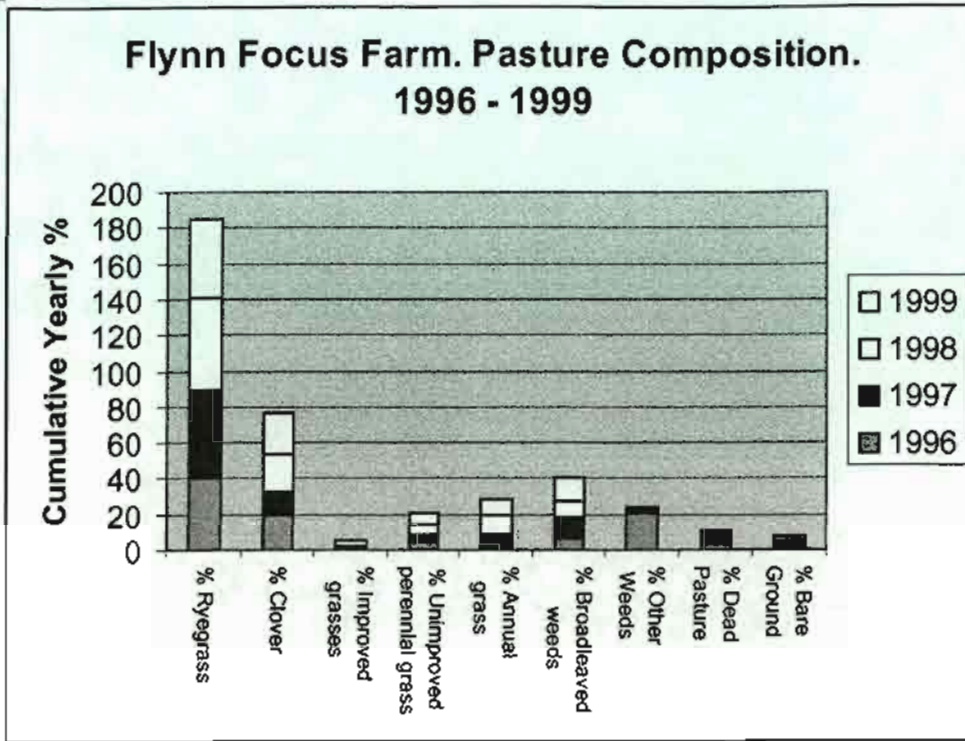
Kilograms of Dry Matter per hectare per day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		1062	1140	1446	967
Apr		1092	826	1354	NA
May		1041	1073	1130	991
Jun		1036	1235	1260	1154
Jul	1667	1099	1239	1309	
Aug	1480	1100	1240	1270	
Sept	NA	1267	1410	1419	
Oct	1457	1631	1589	1607	
Nov	1662	1902	1895	1592	
Dec	1563	1705	1929	NA	
Jan	1439	1427	1630	1304	
Feb	1200	1200	1681	1130	



8. Botanical Composition

	%	% r	% Improved	% Unimproved	% Annual	% Broadleaved	% Other	% Dead	% Bare
	Ryegrass	Clover	grasses	perennial grass	grass	weeds	Weeds	Pasture	Ground
1996	40.5	20.2	1.2	4.2	0.8	7.1	20.4	3.1	0.3
1997	49.0	13.0	1.0	4.0	7.4	11.2	3.8	6.5	4.2
1998	51.8	20.6	0.3	5.7	11.7	8.7	0.0	0.0	1.1
1999	43.0	23.0	3.0	7.0	8.0	13.0	0.0	1.0	2.0



9. Soil Tests

	Paddock 5		Paddock 20	
	1996	1999	1996	1999
pH	5.4	5.4	5.4	5.4
P	6.3	15	7.5	15
K	90	110	98	100
S	7	17	11	14

10. Fertiliser Use

Fertiliser Inputs:

Kilograms per hectare of elemental nutrient averaged over whole farm

	1996/97	1997/98	1998/99
N kg/ha	2.8	3	3
P kg/ha	13	24	19.4
K kg/ha	41	47	27
S kg/ha	16	30	23

11. Rainfall

	1997	1998	1999	2000
Jan	25	48.7	70.9	65
Feb	19	52.6	85.8	24.1
Mar	99	11.7	41.3	24.9
Apr	12	33	17.3	45.5
May	41	33.8	63.9	130.6
Jun	63	52.1	49.6	142
Jul	50	32.8	34.3	
Aug	44	30	74.0	
Sept	56	62.5	73.6	
Oct	49	101.6	63.0	
Nov	57	99.6	48.4	
Dec	24	104.9	55.0	
Total	539	663.3	677.1	

12. Main Conclusions

This focus farm was possibly one of the greatest challenges for the BeefCheque system, as with such a diverse range of enterprises there were at least 9 mobs to manage at any one time. However by sticking to the principles it was shown that there were gains to be made. The uptake of BeefCheque practices both by group members and other district farmers was quite an achievement. This group has a solid foundation and is bound to continue into the future.

13. Comments From the Focus Farmers and the Group

"I now use electric fencing to prevent backgrazing."

"Jeff Urie was an inspiration."

"During the tough seasons, getting together as a group has kept us sane and you realise that we are all in the same boat."

"This is the best thing that I have ever been involved in and I regret that it wasn't 30 years ago."

"Sharing of knowledge has been a great thing, people are no longer as secretive, and we share our problems as well."

"I can now estimate how much pasture there is and how much the stock need."

"We have learnt how to grow more grass and how to utilise it."

“All our stock are now under total control with a front and back fence to control grazing.”

“The workload is not as much as you might think.”

“We haven't destocked during the drought at all and we have learnt how to cost out different feeds.”

“Has been a steep learning curve as we initially didn't have the skills. Still need to implement the system but we have a good support network to assist change.”

“Learning how to take in information and apply it at home. Field days provide information but don't educate, BeefCheque talks a language that farmers understand. We now have reasons for doing things on farm, they don't just happen.”

“BeefCheque has provided good information.”

“Group members are open and helpful.”

“Am now rotational grazing and using more fertiliser, feed budgeting and strategically using supplements. Didn't have to buy hay last year as a result of what has been learnt from BeefCheque.”

“I am subdividing larger paddocks and am aware of the effects of backgrazing. Have learnt a lot despite bad seasons and am looking forward to seeing what can be done in a good year.”

“I had a farm plan and BeefCheque has helped to implement it. It presents a different way to look at things. Caters for new and older members and younger members need this kind of knowledge.
A great opportunity to move forward.”

“Very enjoyable, has been beneficial at home and made the tough seasons bearable.”

MAFFRA BEEFCHEQUE FOCUS FARM

1. Background

Focus Farmer:	Gary & Maria Rose
Starting Date:	April 1996
Consultant:	Jeff Urie, Ag-Challenge Pty Ltd
Location:	Valencia Creek
Property Size:	Total of 123 ha on 2 blocks. (35 ha irrigated and 88 ha dryland)
Average Rainfall:	610 mm
Soil Type:	Sandy clay loam
Stock (July 1996):	67 calving cows, 18 dry cows, 25 weaners, 22 replacement heifers
Calving:	July/August
Replacement Policy:	Self replacing herd
Market:	Vealers
Stock (July 1999):	114 calving cows, 23 weaner heifers and 3 bulls

2. Focus Farm Objectives & Production Aims

April 1996: Initially to run 100 cow & calf units and increase average finished calf weight from 320 to 340 kg

3. Production Summary

Performance measure	1996/97	1997/98	1998/99	1999/00	
Stocking rate dse/ha	16.2	7.5	13.4	15.5	
Stocking rate dse/ha/100mm rainfall	NA	1.7	2.7	3.6	
Liveweight output kg/ha	287.4	NA	NA	NA	
Liveweight output kg/ha/100mm rainfall	NA	NA	NA	NA	
Pasture consumption & conservation (t DM/ha)		3.95	2.0	3.6	4.2
Pasture grown (t DM/ha)	7.979	3.727	4.801	4.164	
Pasture grown (t DM/ha/100 mm rainfall)		NA	0.843	0.980	0.984

4. Main Achievements

- 4.1 Grazing and pasture management aimed at maintaining pasture quality during periods of fast growth, and maximising growth during periods of slow pasture growth
- 4.2 Pasture budgeting, including setting of winter pasture cover targets.

- 4.3 Use of techniques such as pasture topping and strategic use of nitrogen to control or boost pasture quality and growth.
- 4.4 Calculating costs and benefits of “finishing” stock for market using bought in supplementary feed.
- 4.6 Demonstration of the benefits of higher rates of fertiliser on pasture production
- 4.6 Managing the farm through difficult, extended dry periods while maintaining the capacity to quickly return to normal production when seasonal conditions were better.

5. Summary of Focus Farm Activities

Pasture Management

From the first walk, a winter pasture cover target was set. The aim was to achieve an average pasture cover of 1760 kgDM by June. Each year through the project, a winter feed budget was prepared and pasture targets set. The actual values changed each year depending on current stock numbers, availability of supplementary feed and seasonal conditions. In late autumn 2000 the target was only 1325 kgDM. This would, however, mean feeding out all available hay during the winter, or preferably in the late autumn or early winter while pasture growth rates were still reasonably good. This would maximise pasture growth on the rest of the farm.

Grazing management was tightened after the first walk to force the cows to eat more of the available feed, and leave less residual pasture. This wasn't achieved quickly. At the second walk the paddocks were still being left uneven, so dry cows were used as a follower mob to clean out the pasture clumps.

Pasture cover increased dramatically over the first month of the project, as a result of use of nitrogen, nearly reaching the winter target. However by the next month the pasture cover had declined again, highlighting the need to use a combination of strategies to maintain pasture cover, including restricting pasture intake, selling market ready stock and feeding hay. The lesson was learnt and pasture cover then started to build again through winter.

During spring 1996, the problem of maintaining pasture quality, with growth exceeding consumption, was the main pasture management issue. Weaners were given the best quality feed and fed ad lib. Pasture topping, ahead of the stock, was used as necessary, to increase consumption and maintain evenness across pastures. Conditions were not ideal since it was drier than normal by the end of spring and there was talk of restricting stock intake to allow setting aside paddocks for hay making. However, this was not done since hay should only be made from a genuine pasture surplus. Some hay was eventually made without restricting stock intake. It was a measure of the effectiveness of the pasture management that at the time the focus farm was carrying 25 more cows and calves, plus 47 extra weaners, than previous years. Also, while the focus farm was trying to control a pasture surplus, the neighbouring farms were still feeding hay due to a lack of growth.

During the dry spring of 1997, a quick survey of attendees at a focus farm walk indicated that those members who were feeling the most comfortable about their own farm feed situation, were those who were holding to rotational grazing and had used nitrogen fertiliser.

By summer 1997, conditions had become very dry. Water for irrigation was limited but there was enough to keep pasture growing at a rate close to consumption on this block. Stock were evenly grazing paddocks that were topped in spring but leaving clumps on other paddocks. On the dryland block the growth rate was quite low. The best pasture (quality and growth) on this block was those areas that had been slashed in spring. The feed value of short dry feed is better than long dry feed and there is more chance of short feed, with some green still evident, being able to respond to summer rainfall. Such paddocks will also “get away” faster following the autumn break.

In general, the lesson learnt from topping was that at least one topping in late October/ early November was beneficial for any paddock with significant residual feed after grazing. Topping at any stage is beneficial where stock won't graze paddocks cleanly. However, it is difficult to put an absolute economic value on topping.

A trial area was fenced off on the dryland block to allow monitoring of the effects of higher stocking rates and a range of fertiliser rates on pasture production and composition. The trial area was run as a separate farm with a small number of stock rotationally grazing the plots. Early results in late 1996 showed an improvement of pasture composition on the higher fertility plots. This area stood out during dry periods such as in autumn 1997, with improved density and a greater amount of green leafy material.

Initial efforts on the dryland farm concentrated on removing dry or rank feed, to allow quality new growth and start to improve pasture composition. This was achieved by the end of winter 1996 using a combination of slashing and grazing with large mobs of cattle.

Seasonal conditions had improved greatly by spring 1998. With the return of adequate rainfall, the careful grazing management on the focus farm was producing large surpluses of pasture growth by November. The surplus was conserved as silage or hay. Long pasture was being cut and wilted in front of the stock, to encourage them to eat all that was offered. This would also help to encourage ryegrass tiller development and produce short, even, leafy pasture going into summer.

“Spray-topping” was carried out on a strip of pasture in one paddock in December 1998. This process used a low rate of glyphosate to stop reproductive development of grasses. This preserves the quality of pasture for grazing later. A difference in pasture quality could be observed in March 1999, with the sprayed strip being leafier, with less dead matter. At the same time, in another paddock where half of the area had previously been mechanically topped, the new ryegrass tillers were well established on the topped side. On the other side the new tillers were fewer and were not growing as well. A rough analysis of the financial costs and benefits of mechanically topping pastures indicated that the costs could be recovered in the first year by an increase in stocking rate. With good pasture management, this benefit would carry through to following seasons.

During the BeefCheque project, a number of paddocks on the dryland part of the farm were cropped to provide grazing during summer/autumn or grain for supplementary feeding of stock. Crops such as triticale and millet were grown. An additional important benefit was to “smooth out” rough paddocks and allow sowing down to productive permanent pastures. This exercise proved to be very worthwhile, with the extra feed from the crops paying for the soil cultivation and sowing costs. It is expected that the additional costs of sowing down permanent pasture would quickly be recovered by the additional production from the new pastures.

In late spring/early summer 1999, conditions had become dry again. The emphasis was put on doing the planning early to get the farm through the expected time of feed shortage. The figures on current and expected pasture and supplementary feed availability versus stock requirements have to be calculated. Various options have to be considered, including agistment, culling and destocking. All the options have to be costed and the returns compared. The previous dry conditions experienced had shown that by planning and preparing you can manage the situation and come out the other end in good condition.

Weed Control

In one paddock, test strips were sprayed with a grass selective herbicide (Verdict) in April 1997, to control the less palatable and digestible paspalum, which at the time was competing strongly with the ryegrass. Observations made in July 1998 were that the ryegrass plants were clearly more vigorous in the sprayed strips than in the rest of the paddock. The spraying appeared to be effective in improving long-term pasture composition, and therefore was a useful management tool.

Weeds in the lucerne paddock were quite evident in July 1998. However, it was felt by the group, that it would be better not to spend money on spraying for weed control, when the money could be used more effectively elsewhere. Such as applying nitrogen on other paddocks, to boost pasture growth during a time of very limited pasture availability.

Adverse Conditions

The lack of rainfall during late 1996 and throughout 1997, resulted in severely reduced flows in the creek used to supply much of the irrigation water for the home block. A total ban was placed on drawing water from the creek for much of this period. The home block was, therefore, not able to be irrigated sufficiently to maximise pasture growth. During the rest of the project there was generally only limited water available from the creek for irrigation. The bore was not able to keep up with full water demand.

Fertiliser

Urea was applied after the first walk to increase pasture growth rates. The best paddocks with applied nitrogen had double the growth rates of paddocks with no nitrogen. Average response to nitrogen was 13:1.

Fertiliser test strips were established early in the project. Interactions were observed between P, K, Mo and S, with the best plots being those with the highest rates of the above combination. Significant responses to phosphorus and molybdenum, in particular, were observed.

There were visual clover responses to phosphorus in the trial grazing area plots. The plots with the highest rate of phosphorus had the highest percentage of sub clover. There was virtually only cluster clover in the areas with the lowest rate of phosphorus.

A lime trial site was established on the focus farm. This was a small area in a paddock. There were no positive pasture growth or composition results noted, due to the lime. In fact, pasture growth was, if anything reduced, by the lime. This was probably due to an interaction of the lime with soil phosphorus. Calcium binds to phosphorus and can tie it up in the surface soil, making the phosphorus largely unavailable to plants. This is particularly the case in times of low rainfall where the surface soil becomes rather dry. The lime was applied with 400 kg/ha super potash 3:1. One half of the trial had only the super potash applied. In this area the ryegrass and clover growth was dramatically better than the rest of the paddock. The rats tail grass, which was a significant weed in the paddock, was out competed where there was sufficient fertiliser.

Stock

Summer and autumn 1997 was quite dry and by April it was obvious that if the weaners were to be ready for sale by mid winter, they must be fed largely on a quality supplement. This was also considered likely to be the most profitable option. The alternatives were to sell them immediately or feed them maintenance only, and keep them till the following spring. This would help take the pressure off the rest of the farm and provide the potential, given sufficient rain, for a lift in pasture cover towards the June target. This exercise proved to be profitable, with net gain per head ranging between \$10 and \$80

A managed decline in the condition of the dry cows was used as an alternative to supplementary feeding to assist in achieving an average increase in farm pasture cover during autumn 1997. A loss of ½ condition score over 2 months was allowed, in conjunction with rotational grazing over a section of the dryland block. These cows were monitored and those in poorer condition were removed and supplemented with hay or put onto better pasture if required.

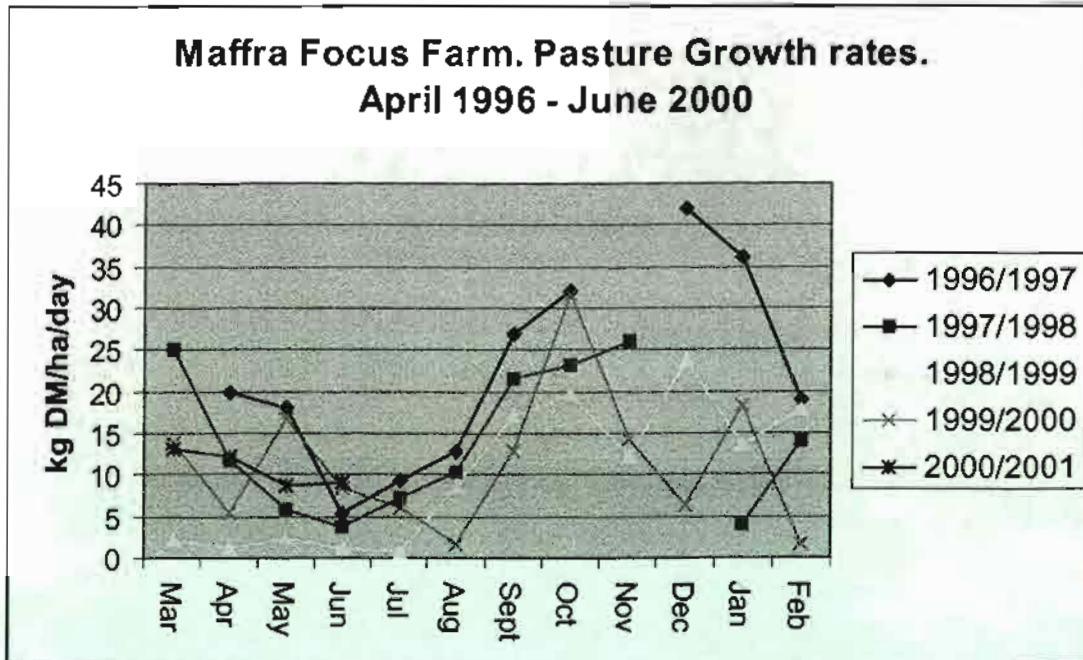
40 cows and calves were agisted off the farm during spring 1997 to ease pressure on pasture availability due to continuing dry conditions. This was considered a cheaper option at the time than buying supplementary feed. Selling stock wasn't desirable since it was cull cows that should be sold and at the time there were no candidates. The empty cows were later sold after pregnancy testing. Another option was to wean the calves early but they were too young for this to be successful.

Heavy feeding of hay replacer pellets was used to supplement all stock remaining on the farm during autumn and winter 1998. Pasture availability was very low due to continuing dry conditions.

6. Pasture Growth Rates

Kilograms of Dry Matter/ha/day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		25	2	13.8	13.2
Apr	20	11.8	1.2	5.3	12.3
May	18	5.9	2.4	16.7	8.7
Jun	5.5	3.8	1.11	8.4	9.1
Jul	9.4	7.3	0.8	6.1	
Aug	12.9	10.3	8.7	1.6	
Sept	27	21.6	17	12.9	
Oct	32	23.2	19.8	31.7	
Nov	NA	26	12.2	14.2	
Dec	42	NA	23.7	6.3	
Jan	36	4.1	13.7	18.3	
Feb	19	14	17.9	1.6	

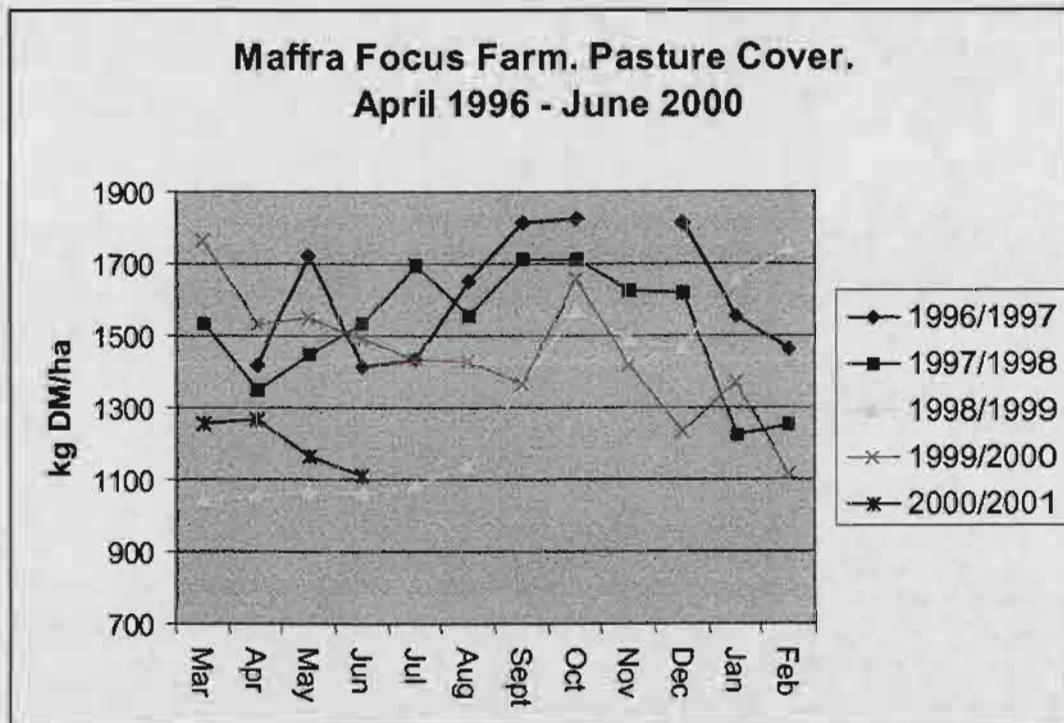


7. Pasture Cover

Kilograms of Dry Matter/ha/day

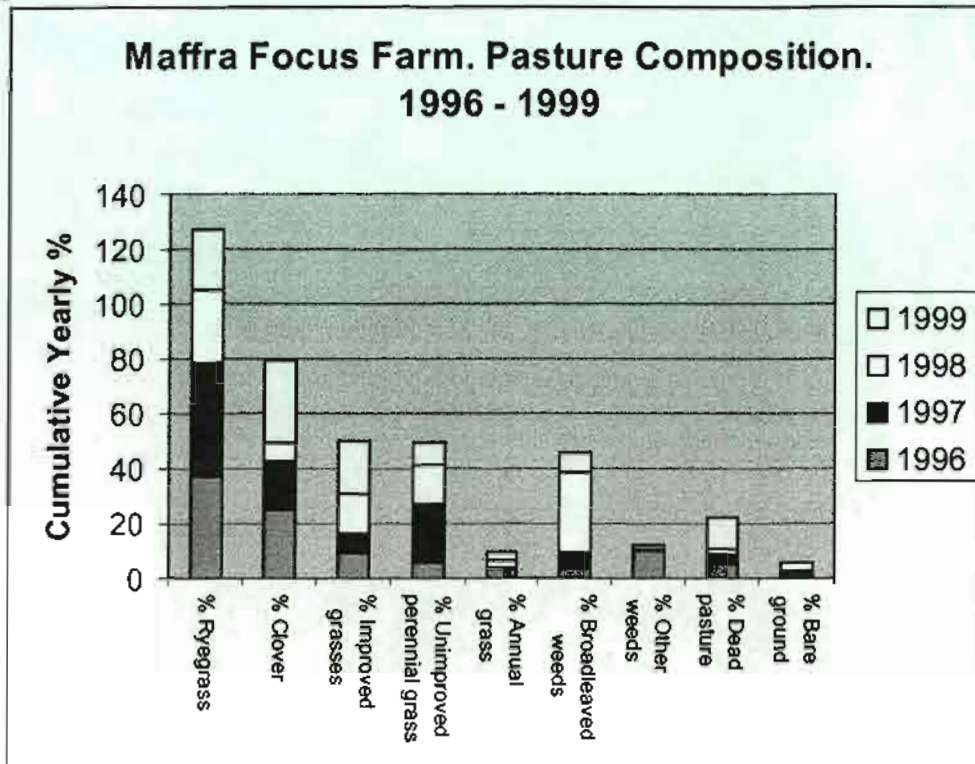
	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		1535	1046	1766	1258
Apr	1420	1351	1057	1534	1266

May	1721	1448	1066	1549	1165
Jun	1412	1533	1062	1488	1110
Jul	1434	1693	1086	1437	
Aug	1650	1552	1138	1429	
Sept	1812	1711	1364	1365	
Oct	1824	1712	1571	1656	
Nov	NA	1627	1487	1419	
Dec	1811	1618	1467	1235	
Jan	1555	1226	1656	1368	
Feb	1463	1250	1743	1116	



8. Botanical Composition

	% Ryegrass	% Clover	% Improved grasses	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Other Weeds	% Dead Pasture	% Bare Ground
1996	36.9	25.3	9.0	5.4	3.6	3.9	9.9	5.3	0.7
1997	41.6	17.3	7.7	21.8	0.2	5.5	0.9	3.1	1.9
1998	26.4	6.7	14.0	14.3	2.5	29.4	1.3	2.6	3.3
1999	22.0	30.0	19.0	8.0	3.0	7.0	0	11.0	0



9. Soil Tests

	Home Paddock 5	Whitewood paddock 5
	1999	1999
pH	6	5.7
P	15	17
K	270	120
S	20	7

10. Fertiliser Use

Fertiliser Inputs:

Kilograms per hectare of elemental nutrient averaged over whole farm

	1996/97	1997/98	1998/99	1999/00
N kg/ha	8.1	8.1	1.5	0
P kg/ha	2.4	3.5	1.6	10.6
K kg/ha	14.2	10.2	0	8.9
S kg/ha	3.1	4.4	0.1	13.2

11. Rainfall

	1997	1998	1999	2000
Jan	41	59.2	71	32
Feb	20	37.1	38	22
Mar	42	14	32	41
Apr	8	0	24	34
May	38	9	48	97
Jun	66	169.5	0	5
Jul	20	6.5	13	
Aug	17	47.5	35	
Sept	36	12	17	
Oct	10	42.5	40	
Nov	39	109.2	14	
Dec	31	59	73	
Total	368	565.5	405	

12. Main Conclusions

This farm relies on irrigation both from Valencia Creek and from a bore. The bulk of production is from the 27 ha "Home" block.

Production has been restricted over the past 3 years due to frequent irrigation bans on the creek and the failure of the bore to deliver at historical levels despite being upgraded by the addition of additional spear points.

Production dropped with the onset of the drought, but has increased steadily over the past 3 seasons despite the continuing dry conditions.

Group members have taken up BeefCheque principles and are all using them to differing extents in their operations. One member has made a successful change in enterprise to dairying and states that the confidence gained from being a member of the BeefCheque group has allowed him to take this step.

13. Comments From the Focus Farmers and the Group

"Group support invaluable. An opportunity to learn from other people."

"Learnt a lot about grazing management and stock needs."

"Learning to cope with change, has helped adapt to other changes that are forced upon us."

"BeefCheque has not been utilised to full advantage in some aspects."

“Learnt the regrowth potential of better managed pastures.”

“Haven't seen the full benefit of what has been learnt yet. BeefCheque has been a source of inspiration and a place to meet new people.”

“I have gained more knowledge in the past 5 years than in the previous 25 years.”

“I now have a greater ability to change.”

“Group friendship invaluable.”

“I'm disappointed that BeefCheque walks are winding up.”

“Good place to keep in contact with others in the industry and to find out how others do things.”

“I've learnt what happens to pastures above and below ground.”

“Realisation of stock requirements.”

“More control with strip grazing.”

“ I haven't yet capitalised on what has been learnt about how grass grows.”

“It's good to be able to measure pastures to see how you are travelling.”

“Amazing to see what can be done since I started rotational grazing and using urea.”

“Dry seasons really showed the benefits of BeefCheque management.”

ORBOST BEEFCHEQUE FOCUS FARM

1. Background

Focus Farmer:	Graeme Russell
Starting Date:	September 1996
Consultant:	John Mulvany, On Farm Consulting Pty Ltd
Location:	Jarrahmond
Property Size:	Total of 123.6 ha on 2 blocks. Effective grazing area 123.6ha
Average Rainfall:	800 mm
Soil Type:	Block 1 - Grey sandy loam, Block 2 – Brown clay
Stock (July 1996):	40 Cows/calves, 92 Heifers 1 – 2 year old, 160 Bullocks, 72 Steers
Calving:	February - April
Replacement Policy:	Self replacing Angus herd.
Market:	Fat Cattle (Coles), vealers
Stock (July1999):	161 Cows and calves.

2. Focus Farm Objectives & Production Aims

September 1996:

- To produce weaned calves of 300 kg liveweight.
- To increase stocking rate.

3. Production Summary

Performance measure	1995/96	1996/97	1997/98	1998/99	1999/00
Stocking rate dse/ha	NA	NA	13.4	25.3	21.6
Stocking rate dse/ha/100mm rainfall	NA	NA	1.5	3.2	2.74
Liveweight output kg/ha	NA	NA	NA	470.7	NA
Liveweight output kg/ha/100mm rainfall	NA	NA	NA	67.2	NA
Pasture consumption & conservation (t DM)		9.49	NA	3.6	6.8 5.8
Pasture grown (t DM/ha)	NA	NA	3.674	7.288	6.077
Pasture grown t DM/ha/100 mm rainfall)	NA	NA	0.400	0.938	0.772

4. Main Achievements

- 4.1 Use of rotational grazing to maximise pasture production
- 4.2 Pasture management in high growth periods of spring concentrated on maintaining short, quality, vegetative pasture and carrying this into summer/autumn

- 4.3 Preparation of winter feed budgets according to calculations made on stock feed requirements and expected availability of pasture and supplementary feed.
- 4.4 Managing stock to achieve required fat and condition scores at the correct time – joining, calving, stage of lactation, or finished stock for sale. This also included utilising stock condition as an alternative to fully feeding stock – allowing stock condition to decline in a controlled way.
- 4.7 Successful control of weeds such as capeweed, and learning to manage kikuyu to increase the quality of the feed on offer
- 4.6 Use of nitrogen fertiliser to boost pasture growth, as required.

5. Summary of Focus Farm Activities

Pasture Management

As a result of rotational grazing, the pasture production was good and often kept pace or exceeded stock requirements, even in prolonged, relatively dry conditions

Pasture management in high growth periods of spring concentrated on maintaining short, quality, vegetative pasture and carrying this into summer/autumn rather than large amounts of long, dry, poor quality feed.

Utilising a follower mob (dry cows or young heifers) behind priority stock (cows/calves, finishing stock) to 'clean out' paddocks when pasture needed to be reduced to maintain quality or vegetative state.

Long rank feed has a low digestibility, which will limit animal intake. Short, leafy, dry pasture in summer, has a high dry matter percentage and maintains high quality which leads to good animal performance. Spring grazing management, which promotes vegetative tiller survival, is an important aspect of this time of year, since it sets the farm up for the remainder of the season and into next season.

Process established for determining whether there was a genuine pasture surplus developing prior to 'locking up' paddocks for fodder conservation.

Managing the decline of pasture feed bank during summer and early autumn, prior to the autumn break.

Preparation of winter feed budgets. This means calculating the amount of pasture feed required by the number of stock on hand, given the average expected pasture quality (energy value of feed) and the period over which this feed is required (eg low growth rate period of winter). Then, using the expected pasture growth rate over this period and the farm area, the shortfall of pasture can be calculated. This shortfall can be made up in several ways. A feed wedge can be created in autumn with careful pasture management. Supplementary feed can be provided. More likely a combination of these methods will be

used. This is particularly necessary for winter feeding of priority stock such as autumn cows/calves.

The focus farm also used oversowing with hybrid ryegrasses such as Tetilla and Concord to boost winter pasture production

Weed Control

Control of kikuyu by grazing and other techniques to increase the quality of the feed on offer, and promote growth of species such as perennial ryegrass which are winter active.

Very successful control of capeweed using the spray/graze technique. Paddocks grazed out hard in spring ended up with better composition and less capeweed next season

Adverse Conditions

Coping with blue green algae in the farm water supply.

Coping with unusually dry conditions (particularly during 1997) by rotational grazing, acceptance of maintenance-only diets, use of silage, selling stock and moving them between blocks.

Fertiliser

Use of applications of urea to boost pasture growth when required

Deciding on fertiliser requirements to allow focus farm to carry required stock and maintain or increase soil nutrient status.

Economic Decisions

Costs versus potential income investigated for feedlot-type feeding of heifers/steers to reach target weights

Discussions on how much you can afford to pay for extra stock, given the expected market, timeframe for stock growth, market requirements and expected sale price.

Discussions on economics of irrigating to produce feed to conserve and then feed out later versus utilising the best of currently available pasture to finish and sell stock earlier. Decision made to do the latter.

Stock

Culling of cows unable to produce weaned calves of the target weight of 270 kg (Long term aim 300kg liveweight at weaning)

Utilising stock condition as a resource where appropriate (instead of, or in addition to supplementary feed), to allow rationing of available pasture, and therefore achieve pasture management targets. On average a fat score is equal to 72 kg of liveweight. When an animal loses 1 kilogram of liveweight, 28 MJ of energy are released.

Managing stock to achieve required fat and condition scores at the correct time – joining, calving, stage of lactation, or finished stock for sale.

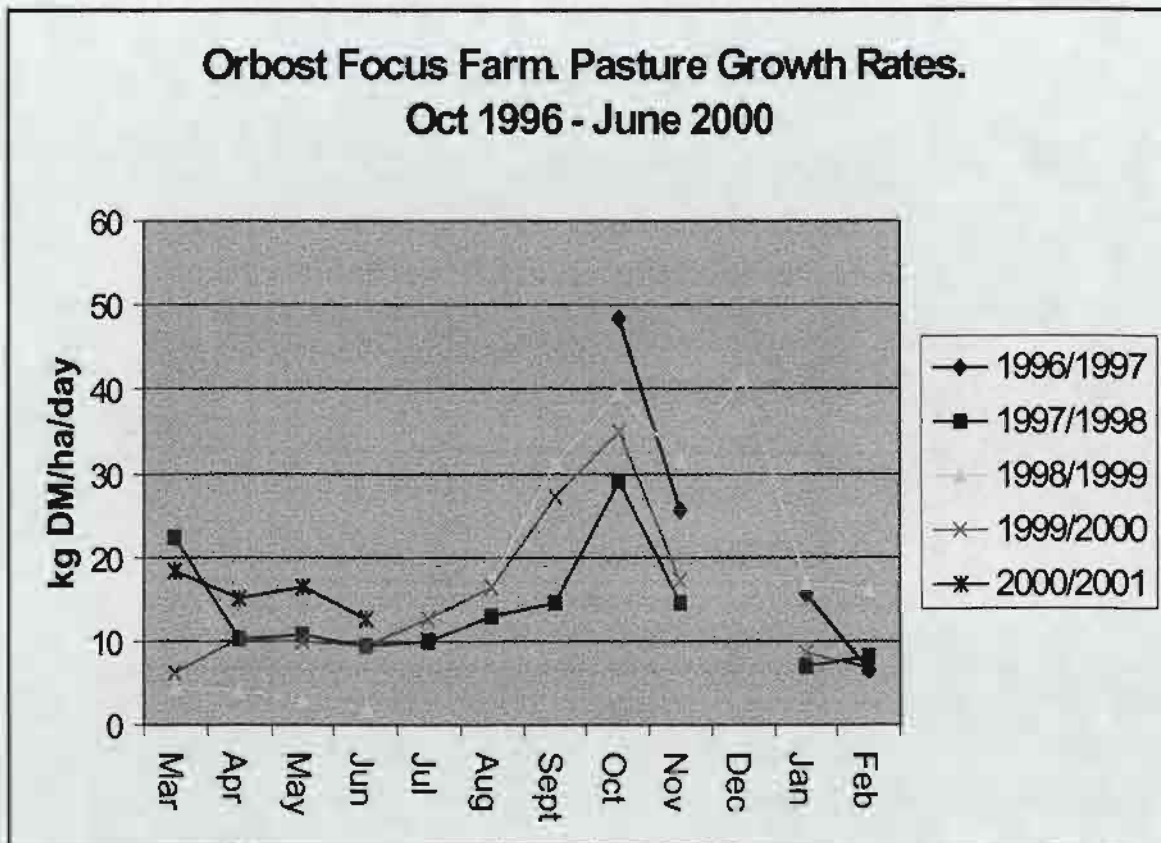
Use of rotational grazing and improved pasture management allowed the focus farm to carry more stock at higher condition scores and liveweight growth rates than in previous years

Calves were weaned in January 2000 about 2 weeks earlier than usual, due to dry conditions and the need to retain the better quality feed for the weaners. The dry cows were put onto the poorer quality feed. The plans for the weaners were to put them into the feedlot market, rather than incur extra costs by trying to finish them. The calves at weaning were, on average, 20 kg heavier in 2000 than the previous year.

6. Pasture Growth Rates

Kilograms of Dry Matter/ha/day

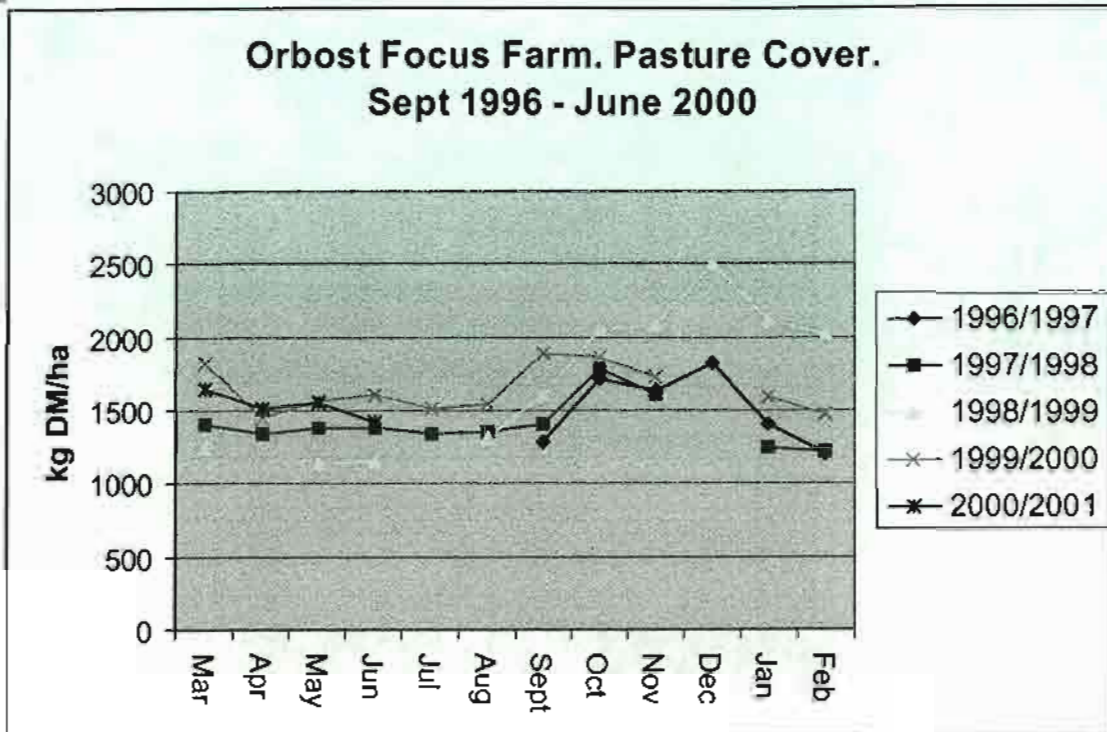
	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		22.2	4.7	6.2	18.2
Apr		10.2	4	10.3	15.2
May		10.8	3	9.9	16.5
Jun		9.3	1.8	9.3	12.7
Jul		10	NA	12.6	
Aug		13	17.2	16.3	
Sept		14.5	31.2	27.2	
Oct	48.5	29.0	39.5	34.9	
Nov	25.5	14.6	31.6	17.1	
Dec	NA	NA	41.5	NA	
Jan	15.6	7	17.0	8.5	
Feb	6.5	8	16.1	6.8	



7. Pasture Cover

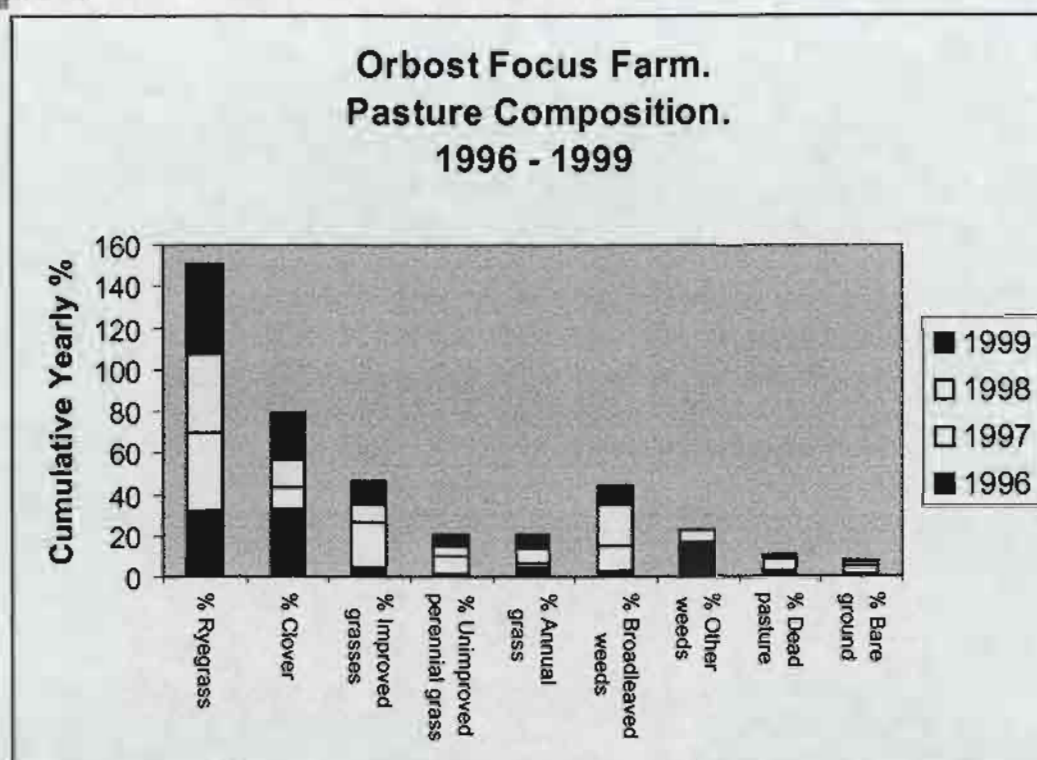
Kilograms of Dry Matter/ha

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		1405	1240	1827	1651
Apr		1342	NA	1452	1513
May		1375	1137	1564	1551
Jun		1380	1155	1601	1416
Jul		1345	NA	1518	
Aug		1355	1314	1536	
Sept	1287	1407	1613	1888	
Oct	1720	1780	2047	1864	
Nov	1634	1612	2089	1726	
Dec	1820	NA	2505	NA	
Jan	1406	1242	2110	1593	
Feb	1203	1215	2016	1476	



8. Botanical Composition

	% Ryegrass	% Clover	% Improved grasses	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Other Weeds	% Dead Pasture	% Bare Ground
1996	31.8	33.4	4.9	2.1	5.1	2.7	16.9	2.9	1.2
1997	37.4	9.9	21.8	7.9	1.4	12.6	0	5.5	3.5
1998	38.1	13.6	7.7	5.1	7.8	19.9	5.9	0.2	1.5
1999	43.0	22.0	12.0	6.0	6.0	9.0	0	2.0	1.0



9. Soil Tests

	Paddock 9	Yards	Heather	Block 2
	1996	1999	1999	1999
pH	5.2	5.1	4.9	5.6
P	5.6	22	19	32
K	116	64	120	310
S	4.6	7	8.6	8.7

10. Fertiliser Use

Fertiliser Inputs:

Kilograms of elemental nutrient per hectare averaged over whole farm

	1995/96	1996/97	1997/98	1998/99
N kg/ha	NA	NA	29.7	29.7
P kg/ha	9	NA	13.0	13.0
K kg/ha	50	NA	37.3	37.3
S kg/ha	NA	NA	15.9	15.9

11. Rainfall

	1997	1998	1999	2000
Jan	57	23.6	83.2	84.2
Feb	20	34.2	58	37.8
Mar	69	57.2	68	97.4
Apr	41	49.2	100.4	65.8
May	65	28.2	23.6	115
Jun	89	425.0	60.2	84
Jul	29	61.2	35.2	
Aug	18	69.4	34.8	
Sept	49	31.2	37	
Oct	70	63.6	65.2	
Nov	49	85.4	42	
Dec	87	72.4	88.4	
Total	643	1000.6	696	

12. Main Conclusions

The focus farmer Graeme Russell, was keen to try out the system and kept a close eye on the \$ side of the equation. He decided early in the project that there was money to be made from beef and downsized his vegetable growing operation in favour of increasing the size of his beef operation. He has been able to increase stocking rates by 50% by the use of fertiliser and better grazing management. The group was small, but enthusiastic and all have stated that they have benefited from the project.

"In June 1997 the farm was carrying the equivalent to 220 cows and calves (17.5 dse/ha) on the whole farm (not just the focus farm area). In 1999 the figure was 242 cows and calves and in 2000 it was 380 cows and calves (24.9 dse/ha). This final figure is an increase of over 40% since 1997.

I now have confidence in our management."

13. Comments From the Focus Farmers and the Group

"I was a 'beef producer' but now I am a 'grass grower'. BeefCheque has re-enforced a lot of things that I had heard of previously. It has been active learning, where I have picked up one principle at a time. Focus farm model has been great. I'm now feeding cattle properly - what they need (not what they want)."

"I'm learning about the principles to make more informed decisions."

"It's been a pleasure to be the focus farmer. I'm glad that the group had 'ownership' of the focus farm."

“BeefCheque has created a stimulus and a discipline. I had a fuzzy idea what should happen before, but BeefCheque helps get it right. We are now feeding stock to their needs, not what is available, and we have clear targets.”

“We have been able to work through the tough seasons and haven't yet maximised our potential, so there is no room for complacency.”

“The ripple effect in the district is larger than first thought.”

“It was a change to realise that we were in the business of growing grass. Once this was grasped, we then learnt how to measure what we had, how fast it was growing, and how much to feed our stock. Now that we know about pastures and animals, we need to learn more about the soil.”

“I am now finishing cattle in better condition.”

“Everyone needs benchmarks to see where you fit and how you are travelling.”

“Graeme (focus farmer) did an excellent job in 'making things work'.”

“We learnt about the hidden asset of fat on a cow's back.”

“I came along with a sheep background and knowing very little about cattle. It was an eye opener to learn about a different operation. Now I know where to find answers to problems.”

“I have learnt that quality feed, not gut fill, is what counts.”

STRATFORD BEEFCHEQUE FOCUS FARM

1. Background

Focus Farmers:	Col & Robyn Stothers
Starting Date:	February 1997
Consultant:	Jeff Urie, Ag-Challenge
Location:	Llowalong
Property Size:	Home Block 300 ha, Effective grazing area 292 ha
Average Rainfall:	575 mm
Soil Type:	Grey sandy loam
Stock (June 1995):	Cows 192, Springing Heifers 78
Calving:	Mid June – Mid September
Replacement Policy:	Self replacing
Market:	Vealers, stores
Stock (June 1999):	302 Cows, 13 Springing heifers, 10 Bulls

2. Focus Farm Objectives & Production Aims

February 1997:

- Increase numbers of cows/calves to 300 (stocking rate up 36% from 11.3 DSE/ha to 15.4 DSE/ha). This would be approximately 70% greater than the district average.
- Turn off 30% of calves as vealers (currently 15%)

3. Production Summary

Performance measure	1996/97	1997/98	1998/99	1999/00	
Stocking rate dse/ha	11.3	8.0	9.0	9.5	
DSE/ha/100mm rainfall	NA	1.3	1.6	1.8	
Total liveweight output (kg/ha)	181.5	129.3	127.2	NA	
Total liveweight (kg/ha/100 mm rainfall)	31.6	21.2	22.7	NA	
Pasture consumption & conservation (t DM/ha)		NA	2.17	2.32	2.57
Pasture grown (t DM/ha)	NA	1.994	4.215	2.389	
Pasture grown (t DM/ha/100 mm rainfall)	NA	0.432	0.757	0.464	

Note: The figure for DSE/ha in 1996/97 was calculated using different methods to subsequent years and therefore it is difficult to compare this year with the rest.

4. Main Achievements

- 4.1 Tight control of pasture grazing, using paddock rotation, large mobs and appropriate use of supplements. This helped make the most of available soil moisture for pasture growth in very dry conditions. In more favourable conditions, there was more surplus pasture to conserve as fodder, or there was the option of increasing stock numbers.
- 4.2 Calculating stock feed requirements and making informed decisions on how much supplement was required depending on pasture availability.
- 4.3 Trialing of several methods of controlling grassy weeds such as vulpia, and successful control of capeweed using heavy grazing or the “spraygrazing” technique.
- 4.4 Early weaning of calves to allow them to be given feeding priority, and managing the condition of cows to save feed, while recognising that there are critical times when cows must be well fed. This also applies to ewes and lambs.
- 4.5 Setting up an “opportunity feedlot” to finish bought in heifers, after having done the calculations to determine whether it would likely be profitable.

5. Summary of Focus Farm Activities

Pasture management & seasonal conditions

Conditions at the start of the farm walks were very dry, and this was to continue for the rest of 1997 and up until June 1998, with a brief respite in early spring 1997. Emphasis was put on using rotational grazing to give pastures as much chance as possible to grow, whatever the conditions. If growth is slow, then the rotation should be slow. A slow rotation, and use of sacrifice paddocks to keep stock off as much of the farm as possible, will also help preserve plant root reserves. This helps prevent plant death, and assists recovery and growth when rain is received. It is more efficient to use supplements just after the autumn break. Dry feed quickly loses what value it has following rain, and the use of supplements at this time will allow pasture to grow rapidly while the soil is still warm. This sets the farm up for winter with much of the feed thereafter being supplied by pasture. If the supply of supplements is limited, it is even more essential to try and follow this scenario.

As it turned out, there was no autumn break in 1997. So supplements continued to be fed at rates determined through stock requirement calculations, keeping in mind the objectives for each class of stock and the availability of pasture. Mobs were kept as large as possible to maintain control over grazing.

Conditions over late spring 1997 were not good enough to produce a genuine pasture surplus and hence there was no pasture hay cut. By the end of the year, there had to be consideration of measures to conserve the remaining pasture and prevent overgrazing. Fortunately, reasonable rains in December and January delayed the need to introduce tighter management. Pasture growth under good management responded well to the

rainfall. The calves were weaned in February 1998 and put onto a lease block and the dry cows were restricted in their overall feed intake with pasture strip grazed and hay fed.

There wasn't significant rainfall in 1998 until early June. Up until this time the options of selling the cows and destocking, versus keeping them and feeding large quantities of supplements, were being considered. The two options were costed out, and it was shown that a smaller loss would be made by keeping the cows. By August 1998, the amount of hay being fed was able to be reduced, since a combination of adequate rainfall and good grazing management had resulted in considerable lifts in pasture cover over a couple of months.

Good rainfall over late spring and into summer 1998/1999 resulted in considerable pasture excess. There wasn't much hay made, partly as a result of being hesitant during spring, about the good conditions lasting. Several options were used to deal with the excess. A mulcher was used to either top behind the cows, or simply mulch and waste the pasture. Some paddocks were dropped out of the rotation and deferred for later grazing. Hay was cut in one paddock. Topping of pastures, either after, or instead of, grazing, resulted in new grass and clover growth and increased grass tillering.

In winter 1999, there was no need to feed supplements to the cows and calves due to good rainfall in autumn and through winter. This was achieved in addition to having purchased an extra 40 cows in June 1999, bringing the herd to over 300. Last years calves were again weaned fairly early and pasture grazing was managed to allow a gradual decline in pasture cover through to the end of winter, in readiness for spring growth in excess of stock requirements. Pasture quality was good due to dry, stalky pasture having been cleaned out by dry cows during the autumn.

Seasonal conditions were again fairly tough during spring and summer 1999/2000. There was no spring pasture excess to conserve as hay. Despite the lower than average rainfall throughout much of this period, careful pasture management and supplementation with hay allowed stock pasture consumption to match pasture growth. Pasture cover did not drop too low, and was able to respond quickly to rainfall. There was optimism that despite a late autumn break, pasture growth could still pick up sufficiently to meet the mid June pasture cover target.

A notable achievement during the project was the resurrection of a stand of lucerne in paddock 4 using rotational grazing (1 week on and 6 weeks off) combined with increased fertiliser (including potassium). The aim was to increase plant density from 10 plants per m² to 25 plants per m². By December 1997, the lucerne had responded well to the changed management and plants were healthy with 10 or more tillers on most plants compared with 1-2 at the start of the project.

Weed Control

Vulpia and Spear grass were present at significant levels in several paddocks at the start of the project. Significant seed germination occurred in autumn 1997 and an initial control measure was to graze these paddocks hard, and with large numbers of stock, to see if trampling would prevent dominance of these weed grasses. The problem with these

grasses is that they “lock up” large amounts of soil nitrogen and phosphorus and use up soil moisture, and only produce poor quality feed. Application of nitrogen was also used as a means of controlling vulpia by encouraging it to produce seed heads on longer stalks, which could then be eaten off more readily by stock. Nitrogen also improved the quality of the vulpia.

Heavy grazing under a rotational system was also used to control capeweed. The idea was to stop the capeweed getting too large, shading out and generally out-competing other pasture species. The spraygrazing technique was used successfully in early spring 1998 to control capeweed.

Fertiliser

It was emphasised that there should be fertiliser applied over the farm prior to the autumn break. This can significantly boost pasture growth at the break. There is no loss of fertiliser prior to the break unless there is soil erosion.

The high proportion of cluster clover relative to sub clover in winter 1997 was an indication that there was a molybdenum deficiency which was restricting clover growth. Sodium molybdate was sprayed over 5 paddocks in winter 1997 to address the problem. Two other paddocks in late winter 1997 had supermoly 0.025% applied during renovation of these paddocks.

Urea was used strategically during times of low pasture availability and growth to increase pasture growth as an alternative to feeding additional supplementary feed. This was only possible however when there was sufficient soil moisture following reasonable rains. During winter 2000, the average pasture growth rate on nitrogen treated paddocks was 10.9 kgDM/ha/day compared with an average of 4.3 kgDM/ha/day for untreated paddocks. In one paddock, a strip treated with urea had grown from a base of 1100 kg DM to 1400 kg DM (a growth rate of 10.7 kg DM/ha/day) compared with 1200 kg DM (3.6 kg DM/ha/day) for the rest of the paddock. This works out at \$25.50/ha (70 kg urea/ha) or 12.6 cents per kg of pasture dry matter. This compares well with hay at \$120 per tonne or 14.1 cents per kg of dry matter.

Stock

Early weaning of calves in dry conditions can help reduce pasture consumption and save on supplementary feed costs. This allows the priority calves to be fully fed, while growing them for market, or to reach weight targets as replacement heifers. The dry cows can be safely restricted and allowed to gradually drop in condition until they need to start being fed well again after the first 5 weeks post calving. Restriction in the second five weeks has a greater effect on total lactation performance than early on, provided that there is no acetonemia, ketosis etc. resulting from the restriction. The cows or heifers should not be allowed to lose too much condition, however, and need regular monitoring.

Despite Colin and Robyn's best efforts, the pregnancy rates were not too good in 1998 and 1999 at 14% and 16.5% respectively for the cows. There were even more “empties” among the heifers. This compared unfavourably with 4% for 1997. These results were put down to inadequate nutrition leading up to, and during joining. This was largely due to the harsh seasonal conditions in each of those years, requiring higher levels of supplementary feeding

than was available or could be afforded. Poor performance of bulls could also have been a factor.

Pregnancy testing of cows and calves was a useful measure to save feed during dry conditions when high levels of supplementary feeds were required. Empty cows were culled.

During the drought, Colin and Robyn did a great job of managing their farm so that pasture cover did not drop too low, while still providing a balance of pasture and supplementary feed to adequately feed stock according to their requirements.

An advantage of closely regulating grazing and feed intake of calving cows is that the stock are visited at least daily and any calving or health problems are quickly noticed. This can reduce cow deaths as was observed in the first year of the project. A disadvantage of having cows/heifers in a large mob at calving, and moving them regularly is that there can be increased mis-mothering. However, this was a problem only when stock were being supplementary fed during the drought. In subsequent years, when there was more feed available, mis-mothering was minimal.

There was discussion of the advantages of getting lambs and weaners to target market weights as quickly as possible. It can be costly to have to sell lambs over several drafts because a fair percentage have not made the weight range. Keeping stock on farm longer than necessary requires extra feed which may not be available, or is required by other stock. It may be necessary to provide supplementary feed, which then means that the price received per head has to increase by a certain amount just to break even. It is a similar situation for calves. Calculate the expected returns versus the extra costs, carefully, before feeding supplements to “finish” calves.

The need to cost various feeds in terms of cents per megajoule of energy, was emphasised. This is the best way to compare different supplementary feeds (assuming that factors such as protein levels are adequate). Agistment and applications of urea can also be costed and compared to supplements in this way.

New feeds should be introduced gradually to stock to avoid health problems such as acidosis. There needs to always be a balance of protein, fibre, and readily digestible carbohydrate.

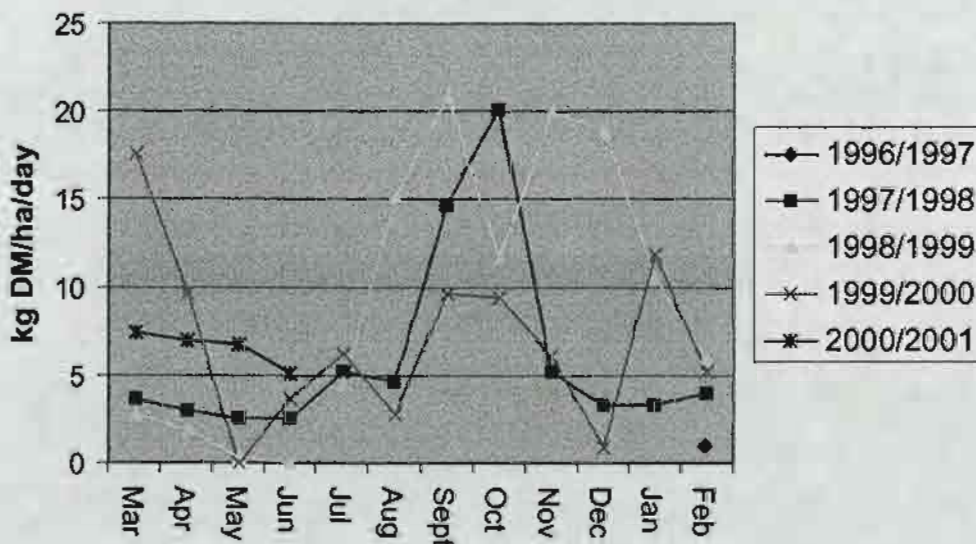
A “feedlot” was set up on the farm in winter 1997 to put weight on a mob of 29 heifers prior to sale. Their weight gain was excellent, averaging 1.5 kg/day. This exercise was worth the effort since they were sold for good prices, giving a net gain of \$100 per head over feed costs. This exercise was repeated in 1998, again with heifers. The results obtained were almost exactly the same as the previous year.

6. Pasture Growth Rates

Kilograms of Dry Matter/ha/day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		3.6	2.8	17.6	7.4
Apr		3	1.9	9.6	7.0
May		2.5	0.3	0	6.8
Jun		2.5	0	3.6	5.1
Jul		5.2	4.5	6.2	
Aug		4.6	15.1	2.8	
Sept		14.7	20.9	9.6	
Oct		20.1	11.6	9.4	
Nov		5.2	20.0	6.1	
Dec		3.3	18.9	0.9	
Jan		3.3	10.5	11.8	
Feb	1	4	6	5.2	

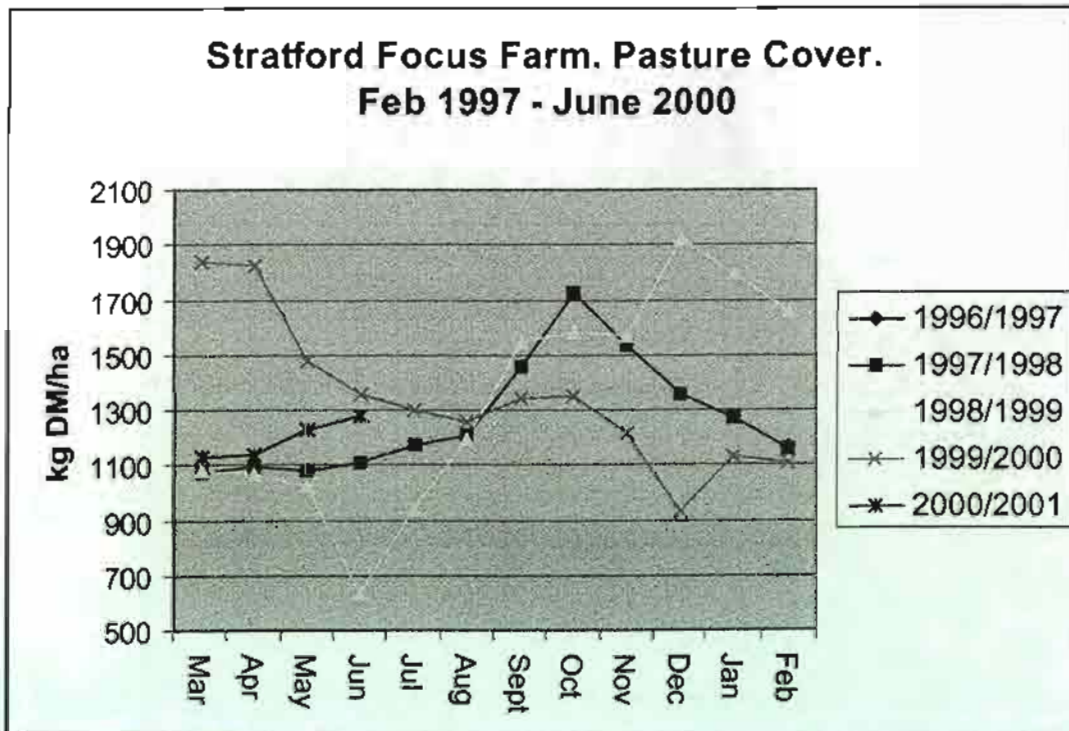
**Stratford Focus Farm. Pasture Growth Rates.
Feb 1997 - June 2000**



7. Pasture Cover

Kilograms of Dry Matter/ha

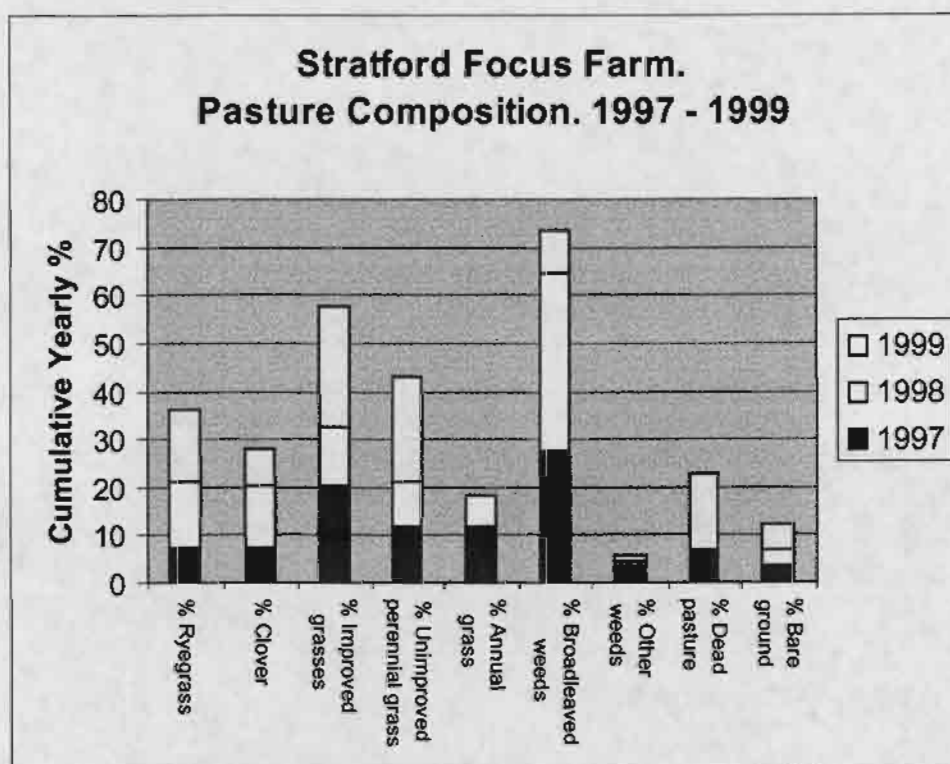
	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		1072	1080	1839	1130
Apr		1095	1064	1826	1140
May		1077	1023	1480	1229
Jun		1112	636	1359	1280
Jul		1171	940	1298	
Aug		1210	1197	1258	
Sept		1456	1547	1344	
Oct		1722	1585	1351	
Nov		1537	1571	1213	
Dec		1359	1920	932	
Jan		1274	1798	1128	
Feb	1165	1160	1657	1112	



8. Botanical Composition

	% Ryegrass	% Clover	% Improved grasses	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Other Weeds	% Dead Pasture	% Bare Ground

1997	7.5	7.3	20.2	11.9	11.7	27.8	3.5	6.5	3.5
1998	13.5	12.9	12.4	9.2	6.4	36.6	1.0	0.3	3.5
1999	15.0	8.0	25.0	22.0	0	9.0	1.0	16.0	5.0



9. Soil Tests

	Paddock 2	Paddock 7	Paddock 2	Paddock 4
	1997		1999	
pH	NA	NA	5.2	5.5
P	12.1	8.5	22	19
K	227	109	170	240
S	8	9	6	7

10. Fertiliser Use

Fertiliser Inputs:

Kilograms of elemental nutrient per hectare averaged over whole farm

	1996/97	1997/98	1998/99	1999/00
N kg/ha	NA	4.3	0	12.0

P kg/ha	NA	13.6	18	13.5
K kg/ha	NA	20	0	0
S kg/ha	NA	17.6	22	16.5

11. Rainfall

	1997	1998	1999	2000
Jan	39	47	66.5	47.25
Feb	9	53	49.5	27.75
Mar	36	13.5	74.25	42.0
Apr	2	6.25	26.75	34.5
May	37	10.25	28.75	109.0
Jun	68	170	9.5	12.25
Jul	19	10	17.75	
Aug	17	29	51.5	
Sept	17	27.25	16	
Oct	2	53.25	43.75	
Nov	41	115.75	14.75	
Dec	66	66	96.75	
Total	353	601.25	495.75	

12. Main Conclusions

The focus farmer was prepared to fully implement BeefCheque principles from the start and has been able to demonstrate the benefits of the system through some of the toughest years on record. As a result of his enthusiasm the group were able to witness what was probably the best demonstration of the system in East Gippsland. The group fed on this enthusiasm and participated fully in discussion and activities. Group numbers grew over the time of the project. Due partly to this, the consultant was employed by the group for another 12 months.

The focus farm increased in stocking rate significantly. Pasture quality also improved, despite the dry seasons.

13. Comments From the Focus Farmers and the Group

“I have used lots of single wire electric fencing.”

“My stocking rate has increased under BeefCheque grazing management.”

“I now have a much better knowledge of markets.”

“I have switched to Spring calving which needs less supplementary feeding and fits in with school holidays.”

“Being able to compare the value of different feeds has saved money.”

“BeefCheque started me using electric fencing.”

“Pasture species are improving due to BeefCheque management.”

“I’m now monitoring pastures and animal consumption.”

YARRAM BEEFCHEQUE FOCUS FARM

1. Background

Focus Farm Number 1: December 1996 – December 1998

Focus Farmer:	Gordon Keddie, Giffard West
Starting Date:	December 1996
Consultant:	Wolfie Wagner/Jeff Urie, Ag-Challenge Pty Ltd
Location:	Giffard West
Property Size:	Total of 320 ha. Effective grazing area 240 ha
Average Rainfall:	700
Soil Type:	Grey, sandy loam
Stock (Dec 1996):	123 spring cows and calves, 30 autumn cows and calves, 3 dry cows, 55 1 -2 year-old steers and heifers, 11 bulls, 90 ewes and lambs
Stock (July 1998)	88 dry cows, 24 cows & calves, 33 heifers, 70 weaned calves, 17 yearling bulls
Calving:	Spring and Autumn
Replacement Policy:	Self replacing Limousin stud.
Market:	Stud bulls, weaners

Focus Farm Number 2: January 1999 – June 2000

Focus Farmer:	Ern & Jan Jenkins, Yarram
Consultant:	Jeff Urie, Ag-Challenge Pty Ltd
Location:	Yarram
Property Size:	46.89 ha
Average Rainfall:	950 mm
Soil Type:	Black clay loam - Grey acid sand
Stock (July 1998)	50 dairy heifers and 1 bull (all agisted) 9 Angus cows and calves, 1 Hereford cow and calf
Calving:	July initially; changed to spring calving for 2000
Replacement Policy:	Working towards a self replacing Angus herd
Market:	Aiming at Certified Australian Angus Beef branded program and Angus, Murray Grey branded program – many of the AMG steers and heifers are finished at Charlton Feedlot
Stock (July 1999)	21 cows and calves, 11 dry cows, 9 weaners, 3 bulls
Stock (June 2000)	32 dry cows, 17 weaners, 1 bull

2 Focus Farm Objectives & Production Aims

Focus Farm Number 1

In 1996 the three year plan was to carry 250 cow/calf units, plus some steers, and to be self-sufficient with fodder reserves.

Focus Farm Number 2

The initial goal in Jan 1999 was to run a herd of 50 Angus breeders. Half of these will be stud animals. This combination will give a lot of flexibility in the markets that can be targeted.

In autumn 2000, the target stocking rate for spring was 23 DSE/ha, made up of 60 cows and calves, 10 replacement heifers, 2 bulls and 50 weaned calves.

3. Production Summary

Focus Farm No. 1

Performance measure	1996/97	1997/98	
Stocking rate dse/ha	NA	NA	
Stocking rate dse/ha/100mm rainfall	NA	NA	
Liveweight output kg/ha		NA	NA
Liveweight output kg/ha/100mm rainfall	NA	NA	
Pasture consumption & conservation (t DM/ha)	NA	NA	
Pasture grown (t DM/ha)		NA	1.523
Pasture grown (t DM/ha/100 mm rainfall)		NA	0.277

Focus Farm No. 2

Performance measure	1998/99	1999/00	
Stocking rate dse/ha	NA	11.2	
Stocking rate dse/ha/100mm rainfall	NA	1.58	
Liveweight output kg/ha		NA	NA
Liveweight output kg/ha/100mm rainfall	NA	NA	
Pasture consumption & conservation (t DM/ha)	NA	3.2	
Pasture grown (t DM/ha)		NA	3.046
Pasture grown (t DM/ha/100 mm rainfall)		NA	0.43

Note: Farm walks on the second Yarram Focus Farm commenced in January 1999. Data gathering began on this farm at the same time. Therefore it was not possible to provide figures for the full 1998/99 financial year.

4. Main Achievements

Focus Farm No. 1

- 4.1 Managing pasture through extended dry periods to maximise growth from very limited soil moisture. This was done through avoiding overgrazing and the use of long rotations and sacrifice paddocks.
- 4.2 Monitoring and managing stock condition through extended dry periods, with the careful use of supplementary feed. Purchases of appropriate stock feed as required.

Focus Farm No. 2

- 4.3 Use of strip grazing and paddock rotation to control stock pasture consumption, increase pasture growth and maintain pasture quality. Also, slashing pasture as required, in combination with grazing management, assisted with maintaining pasture quality.
- 4.4 Regular weighing of calves to monitor liveweight gains.

5. Summary of Focus Farm Activities

Focus Farm No. 1

Pasture Management

Spring and summer of 1996/1997 were dry, with pasture growth going from low rates to nearly zero as summer progressed. Good rainfall in early March quickly boosted growth rates of pasture and the pasja regrowth on the crop area. The farm had not been over grazed during summer and this greatly assisted the recovery of pastures when it did rain.

A pasture and feed budget was prepared in March. This indicated that there would be a feed deficit during winter. It was therefore important to maximise pasture growth in autumn, and build a feed bank, while the growth rates were good. Supplementary feeding was therefore continued, rather than eating the pasture as it grew.

Pasture growth rates were again low during late autumn and throughout winter, due to dry conditions. It was calculated that the pasja paddocks in May contained over 60% of the total available feed.

Throughout the dry periods during the project, pasture management was aimed at maximising the opportunities for pasture to respond to rainfall. This meant avoiding overgrazing and managing pasture consumption through a slow rotation, and the use of sacrifice paddocks if there was no growth or if a feed wedge was to be built up. Backgrazing of pasture should be avoided as much as possible following strip grazing. Backgrazing will not have a significant effect on production when growth has all but stopped, but it will have a significant effect on regrowth when good rainfall occurs.

Extensive areas of crops (pasja or rape) were grown each year to supplement pasture. These worked well, however there were discussions on the true costs of cropping, including the cost of pasture foregone and how much crop needed to be grown to recover the costs. The crops were actively growing in summer and produced quality feed in periods when pasture quality and availability was low, and the re-growth rate of crops following rainfall was faster than pasture.

It was notable that in July 1998, the best pasture growth rates were all from paddocks that had been re-sown, ie. improved pasture species and increased fertiliser.

Rainfall in spring 1998 was reasonable. The pasture management problem in late spring 1998 was that of controlling a pasture surplus. Pastures should not be allowed to get too long over a long period before grazing or conserving as hay/silage. Pasture density suffers and it is difficult to obtain a good vegetative pasture over summer. The potential problem was dealt with by using a combination of methods. Stock were allowed ad-lib feeding and as much of the longer feed as possible was cut and conserved. A few paddocks were left untouched for deferred grazing later in the summer.

Weed Control

Capeweed was controlled in winter 1998 using the spraygrazing technique with MCPA.

Fertiliser

During periods of feed shortages, urea was used to boost pasture growth rates when rainfall was adequate for the urea to have an effect.

A fertiliser test strip trial was set up in autumn 1997. Responses were observed to potassium, molybdenum and phosphorus. Pasture response increased with increasing levels of phosphorus.

In October 1997, the extra feed present on the heaviest treatments (45 kg P, 50 kg K, plus moly) costed out to about 32 cents/kg dry matter if the increased feed grew only once. In reality, the fertiliser response would occur over at least a year, making fertiliser a very cheap way of obtaining feed.

The fertiliser responses in 1997 also highlighted the impact of fertility on growth under moisture stress. The control plots had grown very little compared with the fertilised plots. The fertilised plots had been able to fully utilise the limited soil moisture.

The effect of fertiliser on pasture composition was evident in spring 1998. Four paddocks were compared which showed a progression from unimproved poor native pasture to a pasture with a good base of ryegrass and clover (but with still a long way to go). The paddock which had received 250 kg/ha of 2 in 1 had more suckling clover, cluster clover and trefoil, with some sub clover and less flat weed. The paddock which had received 800 kg/ha of fertiliser, and had been rotationally grazed, had significantly more of these clovers, as well as more subclover and ryegrass. Most of the paddocks were, however, showing signs of nitrogen deficiency, with significantly higher leaf to stem ratios and higher tiller

numbers in the urine patches. The nitrogen deficiency was a result of lack of clover growth over a number of years.

The composition gains evident above highlight the importance of treating the cause rather than the symptoms. It is no good resowing pastures if lack of fertility and inadequate grazing management is creating poor pasture.

Stock

When the Group walks on the Focus Farm started in December 1996, conditions were quite dry and there was very little available pasture feed. Initial efforts therefore concentrated on working out current feeding levels and desirable/predicted summer feeding requirements. There was a fair amount of lucerne silage on hand, along with a crop of pasja. The lambs should be weaned and finished on pasja or lucerne silage. It was suggested that the ewes be sold. The 8 month-old calves would be weaned and treated as a priority mob, along with the 1-2 year-old steers and heifers. The spring calved cows with young calves would also be well fed. It was estimated that the total available feed would last 2 months (ie. January and February) if pasture was to grow at a rate of 5 kg DMha/day. As it turned out, the ewes were not sold until late February. A quantity of hay had been purchased, along with triticales. Generally the stock were in reasonably good condition in February 1997. The spring calves could, however, have been in better condition and there was a range of condition scores among the cows. The heifer weaners were doing well on triticales and hay. Available pasture had declined and pasture growth rates had remained close to zero. With monitoring of stock condition, working out their feed requirements and appropriate use of supplements, the farm got through the "failed" spring of 1996 and the dry summer to follow, without having to sell large numbers of stock. More importantly, the farm was not over grazed.

As it turned out, there was good rainfall in March 1997, but this didn't last. Conditions again became dry through the rest of autumn and through winter. Supplementary feeding had eased off but had to be increased again from June. All cows, apart from the thinnest, were being fed a maintenance diet only during winter.

The spring calves were again weaned early in May 1998 due to lack of pasture and low pasture growth rates due to continuing dry conditions. They were fed in a feedlot situation with hay replacer until late September. Liveweight gains were good, ranging between 0.4 and 1.0 kg liveweight per day.

Focus Farm No. 2

Pasture Management

Good spring rainfall in 1998 had produced an abundance of pasture growth. The farm was very lightly stocked at the time. The agisted stock had gone and there was only a small herd of mostly Angus cows. Initial pasture issues therefore involved removing the long, dry feed. A total of 18.5 ha was baled for hay. Several paddocks were either slashed, and allowed to decompose, or slashed and grazed. Slashing paddocks in front of the herd was an effective method of making the cows eat the feed, which they had previously left.

The composition of the pasture wasn't good over the farm at the beginning of 1998. There was a lot of trefoil, rather than clover. There was however, enough ryegrass for there to be the basis of good quality pasture, given good grazing management and adequate fertiliser. Large improvements in pasture composition should be able to be made without the need for re-sowing.

The farm was still only carrying 10 cows in March 1999. Further slashing had been carried out on paddocks in February. However, many of the paddocks inevitably still had moderately long feed.

Calculations were done in autumn 1999 to determine the required pasture cover for the start of calving in July. The figure of 1884 kg DM/ha was determined based on having a herd of 50 cows. This figure was not achieved due to low rainfall over winter. Hay was fed to the cows starting in July.

In autumn 2000, the same calculations were done for winter feed requirements of the current stock and a figure determined for pasture cover in mid June. This time the figure was only 1477 since calving was to start later and would be spread over 2-3 months during this changeover year from winter to spring calving. It was also considered that too high a pasture cover coming into spring could quickly lead to excess feed and pasture quality problems since the stocking rate was still relatively low.

As the stock numbers built up, it became more important to use strip grazing and paddock rotation to achieve good utilisation (even grazing) of pasture and maximise pasture growth rates through minimising back grazing.

The result of having a mob of wethers on the farm for 1 month September/October 1999 (see discussion under "Stock" below) was that the paddock which had been grazed very hard looked the best (greenest) of all paddocks by November. Limited rainfall, combined with strong, drying wind, had greatly reduced pasture growth rates and produced a low average farm pasture cover. With more rainfall, the results of the exercise with the sheep would likely have been excellent. It still had potential to greatly improve the paddock over time. This paddock continued to have the best quality feed (and the greenest under low rainfall conditions) into autumn 2000. It was also considered by the group, at this time, that the trampling by the sheep had indeed helped to break down the surface root mat.

Pasture quality can be increased, by cleaning out dry/dead pasture matter, and available pasture feed can be increased, by eating the pasture lower. However this has to be balanced against the reduced performance of the stock, on the poorer quality feed that is consumed as the pasture is eaten lower. A reasonable compromise for cows with calves (particularly if trying to turn off calves as vealers) is to eat pastures down to 1200 kg DM/ha as compared with the optimum of 1300 kg DM/ha.

Fertiliser

Soil tests in late 1997 indicated that the fertiliser requirements for the farm were 230 kg/ha of 4 in 1 super potash. Olsen P was low to moderate at 9.8. In autumn 1999, 250 kg/ha of 5 in 1 was applied to 3 paddocks and 125 kg/ha of super applied over the balance of the farm.

With the low stocking rate on the farm at the time, the group wondered if this fertiliser was worthwhile since the extra pasture grown could not be consumed. However, the stocking rate did increase through 1999 and the fertiliser was eventually justified.

Soil tests done in August 1999 indicated that the soil fertility had not changed much with both soil P and K considered to be at marginal levels. The fertiliser recommendations were also much the same.

Urea was used in May 2000 over two paddocks and half of a third. At the farm walk in June it was calculated that the urea treated areas had grown at twice the rate of the untreated pastures. This worked out to be very cheap pasture.

Stock

In April 1999, 11 PTIC Angus cows and 9 PTIC heifers were purchased. This lifted total stock to 30 head.

In March 1999, it was thought that the calf growth rates might have been limited by strip grazing the herd. The grazing was "freed up", with the stock being allowed to pick the best out of a larger area. Calf growth rates didn't pick up which indicated that pasture quality might have declined. Nevertheless, calf growth rates had still averaged 0.83 kg liveweight/day between March and April, compared with 1.0 kg liveweight/day up to March. The calves continued to be monitored after weaning, and their growth rates declined from April to July 1999. The average was 0.46 kg liveweight per day between April and June, 0.3 kg liveweight per day June to July and 0.16 kg liveweight per day July to August. Rainfall was low over winter 1999 and pasture growth rates were also low. They were allowed the best pasture and looked good, with good condition, but were growing relatively slowly. In the month prior to sale of 7 of these animals in October, they averaged a liveweight gain of 1.3 kg liveweight per day. The increased liveweight gain was mainly due to increased pasture growth rates and availability as rainfall increased and spring had arrived. Two of the heifers were kept on the farm.

Calf growth rates from the 1999 drop averaged about 1.0 kg liveweight per day up to February 2000. Between February and April 2000, the liveweight gain had reduced to 0.69 kg liveweight per day.

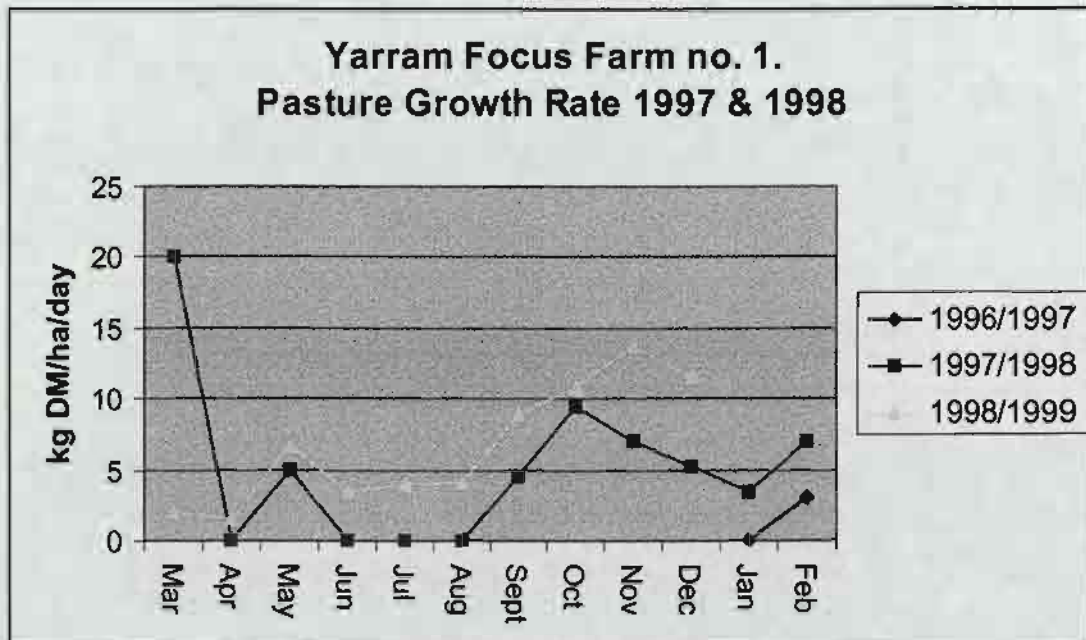
A mob of 580 wethers was agisted on the farm at the end of August 1999. The idea was to use them to improve pasture quality in selected paddocks by cleaning out residual dry pasture and help in breaking up the root mat. These sheep were difficult to confine with electric fencing to some of the desired paddocks, and had to be put back into the secure paddock which was then grazed out harder than desired. They were on the farm about 1 month.

6. Pasture Growth Rates

Focus Farm no. 1

Kilograms of Dry Matter/ha/day

	1996/1997	1997/1998	1998/1999
Mar		20	2
Apr		0	1.5
May		5	6.7
Jun		0	3.4
Jul		0	4
Aug		0	4.1
Sept		4.6	8.9
Oct		9.5	10.9
Nov		7	13.7
Dec		NA	11.6
Jan	0	3.4	NA
Feb	3	7	



Focus Farm no. 2

Kilograms of Dry Matter/ha/day

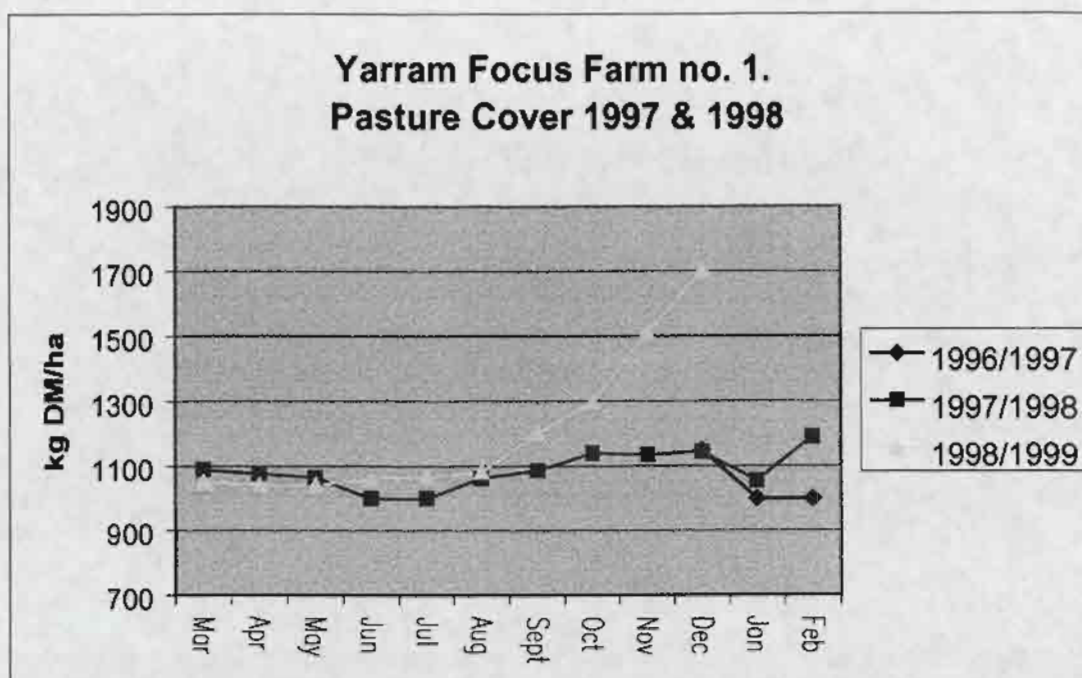
	1998/1999	1999/2000	2000/2001
Mar		6.8	6.7
Apr		1.7	0.3
May		3	9.0
Jun		3.9	NA
Jul		8.7	
Aug		9	
Sept		16.6	
Oct		11.8	
Nov		5.5	
Dec		9.1	
Jan	NA	10	
Feb	16.9	6.2	

7. Pasture Cover

Focus Farm no. 1

Kilograms of Dry Matter/ha

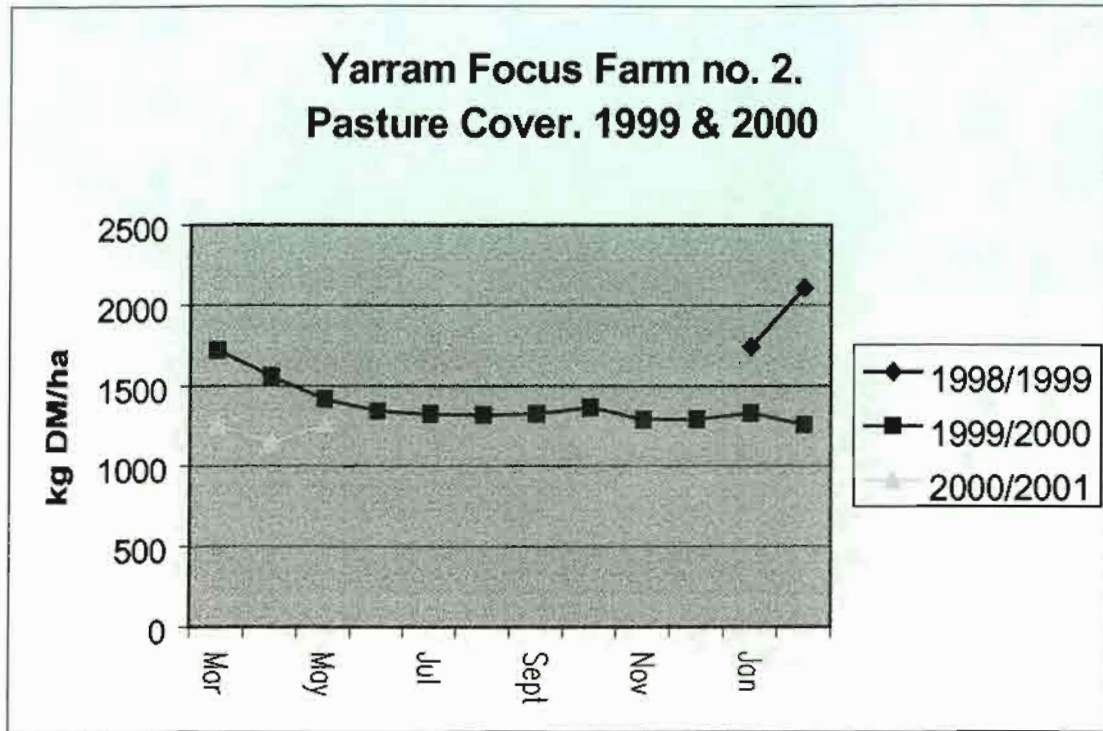
	1996/1997	1997/1998	1998/1999
Mar		1089	1052
Apr		1077	1041
May		1065	1042
Jun		1000	1061
Jul		1000	1067
Aug		1062	1082
Sept		1086	1205
Oct		1139	1297
Nov		1133	1512
Dec	1150	1144	1702
Jan	1000	1054	NA
Feb	1000	1190	



Focus Farm no. 2

Kilograms of Dry Matter/ha

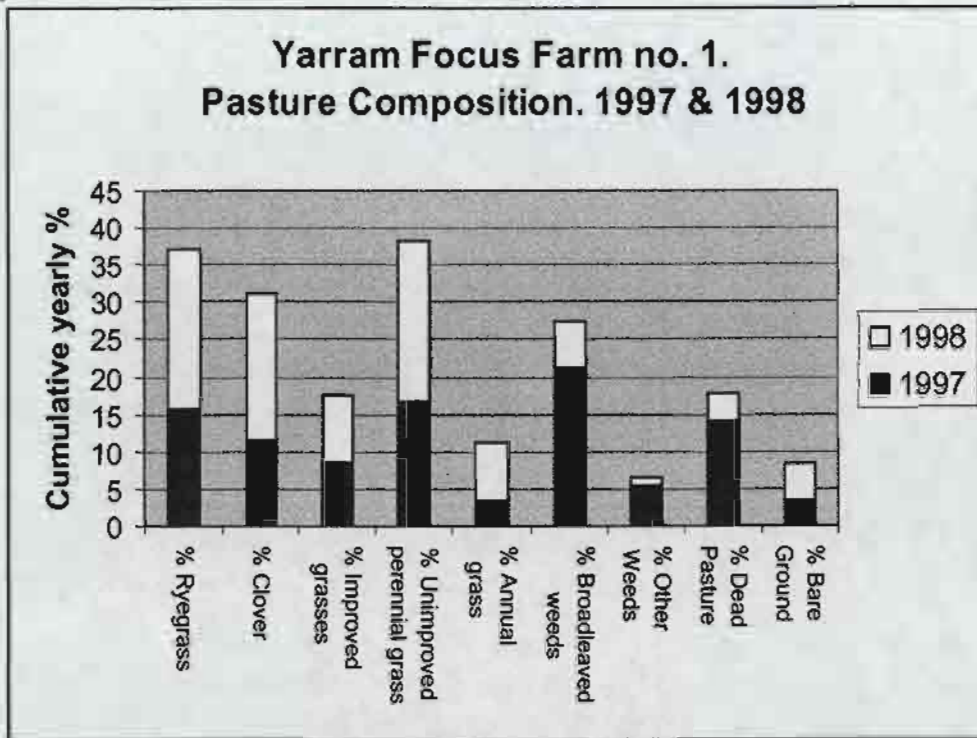
	1998/1999	1999/2000	2000/2001
Mar		1720	1255
Apr		1557	1145
May		1414	1259
Jun		1342	NA
Jul		1321	
Aug		1318	
Sept		1325	
Oct		1363	
Nov		1289	
Dec		1291	
Jan	1743	1329	
Feb	2107	1258	



8. Botanical Composition

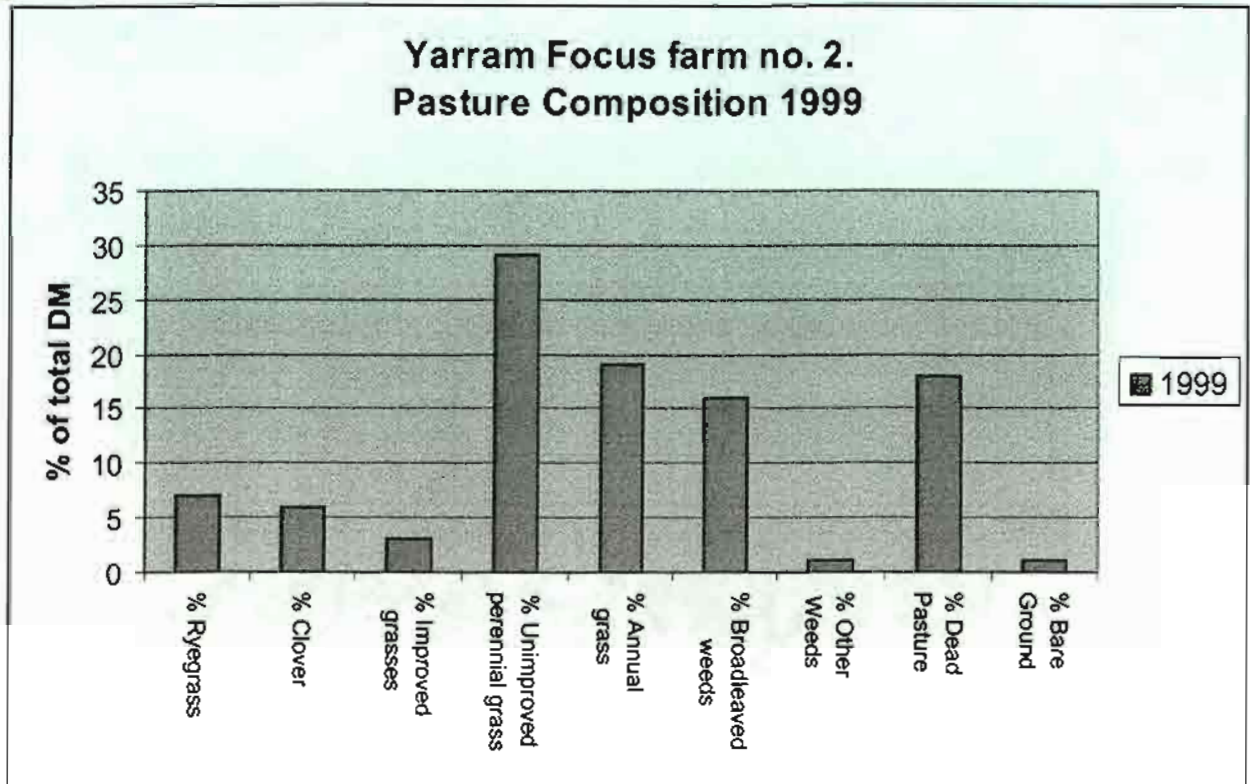
Focus Farm no. 1

	% Ryegrass	% Clover	% Improved grasses	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Other Weeds	% Dead Pasture	% Bare Ground
1997	15.8	11.4	8.6	16.7	3.3	21.2	5.5	14.2	3.3
1998	21.4	19.7	9.0	21.4	8.0	6.4	1.0	3.7	5.2



Focus Farm no. 2

	% Ryegrass	% Clover	% Improved grasses	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Other Weeds	% Dead Pasture	% Bare Ground
1999	7	6	3	29	19	16	1	18	1



9. Soil Tests

	Paddock 8	Paddock 2
	1999	1999
pH	4.8	5.4
KP	8.7	6.1
SK	135	115
S	15	13

10. Fertiliser Use

Kilograms per hectare of elemental nutrients applied on average over farm

	1997/98	1998/99	1999/00
N kg/ha	0	0	11.7
P kg/ha	22.5	6.8	7.5
K kg/ha	0	13.5	14.9
S kg/ha	27.5	8.6	9.5

11. Rainfall

Focus Farm no. 1

	1997	1998
Jan	47	22
Feb	24	140
Mar	67	23
Apr	12	29.5
May	33	17.5
Jun	70	77
Jul	53	61
Aug	23	24
Sept	44	27
Oct	35	76
Nov	54	143.5
Dec	31	111.5
Total	493	752

Focus Farm no. 2

	1999	2000
Jan	83.5	75.5
Feb	37	34
Mar	30.5	32
Apr	39	48
May	46	177
Jun	34	28.5
Jul	35	
Aug	72	
Sept	40	
Oct	68	
Nov	26	
Dec	73	
Total	584	

12. Main Conclusions

The first focus farm had just been purchased and was in a run down condition with a poor fertiliser history and little sign of improved pasture species. The focus farmer was the farm manager and was keen to use BeefCheque principles to improve the farm.

The farm was subdivided into many paddocks with laneways used to gain access to all paddocks. He also undertook a pasture renovation program and trialed several cultivars and grass species to see which of these were more suited to the climate and soil type.

Several different fodder crops were sown as part of the renovation program and these helped to feed stock during the very dry seasons of 1997/98. Some alternative feed sources were used to feed stock during the drought and the group learnt a lot about balancing diets and calculating best value feeds.

When the farm was put on the market the group decided to choose another focus farm and the focus shifted to the farm at Yarram.

Pastures on this farm were also in a run down condition. The first problem was to get rid of excess, poor quality dry feed. A mixture of hard grazing, slashing and hay making achieved this goal.

Pasture quality has shown a marked improvement across the farm due to BeefCheque management.

13. Comments From the Focus Farmers and the Group

“I have subdivided own farm and added extra water points to improve grazing management and minimise backgrazing (from 15 paddocks to 48).”

“Stock are much quieter and easier to handle. Stock are now mobbed up rather than spread over the whole farm. I don't know where we would have been without BeefCheque over the recent tough seasons.”

“A great opportunity to gain more skills. BeefCheque has helped me to plan my farm layout.”

“Good to get unbiased information and deal with problems with the help of the group.”

“I am planning to subdivide paddocks to get better grazing control.”

“I've learnt more in the last 5 years with BeefCheque than in the previous 15.”

“I have realised the power of belonging to a group.”

“I have been in BeefCheque 18 months and have been farming 30 years. I am now strip grazing pasture and am confident to try new things such as spray grazing of capeweed. Now I have an awareness of feed requirements and am able to feed budget for winter. We are producing vealers rather than stores and are better prepared by farm planning.”

“Seeing other peoples farms is fantastic, as knowledge is shared by the group. We have been able to follow up on what has been implemented on the focus farm. We've subdivided our own farm for better management.”



Natural Resources
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M.728 “BEEFCHEQUE”

Focus Farms Reports (1996 – 2000) West and South Gippsland Focus Farms

Reports based on monthly farm walks, other collected data and observations made by NRE staff and BeefCheque Group members

Edited by Mark Brammar, NRE Leongatha

Written by Mark Brammar and Steve Walsh, NRE Ellinbank

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FISH CREEK FOCUS FARM

1. Background

Focus Farmers:	Rob & Alan Bell Rob Bell (Manager)
Starting Date:	March 1996
Consultant:	John Mulvany, On-Farm Consulting
Location:	Meeniyah
Property Size:	337 ha (308 ha effective area)
Average Rainfall:	980 mm
Soil Type:	Grey sandy loam
Stock (June 1996):	252 autumn calved cows & calves, 31 dry autumn calved cows, 84 autumn calved heifers & calves, 126 1-2 year old heifers, 56 1-2 year old steers, 15 bulls
Calving:	February/March
Replacement Policy:	Bred on-farm
Market:	90% of calves sold as vealers to domestic market 10 % of calves sold as forward condition stores
Stock (June 1999):	476 autumn calved cows & calves, 126 1-2 year old heifers, 145 1-2 year old heifers & steers, 18 bulls
Stock (June 2000):	514 autumn calved cows & calves, 100 1-2 year old heifers, 115 1-2 year old steers, 18 bulls

2. Focus Farm Objectives & Production Aims

1995/96:	300 cows calved
1996/97:	345 cows to calve
1997/98:	400 cows to calve

Maintain average weaning weight of 306 kg with 50% of calves going off as vealers. Minimum target weaning weight is 270 kg. Cull cows which don't produce calves of at least this weight.

These targets are to be achieved without compromising cow fertility or calf performance

3. Production Summary

Performance measure	1995/96	1996/97	1997/98	1998/99	1999/00
Stocking rate dse/ha	19.4	29.2	30.3	35.6	35.7
DSE/ha/100mm rainfall	NA	3.4	4.4	4.7	5.0
Total liveweight output (kg/ha)	455	557.4	454.4	NA	NA
Total livew't (kg/ha/100 mm rainfall)	NA	64.3	65.4	NA	NA

Past. consumpt'n & conservat'n (t DM/ha)	NA	7.79	9.04	NA	NA
Pasture grown (tonnes DM/ha)	NA	4.981	5.742	9.353	8.226
Pasture grown (tonnes DM/ha/100 mm)	NA	0.575	0.826	1.241	1.145

4. Main Achievements

- Pasture budgeting and monitoring of pasture cover and growth
- Control of pasture growth, including minimising pasture going to head and removal of dry feed prior to autumn
- Subdivision of larger paddocks, allowing tighter control of stock grazing
- Use of rotational grazing
- Greater pasture production allowing increase of stocking rate
- Pasture improvement program via summer fodder crops or leasing land to potato growers

5. Summary of Activities

Pasture Management

From the first walk, a strong emphasis was put on working out stock requirements and budgeting pasture and supplementary feed. A target of 1620 kgDM/ha average farm pasture cover was set for the start of winter 1996. This would allow the cows and calves to be adequately fed with quality pasture during a critical period of the year. This figure was based on 0.18 ha of 2300 kgDM/ha pasture per cow/calf unit (actual cows/calves or cow/calf equivalent for other stock) being available on June 1st. Therefore 73 ha of this feed would be required, with the remainder at 1380 average cover. Pasture management during autumn was aimed at achieving this situation.

In 1996, the first priority was to remove the dry and stalky pasture (which was a large proportion of the cover of 1613 kgDM/ha) from the paddocks prior to the autumn break. This was achieved by May, with a combination of block grazing, topping in some paddocks and restricting pasture to the fat, dry cows. The winter pasture cover target was achieved by end of April, with the dry/stalky feed replaced by quality green feed. The pasture cover held during May with pasture management allowing the growth rate to match the consumption rate.

Another issue in 1996 was that grazing of the turnip crop did not finish until late April and hence the paddock was sown to pasture too late to allow for autumn growth and grazing during winter.

Spring 1996 saw a combination of very wet conditions in September giving way to a lack of rain by November. Pasture growth rates were relatively low as a result. Nevertheless, the farm was carrying a surplus of feed by October and a number of cows and calves were purchased. There were also considerable quantities of hay and silage baled. Pasture was plentiful enough to avoid the need to push the cows/calves too hard – grazing paddocks only to 1400/1500 kgDM. There was, however a concern that the quality of the pasture may have been limiting calf growth rate. Pasture cover over the

farm was low by January 1997 (950kgDM) and remained low, due to dry conditions, until a late autumn break in May. Pasture cover was built up slowly during autumn and early winter by slow rotational grazing and feeding hay in sacrifice paddocks. In March 1997, for instance, 48% of the farm was open to stock and this was reduced even further after the farm walk.

Stock Management

There was a lot of subdivisional fencing of large paddocks done during May and June 1996. This allowed stock to be block grazed more easily and assisted the maintenance and improvement of pasture cover throughout the project.

Mob sizes are kept relatively small at 80 - 110 cows & calves and they are rotationally grazed through their own area. This helps with ease of handling and joining (reduces bulls fighting). Four to five mobs are run this way and the system is quite flexible.

In general, silage is used for finishing stock in the summer and autumn period. In autumn (particularly after the break), hay is used to supplement stock intake to get cattle off as much pasture area as possible (to increase the overall farm pasture cover) without adversely limiting animal performance. More grass can be grown in late autumn than July.

The dry summer and autumn in 1996/97 provided an opportunity for the group to study the economics of feeding grain to vealers. This was part of a decision to feed priority stock close to requirements despite the lack of pasture. The grain option was costed out and was found to be potentially profitable although relatively expensive. The grain feeding commenced in February 1997 and was fed on the ground, along with silage. As it turned out, the grain feeding had to continue well into April, due to low vealer prices and lack of buyers. This meant that it was only worth feeding those animals that would make the premium target weights. In the end, the exercise did turn out to be profitable.

In February 1997 it was estimated that stock other than the calves, heifers to be joined and calving heifers, were receiving only half their maintenance requirement from pasture. The rest was coming from condition score loss. This was continued into April although calving cows required supplementary feed from March. Despite the tough conditions, the condition of the stock was good throughout the autumn period. In April, there was a lot of discussion within the group in regard to feeding different classes of stock under extreme conditions.

In 1999 the aim was to join 110-120 heifers and calve down 100. Therefore allowing older cows to be culled (average age of cows in herd is 6 to 7 years). However, the building of herd numbers throughout the project meant that some of the older cows remained in the herd. Herd numbers grew from 300 cows calved in 1995/96 to 345 in 1996/97 and 470 in 1998/99.

Cows which don't calve are culled; as are cows which don't produce a healthy, well grown weaner (> 270 kg Lwt).

Cows are fed to be at a Condition Score of 3.5 at calving. This optimises the milking ability of the cow and will also avoid problems associated with over-fat cows at calving.

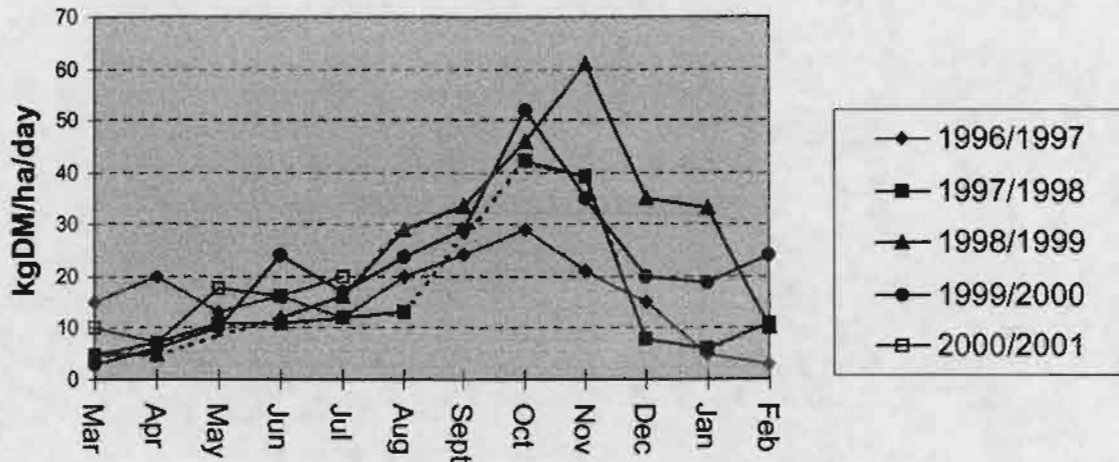
A small spring calving herd was established in 1999, primarily to increase the value of culled breeders and utilise spring feed. Empty autumn cows and heifers are given another go - either sold as spring joined or calved. There are also several complimentary benefits for spring calving, such as dry cows being easier to manage over winter than lactating cows and the nutritional requirement matches the pasture growth curve. The domestic carcass weight grids have increased but the premiums for an autumn/winter turnoff are insufficient to justify the higher costs associated with finishing systems under high stocking rates. There is also an option to value add weaners by growing them out and maintaining them over winter for compensatory growth and fattening in spring - ie carried through one Winter and two Springs.

6. Pasture Growth Rates

Pasture growth rate in kilograms Dry Matter/ha/day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar	15	5	5	3	10
Apr	20	7	5	6	7
May	13	11	NA	10.1	17.8
Jun	16	11	12	24	16
Jul	12	12	16	17	
Aug	20	13	29	23.7	
Sept	24	NA	33.6	29	
Oct	29	42	46	52	
Nov	21	39	61	35	
Dec	15	7.8	35	20	
Jan	5	6.2	33	19	
Feb	3	11	10	24	

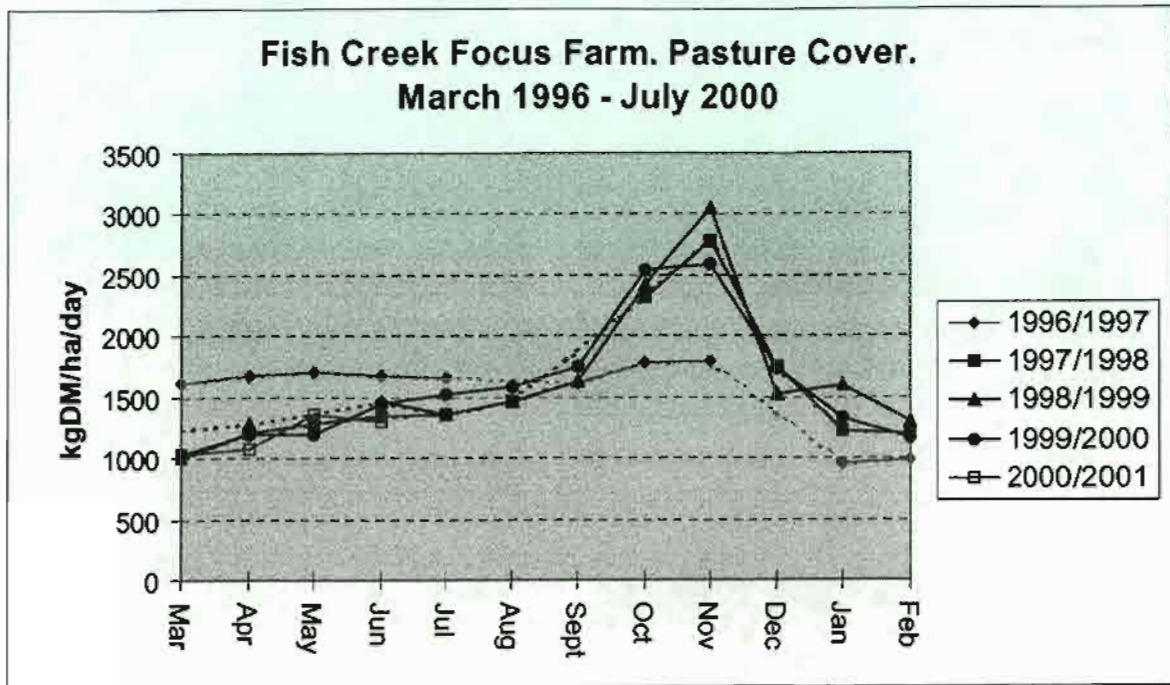
**Fish Creek Focus Farm. Pasture Growth Rates.
Mar 1996 - July 2000**



7. Pasture Cover

Pasture cover in kilograms Dry Matter/ha

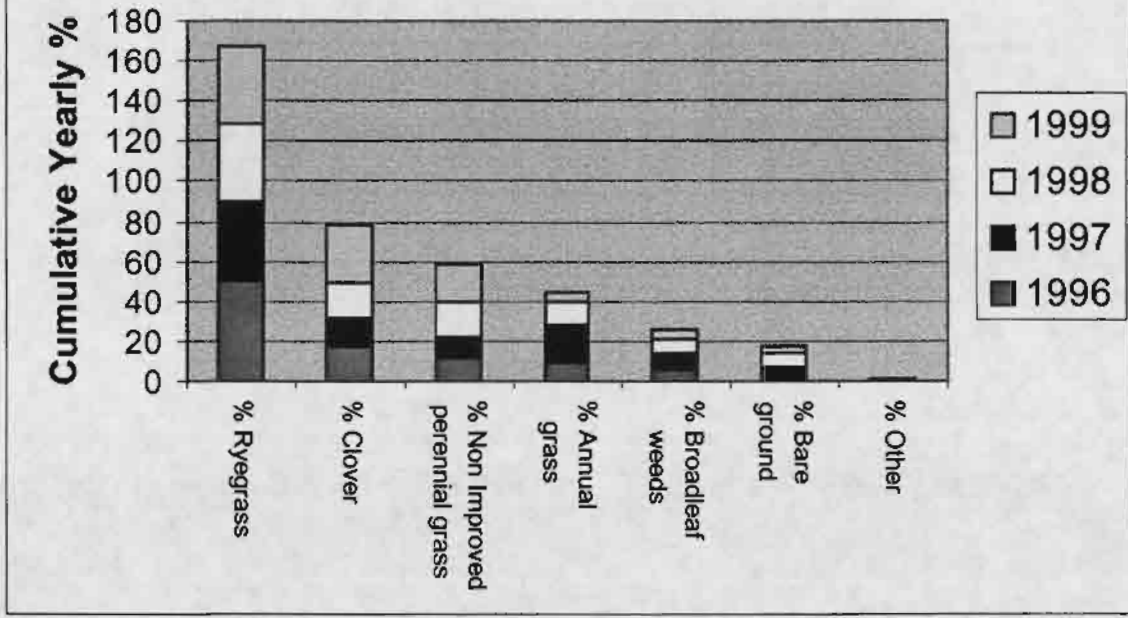
	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar	1613	1000	NA	1036	1037
Apr	1680	1208	1290	1200	1084
May	1700	1280	NA	1200	1368
Jun	1680	1350	1471	1444	1306
Jul	1665	1354	1368	1524	
Aug	NA	1466	1462	1590	
Sept	1617	NA	1630	1751	
Oct	1780	2317	2419	2542	
Nov	1800	2787	3053	2595	
Dec	NA	1748	1527	1733	
Jan	950	1226	1605	1336	
Feb	980	1200	1300	1174	



8. Botanical Composition

	% Ryegrass	% Clover	% Non Improved Perennial grass	% Annual Grass	% Broadleaf Weeds	% Bare Ground	% Other
Aug-96	49.8	18.1	11.9	9.1	5.4	5.6	0
Oct-97	39.8	13.7	10.6	18.9	8.7	1.5	1.0
Jul-98	40.8	12.1	16.9	11.9	7.7	10.5	0.1
Oct-98	38.1	22.5	16.6	11.1	7.4	3.9	0.5
Aug-99	39.8	19.2	13.7	11.5	11.2	4.5	0.0
Nov-99	38.5	28.8	19.2	5.2	4.6	3.7	0.0

**Fish Creek Focus Farm.
Pasture Composition. 1996 - 1999**



9. Soil Tests

Cottage Pdk	Pivot	Soilutions		
Year	1994	1996	1997	1999
pH (water)	4.6	5.1	5.1	5.2
Olsen P (ug/g)	11.4	16.5	18	26
K (ug/g)	177	215	180	220

Paddock 6	Soilutions
Year	1996
pH (water)	4.6
Olsen P (ug/g)	11.4
K (ug/g)	177

Paddock 7	Soilutions	
Year	1997	1999
pH (water)	4.6	4.9
Olsen P (ug/g)	26	40
K (ug/g)	190	200

10. Fertiliser Use

Kilograms of each fertiliser element applied per hectare averaged over total effective grazing area

	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
P (kg/ha)	22.7	26.3	29.6	48.7	26.0	23.1
K (kg/ha)	87.2	55.8	55.0	44.6	56.6	47.4
S (kg/ha)	11.7	18.1	19.6	20.3	17.2	15.2
N (kg/ha)	5.2	10.7	17.0	28.0	27.5	22.6

Trace elements are applied in alternate strips over half of each paddock twice per year so that the whole farm receives one application per year

11. Rainfall

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
1997	40	7	62	43	72	89	74	76	65	60	97	7	692
1998	68	71	21.5	46	59	50	75	43.5	72	111.5	78.5	94.5	790.5
1999	27.5	36.5	57.5	46	45.5	65.5	48	94	65.5	100.5	35	47	668.5
2000	71	6.5	8.5	63.5	134	45							

(District average rainfall 980 mm)

Throughout South Gippsland, in general, the total rainfall for 1997 was the lowest on record. The period 1997 – 1999 was the driest 36 months on record. At the Fish Creek Focus Farm, the total rainfall for 1999 was even lower than 1997. The main difference was that there was more, timely, mid spring rainfall and more rainfall in December.

12. Economics

Rob keeps in touch with how the markets are going and informed decisions can then be made during the season as to which direction he should be aiming at for his stock. For example, shifting stock from fattening to store cattle sales if factors such as relative prices for store and fat stock, time scales for achieving target weights, and the feed situation on the farm point to this as a logical business decision. Rob feels that with his farm he now has the flexibility to choose between options.

13. Focus Farmer Comments about BeefCheque

"Before BeefCheque I could see we were growing grass in autumn by resting paddocks through drift calving. So I looked into BeefCheque and thought, this is what we need. We didn't understand why extra grass was growing."

This confirms Jeff Urie's (farm consultant) belief that farmers are generally great at observation and noticing subtle changes but often don't understand; or they make the wrong assumptions as to why or what was taking place.

"We bought cows, set-up the infrastructure to run the cattle, and then bought more cattle."

Subdivision of existing paddocks was essential to improve and control stock grazing and hence grazing management. Paddocks were quickly and simply subdivided for intensive grazing using single wire electric fencing. With improved grazing strategies, stock numbers naturally grew to utilise the extra feed.

14. Additional Benefits From BeefCheque

Record keeping was changed to tune into more relevant figures. eg. % of nutrients in different fertiliser blends.

Cattle are quieter and healthier because you see them regularly when shifting onto new block.

Rob has increased confidence now as a farm manager

BeefCheque provided the motivation to Rob to implement changes on the farm and to keep on improving the farm - the group expected to see things done between visits! Change occurred more quickly as a result.

15. Summary Comment

"For years we've been building up the farm - putting money into capital items such as fences and fertiliser. Now we want to plateau out the spending and bank the rewards without tough seasons. Further large capital spending will only be made as cash is available. The farm is very much run as a business and we want to see the farm make a reasonable return to investment with the higher stocking rates and using the *BeefCheque* system. *The farm should now start kicking goals and not just points!*"

KONGWAK FOCUS FARM

1. Background

Focus Farmers:	Rob and Verdun Atkinson
Starting Date:	September 1996
Consultant:	Wolfie Wagner/Jeff Urie, Ag-Challenge
Location:	St Clair
Property Size:	Focus farm area 80 ha. An area of 40 ha (36 ha effective), which was not included in the focus farm area, is located 2.5 km from main farm. An additional 100 ha adjoining the property was leased until July 1998
Average Rainfall:	935 mm
Soil Type:	Heavy silty clay on river flats. Black/grey loam with some peat on higher country
Stock (June 1996):	173 Autumn calving cows/heifers, 122 Calves, 63 Spring calving cows, 25 Heifers 1 year old, 75 Steers/heifers 1-2 year old, 4 Bulls, 153 Ewes, 9 Rams
Calving:	March/April 70%, September/October 30%
Lambing:	September
Replacement Policy:	Bred on farm
Market:	Autumn steers for backgrounding prior to feedlot entry Spring steers for direct feedlot entry Heifers – quality end of breeder market Lambs – wholesaler servicing retail trade
Stock (June 2000):	82 Autumn calving cows/heifers, 80 calves, 36 spring calving cows, 51 weaner steers, 7 heifers @ 16 month, 3 bulls, ewes, 20 rams, 150 lambs

2. Focus Farm Objectives & Production Aims

1996

1. Improve genetic performance of pure Angus herd.
2. Grow more grass to cover winter feed deficit and lead to less hay feeding.
3. Improved animal performance together with pasture availability and quality.
4. Improve lifestyle.

1999

1. Improve genetic performance of young pure Angus herd through AI and culling regime.
2. Diversified into several markets: producing feedlot steers, selling selected young cull cows as breeders PTIC, specialist prime lambs to local service industry and breeding Texel rams.
3. Increase farm income to provide adequate farm profit and return for labour by optimising returns (\$) per head and number of animals sold off farm.

4. Develop farm for ease of management and improved labour efficiency to 2-3 days input per week. Incorporate laneway with annual subdivision and troughs.

3. Production Summary

Performance measure	1996/97	1997/98	1998/99	1999/2000	
Lambing %	NA	160	137	126	
Farm Area	223	223	123	123	
% DSE cattle	94	93.6	92	90.8	
% DSE sheep	6	6.4	8	9.2	
Stocking rate dse/ha (cattle & sheep)	23.9	24.8	36.0	31.0	
DSE/ha (cattle & sheep)/100mm rainfall	2.5	3.2	4.4	NA	
Total liveweight output (kg/ha)	330.6	500.8	654.9	NA	
Total liveweight (kg/ha/100 mm rainfall)	34.0	64.7	79.7	NA	
Pasture consumption & conservation (t DM/ha)		6.12	NA	9.13	NA
Pasture grown (tonnes DM/ha)	NA	6.965	6.331	7.396	
Pasture grown (tonnes DM/ha/100 mm)	NA	0.847	0.692	0.824	

4. Main Achievements

- Pasture budgeting
- Development of pasture assessment skill by focus farmer
- Strategic use of temporary electric fencing to strip graze paddocks
- Subdivision of larger paddocks to assist in grazing management
- Use of rotational grazing to maximise pasture production
- Prioritising stock according to feed requirements during times of pasture shortages
- Use of urea to boost pasture growth as required
- Reduction of the number of older cows in the herd
- Improved genetics of stock

5. Summary of Activities

Effect of seasonal conditions

In early September 1996, when the farm walks on the Kongwak focus farm started, the lower half of the farm had been flooded several times. Conditions were still very wet in all paddocks, and the worst paddocks were badly pugged and very muddy. The wet conditions continued through September and into early October, with 7 floods recorded during this period, plus heavy rain. Parts of the Big and Little Flat paddocks, as well as the lower end of the lease block were a quagmire more akin to a tidal mudflat than a paddock.

This situation rapidly changed during late October, with conditions becoming relatively dry. Very dry conditions were to be experienced from now on until early May 1997. Paddocks that had been badly pugged became rock hard, with bare dry soil between grass clumps. This dramatically reduced pasture production for a long period in these paddocks. Despite the conditions, the pastures recovered remarkably well in most paddocks under low rainfall, and the farm carried a relatively high stocking rate through the dry months ahead.

Seasonal conditions were less severe after this, although rainfall continued below average throughout most of the project. Winters were mild although the autumn breaks were generally late.

Supplying water to large mobs, particularly during dry periods when shallow dams dried up, was a problem. Without access to town water the situation would have been serious. Lack of watering points also limited the opportunities for block or strip grazing without permitting backgrazing.

Pasture Management

Rob began using temporary electric wires to strip graze his paddocks while it was very wet in September 1996. This was successful in rationing available pasture without causing too much damage to the sward, providing that backgrazing was not allowed. Strip grazing was used from then on as a technique to ration limited pasture; to force dry or low priority stock to “clean up” dry feed; or to assist in building up pasture cover in autumn/ early winter. Some paddocks were divided into two with a permanent single electric wire, to assist in strip grazing the paddocks or to allow a big mob to quickly eat out one side of a paddock and then be moved. This quick on/off grazing greatly assists pasture regrowth and overall pasture productivity. One of the lease paddocks was divided up into 5 sections for block grazing for the same reasons.

Strip grazing was used in January 1997 in the badly pugged “Dry” paddock to assist in breaking down the pugs prior to smudging/oversowing in autumn.

The “dry” paddock was oversown with Concord ryegrass in May 1997. Along with the remaining pasture in this paddock, the Concord grew very well during the rest of 1997. This paddock was very productive for the remainder of the project.

One particular paddock, “Sheep”, had an acid mat problem. In December 1996 lime was applied at a rate of 2.5 tonnes /ha to part of this paddock. In spring 1998, the paddock was cultivated and sown with a crop of turnips/millet. This crop was grazed by autumn calving heifers over 6 weeks in summer 1999. Pasture was sown in autumn and grazed by ewes initially to enhance tillering.

Stock Management

From early on, stock were classified as priority or low priority mobs. For instance, autumn calved cows with calves to be sold as vealers may be priority along with ewes and lambs. Stock that needed to be “finished” prior to market or heifers that need to be on a rising plane of nutrition prior to joining, could be classed as priority. Newly calved cows are usually a priority, as may be young cows/heifers, who cannot compete as well as older

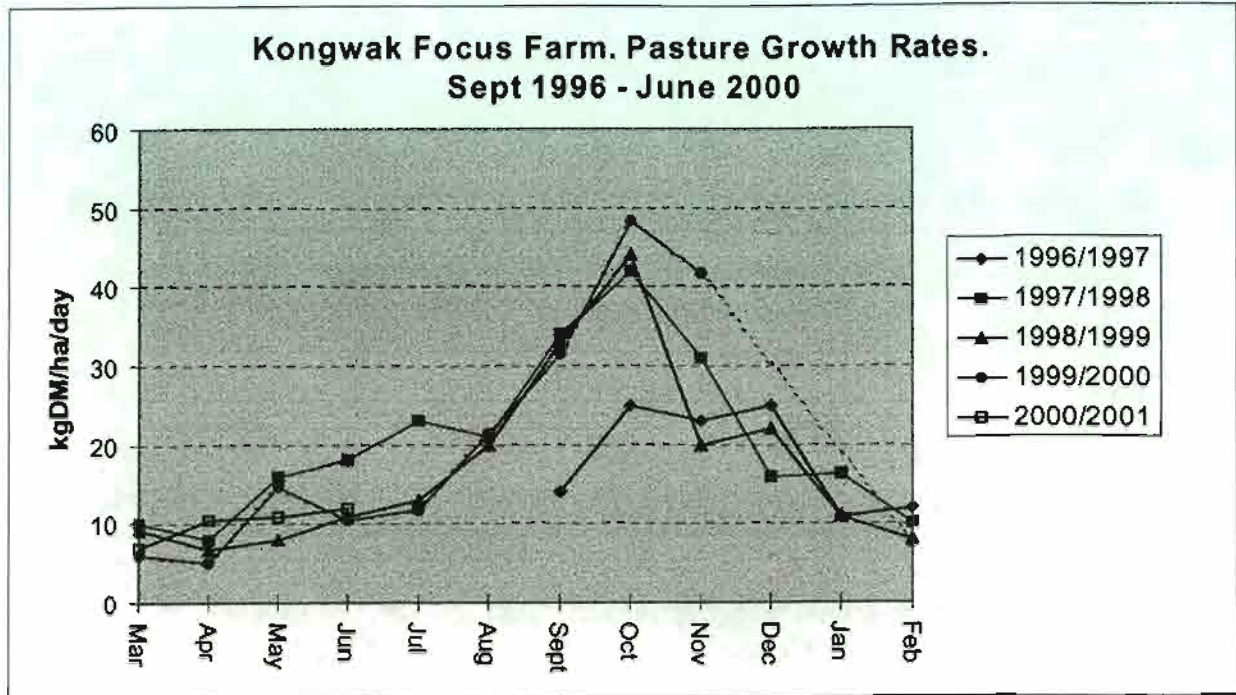
cows for pasture during periods of low rainfall and pasture rationing. Low priority mobs are typically the dry cows after calves have been weaned. They were used to "clean up" stalky pasture residue left behind by other mobs during late spring or to consume dry feed during summer to leave the paddock ready for autumn growth.

During November and December 1997, pasture growth was well in excess of current stock requirements and Rob couldn't keep on top of the growth to maintain pasture quality and density. Paddocks couldn't be eaten out adequately without the additional problem of considerable backgrazing occurring while allowing stock access to water. Mobs were too small. To reduce the problem and earn extra income, 56 dairy heifers and 111 14 month-old steers were agisted and 32 cows/calves plus 30 weaner heifers were purchased. The farm was effectively being re-stocked after reducing stock over the extended dry period of November 1996 to May 1997. In addition to this, there was a considerable amount of hay cut and baled in spring 1997.

As it turned out, the farm once again became overstocked in summer 1998/99. The lease block became unavailable at the end of July 1998. This meant that all stock had to come onto the home block. August 1998 stocking rate was an impressive 53 DSE/ha! Fortunately Rob had prepared for the loss of the lease block. In 1998 he built a winter feed wedge by grazing all stock on the lease block and strategically using Nitrogen on the pastures which would give the best economic response to N. On the home block, urea was applied to approximately 60 ha @ 100 kg urea/ha. By 1st July 1998 there was sufficient pasture on home farm to carry the existing stock through to spring. The spring flush was largely consumed by autumn cows & calves, spring cows & calves and spring lambing ewes. So peak feed demand matched peak feed supply.

However, rainfall in spring 1998 was only moderate as was pasture growth. Rob started to destock in early summer 1998/99 by placing unfinished stock on agistment with aim of selling directly from agistment when stock reached market requirements, eg. feedlot entry weights for steers. Calves were weaned as early as possible. Conditions on the farm remained tight until spring 1999. The autumn break came late and winter 1999, although mild, had lower than average rainfall.

Seasonal conditions in spring 1999 and summer 1999/2000 were reasonably favourable on Rob's farm. There was enough of a pasture surplus during spring to allow cutting of a fair quantity of silage and hay. Rainfall during January 2000 was good and delayed the pasture drying off. Good pasture management throughout the autumn removed the remnants of the dead pasture from the paddocks and rationed the declining pasture cover through to a late and inadequate "autumn break" in late April/early May. Rob made good use of hay and silage during autumn to allow stock to be on a slow rotation and be kept off as much of the farm as possible. This began the slow process of re-building the pasture cover and feed wedge.



6. Pasture Growth Rates

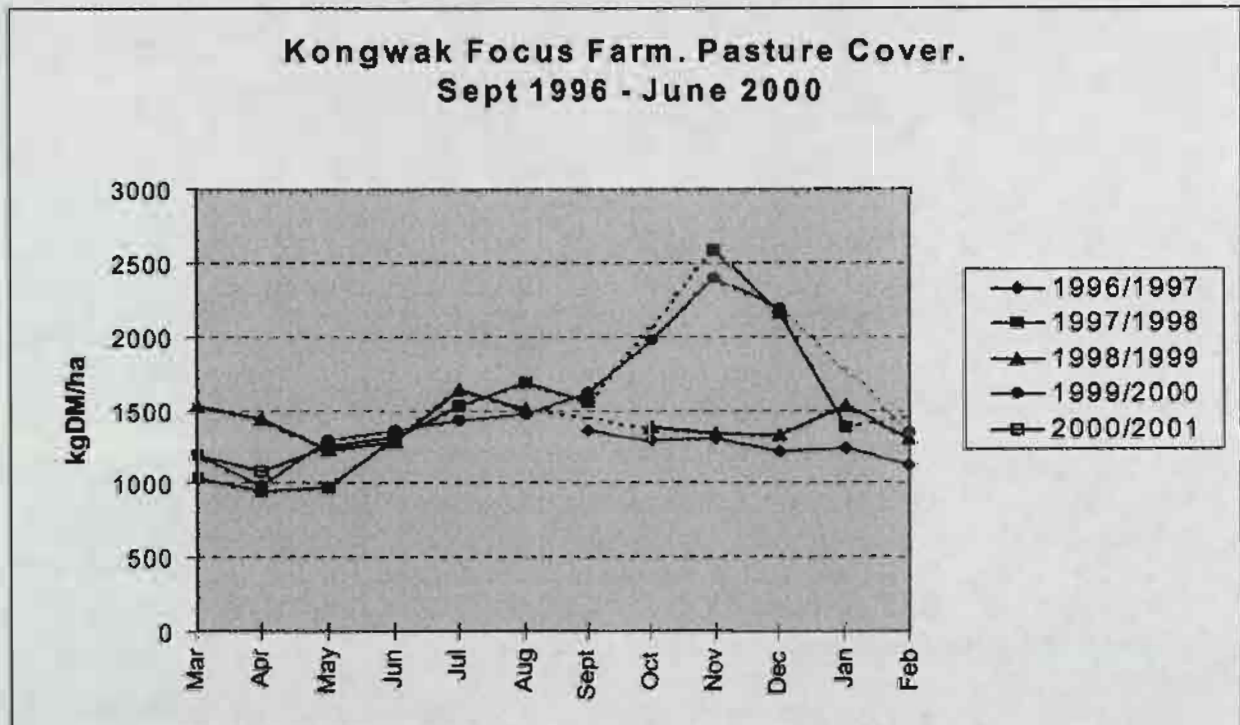
Kilograms of Dry Matter/ha/day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		10	9.2	6	7
Apr		8	6.7	5	10.4
May		16	8	14.7	11.0
Jun		18	11	10.5	12
Jul		23	13	11.7	
Aug		21	20	21.5	
Sept	14	34	33	31.4	
Oct	25	42	44	48.2	
Nov	23	31	20	41.7	
Dec	25	16	22	NA	
Jan	11	16.4	11	NA	
Feb	12	10	8	7.5	

Pasture Cover

Kilograms Dry Matter/ha
Home block only

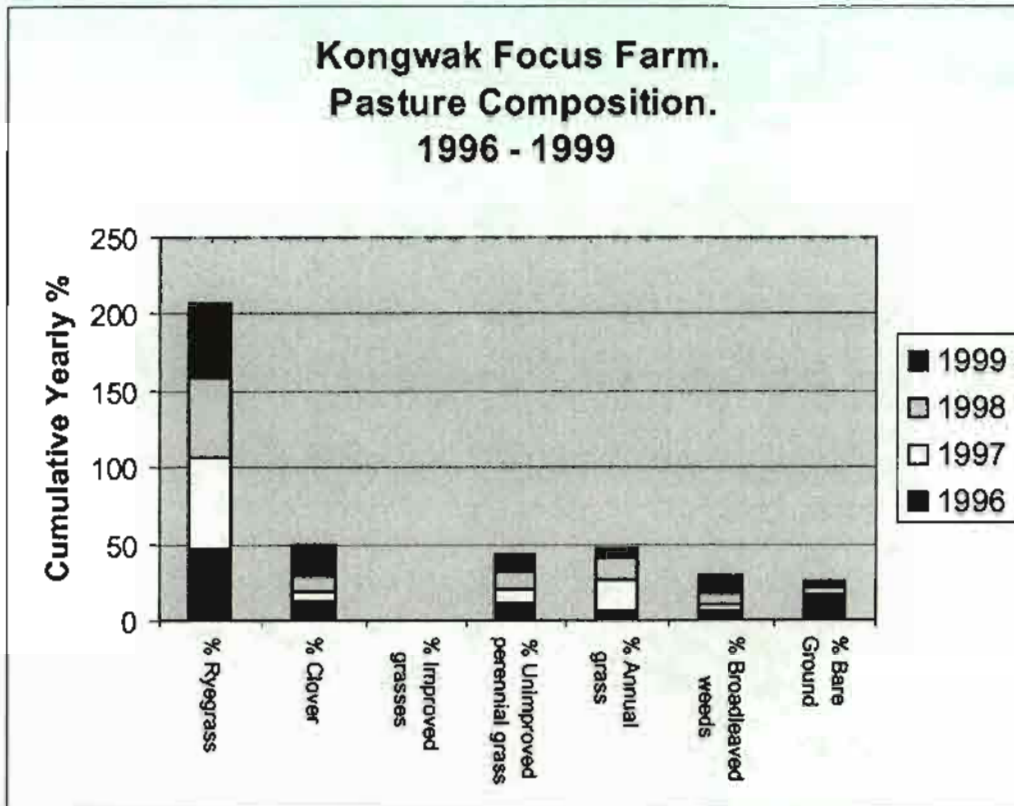
	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar		1039	1523	1195	1196
Apr		949	1437	984	1082
May		972	1224	1290	1249
Jun		1307	1282	1359	1315
Jul		1523	1634	1429	
Aug		1683	1508	1477	
Sept	1366	1550	NA	1616	
Oct	1291	NA	1381	1978	
Nov	1305	2587	1337	2400	
Dec	1216	2147	1328	2190	
Jan	1240	1388	1532	NA	
Feb	1122	NA	1309	1347	



7. Botanical Composition

	% Ryegrass	% Clover	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Bare Ground
Sep-96	46.7	13.2	11.0	6.9	6.3	16.0
Oct-97	59.6	6.1	9.7	19.4	4.1	1.1
Jul-98	54.5	7.5	13.1	14.9	7.2	2.8

Oct-98	49.8	12.9	9.9	12.6	7.5	7.3
Jul-99	48.4	15.9	11.3	6.4	13.1	4.8
Nov-99	48.3	23.3	9.7	7.2	9.2	2.4



8. Fertiliser Use

Rob began using urea during the project to boost autumn/winter pasture growth. A test strip established in May 1997 showed the potential of urea, if used at a suitable time of year and with stocking rate high enough to utilise the extra growth. The pasture growth rate was 25 kg DM/ha/day with urea and 14 kg DM/ha/day without urea. This was an economical response to nitrogen for beef production.

Fertiliser applied per hectare was increased slightly each year. Moderate levels of P and K were applied, with the average yearly level being equivalent to about 300 kg/ha of 3:1. This included a base application over the whole farm in autumn, and strategic applications of say, hay booster to hay paddocks in spring.

Kilograms of each fertiliser element applied per hectare averaged over 80 ha home block and additional 40 ha block

	1996/97	1997/98	1998/99	1999/00
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Kilograms of each fertiliser element applied per hectare averaged over 80 ha home block and additional 40 ha block

	1996/97	1997/98	1998/99	1999/00
P (kg/ha)	18.2	19.8	21.4	22.8
K (kg/ha)	38.8	38.1	38.1	45.5
S (kg/ha)	22.5	24.6	24.7	28.0
N (kg/ha)	23.0	34.5	19.0	16.6

Fertiliser was mostly applied in Autumn each year, apart from strategic use of Urea. The rates of P, K & S in 1998 and 1999 are equivalent to 300 kg/ha 3:1 and 350 kg/ha 3:1 respectively

9. Rainfall

Monthly rainfall totals (mm), Wonthaggi

	1996	1997	1998	1999	2000
Jan	70.4	80.8	61	21.4	73.9
Feb	124.3	5.6	93.4	70.1	44.4
Mar	71	44.4	17.8	82.3	32.0
Apr	102	36.2	72.4	35.6	65.1
May	41.2	107.8	61.8	89.3	145.9
Jun	121.2	61	66.8	101.5	57.9
Jul	172.4	60.4	43.5	70.5	98.8
Aug	158.4	101.1	37.3	125.3	
Sept	183.2	65.7	87.3	77.9	
Oct	66	70.3	143.8	73.8	
Nov	46.6	91.1	112.5	58.9	
Dec	25.6	12	90	72.2	
Total	1182.3	736.4	887.6	877.8	

Mean district average rainfall 935 mm

(Rainfall figures kindly supplied by O'Gearys Insurance, Wonthaggi)

Throughout South Gippsland, in general, the total rainfall for 1997 was the lowest on record. The period 1997 – 1999 was the driest 36 months on record.

10. Focus Farmer Comments About BeefCheque

Being in a BeefCheque group won't grow more grass when it just doesn't rain, but at least you explore options and costs versus benefits. The mutual support and sharing of ideas, particularly when the seasons are tough, is invaluable. Group members also make arrangements with each other about hay and agistment; you have confidence in them as managers.

Managing the lease block was a nightmare due to the lack of capital infrastructure like fencing and water. Initially we simply weren't utilising the feed we were growing and the

pasture composition was declining with lax grazing management. Installing a few extra water troughs and semi permanent two wire electric fencing improved the way we grazed the pasture. More feed went into the animals and in a few tough autumns and winters we actually grew more grass than we would have because we reduced backgrazing of regrowth.

11. Summary Comments

“BeefCheque doesn’t help solve problems like drought, but what it has done is made me feel less helpless and more in control than I used to. We now know about management tools such as nitrogen applications and the economic benefits. We can assess pasture availability and feed on hand, estimate animal intakes to know what each class of stock need, and can calculate how long the feed will last. Using this as a basis for decision making, we can make sound economic decisions. Once you start using objective measurements for feed and stock requirements, you automatically become a better planner.”

PAKENHAM FOCUS FARM

1. Background

Focus farmers: Max & Chris Grigg.
 Location: Cnr McDonalds Track & Camms Road, Lang Lang.
 Consultant: Jeff Urie
 Property size: 81.0 hectares total 76.6 effective (part of a 162 ha. holding.)
 Average rainfall: 886 mm
 Soil Type: Grey loam and sandy rises.
 Stock (1995/96): Beef x Dairy cows, Euro and British Breed bulls.
 Calving: March and Nov/ Dec.
 Production system: 10 month vealers off cows and 10 – 14 month grass vealers sold Nov. to May.
 Target Market: Heavy supermarket trade.

2. Focus Farm Objectives

- 2.1 Increase liveweight output by 20%
- 2.2 Maintain average vealer carcass weights at 180 kg for first calvers and 200 kg for older cows.

3. Production Summary

Performance measure	1995/96	1996/97	1997/98	1998/99
Av. Number cows carried	90	134	128	103+34 2yo
Stocking Rate dse/ha		27	32.4	32.2
DSE per 25mm over 250 mm		0.94	1.79	1.86
Vealer/weaner sales – number	90	119	147	91
Vealer/weaner sale weights kg/head		352	351	347
Liveweight output/ha		454	568	604
Liveweight output/100ml rain		46.8	78.8	88.7
Pasture consumption (tonne/ha)	7.2	7.2	7.95	7.5

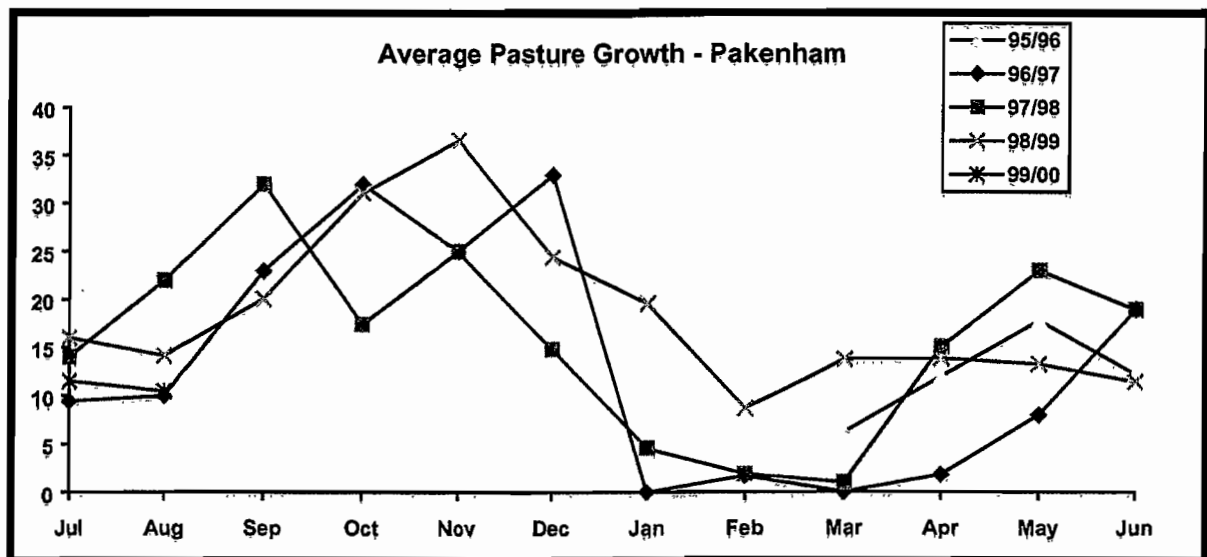
4. Main Achievements

- 4.1 14% increase in stocking rate (1995/96 – 1997/98) despite the very wet winter of 1996, and the very dry years of 1997 and 1998. However due to problems with calf scours in 1998, some cows have been sold. Stocking rate increase 1995/96 to 1998/99 was +6%.

- 4.2 11.5% increase in liveweight output 1995/96 to 1998/99. There was a 33% increase in liveweight output from 1995/96 to 1997/98. However the exceptionally dry conditions in 1997 and 1998 and problems with calf scours in 1998, has resulted in an overall liveweight output increase up to 1998/99 of 10%. The strategy in 1998/99 to counteract lower cow numbers has been to achieve higher per head vealer/weaner weights.
- 4.3 Average vealer/weaner sale weights 1995/96 to 1997/98 were held at around 350 kg/head and then were increased to 379 kg/head in 1998/99 by a number of strategies:
- Weaning earlier than normal (7 - 8 months) and strip grazing on high quality grass (wet year) or strip grazing on limited high quality grass plus high quality silage (dry year).
 - Grain feeding weaners in the dry 1997 year.
- 4.4 Production of a feed wedge in the difficult dry years by strict rationing of cows and calves, managing cow condition and sparing use of nitrogen fertiliser to boost autumn growth .
- 4.5 Boosting silage yields in a dry spring with nitrogen.
- 4.6 Keeping hay purchase costs under control in 1997 by personally purchasing and transporting any bought in hay.

5. Pasture Growth Rates

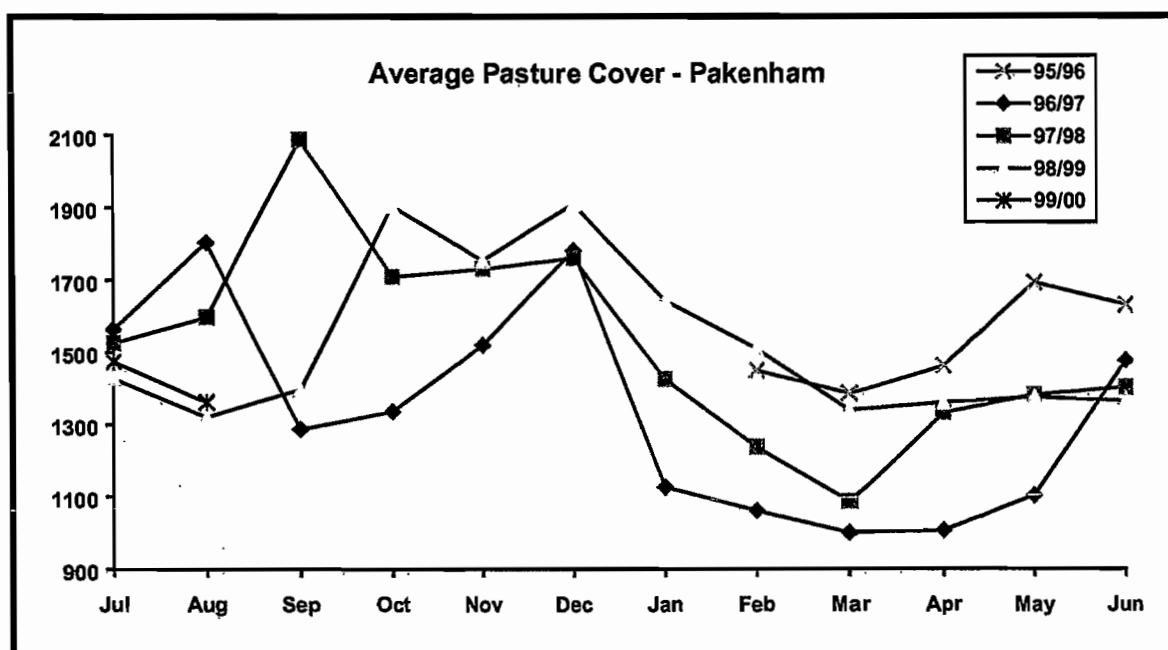
The graph below shows the monthly pasture growth as measured on monthly farm walks. Two methods were used to assess pasture growth. Firstly figures are calculated on the change in farm average pasture cover and the stock requirements for that month (adjustment is made for any fodder fed). Secondly this figure is checked against the change in pasture cover in paddocks ungrazed for the month. Growth is estimated in kg pasture dry matter adjusted to a constant 10.5 MJ ME. Therefore summer pasture growth is lower than would traditionally be reported.



Pasture cover

The graph below shows the average pasture cover on the farm for the years 1995/96 to 1999/2000.

The figures show the effect of the very dry conditions in 1997 and 1998. Nevertheless the focus farmer was able to achieve a feed wedge in autumn/winter.



6. Pasture Quality

Pasture quality was monitored by a check on botanical composition on the whole farm once per year and by checking a "monitor" paddock periodically. In addition, pasture samples were taken periodically to check their digestibility and energy content, as animal performance is very sensitive to the digestibility of pasture.

Botanical composition.

In the monitor paddock, grazing management has resulted in a reduction in dead pasture and unimproved grasses such as fog-grass and winter grass. Clover content has also improved.

(figures expressed as percentages)

Species	August 96	July 97	July 98	August 99
Ryegrass/Cocksfoot	74	44.2	66.3	64.1
Clover	12	3.1	4.6	21.3
Unimproved Grasses	5	6.0	1.8	2.8
Annual Grasses		20.6	6.0	4.8

Broadleaf weeds		18.3	16.7	13.8
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2) Digestibility

The average digestibility in the monitor paddock improved by 10% in 1996. Separate tests were done on green pasture and any dead pasture. There was 25% dead pasture in August and none in October 1996.

Change in monitor paddock digestibility.

Pasture Component	Date				
	7/8/96	7/11/96	19/12/96	24/1/97	27/10/97
Green	77%	79%	70%		74%
Dead	57%				
Average	72%	79%(+10%)	70%	52%	74%

7. Fertiliser Use

Around 200 kg/ha of super potash 2 & 1 applied each year with some strategic use of nitrogen and nitrogen + potash.

The table below shows the fertiliser elements applied/ha averaged over the total effective grazing area.

Element	1995/96	1996/97	1997/98	1998/99	1999/00
Nitrogen	0	21.6	10.4	4.5	
Phosphorus	14.75	7.7	11.6	14	
Potassium	42	36.6	32.9	40	
Sulphur	18.25	9.5	14.3	17.4	

Fertiliser applications were reduced in 1996/97 (to help balance the high cost of hay inputs in a dry year). The main fertiliser element reduced was phosphorus, as the 1996 fertiliser results (see table below) indicated phosphorus levels were reasonable. Nitrogen fertiliser has been used strategically. In Oct 1996 nitrogen was used, together with potash, to boost hay paddocks. Similarly it was used in Oct 1997 to boost silage paddocks. After dry condition breaking rains in May 1998 it was used to boost winter pasture feed.

The rate of phosphorus applied in relation to the stocking rate seems low. The average stocking rate has been approx. 30 dse/ha and the average phosphorus applied has been

12 kg/ha. This equates to a rate of 0.4 kg P per dse. Grassland productivity trials would suggest a maintenance rate of 0.7 to 0.9 kg P per dse.

Soil Test Results

Date	Paddock 4		Paddock 8	
	3/96	/99	3/96	/99
pH (water)	5.4	5.4	5.2	5.1
Olsen P (ppm)		24		23
19				14
Potassium (ppm)	121	200	129	220
Sulphur (ppm)		30		15
7				7

Phosphorus shows a slight decrease in paddock 4 – which is consistent with a phosphorus application rate below maintenance. However the phosphorus is higher in paddock 8. This may be explained by the high amount of hay feeding carried out in this paddock during 1996.

8. Rainfall

Year	Rainfall (mm)
1995	1054
1996	953
1997	534
1998	850.8
1999	650
Mean 1949 – 1997	866.4

9. Stock Performance

Details were recorded for calf growth in 1996 to see how well the calves grew after weaning earlier than normal.

1) Cows & calves.

Estimated calf growth for Mob 1 (46 cows & calves) from birth to Sept. 1996 was 0.9 kg/day. Planned sale of these vealers was November. In September, due to the

increasingly wet conditions, it became very difficult to fully utilise the best saved feed. Cows would tend to tread a lot of it into the ground. It was decided to wean some of these calves and give them the best of the feed.

2) Weaned calf performance – mob 1

Growth of 22 calves from original Mob 1, weaned in September 1996 at approx. 10 months of age, was 0.3 kg/day for the first 30 days, then 1.46 kg /day for the next 26 days.

3) Weaned calf carcass data – mob1

Of the 22 weaners, 16 were sold in mid Nov. Average carcass weight was 209 kg with 9 mm P8 fat (range 5 - 13 mm).

4) Weaned calf performance – mob 2.

Due to the excellent weaner performance, a further 46 calves were weaned on 25/10/96 at approx. 10 months of age. Their weight just before weaning on 22/10/96 was 300kg. Their weight on 26/11/96, was 346 kg. which is an average gain of 1.35 kg/day. This includes the weaning period.

These calves were also weighed on 26/11/96. Their average weight was 295 kg. Their weight gain over the month was 1.2 kg/day.

10. Main Conclusions.

- Up to 1997/98 output objectives were more than met without reducing per head production targets. This was achieved despite the second driest year in 50 years (1997). This achievement has necessitated changes in management. Possibly the most significant change has been to wean calves earlier than normal (at 7 months). To achieve the carcass weight and degree of finish required by the domestic market, weaned calves have had to be fed high quality feed. In the dry years this has necessitated careful strip grazing on high quality pasture, high quality silage and some grain feeding.
- Since 1997/98, problems with calf scours have resulted in some cows being sold. However the Focus farmer ability to maintain cow numbers during the dry conditions and low prices and then sell them on improved markets in 1998/99 has assisted the cash flow.
- Maintaining the stocking rate and achieving production targets have been assisted by application of the BeefCheque grazing management principles.
- The focus farmer has been flexible in how he has used grazing management to adjust to changing situations. For example getting through exceptionally dry conditions with high stock numbers in 1997 and 1998; increasing per head production in 1998/99.
- Despite some deterioration in pastures over the very dry 1997 and 1998 years, pasture quality as measured by pasture composition is now good.
- Cost control has also been a high priority.

- Downsides have been the dry conditions in 1997 and 1998 and poor beef prices in those years which significantly reduced financial returns. An outbreak of scours in 1998 following the dry years also had a significant impact on returns.

11. Focus Farmer Benefits from BeefCheque.

- Learning to use grazing management principles with Jeff Urie in two very difficult years was a very big learning experience.
- Techniques learnt with Jeff Urie have been the best learning experience in my farming career.
- Have learnt more than ever to look ahead, to monitor pasture cover and growth – and if pasture growth is not up to stock requirements to do something to fill the potential feed deficit before running out of feed.
- Have learnt to use nitrogen fertiliser strategically eg to boost silage yield in a dry year (1997) and to boost autumn growth when needed (1998).
- Helps you to think down the track – focus on the effect of changing conditions on future feed supply and so make timely decisions.

12. Focus Farmer Summary Comments

- There are differences between a dairy rotation system and beef grazing. With beef you have to manage more than one mob of cattle and allocate the right feed to the right cattle.
- In future we will continue to use the grazing techniques learnt. However we will adjust the stocking to the prevailing conditions (eg lower stocking rate after the 2 dry years to allow pastures to recover and to replenish hay reserves)
- After the experience of the exceptionally dry conditions we have learnt to find other markets and are more open to market opportunities.
- In the future we intend to use an extended spring to give more market opportunities. This will be achieved through the use of turnips followed by high production ryegrass + red clover. We will also use opportunity grain feeding when profitable for the winter market.

TARWIN LOWER FOCUS FARM

1. Background

Focus Farmers:	Lindsay & Sue Marriott
Starting Date:	February 1996
Consultant:	Jeff Urie, Ag-Challenge
Location:	Bald Hills, Tarwin Lower
Property Size:	Total 258 ha, Effective grazing area 236 ha
Average Rainfall:	950 mm
Soil Type:	Black/brown sandy loam. Grey sandy loam on sandhills
Stock (June 1996):	78 Calves, 29 Heifers, 81 Stud Cows, 130 Steers 1-3 yrs, 21 Bulls 1-2 yrs, 4 Bulls 2+ yrs, 474 Ewes, 7 Rams
Calving:	February 70-80% 1995-1997, 50% 1998-1999 October 20-30% 1995-1997, 50% 1998-1999
Lambing:	September
Replacement Policy:	Cows & bulls, bred on farm, Ewes purchased
Market:	Steers and heifers for the domestic market. Annual on-farm sale of stud breeding bulls
Stock (June 2000):	61 calves, 34 heifers, 26 weaner heifers, 96 stud Cows, 10 steers @ 16 months, 11 weaner steers 28 Bulls 1-2 yrs, 3 Bulls 2+ yrs, 9 weaner bulls, 720 Ewes, 15 Rams

2. Focus Farm Objectives & Production Aims

March 1996:

Increase pasture consumed per hectare and kilograms of liveweight produced per hectare by running more stock without reducing per animal performance. The number of traded stock (steers or sheep) will be increased while keeping the numbers of cows and ewes relatively constant.

1996/1997:

Run 600 ewes with 150% lambing percentage. Aim for 97% of lambs sold in one go, with 60% being of export quality (heavier than 20kg), 37% for domestic market, 3% shorn. Calve 90 cows. Turn off 200 trade cattle at 450 – 500 kg liveweight.

1998/1999:

Increase number of ewes over next 1-2 years to 800. Increase number of cows to 150, split between autumn and spring calving. Less emphasis on traded stock.

3. Production Summary

Performance measure	1995/96	1996/97	1997/98	1998/99	1999/00
Lambing %	164	122	152	148	157
% DSE cattle	74	77	69	NA	NA
% DSE sheep	26	23	31	NA	NA
Stocking rate dse/ha (cattle & sheep)	20.6	17.0	18.1	NA	NA
DSE/ha (cattle & sheep)/100mm rainfall	1.9	2.0	2.7	NA	NA
Total liveweight output (kg/ha)	404.5	299.4	387.6	NA	NA
Total liveweight (kg/ha/100 mm rainfall)	36.8	35.2	58.2	NA	NA
Pasture consumption & conservation (t DM/ha)	NA	5.31	4.28	4.64	NA
Pasture grown (t DM/ha)	NA	4.321	4.294	5.817	4.109
Pasture grown (t DM ha/100 mm rainfall)	NA	0.508	0.554	0.758	0.567

4. Main Achievements

- Use of block/strip and rotational grazing where possible, resulting in reasonable pasture growth despite limited rainfall; allowing flexibility with keeping, fattening and selling stock, mostly without supplementary feeding.
- Development of ability to calculate projected stock feed requirements and manage farm to achieve pasture on-hand at the time, and in the particular paddocks it is required
- Persistence with trial grazing of ewes behind temporary electric fencing, leading to considerable benefits to overall pasture availability, particularly in autumn and early winter.
- Commencement of making silage rolls to conserve excess pasture in spring.

5. Summary of Activities

Background:

This focus farm had low pasture availability throughout most of the project. This was a result of a number of factors. On average a quarter of the farm is grazed by sheep, which results in shorter, denser pastures. The sheep are set stocked during lambing. The paddocks are also relatively large which limits the capacity for rotational grazing – particularly during periods of joining of cows and heifers when there is a number of small mobs. Generally the farm has naturally low fertility, sandy loam soil with areas that dry off by the start of summer. The predominant grass species is fog grass, which has relatively low productivity. Also, the rainfall during the project was lower, to much lower than average. The farm has been built up over the years that the Marriott's have owned the property. Soil fertility has improved to moderate, weeds have been controlled and there is now a reasonable amount of perennial ryegrass in the pasture. This trend was continued during the project.

Pasture Management

Initial efforts in autumn 1996 were put into cleaning up long dry feed by utilising temporary electric fencing and the use of fewer, but larger, mobs of cattle. This method worked well. A similar situation occurred to a lesser extent, over sections of the farm, each autumn throughout the project. Each year the dry feed was removed prior to the autumn break.

Despite the generally low pasture cover and growth rates during the project, the farm carried a relatively high stocking rate and a very high proportion of pasture grown was consumed. Within the constraints of the farm, it was run as a very productive unit. Rotational/block grazing was carried out where possible (using temporary electric fencing) and this helped ration pasture and increase overall pasture cover during some difficult periods, without having to reduce stocking rates. On other occasions, rotational/block grazing allowed pasture to be set aside for finishing lambs or steers.

Notable examples of successful rotational grazing were:

1. The Bull paddocks were consistently rotationally grazed by the sale bulls with minimal supplementation from weaners to fully grown, and market ready.
2. Road paddock was split in half using a single electric wire and strip grazed down each side using various stock, for most of the year. This paddock (10% of farm area) was regularly observed to have the highest pasture growth rates and be carrying a high proportion (up to 25%) of the total available feed on the farm. A moveable polythene water trough was purchased to supply water to stock while strip grazing in this paddock.
3. During autumn 1998, the ewes were block grazed while being joined, using temporary electric wires. This system worked very well and allowed pasture cover on the rest of the farm to increase at this critical time in setting up for winter. Lambing percentage was not compromised by block grazing. The ewes quickly became quieter and were easily moved to the next section. A number of ewes caused problems by going through the wires and leading others through. This problem was eliminated by taking the renegade ewes out at the far end of the paddock, ahead of the rest of the mob, and keeping them separate thereafter.

By October 1996, an outlay of \$2,400 on electric fencing equipment had allowed a far greater degree of pasture management, in terms of rationing of available pasture over the farm. As a result of this pasture management, the farm had a far greater ability to maintain good stock condition and maintain carrying capacity during the dry seasonal conditions that prevailed, than could otherwise have been achieved.

The Marriott's started making silage rolls (from Road paddock) in 1998. This allowed control of some pasture surplus and because it was cut early (October) it did not restrict availability of pasture for stock. The pasture regrowth was able to be grazed twice prior to Christmas. Silage provides a useful quantity of quality supplementary feed to assist feeding priority stock during autumn and winter.

Pasture Composition

During the project, pasture composition continued to improve, particularly on sandy rises in paddocks. There are now more perennials (including ryegrass) to supplement the dominant subclover/flatweed in these relatively dry and less fertile sites

Stock

An outbreak of campylobacter, which caused lamb abortions, affected the ewes prior to and during lambing in 1996. Lambing percentage in this year was reduced by 20 to 30%. It was felt that splitting the ewes into four mobs helped to reduce spread of the bacteria and thereby minimise the problem. The bacterial infection also may have contributed to observed reductions in lamb liveweight gains during spring of 1996. The reduced lamb growth rates meant that in January 1997, the lambs could not be sold in one draft as expected, resulting in having to keep a large number on the farm for an extra period. This reduced farm pasture cover from what had been budgeted. The effects of this event on pasture availability continued through the rest of that summer and reduced the capacity of the farm to finish steers purchased in mid January.

Quite early into the project (spring 1996), it was observed by Lindsay Marriott, that ewe losses (despite the Campylobacter) over winter had been reduced by half from around the normal 3% to 1.5%. This was attributed to a more even plane of nutrition during the winter months.

The comment was made in late winter 1996 that the farm was carrying more stock for the time of year than ever before and that they were in better condition. In January 1997, Lindsay felt that the farm could carry more stock. He was also confident of the capacity of the farm to produce more pasture under the "BeefCheque system". So at a time when seasonal conditions were dry and many farms were selling stock to reduce stocking rates, Lindsay bought 53 steers out of an increased farm cash flow with the intention of them gaining 70kg over 100 days. The steers already on the farm would be sold at the end of February. As it turned out, the extra steers only held condition through autumn 1997 and finally reached target weights, after rapid liveweight gains in early spring, in October 1997. With hindsight, these steers should not have been purchased, since seasonal conditions turned out to be exceptionally dry, with a late autumn break, (plus the effects of keeping many of the lambs an extra few weeks, as mentioned previously). However, it was an example of the benefits of good pasture management that the farm was able to carry these extra stock, without supplementation, during long periods of low pasture growth, until they could be finished and sold at some profit. Without a high degree of pasture management, the steers would have had to have been sold early, and unfinished, at a financial loss.

Ewe numbers increased from about 560 in early 1997 to 700 in May 1998. Commercial stud cow numbers reached approximately 120 at the same time compared with about 100 two years ago and 55 four years ago. However in May 1998, trade cattle (heifers and steers) were down to around 50 head compared with about 100 two years ago.

Capital Improvements

Continuing investment was made in capital improvements such as renewing cattle yards, several new dams dug and others renovated, and rock put in gateways. The new dams

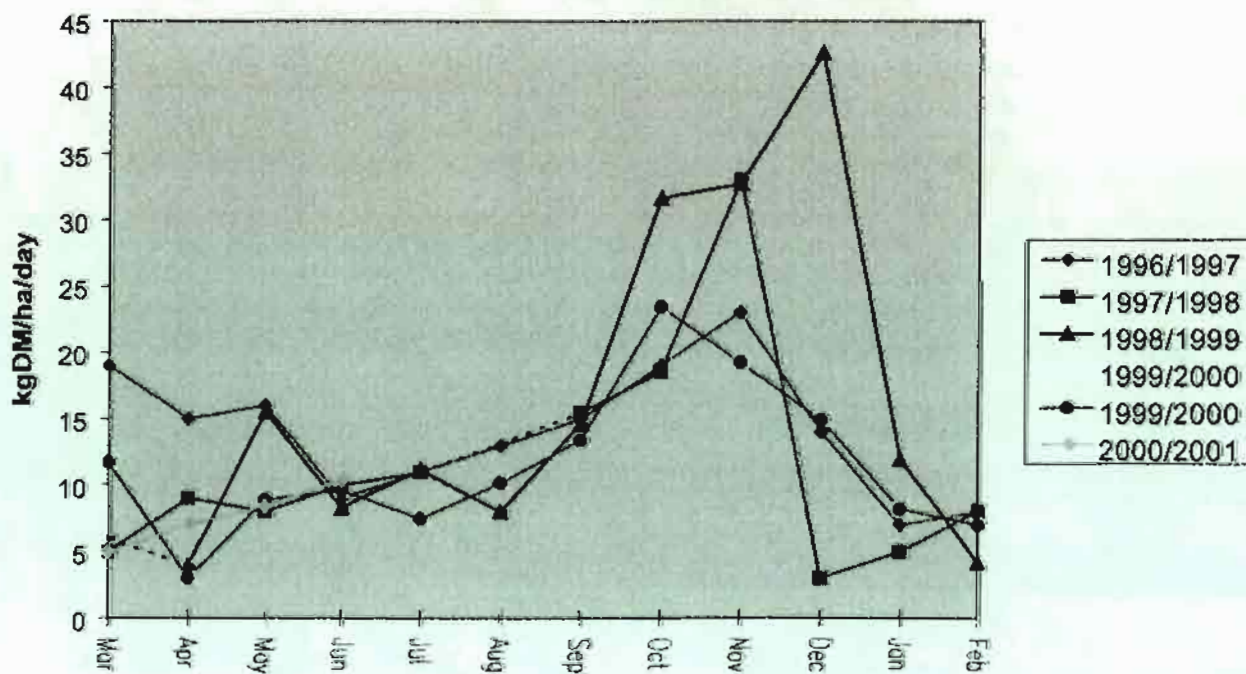
have allowed better utilisation of pasture by enabling block grazing of previously under-utilised sections of particular paddocks. They also ensured an adequate water supply during the dry years.

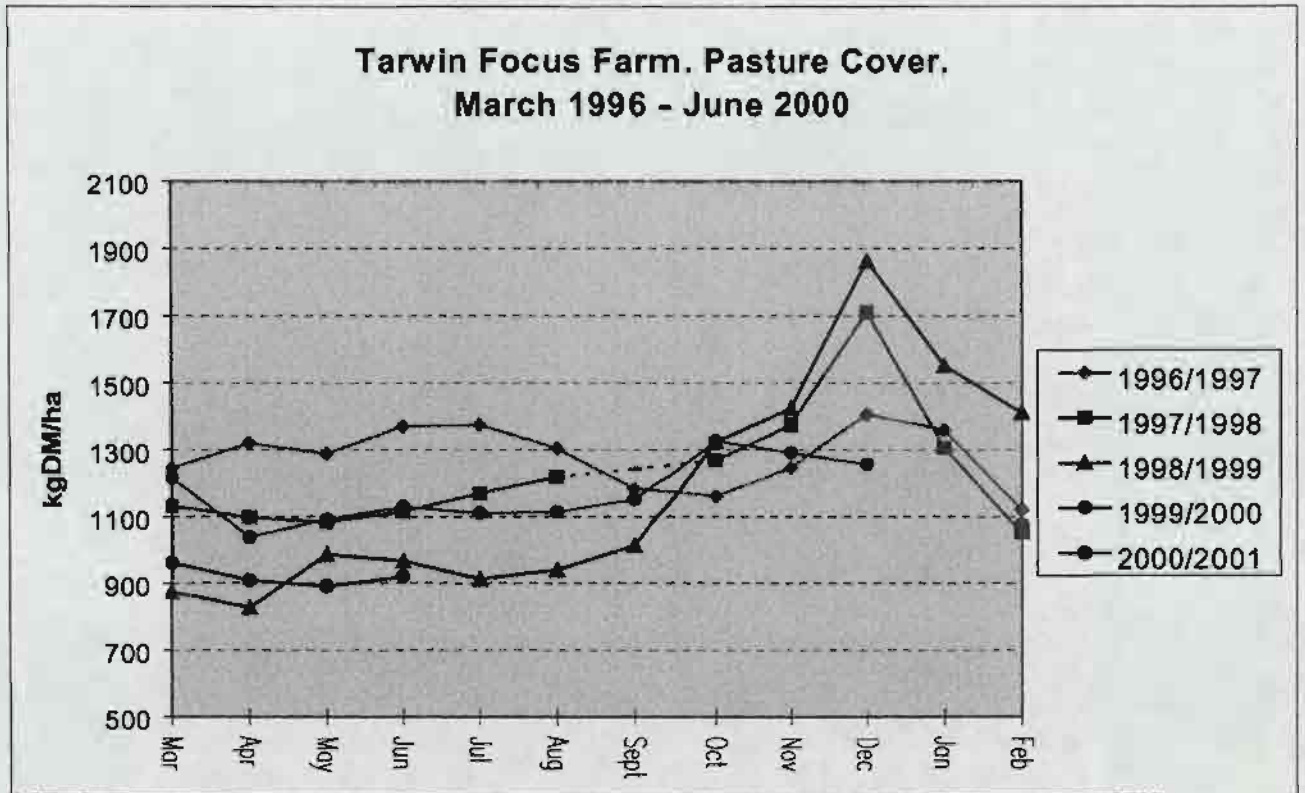
6. Pasture Growth Rates

Kilograms of dry matter/ha/day

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001
Mar	19	5		11.7	5
Apr	15	9	3.9	3	7
May	16	8	15.5	8.9	8.4
Jun	9	10	8.3	9.6	10.4
Jul	11	11	11.2	7.5	
Aug	13		8	10.2	
Sept	15	15.5	14.6	13.4	
Oct	19	18.5	31.6	23.4	
Nov	23	33	32.7	19.2	
Dec	14	3	42.6	14.9	
Jan	7	5	11.9	8.2	
Feb	8	8.1	4.2	7	

**Tarwin Focus Farm. Pasture Growth Rates.
March 1996 - June 2000**

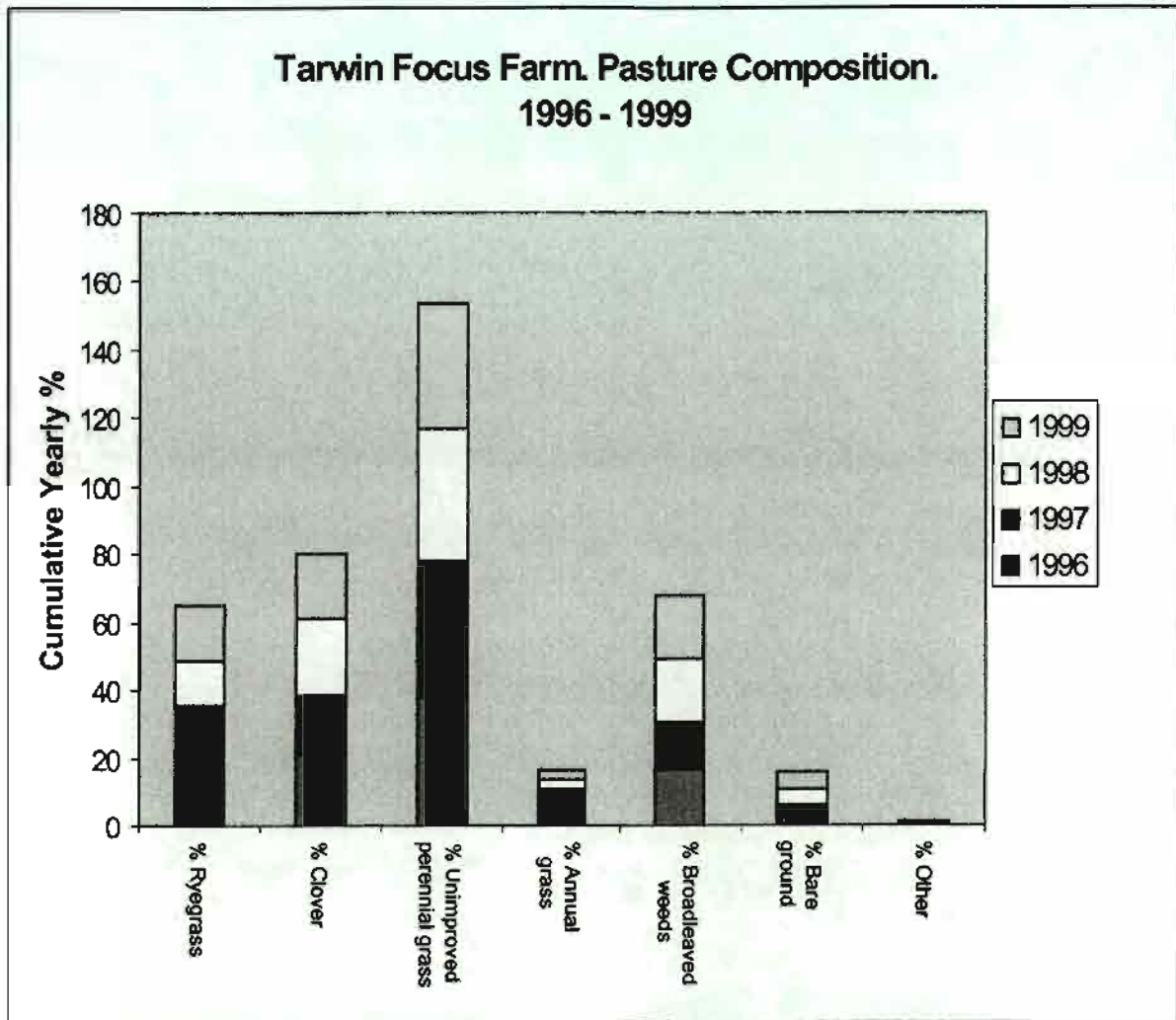




8. Botanical Composition

	% Ryegrass	% Clover	% Unimproved perennial grass	% Annual grass	% Broadleaved weeds	% Bare Ground	% Other
Aug-96	17.5	21.1	37.8	4.1	16.6	2.9	0
Jul-97	18.9	15.4	38.5	6.5	15.4	5.0	0.3
Oct-97	16.6	19.6	41.8	7.2	12.4	1.7	0.7
Jul-98	13.8	14.7	41.3	3.7	20.0	6.5	0.0
Oct-98	12.8	30.3	35.9	1.9	16.8	2.1	0.2
Jun-99	17.1	13.9	38.8	1.1	21.6	7.4	0.0
Nov-99	15.9	24.6	35.0	4.7	15.7	3.1	1.0

Note: Results shown on graph for each pasture component, are averages of winter and spring measurements for each year.

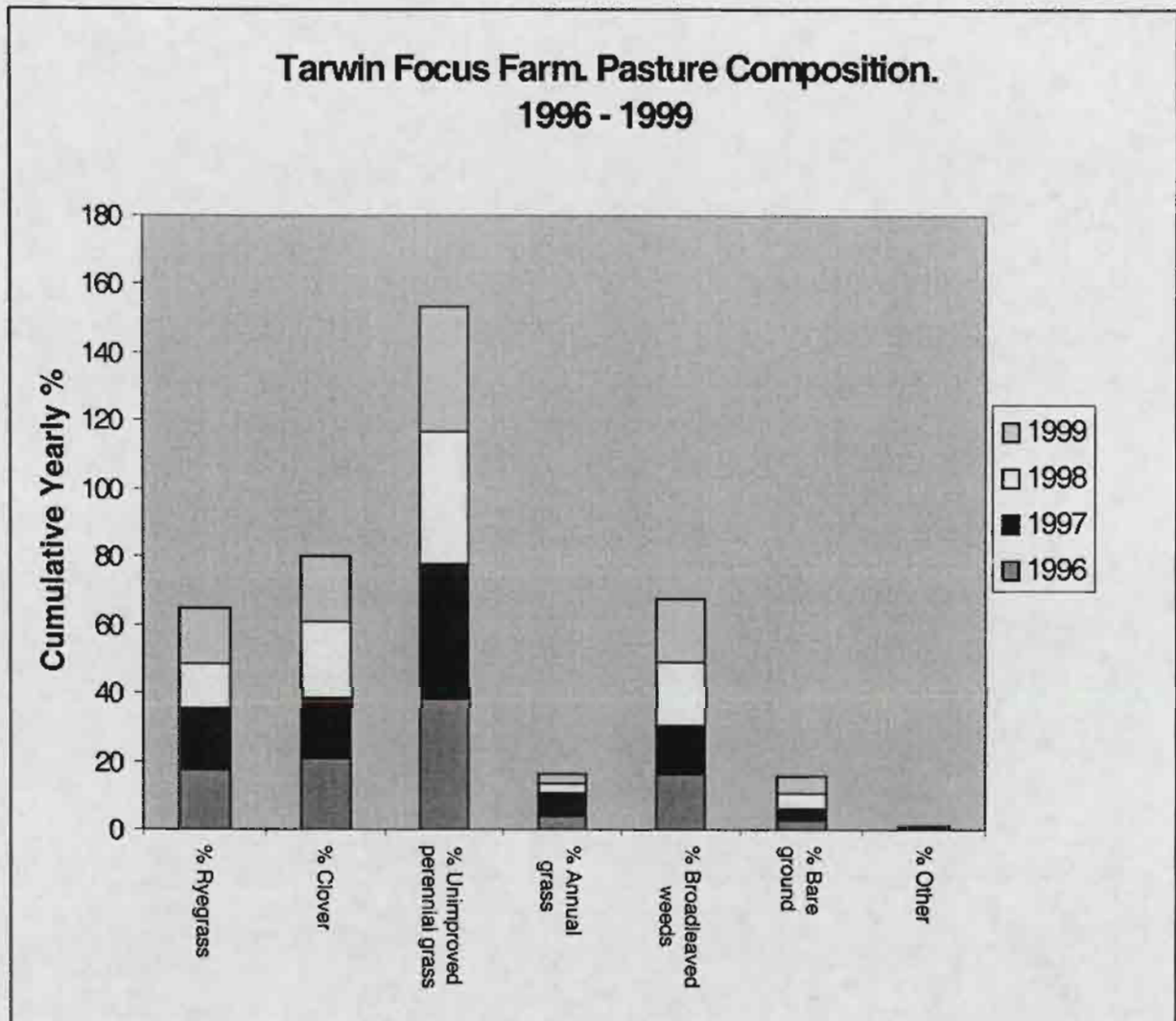


9. Soil Tests

Soil test results

Parrots Pdk	-----Pivot-----		--Soilutions--	
	1998	1999	1996	1998
pH (water)	5.0	4.8	5.3	4.7
Olsen P (ug/g)	21	15	7.7	20
K (ug/g)	340	270	168	220

Cow Pdk	-----Pivot-----			
	1992	1994	1998	1999
pH (water)	5.3	5.0	5.0	5.0
Olsen P (ug/g)	8.5	15.9	13	12
K (ug/g)	129	150	91	160



9. Soil Tests

Soil test results

Parrots Pdk	-----Pivot-----		---Soilutions---	
	1998	1999	1996	1998
pH (water)	5.0	4.8	5.3	4.7
Olsen P (ug/g)	21	15	7.7	20
K (ug/g)	340	270	168	220

Cow Pdk	-----Pivot-----			
	1992	1994	1998	1999
pH (water)	5.3	5.0	5.0	5.0
Olsen P (ug/g)	8.5	15.9	13	12
K (ug/g)	129	150	91	160

Road Pdk	-----Pivot-----		---Soilutions---	
Year	1998	1999	1996	1998
pH (water)	5.1	5.1	5.3	5.4
Olsen P (ug/g)	15	17	13.4	13
K (ug/g)	125	180	188	160

Hayshed Pdk	-----Pivot-----			
Year	1992	1994	1998	1999
pH (water)	5.2	5.0	5.0	4.8
Olsen P (ug/g)	9.9	15	15	19
K (ug/g)	194	240	115	155

10. Fertiliser Use

Kilograms of each fertiliser element applied per hectare averaged over total effective grazing area of 236 ha

	1995/96	1996/97	1997/98	1998/99
P (kg/ha)	20.2	20.2	24.3	17.9
K (kg/ha)	43.3	46.8	14.8	36.0
S (kg/ha)	25.7	25.1	30.2	22.5
N (kg/ha)	5.2	7.7	3.6	0.2*

*This amount of nitrogen was a spring dressing of 95 kg/ha of urea over the half of the Road paddock to be used for silage production

11. Rainfall

	1996	1997	1998	1999	2000
Jan	100	47	54.5	16.5	72.5
Feb	46	9	63	54	37.0
Mar	84	42	14	49	17.5
Apr	126	36	55	30	55.0
May	87	98	43.5	88.5	114.0
Jun	109	66	82.5	91.5	47.5
Jul	172	62.5	70	64.0	100.5
Aug	53	83	27.5	101.5	
Sept	62	65.5	69	53.0	
Oct	76	47.5	120.5	83.0	
Nov	127	78.5	68.5	36.5	
Dec	58	17	82	43.5	
Total	1100	652	750	711	

Mean district average rainfall 950mm

Throughout South Gippsland, in general, the total rainfall for 1997 was the lowest on record. The period 1997 – 1999 was the driest 36 months on record.

12. Focus Farmer Comments About BeefCheque

Lindsay was impressed by the amount of pasture grown on the farm during the extended dry conditions which occurred during the project

Stock are generally fatter and there is more chance of “finishing” stock when needed

The years 1996 – 1999 would have been “impossible” without BeefCheque – what condition would the farm have been in?

Lindsay still has doubts on whether cattle can be “finished” behind a wire, ie. Under strip or block grazing. At present he uses the “system” of block/rotational grazing with other stock to generate good amounts of feed in certain paddocks which can be used for set stocking of finishing cattle.

TRAFALGAR FOCUS FARM No.1

1. Background

Owner: P & B Buratto
 Manager: Norm & Cheryl Witt
 Starting date: Oct. 1996 (finished June 1998)
 Consultant: Jeff Urie
 Location: Willow Grove Road, Trafalgar North
 Property Size: 140 effective hectares (part of 300 ha property)
 Average rainfall: 943mm (Willow Grove)
 Soil Type: Grey fine sandy clay loam (hard – setting yellow duplex soil).
 Original Vegetation: Bayonet grass
 Stock: Initially 180 Hereford cows and calves, plus replacements, changed in 1996 and early 1997 to 170 crossbred and Angus cows & calves (75% crossbred, 25% Angus) with Limousin & Angus bulls.
 Calving: Feb/March.
 Production system: Initially weaners grown out to bullocks, changed to mainly vealers.
 Market: Initially Japanese trade sold in local market changed to mainly vealers for domestic trade sold in local market.

2. Focus Farm Objectives

- 2.1 Short term – increase calf turn off from predominantly weaners to 50% vealers.
- 2.2 Medium term – increase stocking rate by 15%.
- 2.3 Long term – 100% vealers 180 – 220 kg carcass weight, 10 – 11 mm fat at 10 – 11 months.

3. Production Summary

Performance measure	1995/96	1996/97	1997/98
Av. cow numbers	158	184	183
Stocking rate dse/ha	24	26.2	23.6
vealers produced (%)	20%	50%	44%
Liveweight output/ha	443	500	416
Pasture consumption (tonne/ha)	6.75	6.2	5.67
Fodder conservation (tonne DM)	171	39.5	152

4. Background to Focus Farm Objectives

The main enterprise on the Focus farm before BeefCheque was Hereford cows and calves which had not been selected for performance for some time. Cows in the herd were usually in fat condition producing calves with below average growth rate suitable mainly for growing on as weaners (only 20% of calves were suitable as vealers). Weaners were transferred to another property for growing out to bullocks.

The decision to change to vealer enterprise had already been taken before the farm became a Focus farm with some Angus x Friesian cows already purchased. Further purchases of crossbred cows and calves and in calf heifers occurred in Nov 1996 and Feb 1997. With continuing dry conditions, lower producing cows were sold in April/May.

5. Main Achievements

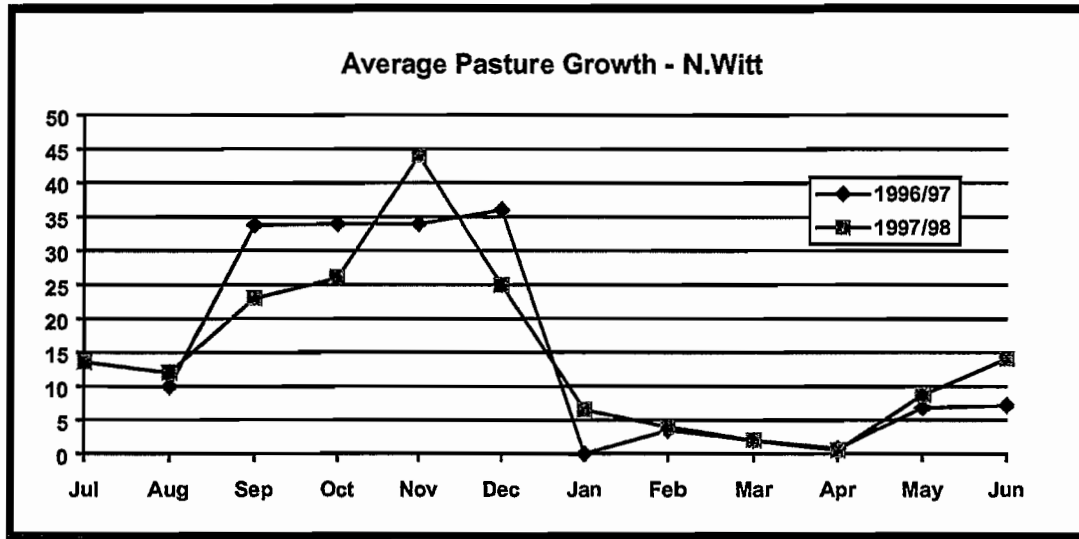
- 5.1. 250% increase in percent of calves turned off as vealers from 20% in 1995/96 to 50% by 1996/97. This slipped to 44% turned off as vealers in 1997/98 because of the very dry conditions in 1997 & 1998.
- 5.2. 9% increase in stocking rate from 1995/96 to 1996/97. Stock numbers were on track in Feb 97 to meet the target increase in stock numbers of 15%. However, due to dry conditions lower producing cows were sold in May 1997. Despite the continuing dry conditions, the overall stocking rate in 1997/98 was only slightly lower than 1995/96 levels.
- 5.3. 13% increase in liveweight output from 1995/96 to 1996/97. Liveweight output then fell in 1997/98 due to the dry conditions.
- 5.4. Introduction of many management changes to initially meet production aims and then to meet stock feed requirements and achieve fodder requirements in two very dry years. In summary the main strategies and issues were:
 - Initially, selling older unproductive cows and purchasing crossbred cows.
 - Managing grazing rotations of 4 + mobs of cattle in very dry conditions.
 - Backfencing to make the best use of available feed in winter 1997.
 - Utilising cow condition without affecting fertility.
 - Preferential feeding of thinnest cows to prevent further loss of condition.
 - Using nitrogen fertiliser strategically to boost winter growth and early summer hay crops.
 - Dealing with calf scours.
 - Controlling broadleaf weeds after the dry conditions.

6. Pasture Growth Rates

The graph below shows the monthly pasture growth as measured on monthly farm walks. Two methods are used to assess pasture growth. Firstly growth is calculated taking into account the change in average pasture cover on the farm and the stock requirements for the month. Secondly this figure is checked against the change in pasture cover in

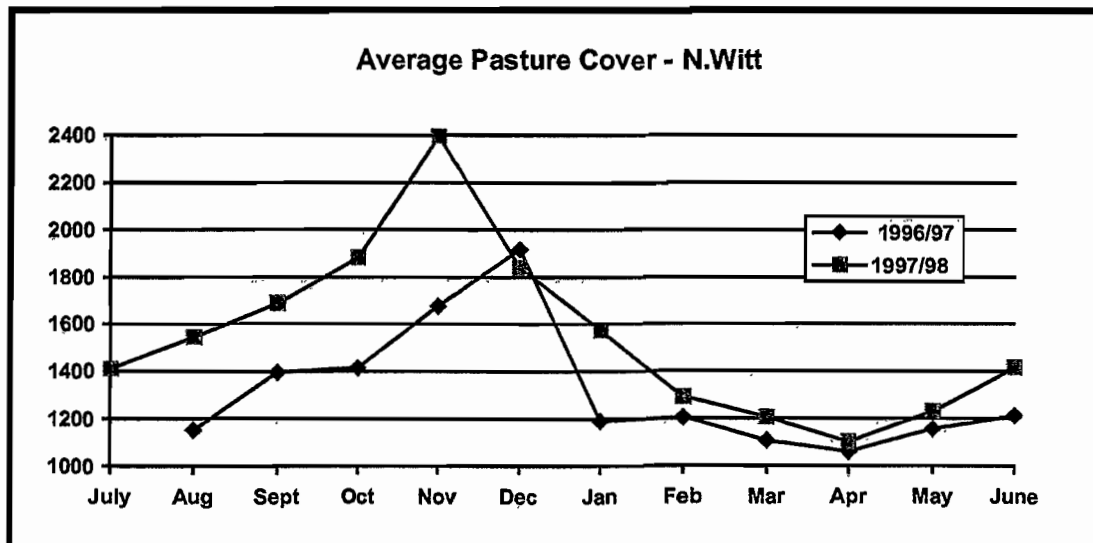
paddocks not grazed for the month. Growth is estimated visually in kg pasture dry matter adjusted to a constant 10.5 MJ ME. Therefore spring pasture growth is lower than would be traditionally reported.

The graph shows the effect of the dry conditions in summer/autumn and spring of 1997.



7. Pasture Cover

The graph below shows the average pasture cover on the farm for 1996 to 1998.



8. Pasture Quality

Pasture quality is monitored by a check on botanical composition on the whole farm once per year and by checking an indicator paddock occasionally.

a) Botanical Composition.

On first inspection in August 1996, pastures ranged from reasonably good ryegrass and clover to very patchy pasture with considerable fog grass, flatweed and some bent grass particularly in 4 paddocks (3,6,10,12).

During the rest of 1996 there was considerable improvement in ryegrass content, but due to the dry conditions in the summer and autumn of 1997, the percent of winter grass and capeweed increased.

Capeweed was controlled in July to Sept 1997 using the spray-graze technique and with good grazing management the percent of ryegrass improved.

(figures expressed as percentages)

	August 96	July 97	July 98
Ryegrass/Cocksfoot	50.9*	36.4	44.3
Clover	27.7	4.2	5.0
Unimproved Grasses	15.9	2.2	1.7
Annual Grasses		3.1	20.1
Broadleaf weeds	3.9	34.0	16.8

4. includes annual grasses

b) Digestibility.

The average digestibility and energy level in the monitor paddock has improved, mainly due to the lower amount of dead pasture in the paddock. The average energy level and digestibility of the monitor paddock pasture is shown below.

	16/9/96	10/2/97	13/10/97
Energy MJME/kg DM	10.2	7.7	11.1
Digestibility	71.5%	57.1%	77.0%
Crude Protein	17.7	11.6%	18.4%

9. Soil Tests

Soil tests taken in October 1996 indicated that the Olsen P levels were generally adequate but the Potassium levels were marginal to just adequate.

	Paddock 4	Paddock 6	Paddock 9
pH (water)	5.2	5.1	5.1
Olsen P (ppm)	15.9	24	22
Potassium (ppm)	109	148	129
Sulphur (ppm)	8	8	8

10. Fertiliser Use

This block is situated on hard setting duplex soils. The soils have a reputation for being inherently poor (ref. Agnote Soils of West Gippsland Sept 1985), which is largely due to the very low levels of phosphorus, potassium and molybdenum.

As the above soil tests confirmed, the Olsen P levels were reasonable but a response to potassium was possible. Trial applications of 200 kg/ha of Muriate of Potash was applied in 2 paddocks (3 and 9A) in September 1996. There was a clear clover response in paddock 3 and a less clear response in paddock 9A. As a result of these tests, the fertiliser program was changed in 1997 from predominantly phosphorus to a mixture with higher potassium content.

In addition, strategic use of fertilisers was used to boost hay yields (250 kg/ha Hayboosta on 18.5 ha in Oct 1996, 200 kg /ha Hayboosta on 46 ha, November 1997) and to boost winter growth (80 kg/ha Urea in May/June 1997).

Main Fertiliser inputs

1995	250 kg/ha Super Potash 5&1
1996	330 kg/ha Super Potash 3&1
1997	375 kg/ha Super Potash 12&1 Moly 0.015% and Copper 0.25% on southern half of the farm.
1998	375 kg/ha Super Potash 3&1

The table below shows the fertiliser elements applied/ha averaged over the total effective grazing area.

	1995/96	1996/97	1997/98
Nitrogen	0	18.2	7.9
Phosphorus	18.5	18.5	28.3
Potassium	20	101.5	63.9
Sulphur	23	24.1	34

11. Rainfall

1996/97	779
5. 611	
6. 891	

Mean Rainfall 1969 – 1998 (Willow Grove PO): 948mm

12. Stock Performance

During 1997 the herd consisted of 40 Angus cows and 129 crossbred cows and calves. In this year of very dry conditions, the average growth rate of calves on the crossbred cows was 22% higher than straight Angus calves.

Mob	Av Wt (kg) 3/11/97	Wt. Gain (kg/day) birth – 16/9/97	Wt. Gain (kg/day) 16/9/97 – 3/11/97	Wt. Gain average
40 Angus	238	0.79	1.23	0.86
68 X/Bred	300	0.98	1.34	1.06
X/Bred	316	0.95	1.37	1.04

13. Main Conclusions

- The main strategies put in place to achieve the Focus farm objectives of increase in vealer turn-off and increase in stock numbers was:
 - a) continuation of the purchase of more productive crossbred cows and calves and
 - b) higher fertiliser inputs particularly of potassium, to improve pasture production and composition.
- More productive cows resulted in calves with higher growth rates (X/B cows giving +22% higher calf growth rate than straight Angus calves). This resulted in an increase in % vealers sold in 1997 (from 20% to 50%).
- The dry conditions hit in early 1997 before the higher fertiliser strategy had a chance to increase pasture production. Consequently unproductive cows had to be sold in April/May 1997 at a time of low cow prices, which had a negative effect on cashflow.
- Continuation of the dry conditions resulted in a deterioration of the pasture composition. However new weed control techniques and improved grazing management resulted in a recovery in the ryegrass component by Oct 1997.
- The Focus farm manager introduced many management changes to cope with the effects of exceptionally dry conditions. These included
 - *Monitoring pasture cover
 - *Establishing a winter feed wedge
 - *Better control of the spring flush
 - *More subdivision
 - *Strategic use of a wider range of fertilisers.
- Economics – Financial figures are not available. However the exceptionally dry conditions of 1997 and 1998 coupled with low prices hit at a bad time for the developing vealer enterprise. Low prices for culled cows sold in 1997 plus the cost of buying in hay in both 1996/97 and 1997/98 had a negative impact on returns.

14. Focus Farmer Benefits from BeefCheque

Comments from the farm manager:

- I am now better equipped to estimate stock feed requirements and to ration feed.
- BeefCheque gave better knowledge of fertiliser requirements and how to use fertilisers.
- The amount of supplementary feeding has changed – we now budget supplementary feeding more accurately and aim to get a pasture feedbank.
- The spray graze technique worked well for the control of broadleaf weeds at the end of the exceptionally dry conditions. We had done some before but BeefCheque encouraged us to try the technique again and it worked well.
- Pasture composition did initially improve but two bad seasons have pegged it back.
- Overall the program was totally beneficial and I got a lot out of it.

15. Summary Comments

The onset of dry conditions in 1997 and 1998 coupled with low beef prices hit at a bad time for an enterprise in transition. Because of the dry conditions at the request of the owner the farm ceased to be the focus farm for the Trafalgar group in June 1998.

TRAFALGAR FOCUS FARM No.2

1. Background

Focus farmer: Ian Bayley
 Starting date: July 1998 (in BeefCheque since May 1996)
 Consultant: Jeff Urie
 Location: Willow Grove Road, Tanjil South.
 Property Size: Total – 136 hectares, Effective – 123.3 hectares.
 (run in conjunction with 150 ha at Trafalgar)
 Average rainfall: 948mm (Willow Grove Post Office 1996-98)
 Soil Type: Hard – setting yellow duplex soil.
 Stock: 1.5 y.o. to 2.5 y.o mainly British breed steers
 Replacement Policy: 1.5 y.o. store steers bought winter & spring, kept 10-15 mnths
 (350 – 400 kg liveweight)
 Market: Japanese Trade (600 – 650 kg liveweight).

2. Focus Farm Objectives

- 2.1 Lift dse/ha from 1995/96 of 17.8 dse to 25 dse, that is from 220 to 300 head
 (dse in 1992/93 was 10 dse/ha).
 2.2 Maintain output/head

3. Production Summary

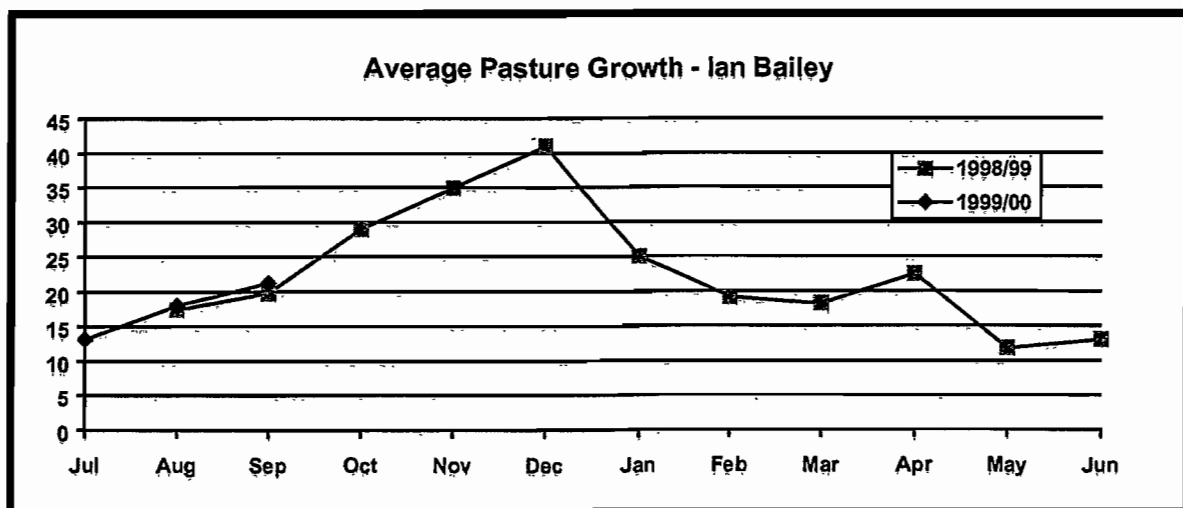
Performance measure 1998/99	1995/96	1996/97	1997/98
Av. number stock	221	242	200
Stocking rate dse/ha	17.8	19.5	15
23.6			
Sales – liveweight/hd			
618.6			
Liveweight output/ha		400 (est)	400
449			
Pasture consumption (tonne/ha)	4.6	5.0	3.9
Fodder conservation (tonne DM)	0	0	0
			6.48
			0.6

4. Main Achievements

- 4.1 32.6% increase in stocking rate (1995/96 – 1998/99)
- 4.2 41% increase in pasture consumption (1995/96 – 1998/99)
- 4.3 12.5% increase in liveweight output 1997/98 – 1998-99. Figures not recorded in 1995/96, but increase probably over 25% 1995/96 – 1998/99.
- 4.4 Sales output per head maintained within target 600 – 650 kg liveweight.
- 4.5 \$13.10/dse gross margin 1998/99 – similar to more developed BeefCheque properties in the district.
- 4.6 Rapid increase in soil Olsen P from 9.4 in 1996 to 20 –28 in 1999.

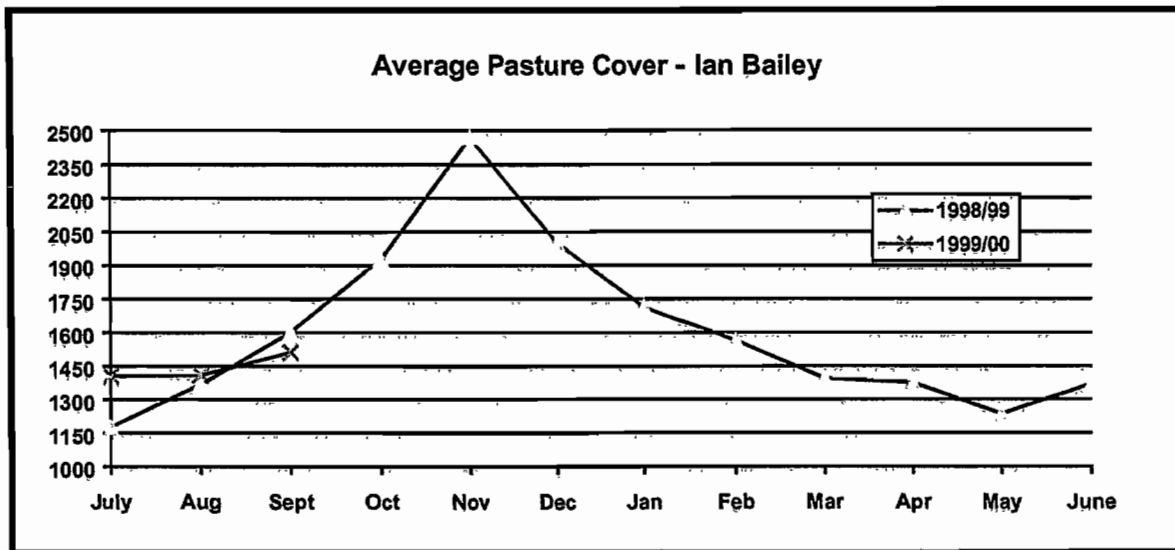
5. Pasture Growth Rates

The graph below shows the monthly pasture growth as measured on monthly farm walks. Two methods are used to assess pasture growth. Firstly growth is calculated taking into account the change in average pasture cover on the farm and the stock requirements for the month. Secondly this figure is checked against the change in pasture cover in paddocks not grazed for the month. Growth is estimated visually in kg pasture dry matter adjusted to a constant 10.5 MJ ME. Therefore spring pasture growth is lower than would be traditionally reported.



6. Pasture Cover

The graph below shows the average pasture cover on the farm for 1998 to 1999.



Due to the high pasture growth in late spring/early summer, hay was cut on 24% of the farm (29.2 ha). Hay yield was approximately 3.3 t/ha. Hay is not a normal part of the enterprise on this block. Most of this hay was 'sold' to another farm.

In addition 2 paddocks (15.3 ha or 12.4% of the farm) were 'deferred grazed' to allow better pasture control on the rest of the farm. When grazed with 260 steers from 16/12/98 to 14/1/99, these paddocks contained approx. 4500 – 5000 kg dm/ha. Wastage was estimated (by taking some quadrat cuts) at up to 35%.

A partial budget exercise suggested a benefit of \$60/ha in a year when it was hard to sell hay when so much was being made in the district. The downside was possible poorer pasture composition (particularly bentgrass).

7. Botanical Composition

Botanical composition has tended to improve with an increase of 8% in improved species (ryegrass, clover, cocksfoot).

(figures expressed as percentages)

	Sept 98	Sept 99
Ryegrass/Cocksfoot	56.6	58.4
Clover	18.0	24.1
Unimproved Grasses	2.5	0.9
Annual Grasses	3.9	5.0

Broadleaf weeds	8.4	5.0
Bent Grass	7.0	4.2
Bare ground	2.6	2.4

The differences in composition between the front and back of the farm have also tended to reduce. The back of the farm has a better composition, mainly due to differences in soil type. In Sept 1998 there was a 15% difference in improved species, in Sept 1999 there was 6%. Bentgrass has also tended to reduce on both front and back paddocks, however, bentgrass is still a problem on some of the back paddocks, particularly paddock 11. This is one of the paddocks that was deferred grazed during the summer.

8. Soil Tests

A soil test taken in May 1996 indicated that phosphorus level was generally marginal at 9.4 ppm Olsen P and potassium levels were marginal to adequate. Since then, Phosphorus levels (but not Potassium levels) have substantially increased.

Soil Test Results (Pivot)

Date	Paddock	pH (water)	OlsenP	ColwellP	Sulphur
10/5/96	Whole Farm	5.8	9.4	155	13.2
27/10/98	Paddock 4	5.3	34	145	24
23/9/99	Paddock 4	5.1	28	120	25
27/10/98	Paddock 12	5.4	24	60	27
23/9/99	Paddock 12	5.3	20	71	25

Fertiliser application dates: - 1996-Jan & June, 1998-July, 1999 early July.

9. Fertiliser Use

This block is situated on hard setting duplex soils. The soils have a reputation for being inherently poor (ref. Agnote Soils of West Gippsland Sept 1985), which is largely due to the very low levels of phosphorus, potassium and molybdenum. These soils also vary, ranging from sandy, with low water holding capacity, to clayey with poor drainage. However, despite these restrictions, these soils can be improved markedly with regular fertiliser applications to grow satisfactory pastures.

The Focus farmer aim was to improve carrying capacity by capital applications of fertiliser to lift phosphorus and potassium soil levels.

Fertiliser applications have been as follows:

1994 – 1996	570 kg/ha of super potash mixtures.
11/1997	375 kg/ha of 5&1
5/1998	375 kg/ha of 5&1
7/1998	375 kg/ha of 5&1

7/1999

300 kg/ha of 4&1

In addition nitrogen fertiliser is now used strategically to boost autumn/winter growth. The table below shows the fertiliser elements applied/ha averaged over the total effective area.

Fertiliser Inputs:

	1994/95	1995/96	1996/97	1997/98	1998/99	
Jly1999						
N kg/ha	0	0	0		9	0
P kg/ha	25	17+21	40	55	27	21
K kg/ha	142	50+30	57	60	26	30
S kg/ha	31	22+26	50	69	32	26

Discussion of fertiliser use:

The soil test table shows that Olsen P in Sept 1999 averaged 24 ppm. This is an increase of 14.6 ppm since the May 10th 1996 test of 9.4ppm.

The above table on fertiliser use show that since June 1996, 164 units of phosphorus have been applied (21+40+55+27+21). So the soil Olsen P has increased by 1.0 ppm for every 11.2 kg P applied where the average application rate has been 41 kg P over 4 years. The rule of thumb figure for a sandy clay loam is 10 kg P = lift in one soil Olsen P unit.

Having applied these high rates, where to from here?

The Grasslands productivity Program 1993-96 Report suggests that after 3-4 years of 'capital' applications, fertiliser can be reduced to a maintenance level which reflects the higher carrying capacity (ie 30% higher stocking rate = 30% higher maintenance). Figures for maintenance have been quoted at between 0.7 – 1.0 kg P per DSE. To meet the target of 25 DSE suggests maintenance of 17 – 25 kg P.

The fertiliser program could concentrate on monitoring and increasing P in the poorer paddocks, and addressing the low potassium levels.

10. Rainfall

1996	966
1997	610.6
1998	891
1999	692

Mean Rainfall 1969 – 1998 (Willow Grove PO): 948mm

Rainfall in 1997 at 610.6mm was the lowest on record and accounts for the dip in performance in the 1997/98 year (see production summary page 1).

11. Grazing Management System

This farm became the new focus farm for the Trafalgar group in July 1998, but had already started a rotational grazing system in 1997. High fertiliser inputs started in 1994. Steers are bought in at approx. 350-400 kg, mainly in spring, and sold 15 to 18 months later in summer and autumn at around 600 – 650 kg. The average steer numbers run in 1998/99 was 219 steers (1.78 steers/ha). In addition stock are taken in on agistment in spring.

In terms of grazing management, the aim in autumn is to build up a feed wedge in winter. As hay is not usually used, a feed wedge is achieved by adjustment of stocking rate, use of nitrogen and restriction of the growing mob. The spring flush is controlled by stock purchases and agistment. Due to the high growth in spring 1998, pasture was controlled by cutting hay and deferred grazing.

Stock generally are run in 2 mobs: a growing out mob and a fattening mob. Initial grazing strategy has been to move cattle every 1 to 3 days. The fattening mob are also moved every 1 to 3 days, but usually grazed to higher residual levels. Initially, grazing management had concentrated on pasture improvement grazing down to 1100 – 1200 residual levels. More recently, residual levels have been lifted to 1300 – 1400 kg/ha to improve per head performance.

12. Stock Performance

Stock performance is checked by measuring the performance of a tagged sample of the mob. In 1998 a tagged sample of 20 steers gained 1.7 kg/day from 13.9.98 – 24.11.98. In 1999, a tagged sample has so far gained 1.0 kg/day from 4/8/99 to 28/9/99 (from 438 kg/hd to 492 kg/hd).

13. Economics

The financial analysis for 1998/99 shows that the Farm gross margin (beef trading profit + agistment + hay sales – less stock costs) was approx. \$13/dse. This is similar to the gross margin achieved by some other well established BeefCheque farms in West Gippsland. The Gross margin less feed costs was approximately \$9/dse (this assumes a maintenance level of fertiliser at 300 kg/ha) which was a little lower than the above farms. This may be a reflection of the fact that this block is still in a development phase with some paddocks still needing improvement, a continuing need for additional fertiliser, particularly potassium and some possible scope yet for slight

increase in stock numbers. There has already been a substantial investment in fertiliser on this block and a more in depth financial analysis of the returns to the investment would be warranted.

14. Discussion

This farm has significantly improved stocking rate since 1994. Various formulas are available to calculate the optimum stocking rate based on rainfall and growing season once any deficiency has been addressed. Results from grazing trials and experiments (eg. Grasslands Productivity Program and grazing experiments at Agriculture Victoria, Ellinbank) are tending to suggest an Olsen P in the 15 - 20 level is optimal for pasture production. This farm has reached these levels and although potassium levels probably need addressing and some individual paddocks could be improved, soil fertility may be getting near optimum.

Formulas in the Grasslands Productivity Program Report* would suggest the potential carrying capacity for a 948mm rainfall and 10 month growing season is between 28 – 32 dse per hectare (depending on which formula is used) and a liveweight output of around 630 kg/ha.

However these formulae do not take variability of rainfall into account. For example, at the low rainfall of 669mm achieved in 1997/98, optimum stocking rate is then 25.7 dse. And liveweight output 500-530 kg/ha. Also, it may not be economic to aim at the maximum possible. An experiment at PRI Hamilton** suggests the optimum economic stocking rate for steers is below that at which maximum liveweight per hectare is achieved.

This farm at 24 dse and 450 kg/ha may therefore not be far off to the economic optimum soil fertility and stocking rate.

15. Main Conclusions

- Management changes have been many including
 - *Continued capital applications of fertiliser.
 - *Monitoring pasture cover
 - *Establishing a winter feed wedge
 - *Better control of the spring flush
 - *More subdivision
 - *Strategic use of a wider range of fertilisers.
- Soil phosphorus P levels from an Olsen P of 9.4ppm in 1996 to an Olsen P around 24 ppm in 1999,
- Together with grazing management this has resulted in a 32% increase in stocking rate (1995/96 – 1998/99) and a 41% increase in pasture consumption (1995/96 – 1998/99) .

- This has resulted in :
- Change in liveweight output/ha of 12.5% from 1997/98 to 1998/99, and probably a 25% increase 1995/96 to 1998/99.
- The current (1998/99) gross margin/ha are on a par with more established local BeefCheque properties, Gross margin minus feed costs still a little behind (probably due to fertiliser rate).
- Pasture composition has improved
- Stocking rate and liveweight output is getting close to optimum.
- It would be worthwhile to cost and monitor any further increases in stocking rate.
- Fertilisers could be more strategically used to improve poorer paddocks and address Potassium levels.
- It would be a worthwhile exercise to do an economic analysis of capital applications of fertiliser used.

16. Focus Farmer Benefits from BeefCheque

- Has learnt how to get more out of the pasture rather than just set stocking.
- Understands the benefit of keeping pasture under control and not letting it get too long.
- Has more recently revised ideas on how hard to graze and now keeps a higher pasture residual to ensure stock perform.

17. References

*Grasslands Productivity Program 1993 – 1996. Final Report to the Wool Secretariat. Barrett A, Court J, de Fegely C, Hill R, Saul G, Shovelton J.

** Bird R (1985) in Agnote – Grass Fattening of Steers in Southern Victoria, Order No. 3039/85.

WARRAGUL FOCUS FARM

1. Background

Focus farmers: Graham & Marjorie Goode
 Starting date: September 1996
 Consultant: Jeff Urie
 Location: O'Meara's Road, Poowong.
 Property Size: Total - 226 hectares, Effective - 216 hectares (534 acres)
 Average rainfall: 1032 mm (Nyora P.O)
 Soil Type: Grey loam
 Stock (1996): 200 - 220 beef x dairy cows, 20 - 65 steer & heifer yearlings
 Calving: Feb/May (60%) and June/Sept. (40%).
 Replacement Policy: Bobby calves purchased and reared or cow+calf purchased.
 Market: 200 kg vealers over hooks to Safeway.
 Stock (1998/99): 160 dairy cows, 65 dairy replacements, 60 beef cows, 40 str.

2. Focus Farm Objectives & Production Aims

- 2.1 1996/97: Increase carcass weight output by approx. 10 % to 250kg/ha (by increase in stocking rate of 14%).
 2.2 1997/98: Develop a dairy enterprise on 55% of the property (remaining land beef plus agistment).

3. Production Summary

Performance measure	1995/96	1996/97	1997/98
1998/99			
Av. number beef cows	199	236	137
Av number dairy milking cows	0	0	92
Stocking rate dse/ha	17.1	21.0	23.5
24.1			
DSE per 25mm rain over 250mm	0.51	0.81	
Liveweight output/ha	407	411	372*
296			
Milk Production (litres/ha)	0	0	6322
Pasture consumption (tonnes/ha)	4.4	5.5	5.9
Total fodder conserved (tonnes DM)	200(e)	30	185
334			

*Beef area 60% of the total based on dse.

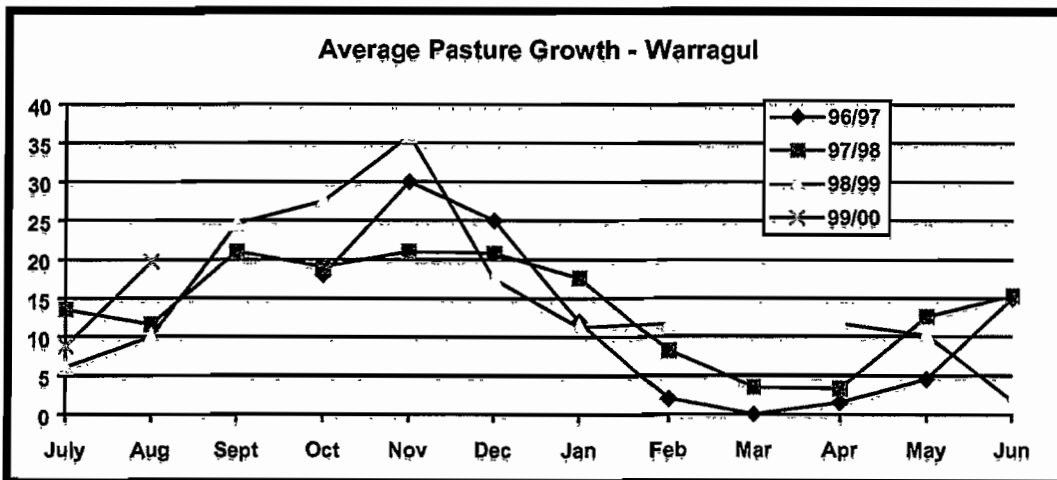
4. Main Achievements.

- 4.1 41% increase in stocking rate (1995/96 – 1998/99)
- 4.2 53% increase in pasture consumption (1995/96 – 1998/99)
- 4.3 Major change in output from 407 kg/ha beef liveweight output in 1995/96 to 6109 litres/ha milk production and 296 kg/ha beef liveweight output in 1998/99.
- 4.4 Due to the continuing poor beef prices and outlook, a decision to start a dairy enterprise was taken. The dairy enterprise was successfully started from scratch in August/Sept. 1997 (including the building of a dairy shed).

5. Pasture Growth Rates

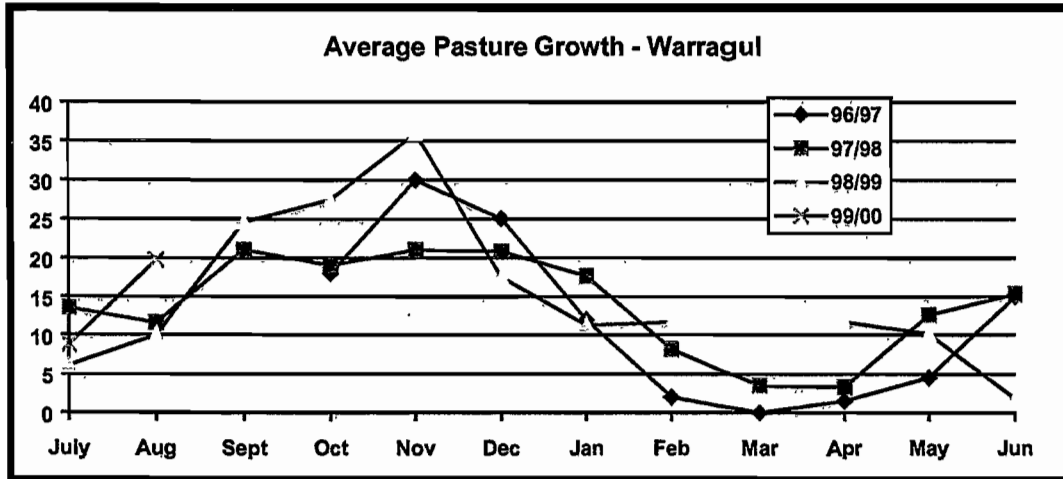
The graph below shows the monthly pasture growth as measured on monthly farm walks. Two methods are used to assess pasture growth. Firstly growth is calculated taking into account the change in average pasture cover on the farm and the stock requirements for the month. Secondly this figure is checked against the change in pasture cover in paddocks not grazed for the month. Growth is estimated visually in kg pasture dry matter adjusted to a constant 10.5 MJ ME. Therefore spring pasture growth is lower than would be traditionally reported.

The graph shows the effect of the dry conditions in summer/autumn and spring of 1997.



6. Pasture Cover

The graph below shows the average pasture cover on the farm for 1996 to 1999. The effect of a low feed wedge in late autumn 1998 carried right through winter.



7. Botanical Composition

Figures expressed as percentages

	June 97	August 98	August 99
Ryegrass/Cocksfoot	56.9	72.0	59.2
Clover	6.6	11.7	24.9
Unimproved Grasses	7.2	0.9	2.7
Annual Grasses	4.7	2.3	0.3
Broadleaf weeds	11.0	8.3	7.9

8. Soil Tests

Soil tests taken in 1996 and 1997 indicated that phosphorus levels were generally marginal at 10 ppm Olsen P and phosphorus levels were marginal to adequate.

Soil Test Results (1996):	pH (water)	OlsenP	Skene/Colwell
Sulphur			
Riley's bk paddk 1996:	5.7	10.1	190 13.2
Riley's 1999:	6.0	21	430 11.0
Grey's Blue Gum 1996	5.3	10	97 13.0
Paddock 18 (11/96)	5.2		23 250 12.0
Paddock 18 (10/99)	5.4	17	190 10.0
Paddock 27 (4/97)	5.4	10	115 20.0
Paddock 28 (4/97)	5.4	12.0	170 13.0

9. Fertiliser Use

Fertiliser use prior to BeefCheque was around 250 kg/ha super potash 2&1. Applications have increased. In 1996/97 265 kg/ha of 3 & 1 was used plus some extra potash and strategic use of nitrogen and hayboosta. In 1997/98 again 265 kg/ha 3&1 plus an average of an additional 125 kg/ha super potash on the dairy area. A wider range of fertilisers is now used strategically including urea and hayboosta. For example urea boosted growth from 8 kg to 20 kg DM/ha in May 1996. In the poor growth conditions of December 1996, 200 kg/ha hayboosta increased growth from 25 kg/day to 43 kg/day.

The table below shows the fertiliser elements applied/ha averaged over the total effective area. Both phosphorus and potassium applications have increased, particularly on the 55% of the farm that is now used for dairying. This is shown in the change in soil test results, with the Olsen P figure increasing in Riley's paddock (now a dairy area) from 10.1 to 21, and paddock 18 (in the beef area) decreasing from 23 to 17.

Fertiliser Inputs:

	1994/95	1995/96	1996/97	1997/98
N kg/ha	0	0	6.1	8.1
P kg/ha	16.5	18.2	18.6	23.6
K kg/ha	31.75	34.9	45.4	43.7
S kg/ha	20.5	22.55	23.0	29.0

10. Rainfall

Year	Rainfall (mm)
1995	1155
1996	1160
1999	704

Mean Rainfall 1970 – 1997(Nyora P.O): 1032mm

Rainfall in 1997 was the lowest on record since 1948.

11. Stock Performance

Vealers produced from beef x dairy cows and Simmental and Limousin bulls produced high growth rate vealers. In 1995/96 200 vealers (8 – 11 months) had an average carcass weight of 213 kg carcass weight. Growth rates averaged approx. 1.2 kg/day. Average carcass weight/ha (all stock) was 228 kg/ha. The target for 1996/97 was a carcass weight output of 250 kg/ha. However due to the dry 1997 year production increase stalled and liveweight output increased only slightly. After 1997 the main management input has been into the dairy enterprise. Liveweight output on the beef

section since 1997 has declined due to lower fertiliser and management inputs, and a change in enterprise type (less vealers, more beef and dairy agistment).

12. Main Conclusions.

- The main change on this farm has been the change to a dairy farm. The main impetus for change was the poor prices being achieved for beef in 1997 and a poor outlook for price improvement. Grazing management skills developed in BeefCheque have assisted the focus farmer to take on the management of a dairy enterprise.
- Original productivity objectives have been more than met with a 37% increase in stocking rate and a 34% increase in pasture consumption.
- Main output of increased productivity is milk production.
- Management changes have been many including
 - *Monitoring pasture cover
 - *Establishing a winter feed wedge
 - *Better control of the spring flush
 - *More subdivision
 - *Strategic use of a wider range of fertilisers.
- Pasture composition has improved
- Economics

13. Focus Farmer Benefits from BeefCheque

- Improved grazing management skills
- Improved pasture
- Enhanced network of grazing management specialists

M. 728



BeefCheque



6244 44 (L18)



Grow + Use
more



Produce more



Make more

Biological Monitoring for the Gippsland *BeefCheque* Project

Bill Fuller
Senior Beef Industry Officer
Agriculture Victoria



Meat
Research
Corporation

Acknowledgments

The assistance of the following groups is gratefully acknowledged in preparing this proposal.

- Agriculture Victoria *BeefCheque* Project Team
- *BeefCheque* Technical Transfer Advisory Group
- *BeefCheque* participants
- MRC *BeefCheque* Project Co-ordinators

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1. PROJECT SUMMARY

BeefCheque is a cooperative project initiated by Gippsland beef producers and using the resources of Agriculture Victoria, Beef Improvement Association, and the Meat Research Corporation. Through this cooperation the project will provide information and services that would normally be out of the financial reach of most producers.

BeefCheque is designed to increase farm profits through improved pasture utilisation.

The aims of the project are to assist participants to:

- Grow more (pasture)
- Use more (pasture)
- Produce more (beef)
- Make more (dollars)

These aims will be achieved by the delivery of information and technology through discussion groups, farm walks and demonstrations.

The project is based on the successful aspects of action research, focus farms and interactive group learning which have underpinned the Dairy Target 10 and Beef Manager programs in Gippsland in recent years. It is planned to establish the project through existing Beef Manager farm discussion groups and the formation of new groups.

2. KEY COMPONENTS

Groups

It is proposed to form 15 groups throughout Gippsland with staggered start times from August 1995 to May 1996. Each group will complete in sequence:

***BeefCheque* introductory Course (BCI).** Delivered over three days, each a week apart. Day one will be led by a consultant and will discuss "how grass grows". Day two led by Agriculture Victoria personnel will concentrate on the animal's feed requirements. Day three again led by a consultant brings the two previous days together and suggests alternatives to achieve better pasture management and animal nutrition.

Agriculture Victoria Prograze (AVP). A further five sessions, monthly, will be conducted to complete the Prograze course and build on the knowledge and skills developed in the BCI sessions. These AVP sessions address such issues as fertiliser, grazing management, pasture composition, grazfeed, fodder conservation and other topics of specific interest.

BeefCheque Farm Walks (BCFW). Groups will select a farm from amongst their members and this farm will be used for a consultant to lead group members on monthly farm walks. During these walks the consultant and group members will discuss with the focus farmer the pasture management techniques covered during the three-day introductory course. In addition to eighteen of these farm walks on the focus farm there will be further farm walks and discussion lead by Agriculture Victoria personnel on other group members' farms to assist the adoption process.

Agriculture Victoria Maintenance (AVM). An aim of the project is to leave the group with skills which will enable the group to continue to function without external facilitation. Six monthly sessions lead by Agriculture Victoria personnel, will assist the group with self facilitation and will complete the project course.

Consultants

Three Gippsland based grazing management consultants to be used.

Assessment

Evaluation is an important part of the project, with a program to establish benchmarks, monitor progress and analyse conclusions.

Assessments will be made using pasture growth and utilisation estimates, production (weights, fat scores), livestock reconciliations and financial records. There are two types of assessment:

- i) By participating producers
- ii) By Project Officers on focus farms, monthly

Full financial analysis is a component of assessment to be conducted externally.

As part of the project evaluation, Monash Agribusiness Research Unit will conduct the following:

- A small qualitative market research project of three (3) focus group discussions.
- Base line survey (telephone), Mid project feedback, Final survey (as for base line survey).

Producer fees

Participants to contribute \$250 to project in year one and \$200 per year for years two and three. The total cost of the project (MRC, AV and participant contributions) as outlined above is in the vicinity of \$1.8 M. The participant fee goes a little way to meeting the total cost and gives industry an indication of the commitment of participants. It is conservatively estimated that for a participant to purchase the above services independently would cost in the vicinity of \$2500 per annum.

Field Days/Workshop/Newsletters

One field day each year on each focus farm. One workshop to be conducted in year two or three. Four newsletters per year.

3. BEEFCHEQUE PROJECT OBJECTIVES

By 30 June 2000:

1. Develop and field trial an innovative and cooperative extension program for beef producers in the Gippsland region modelled on the successful Target 10 dairy industry program.
2.
 - i) **Use more pasture:** Increase pasture ME harvested per grazing hectare by 25% on participating farms.
 - ii) **Grow more pasture:** Increase pasture ME produced on participating farms by 20%
 - iii) **Produce more beef:** Increase live weight of beef produced per beef grazing hectare by 10% on participating farms.
 - iv) **Make more \$:** Improve operating surplus of grazing enterprise by 10% on participating farms.
3. Establish pasture growth parameters as a base for developing practical integrated cattle and pasture management systems which implement the principles of optimum pasture utilisation and livestock productivity. These systems are to take into full account the capital, operating and non-cash costs, long term sustainability, as well as different soil and climate types.
4. Conduct regional surveys of current producer attitudes to pasture and grazing management, and provide measurable benchmarks of attitudes and monitor progress towards meeting the objectives of the project.
5. Provide an educational program linked to real farm measurement.
6. Research and demonstrate decision support systems which provide a basis for feed budgeting and forward planning of stock pressure and management.

4. BIOLOGICAL MONITORING FOR THE GIPPSLAND *BEEFCHEQUE* PROJECT

4.1 BACKGROUND

Pasture and livestock measurements will be collected and analysed. *BeefCheque* participants in conjunction with Agriculture Victoria Project Officers will be responsible for this. There are three reasons for undertaking this monitoring:

- i) contribute to the assessment of progress towards achieving project objectives, particularly 2 and 3 (refer section 3 "Objectives")
- ii) facilitate technology transfer by providing a basis for comparison upon which changes in inputs, technology and management can be developed and implemented
- iii) to provide concrete learning experiences to encourage and facilitate adoption of improved management practices

4.2 MEASUREMENTS

4 levels of monitoring will be completed:

- i) *BeefCheque* project participants
- ii) focus farms
- iii) focus farm monitor paddocks
- iv) selected non-participants

4.2.1 *BeefCheque* project participants

- measurements required for calculation of annual whole farm pasture consumption (kg DM/ha)
- live weight produced on farm (kg liveweight/ha)
- pasture composition (% pasture species, dead pasture and bare ground)
- fertiliser usage
- environmental viability/protection measures

To obtain this information, each participant will required to measure, calculate and record the following:

- effective grazing area (ha)
- monthly average rainfall
- livestock numbers (opening, closing and number of days on property)

- livestock type (cows & calves, steers, wethers, etc)
- liveweights of livestock bought in and of all livestock sold
- conserved fodder. Type and weight (tonnes) sold or stored but not used in current financial year
- type and weight of feed bought and used in current financial year
- pasture composition for each paddock on the farm taken annually in winter or early spring
- fertiliser usage
- watering points and fences erected
- pasture re-sown
- erosion sites protected (ha)
- rabbit/fox/kangaroo/emu numbers
- number of trees planted
- remnant vegetation protected
- optional selected paddock pasture and livestock monitoring

4.2.2 Focus Farms

Groups will select a focus farm from their members (refer Appendix #, 'focus farm selection'). This farm will be the focus for adopting the skills and knowledge learnt by participants.

Besides monitoring the changes that occur on all participant farms (refer 4.2.1 above), the focus farms provide the opportunity to gather more detailed regional information. This information will form benchmarks for other group members and the region upon which management changes will be explored and implemented.

Focus farm measurement encompassing the whole farm will be:

- visual assessment of feed availability on a monthly basis
- estimated pasture growth
- pasture composition

- estimated pasture consumption
- selected livestock weight and condition changes

One monitor paddock on the focus farm will be selected by the focus farmer, Agriculture Victoria officers and the AgChallenge consultant. The criteria for selecting this paddock will be:

- i) paddock considered to be average for the farm. The pasture composition of this paddock being represented on many group members' farms
- ii) close to stock yards for convenient weighing of livestock
- iii) paddock generally accessible at all times of the year

As far as practical the management of these paddocks will aim to maximise pasture growth and animal performance.

The additional measurements on this paddock will serve to support and strengthen participant assessment and grazing management skills.

Initial measurements to be taken on this paddock:

- soil fertility
- leaf tissue analysis

Measurements to be taken as livestock are introduced and removed from the paddock:

- pasture mass (to calculate pasture growth)
- pasture quality
- pasture composition
- monitoring incidence of spotted clover aphid, blue green aphid, pea aphid, red legged earth mite and lucerne flea. This level of monitoring will only be available four of the focus farm monitor paddocks and is possible through assistance from the CSIRO in Canberra.
- Animal performance/grazfeed calculation on at least two occasions during the year as appropriate.

4.2.3 Non Participant Farm

Season is a major cause of variation in beef production.

Changes monitored over time on participant farms may be partly the result of environmental factors and not in response to changes due to involvement in the *BeefCheque* project.

To provide a form of control it is proposed to calculate pasture consumption and live weight produced and sold (refer section 2.1) on a small number of farms (1-3) of non-participants in the same area as each group.

These farms will be sourced on the following basis:

- i) the willingness of the producer to provide the relevant information to make the calculations (refer section 22)
- ii) farms that have a set program and are unlikely to change practices over the period of the project

Due to the potential difficulty in obtaining this information, program participants, stock agents or rural counsellors may be approached to assist in this process.

The identity of this recorded non-participant need not be known by group members or the general farming community.

4.2.4 Additional Agriculture Victoria Staff Monitoring Activities

AV staff including the Project Officers will assist all *BeefCheque* group members obtain accurate estimates of pasture consumption and live weight produced and sold by:

- i) ensuring that purpose and methodology for calculations is thoroughly understood by all participants
- ii) developing pasture assessment and sampling skills to a suitable standard
- iii) providing encouragement and timely reminders to complete measurements

NOTES TO BIOLOGICAL MONITORING

As this project is an evolving and dynamic process, the above measurements should be modified or added to as seen appropriate by participants.

The success of the monitoring of this project is not only gauged by the information collected, but also by the fact that participants see the need and have the desire to collect information and monitor progress in the first place. For this reason, uptake of the monitoring by individual participants will be a gradual process as the participants are given the opportunity to have input into modifying the recording process.

5. RECORDING TIMETABLES

5.1 BEEFCHEQUE PARTICIPANT RECORDING TIMETABLE

Measurement/Recording	When
Effective Grazing Area	initially
Rainfall	daily as required
Whole Farm	
- livestock schedule	monthly
- pasture consumption	annually
- pasture composition	September
- liveweight produced	annually
- wool produced	annually
- livestock weights (actual or estimated)	as bought onto and removed off property
- fertiliser usage	as applied
- pasture re-sown	annually
- fences erected	annually
- watering points installed	annually
- rabbit/fox/kangaroo/emu count	annually
- trees planted count	annually
- remnant vegetation protected	annually
- erosion sites protected	annually
Optional Monitor Paddocks	
- paddock history	initially
- soil test	initially and then every 2-4 years
- livestock movement	as required
- pasture composition	monthly
- estimated consumption	as required
- paddock inputs/treatments	as applied

5.2 BEEFCHEQUE FOCUS FARM SAMPLING/RECORDING TIMETABLE

	Whole Farm					Monitor Paddock						Livestock Records			
	As for participant (sect. 5.1)	Estimated Available Pasture	Estimated Pasture Growth	Pasture Consumption (1)	Pasture Composition	Pasture Availability & Composition	Pasture Quality (2)	Soil Sample	Leaf Tissue Analysis	Insect Collection (3)	Stock live weights/ Grazfeed Calculation (4)	Weigh & CPS all Cattle (5)	Weigh & CS all sheep (6)	Weigh Heifers at Joining	Weigh Bought-in and Sale Stock (7)
January	✓	✓	✓	✓		✓				✓					
February	✓	✓	✓	✓		✓	✓			✓					
March	✓	✓	✓	✓		✓				✓					
April	✓	✓	✓	✓		✓	✓			✓					
May	✓	✓	✓	✓		✓	✓			✓					
June	✓	✓	✓	✓		✓				✓					
July	✓	✓	✓	✓		✓	✓	✓		✓					
August	✓	✓	✓	✓		✓				✓					
September	✓	✓	✓	✓	✓	✓	✓		✓	✓					
October	✓	✓	✓	✓		✓	✓			✓					
November	✓	✓	✓	✓		✓	✓			✓					
December	✓	✓	✓	✓		✓	✓			✓					

(1) As calculated from monthly farm walk.

(2) As season dictates changes in quality.

(3) Insect collections at four sites only.

(4) Liveweights onto and out off paddock at 4 times of the year. This to be calculated by grazfeed calculation.

(5) All cattle at weaning, or whenever it suits the standard management practices.

(6) All sheep at weaning, or whenever suits the standard management program.

(7) As appropriate when delivered to, or removed from the farm.

6. BEEFCHEQUE PARTICIPANT ANNUAL SUMMARY (whole farm)

Participant Name:

		From Section	95/96	96/97	97/98	98/99	99/2000
1	Effective Grazing area (ha)	7					
2	Rainfall (mm)	8					
3	Total DSE (4 + 7)	-					
4	-Cattle DSE/ha	13					
5	% Total DSE (3 ÷ 4)	-					
6	Effective Cattle Grazing area (ha) (1 x 5)	-					
7	-Sheep DSE/ha	13					
8	% Total DSE (3 ÷ 7)	-					
9	Effective Sheep Grazing area (ha) (1 x 8)	-					
10	Total Cattle Liveweight Produced (kg)	14					
11	Total Cattle Liveweight Produced per effective cattle grazing area (kg/ha) (10 ÷ 6)	-					
12	Total Sheep meat Produced (kg)	14					
13	Total Sheep meat Produced per effective sheep grazing area (kg/ha) (12 ÷ 9)	-					
14	Total Wool Produced (kg)	14					
15	Total Wool Produced per effective sheep grazing area (kg/ha) (14 ÷ 9)	-					
16	Total Annual Pasture consumption (kg DM)	13					
17	Annual Pasture consumption per effective grazing ha (kg DM/ha) (16 ÷ 1)	-					
18	Total Annual Energy consumption (MJ ME)	13					
19	Annual Energy consumption per effective grazing ha (MJ ME/ha) (18 ÷ 1)	13					

6. BEEFCHEQUE PARTICIPANT ANNUAL SUMMARY (whole farm) CONTINUED.

		From Section	95/96	96/97	97/98	98/99	99/2000
	<i>Nutrient Applied</i>						
20	Nitrogen (kg N)	15					
21	Phosphorus (kg P)	15					
22	Potassium (kg K)	15					
23	Sulphur (kg S)	15					
	<i>Pasture Composition</i>						
24	% Clover	16					
25	% Improved grasses	16					
26	% Unimproved grasses	16					
27	% Annual grasses	16					
28	% Dead pasture	16					
29	% Broadleaf weeds	16					
30	% Other weeds	16					
31	% Bare	16					
	<i>Environmental Viability/Sustainability Measures</i>						
32	Pastures re-sown (ha)	-					
33	Fences erected (m)	-					
34	Number of Watering points installed	-					
35	Fox	17					
36	Kangaroo	17					
37	Rabbit	17					
38	Emu	17					
39	Number of trees planted	-					
40	Remnant vegetation protected (ha)	-					
41	Erosion sites protected (ha)	-					

7. EFFECTIVE GRAZING AREA CALCULATION

Total farm area (a):.....

Unproductive area (buildings, gullies, bush, reserve) (b):.....

Effective Grazing area (a-b):

ha

Transfer to annual summary sheet

8. ANNUAL RECORD OF DAILY RAINFALL (MM) FOR THE FINANCIAL YEAR.....

Enter rainfall for the preceding 24 hours in millimetres or enter monthly totals from other sources

Date	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Total Rain												
No. of days rain fell												
Total rainfall for financial year												
<i>Transfer to annual summary sheet - Section 6</i>												(mm)

13. BEEFCHEQUE PASTURE CONSUMPTION CALCULATION

13.1 STOCK REQUIREMENTS

Stock Type	Average Numbers (from Section 10-12)	Suggested DSE Rating See Appendix 1	Total DSE Rating	No. of Days on Farm*	Total DSE for financial year
	(A)	(B)	A x B = C	(D)	C x D
Ewes & Lambs		1.4 - 2.6			
Weaners		0.6 - 1.5			
Wethers		0.9 - 1.2			
Rams		2.0			
Other					
Total					(i)
Cows & Calves		15 - 19			
Heifers - 2 years		10			
Steers - 2 years		10			
Steers - 3 years		12			
Bulls years		14			
Other					
Total					(ii)
TOTAL DSE:					
(i + ii)					
TOTAL ENERGY CONSUMED = TOTAL DSE X 7.4 (MJ)					(E)

* Deduct any days away on agistment

$\frac{\text{Total DSE-Sheep (i)}}{365} =$ DSE carried *Transfer to annual summary*

$\frac{\text{Total DSE-Cattle (ii)}}{365} =$ DSE carried *Transfer to annual summary*

13.2. BOUGHT-IN FEED (FED TO STOCK)

FEED DETAILS				TOTAL DM (kg)	ENERGY VALUE (MJ ME/kg DM)	TOTAL ENERGY CONSUMED (ME)	
TYPE	BALE WT * (kg)	NO.	DM (%)				
		(F)	(G)	(H)	(F x G x H = J)	(K)	(J x K)
HAY	1.			(85%)			
	2.						
	3.						
	4.						
BALED SILAGE	5.			45 - 50			
PIT SILAGE	6.			(25-45%)			
GRAIN	7.			(90%)			
	8.						
	9.						
	10.						
TOTAL ENERGY CONSUMED FROM PURCHASED FEED (MJ):							(L)

* See Appendix 2

13.3 CONSERVED FEED (SOLD OR STORED, BUT NOT FED)

FEED DETAILS				TOTAL DM (kg)	ENERGY VALUE * (MJ ME/kg DM)	TOTAL ENERGY CONSERVED (ME)
TYPE	BALE WT * (kg)	NO.	DM (%)			
				(MxNxP=Q)	(R)	(QxR)
HAY	1.		(85%)			
	2.					
	3.					
	4.					
BALED SILAGE	5.		45 - 50			
PIT SILAGE	6.		(25-45%)			
TOTAL ENERGY CONSERVED BUT NOT USED ON FARM (MJ):						(S)

* See Appendix 2

13.4 CALCULATION OF PASTURE CONSUMED (OR CONSERVED) FOR WHOLE FARM

Totals from previous tables		
Total used by stock	(E)	(+)
Total bought in (fed to stock)	(L)	(-)
Total conserved but not used	(S)	(+)
CONSUMPTION PER GRAZED HECTARE: Pasture DM (T ÷ Area)	(E+S-L)	(T)
Effective Grazing Area: (from section 7)		ha

CONSUMPTION PER GRAZED HECTARE: Energy (T ÷ Area)	(U)	MJ ME/ha
--	-----	----------

Transfer to annual summary sheet

CONSUMPTION PER GRAZED HECTARE: Pasture DM (U ÷ 10,500)		Tonnes DM/ha
--	--	--------------

Transfer to annual summary sheet

14. LIVEWEIGHT AND WOOL PRODUCTION CALCULATION

14.1 ANNUAL LIVEWEIGHT PRODUCTION CALCULATION - CATTLE

Recording period to begin in month after majority of sales

This calculation is for the 12 months ending(month).....(year)

Total Liveweight at start of measurement year (from table 14.2)	(a)	
Total Liveweight sold (from table 14.4)	(b)	
Total Weight purchased (from table 14.5)	(c)	
Total Liveweight at end of measurement year (from table 14.3)	(d)	
Total Liveweight produced	(d-a+b-c)	

Transfer to annual summary sheet

14.2 START WEIGHTS

	Calves < 1 year	Heifers 1- 2 years	Cows 2+ years	Steers 1-2 years	Steers 2- 3 years	Bulls 2+ years	Other	Total
Numbers for end of year								
Average Liveweight								
Total Weight								

Transfer to liveweight production table above- Section 14.1

14.3 END WEIGHTS

	Calves < 1 year	Heifers 1- 2 years	Cows 2+ years	Steers 1-2 years	Steers 2- 3 years	Bulls 2+ years	Other	Total
Numbers for end of year								
Average Liveweight								
Total Weight								

Transfer to liveweight production table above- Section 14.1

14.6 ANNUAL LIVELINEWEIGHT PRODUCTION CALCULATION - SHEEP

Recording period to begin in month after majority of sales

This calculation is for the 12 months ending(month).....(year)

Total Liveweight at start of measurement year (from table 14.7)	(a)	
Total Liveweight sold (from table 14.9)	(b)	
Total Weight purchased (from table 14.10)	(c)	
Total Liveweight at end of measurement year (from table 14.8)	(d)	
Total Liveweight produced	(d-a+b-c)	

Transfer to annual summary sheet

--

14.7 START WEIGHTS

	Lambs	Weaners	Ewes	Wethers	Other	Total
Numbers for end of year						
Average Liveweight						
Total Weight						

Transfer to liveweight production table above- Section 14.6

14.8 END WEIGHTS

	Lambs	Weaners	Ewes	Wethers	Other	Total
Numbers for end of year						
Average Liveweight						
Total Weight						

Transfer to liveweight production table above- Section 14.6

14.10 LIVWEIGHT PURCHASES - SHEEP

For the 12 months commencing:..... (month)(year)

Purchase Date	Stock Type	Number	Total Liveweight Purchased (kg)
TOTAL			

Transfer to Liveweight Production table - Section 14.6

14.11 ANNUAL WOOL PRODUCTION

Date	Kg Wool sold (all types)
Total	

Transfer total to annual summary sheet

15. FERTILISER USAGE

		From Appendix 3				Amount applied (Y)	Area (ha) (refer Section 7) (Z)	Amount of N (kg/ha) = $\frac{(N+100) \times Y}{Z}$	Amount of P (kg/ha) = $\frac{(P+100) \times Y}{Z}$	Amount of K (kg/ha) = $\frac{(K+100) \times Y}{Z}$	Amount of S (kg/ha) = $\frac{(S+100) \times Y}{Z}$	Notes
Date	Fertiliser Type	N	P	K	S							

16. PADDOCK PASTURE COMPOSITION TABLES

Paddock Name/No.-..... Size (ha)-..... % of effective grazing area (ha)-.....

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf weeds	% Other weeds	% Dead Pasture	% Bare ground
% Composition								
As % of Whole Farm								

Paddock Name/No.-..... Size (ha)-..... % of effective grazing area (ha)-.....

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf weeds	% Other weeds	% Dead Pasture	% Bare ground
% Composition								
As % of Whole Farm								

Paddock Name/No.-..... Size (ha)-..... % of effective grazing area (ha)-.....

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf weeds	% Other weeds	% Dead Pasture	% Bare ground
% Composition								
As % of Whole Farm								

Paddock Name/No.-..... Size (ha)-..... % of effective grazing area (ha)-.....

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf weeds	% Other weeds	% Dead Pasture	% Bare ground
% Composition								
As % of Whole Farm								

Paddock Name/No.-..... Size (ha)-..... % of effective grazing area (ha)-.....

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf weeds	% Other weeds	% Dead Pasture	% Bare ground
% Composition								
As % of Whole Farm								

16.1 AVERAGE WHOLE FARM PASTURE COMPOSITION

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf Weeds	% Other weeds	% Dead Pasture	% Bare ground
% Whole Farm								

Percentage totals to annual summary sheet

17. RABBIT/FOX/KANGAROO/EMU NUMBERS: SPOTLIGHT TRANSECT ASSESSMENT

Transect Identification (Rabbit):.....

Transect Identification (Fox):.....

Transect Identification (Kangaroo):.....

Transect Identification (Emu):.....

Date of count:.....

	Recording Box	Total
No. of rabbits counted for transect		
No. of foxes counted for transect		
No. of kangaroos counted for transect		
No. of emus counted for transect		

Transfer totals to annual summary sheet

18. OPTIONAL INDIVIDUAL PADDOCK RECORDING
 (to be completed for each selected paddock)

18.1 PADDOCK HISTORY AND RECORDING

Paddock history _____

Paddock name/number _____

Paddock size (ha) _____

Rainfall _____

When sown _____

What species sown (kg/ha) _____

Fertiliser history _____

Carrying capacity (DSE/ha) - (average for year) _____

18.2 SOIL TEST RESULTS

Soil Colour	
Soil Texture	
Avail. P (mg/kg) <i>Circle Olsen or Colwell</i>	
Avail. K (mg/kg) <i>Circle Colwell or Skene</i>	
Avail. S (mg/kg) <i>Circle CPC or KCl</i>	
Salinity EC (dS/m)	
Organic Carbon (%)	
pH (CaCl ₂)	
pH (H ₂ O)	
Exchangeable Al (%)	
Exchangeable Ca	
Exchangeable Mg	
Exchangeable Na	
Exchangeable K	
Exchangeable cations (%)	

18.3 DSE GRAZING DAYS/HA CALCULATION

Paddock Name/No.: Paddock Size (ha): (A)

Date	Pasture Available	Stock Nos. (B)	Class of Stock	DSE Rating (refer appendix 1) (C)	Days Grazing (D)	DSE Grazing days/ha $\frac{(B \times C \times D)}{A}$
In						
Out						
In						
Out						
In						
Out						
In						
Out						
In						
Out						
In						
Out						
In						
Out						
In						
Out						
In						
Out						
Total						

- Annual Total DSE Grazing Days can be graphed for individual paddock for different years.
- If more than one paddock monitored: Annual Total DSE Grazing Days can be compared for different paddocks in the same year.

Paddock Name/No:

18.4 TOTAL DSE GRAZING DAYS/HA from Section 18.3

18.5 INDIVIDUAL Paddock BOTANICAL COMPOSITION

Date	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Composition												
% Clover												
% Improved grasses												
% Unimproved grasses												
% Annual grasses												
% Dead pasture												
% Broadleaf weeds												
% Other Weeds												
% Bare												

19. BEEFCHEQUE FOCUS FARMER ANNUAL SUMMARY (as for participants)

Participant Name:

		From Section	95/96	96/97	97/98	98/99	99/2000
1	Effective Grazing area (ha)	7					
2	Rainfall (mm)	8					
3	Total DSE (4 + 7)	-					
4	-Cattle DSE/ha	13					
5	% Total DSE (3 ÷ 4)	-					
6	Effective Cattle Grazing area (ha) (1 x 5)	-					
7	-Sheep DSE/ha	13					
8	% Total DSE (3 ÷ 7)	-					
9	Effective Sheep Grazing area (ha) (1 x 8)	-					
10	Total Cattle Liveweight Produced (kg)	14					
11	Total Cattle Liveweight Produced per effective cattle grazing area (kg/ha) (10 ÷ 6)	-					
12	Total Sheep meat Produced (kg)	14					
13	Total Sheep meat Produced per effective sheep grazing area (kg/ha) (12 ÷ 9)	-					
14	Total Wool Produced (kg)	14					
15	Total Wool Produced per effective sheep grazing area (kg/ha) (14 ÷ 9)	-					
16	Total Annual Pasture consumption (kg DM)	13					
17	Annual Pasture consumption per effective grazing ha (kg DM/ha) (16 ÷ 1)	-					
18	Total Annual Energy consumption (MJ ME)	13					
19	Annual Energy consumption per effective grazing ha (MJ ME/ha) (18 ÷ 1)	13					

19. BEEFCHEQUE PARTICIPANT ANNUAL SUMMARY (whole farm) CONTINUED.

		From Section	95/96	96/97	97/98	98/99	99/2000
<i>Nutrient Applied</i>							
20	Nitrogen (kg N)	15					
21	Phosphorus (kg P)	15					
22	Potassium (kg K)	15					
23	Sulphur (kg S)	15					
<i>Pasture Composition</i>							
24	% Clover	16					
25	% Improved grasses	16					
26	% Unimproved grasses	16					
27	% Annual grasses	16					
28	% Dead pasture	16					
29	% Broadleaf weeds	16					
30	% Other weeds	16					
31	% Bare	16					
<i>Environmental Viability/Sustainability Measures</i>							
32	Pastures re-sown (ha)	-					
33	Fences erected (m)	-					
34	Number of Watering points installed	-					
35	Fox	17					
36	Kangaroo	17					
37	Rabbit	17					
38	Emu	17					
39	Number of trees planted	-					
40	Remnant vegetation protected (ha)	-					
41	Erosion sites protected (ha)	-					

20. *BEEFCHEQUE* FOCUS FARM MONTHLY REPORT

(Refer Appendix 6 for example focus farm walk report)

- **Farm Report:**

Summary of activities conducted over the past month.

- **Farm walk:**

Paddock- Report on each individual paddock including pasture availability, stock, fertiliser application, etc.

Stock- Report by individual mobs.

- **Farm walk discussion:**

Including calculation of average farm pasture availability and consumption.

- **Management decisions:**

Summary of focus farm action plan for the following month.

21. FOCUS FARM MONITOR Paddock SUMMARY

21.1 PASTURE GROWTH AND CONSUMPTION

Date	Days	Pasture Mass (kg DM/ha)	Total Growth (kg DM/ha)	Growth (kg DM/ha/day)	No. of head	Consumption (kg DM)	Consumption(kg DM/head)
Out							
In							
Out							
In							
Out							
In							
Out							
In							
Out							
In							
Out							
In							
Out							
In							
Out							
In							
Out							
In							
Out							
In							
Total							

21.2 INDIVIDUAL Paddock BOTANICAL COMPOSITION

Date	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Composition												
% Clover												
% Improved grasses												
% Unimproved grasses												
% Annual grasses												
% Dead pasture												
% Broadleaf weeds												
% Other Weeds												
% Bare												

21.3 INSECT MONITORING NUMBERS

Insect	Numbers
Spotted clover aphid	
Blue-green aphid	
Pea aphid	
Red-legged earth mite	
Lucerne flea	

21.4 GRAZFEED PREDICTED ANIMAL LIVELWEIGHT GAINS (LOSSES)

Date										
Daily gain/loss (kg)										

22. BEEFCHEQUE NON-PARTICIPANT ANNUAL SUMMARY (whole farm)

Name:

Address:

Phone: Facsimile:

	95/96	96/97	97/98	98/99	99/2000
Effective Grazing Area (ha)					
Rainfall (mm)					
Total DSE					
Cattle DSE					
Effective Cattle Grazing Area (ha)					
Sheep DSE					
Effective Sheep Grazing Area (ha)					
Liveweight produced per Effective Cattle Grazing ha (kg/ha)					
Wool produced per Effective Sheep Grazing ha (kg/ha)					
Annual pasture consumption (t DM/ha)					
Annual energy consumption (MJ ME/ha)					

23. METHODOLOGY

23.1 EFFECTIVE GRAZING AREA CALCULATION

Refer to Section 7.

23.2 ANNUAL RECORD OF DAILY RAINFALL

Refer to Section 8.

23.3 BEEFCHEQUE STOCK SCHEDULE

Refer to Section 9.

Refer to Guide to completing Stock Schedule - Section 24.

23.4 BEEFCHEQUE PASTURE CONSUMPTION CALCULATION

Refer to Section 13.

Refer to Guide to Completing Pasture Consumption Calculator - Section 25.

23.5 LIVELWEIGHT AND WOOL PRODUCTION CALCULATION

Refer to Section 14.

23.6 FERTILISER USAGE

Refer to Section 15.

Refer to Guide to calculating how much nutrient is applied - Section 27.

23.7 PASTURE COMPOSITION MEASUREMENT

Pasture composition assists in assessing the quality of a pasture.

A simple 'pointed stick technique' is quick, provides some objectivity and does not require any specialised equipment. A pointed stick can be made from 30-50 cm length of dowel with a nail driven into the end.

The stick is thrown randomly on the pasture and the pasture component touched, or directly below the end of the nail head is recorded on sheets as used in Prograze manual.

Repeat the process 50-100 times throughout the paddock recording the number of 'hits' on each component. The total hits for each pasture component divided by the total number of hits indicates the percentage of each component in the pasture.

A visual representation of the pasture composition is shown on the recording sheets as the measurements are taken.

Refer to Section 16

Refer to Guide to completing Paddock Pasture Composition tables - section 26.

23.8 ENVIRONMENTAL/SUSTAINABILITY MEASURES

Spotlight transect monitoring of rabbit/fox/kangaroo/emu.

The monitoring system proposed here will provide relative density estimates of rabbit/fox/kangaroo and emu numbers in terms of numbers per farm transect.

Transects should be counted once a year (in May, or four weeks after good autumn rains) with two replicate counts at that time.

Transects are to be areas of known and previously observed populations. Different transects for different species may be selected.

A transect need not be continuous. On the contrary, the value of a transect is enhanced if the route includes as many sites as possible.

Routes should be selected which offer the best field of view for seeing animals at night. Also, the relative accessibility of tracks in wet weather should be considered.

It is desirable to avoid areas where gross changes in land use are foreseeable. Such changes are likely to affect both the visibility and the actual abundance of animals. Over a period of years even the more subtle changes in landscape can affect the visibility of animals (eg., the growth of trees and shrubs along the roadsides and in paddocks or the planting of shelter belts, etc.).

Popular hunting or trapping areas should not be included in transect routes. Such factors which can disturb rabbit populations only confuse the interpretation of monitoring data.

Procedures for Conducting Counts

1. The two replicate counts should be made approximately a week apart.
2. Counts on a given transect should be done by the same person (and preferably with the same vehicle and driver).
3. To have an adequate field of view, the observer should count from the back of utility type vehicle (not from the passenger seat of a sedan!).
4. Use a spotlight (and continue to use the same type of spotlight).
5. Avoid nights with adverse weather conditions such as heavy rain or strong winds.
6. Do not count within a week either side of the time of the full moon.
7. Commence the count about one hour after sunset (check the official times published in the newspaper).
8. Vehicle speed during the count should be as steady as possible, preferably 15 km/hr.
9. Count on both sides of the road or track unless there is an obvious reason to the contrary (eg., very thick scrub on one side and cleared paddocks on the other).
10. Search out only as far as the effective range of the spotlight beam. Adopt a consistent searching pattern.
11. Record the total number of animals seen in the transect length.

12. Always travel in the same direction along a transect.
13. If the transect is comprised of a number of sections, the sections should always be counted in the same order.

Refer to Section 17.

23.9 PADDOCK HISTORY AND RECORDING

Refer to Section 18.

Refer to Guide to Soil Sampling - Section 27.

23.10 DSE GRAZING DAYS/HA CALCULATION

Refer to Section 18.3.

23.11 BEEFCHEQUE FOCUS FARM MONTHLY REPORT

Refer to Section 20.

Refer to example Focus farm walk report - Appendix 6.

23.12 PASTURE GROWTH

(more detailed description of these techniques are explained in Cayley, J.W.D and Bird, P.R. (1996) **Techniques for measuring pastures**, Agriculture Victoria.

On the monitor paddock on each of the 15 focus farms the pasture growth will be estimated by assessing the change in Pasture Mass (PM) on areas from which animals have been excluded.

A transect across a representative area of the paddock will be permanently marked out by posts approximately 40 metres apart. Measurements are to be taken at 1 metre intervals along the transect, beginning five metres from each post, avoiding fence lines, high fertility and trough areas.

Option 1.

An indirect (non-destructive) method of assessment will be used.

Using an automatic rising plate disk, height is recorded each time the meter is placed on the pasture and the central rod pushed down onto the ground.

The number of observations required per paddock to give an estimate of the mean height will be established as follows: average height will be measured across the whole paddock (50 to 100 readings) to establish the standard deviation of the meter readings and the intensity of sampling required to meet a L of 100 kg (L = given allowable error $L \cong 10\%$).

The disk is calibrated by measuring the PM and height (h) at four sites. The mean meter reading and its standard deviation (h & S) for each paddock is used with four cuts required at the following meter readings to establish PM regression.

$$h - S\sqrt{2}, h, h, h + S\sqrt{2}$$

At each site, after the meter is read, a metal quadrant is placed over the disk and the meter removed. Pasture from within the quadrant is harvested to ground level with hand shears and dried to get PM for the height. A pasture mass regression is established from this.

Accuracy is to be improved by measuring the same transect each measurement as stock enter and leave the paddocks. The transect is to be permanently marked by posts approximately 40 m apart. Measurements are to be taken at 1 m intervals along the transect, beginning in from the each post. Measurements will be made at the same place each time by means of knotted rope or similar device.

Option 2.

An indirect (non-destructive) method of assessment using a falling plate meter will be used. The relationship between meter height and PM over the whole paddock can be represented by a single regression. The paddock will be sampled at the required sampling intensity. At least 10 metre readings with associated calibration cuts will be made over the entire range of meter heights encountered along the permanently marked transect.

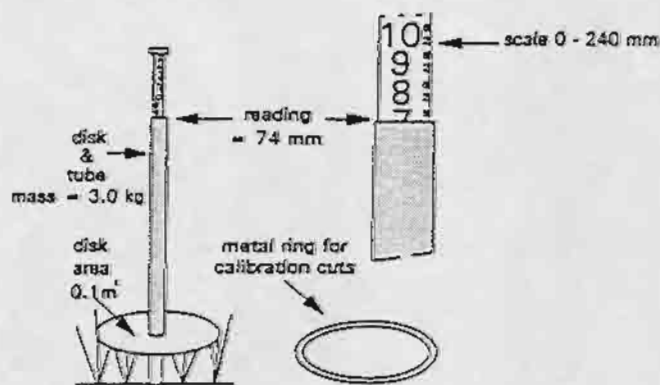
At each site, after the meter is read, a metal ring is placed over the disk and the meter removed. Pasture from within this ring is then harvested to ground level with hand shears and dried to get the PM for that site. The regression of PM on meter reading is then computed (refer figure 1 below).

Experience at PVI Hamilton suggests it is biologically appropriate to use a curvilinear model to represent the relation between PM and the settled height of the meter. The best fit is usually:

$$PM = a + b \times h + c \times \sqrt{h}$$

Rising plate vs. Falling plate pasture height measurement

The falling plate disk has several advantages to the automatic rising plate disk. The results of the later disk are heavily dependant on the operators style and calibration may not be consistent with the meter usage over the paddock. Individual measurements obtained with the falling plate also enable an on-site frequency distribution.



Pasture mass on meter height
(Pasture workshop PVI Hamilton, 3/10/83)
17 observers

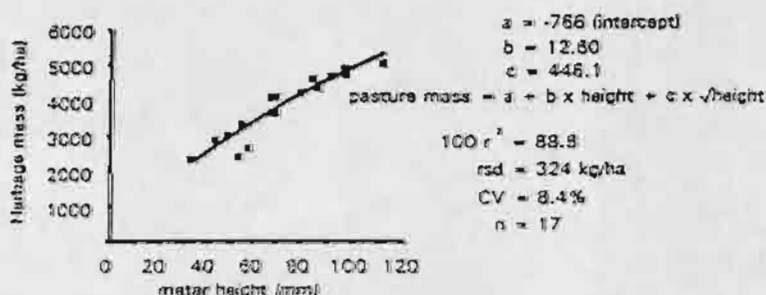


Figure 1. Weighted disk pasture meter and example of calibration.

23.13 GRAZFEED CALCULATION

Refer to Section 21.4 and Appendix 5.

23.14 INSECT SAMPLING

Aphid samples to be collected every four weeks when pasture growth is measured.

Only pastures with a significant clover component to be sampled.

Only clover to be sampled (even in pastures with a small percentage of clover cover)

Sample aphids using a vacuum sampler - 10 'sucks' per clover pasture.

At the research station/office/farm, aphids to be killed in hot water and stored in 70% alcohol, as follows:

- Add very hot water to sample in plastic container.
- Remove any large debris eg. leaves, bits of stem, etc. (Swish it around in the water before discarding it in case there are aphids stuck to it.)
- Pour contents of dish through mesh between double funnel.
- Use wash bottle with water in it to wash any insects that stick to the sides of funnel to the mesh.
- Place gauze containing sample into plastic jar containing 70% ethanol. Ensure that the sample is completely covered with ethanol. Use the smaller jars except for large samples.
- Insert the label in the jar outside the gauze with the information facing outwards. The label should have name of farmer, locality, date collected and clover variety. The information should be printed on the label using a soft pencil (B or 2B).
- Ensure that the jars are tightly closed.

Samples to be sent to Wendy Milne (CSIRO Canberra) by overnight courier for processing.

After processing, a report on the composition of samples (incidence of spotted clover aphid, blue-green aphid, pea aphid, red-legged earth mite and lucerne flea) will be tabulated.

Refer to Section 21.3

23.15 PASTURE QUALITY ASSESSMENT GUIDELINES

To estimate the impact on animal performance, we need to know both the quantity of pasture on offer and quality of that pasture. The determination of forage quality will be carried out at the FEEDTEST Laboratory at Hamilton, so there will be consistency across all the grazing management sites. Both digestibility and N content (crude protein) will be determined. As the methods of collecting and preparing samples can have a large impact on the estimation of quality, it is vital that the procedure at each site is the same.

23.16 PLANT TISSUE SAMPLING

General Rules for Sampling Plant Tissue

- i) Different blocks/paddocks, plant varieties, soil types and management histories should be sampled separately.
- ii) Avoid handling the sample with dirty hands. Only use stainless steel cutting tools.
- iii) Avoid sampling plants stressed by drought, disease, pests, mechanical damage or waterlogging, unless the majority of the block is affected.
- iv) Do not sample within 4 weeks of fertilising or chemical spraying.
- v) Submit the sample as soon as possible after sampling (eg., sample in the early morning to catch the same day's post and early in the week or use express courier so that the sample reaches the laboratory during the same week.
- vi) If you have to store the sample, keep it in a cool place or refrigerate but do not freeze.

Packaging and Posting

- i) Check that you have placed a self adhesive label on each plant sample collection bag used.
- ii) Fill out a separate sample information form for each sample and place in the press seal bag.
- iii) Place all sample bags, sample information forms and a cheque for the correct amount made payable to Soilutions into the postal bag. Pay postage costs and mail.

Guide to Sampling Pastures

Fertiliser management of pastures is normally determined from soil testing, although assessment of trace element requirements can only be successfully determined from plant analysis. Plant analysis can also aid in diagnosis of nutritional problems in pasture species or in grazing livestock.

- i) Sample in a pattern (eg., grid or zig zag) that enables all relevant parts of the paddock or section to be represented.
- ii) In assessing nutritional problems in pastures, select one pasture species for sampling as a pure species. A legume (clovers, medics) is generally recommended because they are more sensitive to nutritional problems than grasses. Sample at least 200 fully developed green leaves and petioles (leaf stalks).
- iii) For monitoring purposes, mid spring sampling is normally accepted as the standard time for assessing pasture nutrition.

24. GUIDE TO COMPLETING STOCK SCHEDULE:

- Fill in at the end of each month.
- Many months will have little change in stock numbers, arrows are a guide only. Transfers in/out only occur when stock reach an age that means they belong to another category.
- The description below applies for the example month below.

	Calves < 1 year	Heifers 1-2 years	Cows 2+ years	Steers 1-2 years	Steers 2-3 years	Bulls 2+ years	Other
July							
Starting Number	102	35	130	44	0	4	
+ Births	10						
+ Transfers In		42	35	20	0	0	
+ Purchases	0	0	0	0	0	0	
Sub Total	112	77	165	64	0	4	
- Sales	40	0	10	0	0	0	
- Deaths & Rations	0	0	2	1	0	0	
- Transfers out (Nat. aged)	62	35	0	0	0	0	
End Number	10	42	153	63	0	4	
August							
Starting Number	10	42	153	63	0	4	
+ Births							
+ Tra							

i) Births.

Only applies to calves less than 1 year.

ii) Transfers in:

Number of head that have moved into this category as a result of ageing. In the above example, 42 head were transferred into the heifers 1-2 years from the calves < 1 year category because they reached 12 months of age in this month. Similarly, 20 head were transferred into the steers 1-2 year category from the calves < 1 year category.

iii) Purchases:

Number of each category purchased during the month (from the Sales and Purchases Table).

iv) Sub Total:

Sum of Births, Transfers In and Purchases i), ii) and iii) above.

v) Sales:

Number of each category sold during the month (from the Sales and Purchases Table).

vi) Deaths and rations:

Number of each category that had died or been slaughtered for own use.

vii) Transfers out:

Number of head that have moved out of this category as a result of ageing. In the above example, 62 head were transferred out of calves < 1 year to heifers 1-2 years (42 head) and steers 1-2 years (20 head) because the calves reached 12 months of age in this month. 35 head transferred out of the heifers 1-2 years to the cows 2+ years because they had reached 2 years of age.

viii) End Number:

Sub total (iv) less sales, deaths and transfers out v), vi) and vii).

ix) Starting number:

End Number, viii) becomes the starting number for the following month.

25. GUIDE TO COMPLETING PASTURE CONSUMPTION CALCULATOR

The aim of the sheep and beef producer is to profitably turn as much pasture as possible into wool and meat.

How much of the pasture grown on your property is eaten in a year?

This pasture consumption exercise is designed to answer this question. To work out how much your sheep and cattle are consuming in one year, you will need to collect the figures shown, and complete the calculations.

Pasture consumption is a useful measure of efficiency in the dairy industry, and could have potential in the sheep and beef industries, especially when comparing production systems in the same rainfall area. Your figures will help to build up a picture of the range in pasture consumption.

FILLING IN THE FORM

1. Stock Requirements

- Transfer average stock numbers over the year from your livestock records or annual summary of stock numbers (Section 10 and 12).
- Use DSE ratings as shown. Where there is a range, look at Appendix 1 and select the most appropriate value. If weaned calves kept up to 12 months of age, increase DSE rating for cow/calf by 1-2 units.
- Multiply the total DSE figure by 7.4 to give the total energy consumed.

2. Bought-in Feed

- Refer to Appendix 2 for details on bale weights and energy values. (You may have your own energy values from FeedTest results).

3. Conserved Feed (sold or stored, but NOT FED)

- Any pasture feed conserved but not fed is part of pasture produced in the 12 month period and needs to be accounted for. Again refer to Appendix 2 for bale weights and energy values.

4. Calculation of Pasture Consumed (or conserved)

- Transfer the energy values from previous pages.
- Add the total used by stock to the total conserved but not used, and subtract the total bought in feed. This is the total energy consumed on the farm.
- Divide this figure by the effective grazing area to give energy consumed/ha.
- Divide this figure by 10,500 to give the pasture DM consumed in tonnes per hectare.
- All these calculations assume the average energy value for pasture feed consumed by stock is 10.5 megajoules per kg of pasture dry matter.

26. GUIDE TO COMPLETING PADDOCK AND WHOLE FARM PASTURE COMPOSITION TABLES

Hypothetical Example - 38 hectare farm of 3 paddocks

Effective grazing area (ha)- 38

Paddock Name/No.- *HOUSE*.....

Size (ha)-*4*.....

% of effective grazing area (ha)-..... $4/38 \times 100/1$ 11.....

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf weeds	% Other weeds	% Dead Pasture	% Bare ground
% Composition	<i>28</i>	<i>41</i>	<i>4</i>	<i>8</i>	<i>8</i>	<i>7</i>	<i>4</i>	-
As % of Whole Farm	<i>3</i>	<i>5</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>0</i>	-

Paddock Name/No.-*SARP*

Size (ha)-*16*.....

% of effective grazing area (ha)-*42*.....

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf weeds	% Other weeds	% Dead Pasture	% Bare ground
% Composition	<i>11</i>	<i>7</i>	<i>3</i>	<i>2</i>	<i>7</i>	<i>32</i>	<i>36</i>	<i>2</i>
As % of Whole Farm	<i>5</i>	<i>3</i>	<i>3</i>	<i>1</i>	<i>3</i>	<i>13</i>	<i>15</i>	<i>1</i>

Paddock Name/No.-*STEEP*.....

Size (ha)-*18*.....

% of effective grazing area (ha)-*47*.....

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf weeds	% Other weeds	% Dead Pasture	% Bare ground
% Composition	<i>25</i>	<i>23</i>	<i>12</i>	<i>3</i>	<i>7</i>	<i>25</i>	<i>3</i>	<i>2</i>
As % of Whole Farm	<i>12</i>	<i>11</i>	<i>6</i>	<i>1</i>	<i>3</i>	<i>12</i>	<i>1</i>	<i>1</i>

	% Clover	% Imp. grasses	% Unimp. grasses	% Annual grasses	% Broadleaf Weeds	% Other weeds	% Dead Pasture	% Bare ground
% Whole Farm	<i>20</i>	<i>19</i>	<i>9</i>	<i>3</i>	<i>7</i>	<i>26</i>	<i>16</i>	<i>2</i>

27. Guide to calculating nutrient element applied.

		From Appendix 3										
Date	Fertiliser Type	N	P	K	S	Amount applied (Y)	Area (ha) (Z)	Amount of N (kg/ha) = $\frac{(N+100) \times Y}{Z}$	Amount of P (kg/ha) $\frac{(P+100) \times Y}{Z}$	Amount of K (kg/ha) $\frac{(K+100) \times Y}{Z}$	Amount of S (kg/ha) $\frac{(S+100) \times Y}{Z}$	Notes
May	<i>SUPER 3:1</i>	0	7	12	7	10,000	35	0	20	34	20	<i>Annual Application</i>
Oct	<i>D.A.P.</i>	18	20	0	2	5,000	30	3	33.3	0	3.33	<i>Good</i>

Formula

$$\text{Kg/ha} = \frac{\{(\% \text{ of element (from tables)} \div 100) \times \text{Amount Applied (Y)}\}}{\text{Area that the fertiliser was applied (in hectares)}}$$

Example 1. SUPER 3:1

$$P = \{(7 \div 100) \times 10,000\text{kg}\} \div 35 \text{ ha} = 20 \text{ kg/ha}$$

$$K = \{(12 \div 100) \times 10,000 \text{ kg}\} \div 35 \text{ ha} = 34 \text{ kg/ha etc....}$$

Example 2. D.A.P.

$$N = \{(18 \div 100) \times 5,000\text{kg}\} \div 30 \text{ ha} = 30 \text{ kg/ha}$$

$$P = \{(20 \div 100) \times 5,000\text{kg}\} \div 30 \text{ ha} = 33.33 \text{ kg/ha etc...}$$

APPENDIX 1 - DRY SHEEP EQUIVALENT (DSE) RATINGS FOR DIFFERENT CLASSES OF LIVESTOCK

CATTLE

Table of DSE's

Breed	Heifers	Cow & calf ¹	Steers	Steers	Bulls	Other
Age at start	1 - 2 yrs	2+ yrs	1 - 2 yrs	2 - 3 yrs	2+ yrs	2
Br Br	10	15 - 16 ²	10	12	14	10
Euro X	10	19	10	12	14	10
Dairy X	10	17	10	12	14	10
Other						

(1) If weaned calves carried up to 12 months of age add 1-2 DSE to cow and calf rating.

(2) Use lower figure for weaner production

Table of Estimated Liveweights (kg)

Breed	Heifers	Cows	Steers	Steers	Bulls	Other
Age at start	1 - 2 yrs	2+ yrs	1 - 2 yrs	2 - 3 yrs	2+ yrs	2
Br Br	400	500	400	500	800	450
Euro X	450	600	400	500	800	450
Dairy X	400	550	400	500	800	450
Other						

SHEEP

Class of livestock		Body weight (kg)		
		40	50	60
Dry Sheep	0.9	1.1	1.2	
Pregnant Ewes, last month	Single	1.2	1.4	1.6
	Twin	1.4	1.6	1.9
Lactating Ewes	Singles (100%)	2.6	2.7	2.9
	Twins (200%)	3.7	3.9	4.4
Ewes, Weighted Average for Year	Singles (100%)	1.4	1.5	2.1
	Twins (200%)	1.7	1.9	2.6
Weaned Lambs	Merino 20 kg	0.6 - 1.0 depending on desired rate of liveweight gain		
	Xbred 30 - 40 kg	1.0 - 1.5 depending on desired rate of liveweight gain		

Notes:

1. These DSE ratings are based on a 45 kg dry sheep.
2. Ewes with twin lambs in the first 6 weeks of lactation will probably not be able to consume the feed equivalent to the DSE rating shown.
3. Pregnant ewes are classed as "dry" until the last 6 weeks of pregnancy.
4. The 60 kg ewe is assumed to be a prime lamb dam and lactates for 5 months, 40 and 50 kg ewes are assumed to be Merino's and only lactate for 3 months.
5. All pregnant and lactating DSE ratings assume 100% or 200% lambs/calves, etc. For example the overall DSE rating of a 50 kg Merino flock with 80% lambs would be 1.2 DSE.

APPENDIX 2 - A GUIDE TO FODDER BALE WEIGHTS AND ENERGY VALUES

BALE WEIGHTS*

Description	Weight as Fed (kg)
<u>Hay</u> :-	
<i>Square Bales</i> :	
Small	25
8' x 3' x 2'	250
8' x 4' x 3'	500
<i>Rolls</i>	
4' x 4'	260
5' x 4'	385
6' x 4'	600
6' x 5'	775
<u>Silage</u> :-	
<i>Rolls</i>	500
<i>Pit</i>	380 - 680/cu. metre (170 DM/cu.metre)

* A guide only. Actual bale weights can vary.

ENERGY VALUES MJ ME/kg DM

Feed	Mean	Range
Hay	8.5	5 - 10
Silage	8.7	5 - 10
Oats	10.4	9 - 11
Barley	12.0	11.6 - 12.6
Wheat	12.7	12.3 - 13.2
Triticale	12.5	12.2 - 12.8

APPENDIX 3 - COMMON FERTILISER NUTRIENT COMPONENTS

Brand	Composition			
	N	P	K	S
Superphosphate	0	8.6	0	11
Double Super	0	16.2	0	4.1
Triple Super	0	20	0	0.8
DAP	18	20	0	1.6
MAP	10	21.4	0	1.5
Pastursul	0	16	0	9.7
Hay Booster	12	4.5	24	4.9
Super Lime	0	4.5	0	7.8
Super Potash 1 & 1	0	4.3	25	5.5
Super Potash 2 & 1	0	5.8	16.5	7.4
Super Potash 3&1	0	6.5	12.5	8.3
Super Potash 4 & 1	0	6.9	10	8.8
Super Potash 5 & 1	0	7.2	8	9.2
Hi-Fert 0:20:0	0	20	0	1.5
Gold Phos 10	0	18	0	10
Gold Phos 20	0	16	0	20
Other Fertiliser				
Other Fertiliser				
Total				

APPENDIX 4 - Focus Farm Selection

The following notes are suggested as a guide to the group's selection of a focus farm from within the group.

The notes are recommended as a guide only, remembering that the final choice of the farm is to be made by the group, and they may develop some differing criteria.

Farm

From a pasture improvement point of view, reasonably representative of the district, neither fully improved nor no pasture improvement. Some pasture improvement is required so it can be demonstrated that further treatments are available and that grazing systems can be beneficial.

Farmer

Needs to be comfortable with the consultative approach to decision making.

Needs to be amenable to change.

Needs to have standing amongst his or her peers so when change is made, that change is accepted as a feasible option for other group members.

Needs to have capital available to fund suggested improvements. It is not envisaged that any suggested improvements will be other than could be considered normal for the district.

Needs to be comfortable with group walking across farm regularly and exposing the farm and farm practices to group scrutiny.

Needs to be comfortable with project officers taking regular measurements, including the weighing of cattle.

Needs to be able to assist project officers occasionally to assist measurement collection

BeefCheque Board

Will ensure that producer receives the advice and services of the pastures consultant.

Will ensure that producer will receive advice and assistance from Agriculture Victoria project staff.

Will ensure that producer receives advice and assistance from project manager.

APPENDIX 5. FOCUS FARM MONITOR PADDOCK MEASUREMENT SHEET

Date:.....

Growth Measurements

From 50 random paddock samples:

Average Height (h)	
Standard Deviation (s)	

Calibration Measurements

Ht (cm)	$s - \sqrt{2}$	h	h	$s + \sqrt{2}$
DM (gm)				
Kg/ha				

Pasture Composition

Pasture Component	Percentage (%)
% clover	
% improved grasses	
% unimproved grasses	
% annual grasses	
% broadleaf weeds	
% other weeds	
% dead pasture	
% bare ground	

Insect Monitoring

Is an Insect collection required? Yes / No

Grazefeed Calculation

Is Grazefeed monitor information required? Yes / No

Grazefeed monitor paddock input sheet

Pasture

Weight of green herbage (t DM/ha)	
Mean DM digestibility of green herbage (%)	
Weight of dead herbage (t DM/ha)	
Mean DM of dead herbage (%)	
Percentage of legume in the pasture (%)	
Pasture type (native/vol. annuals/improved)	
Steepness of the land	
The month of the year	
The latitude	

Weather

Maximum temperature (°C)	
Minimum temperature (°C)	
Mean wind speed over 24 hours (km/h)	
Rainfall over 24 hours (mm)	

Supplement

Concentrate Supplement Description	
Type	
Percentage of mixture	

Roughage Supplement Description				
Dry Matter		ME/DM	% Crude Protein in DM	% CP in degradable in rumen
%	Digest'y			

Animals

Animal	
Class	
Sub-class (eg. Lactating, dry, etc.)	

APPENDIX 6. EXAMPLE FOCUS FARM WALK REPORT

Buchan/Gelantipy *BeefCheque* Focus Farm 26/7/96

Focus farm: Tom and Margaret Cummings

Farm walk: 5

1. Farm Report

- Sold 15 of the empty August calving cows, replaced with 9 cow/calf units to fit in with April calving mob.
- Weaners were removed from April mob when the bulls were put in. Now in steep paddock after grazing the lucerne on an on/off basis.
- Quantity of turnips offered increased to make crop last for an estimated 60 days.
- Pasture offered was decreased with back fencing implemented.

2. Farm walk

Pasture Cover

Paddock	Area (ha)	Pasture Cover (kg DM/ha)					
		29/3	30/4	31/5	28/6	26/7	
House	4	1300	1000	1200	1200	1100	
Bottom House	6.7	1200	1000	1500	1475	1450	
Pea Paddock	4.5	1600	1000	1600	1700	1850	
Top Slip	8	3000	1500	1200	1400	1200	
Lucerne	4.3	1000	-----	1750	1850	1300	
Old Bull	4.2	1350	1000	1600	1600	1500	
Rough Steep	9	3500	1350	950	950	900	
Steep	9	800	1450	1050	1100	1100	
Old Lucerne	26	1450	1675	1550	1300	1550	
Slip	7.6	3000	1150	1150	1200	1100	
Bush Pocket	0.5	----	----	----	1400	1000	
New Bush	3	0	0	0	1000	----	
Around Turnips		1100	1850				
- Ungrazed	2				3600	3700	
- Grazed	8				1400	1700	

Paddock

- *House*- used as sacrifice paddock during the month.
- *Bottom House*: Down on last month as it had been "*nipped down*" again.
- *Pea Paddock*- Growth has increased on last month to 5.3kg DM/ha/day. Urea strip still evident but paddock needs heavy grazing to further clean out fog grass, etc.
- *Old Bull*- Still excellent composition but less pasture cover than last month which is difficult to explain as no stock have had access in the last month.
- *Lucerne*- Grazed out with weaners.

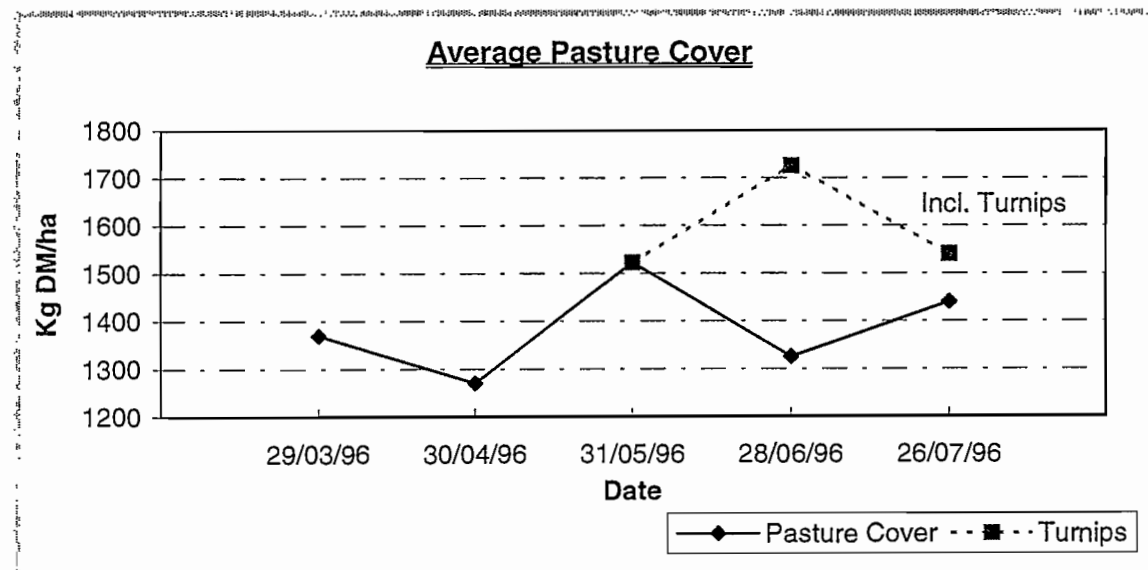
- *Steep*- Cleared out well and looking good for spring growth.
- *Old Lucerne*- Not grazed since last month and averaging 8.9 kgs/day. This paddock contributing to 31% of total feed cover. Highlights importance of allowing this paddock to grow and removing dry cows last month.
- *Slip*- Both sides grazed with dry cows, still needing more of a clean out.
- *Bush*- The concord is now performing very well. Can be grazed anytime now and then re-fertilised. It is OK to let this grass grow longer than other grass and still be grazed well by the cattle.
- *New Paddock*- Still being "chunk" grazed with hot wire being propped up to provide multiple access points. Long cocksfoot has stopped growing, while the regrowth is growing at a rate of 11.6kg/day. Turnip tops now degrading and cattle showing preference to bulbs.

Stock

- *April Calvers*- Still grazing turnips. Had been held tight with hay feeding in sacrifice system. Cows have picked up slightly with calves looking fair to good.
- *August Calvers*- Held in slip paddock for last month and looking good. Two have calved early. 15 empty cows have been sold.
- *Weaners*- These had been separated out from April mob when the bulls were put out. They are in the steep and had grazed lucerne on and off. All looking very good.

3. Farm walk discussion

Farm Cover



Feed available = 1440kg DM/ha plus turnips now estimated to be at approx. 2 ha @ 5000kg/ha.

This cover has lifted on last month which is a function of increased growth rate. Now averaging around 6.5kg/day on non-grazed paddocks (range 0-11.6kg/day) and supplementary feeding. Growth is now averaging 4kg DM/ha/day greater than actual consumption.

Stock Type	Number	kg DM/day	Estimated desired Consumption (kg DM/ha)
Weaners	38	5	190
April Calvers	52	12	624
Dry Cows	8	5	40
August Calvers	32	5	160
Bulls	3	14	42

This consumption is equal to growth rate of 10 kg DM/ha/day.

Hay input has been around 205 kg/day, which is equal to a growth rate of 1.95 kg/day. Therefore pasture consumption is equal to approximately 8 kg/DM/ha/day.

This is actually greater than measured pasture growth rate. Highlights the problem with estimated consumption and the need for liveweight measurement to obtain accurate estimated consumption figures.

4. Management Decisions

- Weaners and April calving mob are priority and should not be restricted now.
- Aim to gradually decrease the feed cover.
- Fence along gully in Slip and Steep to split Nth and Sth slopes.
- Fence back section off in Old Lucerne.
- Weaners to graze in Old Bull as for lucerne, then to graze Concorde, then into back of Old Lucerne.
- April calvers continue with turnips and cocksfoot but not restricted, then move to front of Old Lucerne
- August calvers to be left as is for 7-10 days, then start strip and back fencing pea paddock from east end first.
- Need to start weighing stock on regular basis

Options for Dry Cows

Option 1. Keep Dry Cows

Assumptions: Dry cow worth \$200 now
 Cow/Calf unit (autumn) \$550 now
 Assume vet costs are equal on both options

INCOME	COST
June '96 - Sell Calf @ \$300 @ 10 months (Jan, '98)	Interest on \$200 @ 10% a year June '97 = \$20 (value at Jan '98 = \$23 \$400 for 2nd 7 months) Feed: 9 months as Dry Cow @ 5 kg/day = 1350 kg DM 10 months as lactating cow with calf at foot @ 15kg/day =4500 ----- TOTAL 5850 ----- @ 6¢/kg DM = \$351 @ 3c/kg DM = \$176 Total Cost= \$394 or \$219 (6c/kg DM) (3c/kg DM)
NETT= - \$94 or +\$81 depending on the value of grass.	

Option 2. Sell and replace Dry Cow with Cow/calf unit

INCOME	COST
Jan. 97 Sell calf @ \$300 Jan. 98 Sell calf @ \$300	Interest on \$550 @ 10% June '97 = \$55 Value cow at \$400 to Jan. '98 = \$23 Feed: Jul-Jan 97 @ 15 kg/day = \$3150 Jan- April '97 @ 5 kg= \$ 300 April-Jan '98 @ 15 kg= \$4500 ----- TOTAL \$7950 ----- Total Cost= \$555 or \$317 (6c/kg DM) (3c/kg DM)
NETT= + \$45 or +\$283 depending on the value of grass	