MEAT & LIVESTOCK AUSTRALIA

on farm

The Level of Pasture Utilisation in Southern Australia

A Producer View

Project number BFGEN 110.5
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Beef Genetics

EXECUTIVE SUMMARY

Meat and Livestock Australia, as part of its Southern Beef Program, identified that the level of utilisation of pasture grown in the southern zone is at best in the range of 30 to 40%, and that producers themselves saw this as wasted opportunity that they need help in correcting.
To this end, MLA commissioned a Producer Advisory Group to consult with its peers to establish the limitations to producers achieving higher levels of utilisation and make recommendations that address identified limitations.

Impact of Low Utilisation
Productivity of a beef business is largely determined by how well grazing managers manage a number of biological cycles, and in particular, the energy cycle where solar radiation (sunlight) is captured by the plant, converted to 'green' energy through photosynthesis, and converted to saleable beef through utilisation (grazing) of grown pasture.
The efficiency of management of this cycle has a major impact on business profitability and the level of utilisation of pasture grown is a key determinant of this efficiency. A worked example in the report indicates that increasing utilisation from 33% to a modest 50% doubled enterprise profit.

Findings
Our core finding is that producers do not understand this grazing energy cycle.
This is not surprising. There is no common language of productivity and what there is does not support understanding in sufficient detail. Information and knowledge are rarely presented in whole of system packages. The current approach presents information at a level that is accessible by a large producer target market. As such it is next to useless for most producers who are able to move forward. Many are not aware of the size of the opportunities presented by knowledge and management of this energy cycle.
Self-motivated, information-seeking leading producers push through this barrier. They are adept and persistent in their seeking of information, advice and support. Where information is presented in discrete packages they have the ability to integrate the principles into their own systems. They invest in personal growth, business and technological training. Increasingly they are specialists by enterprise or by attention to detail. They are generally producing double or better than industry averages, with similar degrees of effect on relative profitability. At the same time they report lower risk and equal or improved resource and system sustainability.

Recommendations
Our recommendations are based on setting a realistic goal, correcting the limitations seen in presentation of information and increasing access to the support and training structures and processes that leading producers are using.
We recommend that MLA involve producers at all levels of planning, preparation and implementation. One of their first steps will be to work with MLA to make productivity and pasture utilisation an issue across the southern states.
Until this happens major amounts of pasture energy will continue to be wasted and opportunities to convert even more sunlight to beef will be missed.

List of Recommendations

Program Focus

1. That MLA and the industry invest in research, development and technology transfer programs with the goal of increasing the level of pasture utilisation to above 50% by at least 30% of Southern Beef zone producers.
2. That MLA's Southern Beef Program adopts a clear and unambiguous top-end approach in the development of strategy that supports the highest level of understanding of the grazing energy cycle and its core role in raising productivity.
3. That bridging strategies to the top-end be devised and used in technology transfer programs and literature to allow participants to move forward to and embrace this approach.
4. That MLA appoint a producer advisory group (PAG) to help oversee the implementation of all recommendations contained in this report and associated programs.

Language

5. That an industry wide consultative approach be used to develop a common language that defines all the elements of on-farm productivity and establishes clear links to all key indicators of profitability.
6. That this common language be widely promoted for use within the beef industry.

Packaging of Knowledge

7. That technical information and knowledge used to drive increased productivity in the beef industry be packaged and presented in a manner that allows the client to focus on the opportunity to increase production efficiency within each of the specialist component enterprises of their beef business.

Producer Awareness, Motivation and Focus

8. That MLA design and initiate a major publicity program aimed at increasing awareness and motivating producers to recognise the opportunities and size of the benefits that can flow from increased utilisation of pasture and farm productivity.
9. That MLA support a process that producers can use to develop their capacity to understand and determine priorities for building business performance, as an essential step towards improving whole farm productivity and profitability.

Technology Transfer and Support Programs

10. That MLA actively facilitate the delivery of the BeefCheque program to all States and regions of the Southern Beef Zone, and that it seek to work with BeefCheque personnel to review its content and delivery processes to align where possible with the strategies and recommendations advanced in this report.
11. That MLA, with the assistance of state agencies, consultants and trainers, assist producers to develop regionally based peer support groups that are accessible and supportive of producers at all levels of skill and knowledge development.
12. That MLA identify 'champions' among leading producers and seek their support and involvement in delivery of these recommendations.
13. That MLA encourage and assist leading producers and the broader community (researchers and advisors) in the Southern Beef zone to develop a high level network

for discussion of common issues, problem solving, and identification of opportunities and issues for ongoing research and development.

Research and Development

Addressing Awareness, Motivation and Confidence

14. That MLA establish the opportunities and critical control points for sustainable higher utilisation in terms of pasture and animal productivity, business profitability and natural resource management.
15. The apparent south to north (higher to lower) gradient in productivity and related attitude towards high levels of pasture utilisation needs to be investigated by determining the impact of climate and any other regionally based environmental differences on principles and practices of high utilisation.
16. The Holmes, Sacket and Associates (HS&A) report states that the relationship between cost of production and increased production is not linear. While the law of diminishing returns would tend to support this statement, initial examination of our data indicates that further analysis is needed to better understand this relationship.

Addressing Knowledge

17. That MLA research alternative soil and plant nutrient replacement programs so that informed decisions can be made to ensure the sustainability of our grazing systems and meet future consumer demands.
18. The industry needs to make substantial leaps in productivity from its breeding herds through better definition of management practices that reduce waste and maximise output
19. Higher utilisation polices are seen to increase complexity and risk. There is an urgent need for improved ‘real-time’ monitoring, control and planning aids.
20. While the broad benefits of rotational and other grazing practices are now better understood and accepted, there is a great need for development and refinement of practice knowledge and guidelines for use to assist the development of whole farm grazing plans at the top level, and to increase confidence in implementing a suitable range of grazing tactics at lower levels.
21. High levels of utilisation are hampered by the sheer size of the imbalance in seasonal supply patterns. Greatly extending the growth and balance of nutritious pasture beyond spring into summer and autumn will have a major impact on productivity.
22. Risk management and seasonal variation will, in all probability, always dictate the need for feed transfer practices such as lock-up of pastures for dry standing feed and fodder conservation.
23. Genetic improvement of beef cattle must be linked to the effective conversion of total feed supply, including pasture of varying quality, and address the efficiency of the maternal breeding unit as well as production and market performance of sale stock.

1. Introduction to the Report

The MLA appointed a Producer Advisory Committee (PAC) to report on impediments standing in the way of southern Australian beef producers increasing the level of utilisation of their pastures. The terms of reference asked the PAC to report on three questions:

- What are leading producers achieving in terms of pasture utilisation?
- What is limiting leading producers achieving even greater levels of pasture utilisation?
- What is limiting other producers achieving the levels of utilisation achieved by leading producers?

Dr John Black, a research consultant, was appointed to review the knowledge basis of pasture utilisation in all its connecting threads. The Black review was designed to run in parallel to that of the PAC, with critical linkage points set for exchange of findings. This report presents the findings and recommendations of the PAC.

2. Productivity and Profitability in the Beef Industry

The productivity of the beef industry in Australia shows a nearly flat trend line over time, and is increasingly falling behind that of its major white-meat competitors. Rural commentators generally describe the Australian beef industry as being one of the most efficient in the world. These commentators must be using 'cost of production' as their measure of efficiency, and not productivity.

Productivity is generally defined as being the ratio of physical outputs to inputs. On a beef farm this is best expressed in terms of output (weight of beef sold) per farm area (hectares). Output by price received less the costs of production determine a farm's profitability. "Productivity" and "Cost of Production" (costs divided by output) are key indicators of profitability. Raising the former and lowering the latter are essential elements behind any strategies to improve industry competitiveness.

3. Pasture Utilisation and its links to Profit Drivers

Pasture utilisation addresses profitability through its direct impact on output. Increased levels of utilisation generally raise output. Higher output from a given area increases farm productivity. Higher output generally decreases cost of production.

Research and practise has consistently shown that utilising pasture to maintain pasture mass between 800 and 2500 Kg DM/Ha maximises both total pasture production and quality, in terms of energy efficiency.

Successful grazing strategies manage what is essentially an energy cycle where pastures are used to harvest sunlight and turn it into energy. Using more of this pasture energy by grazing at the right time, and in the correct manner, promotes and creates the opportunity for even greater conversion of sunlight energy to pasture energy and conversion to saleable Kgs of Beef.

4. Sustainability

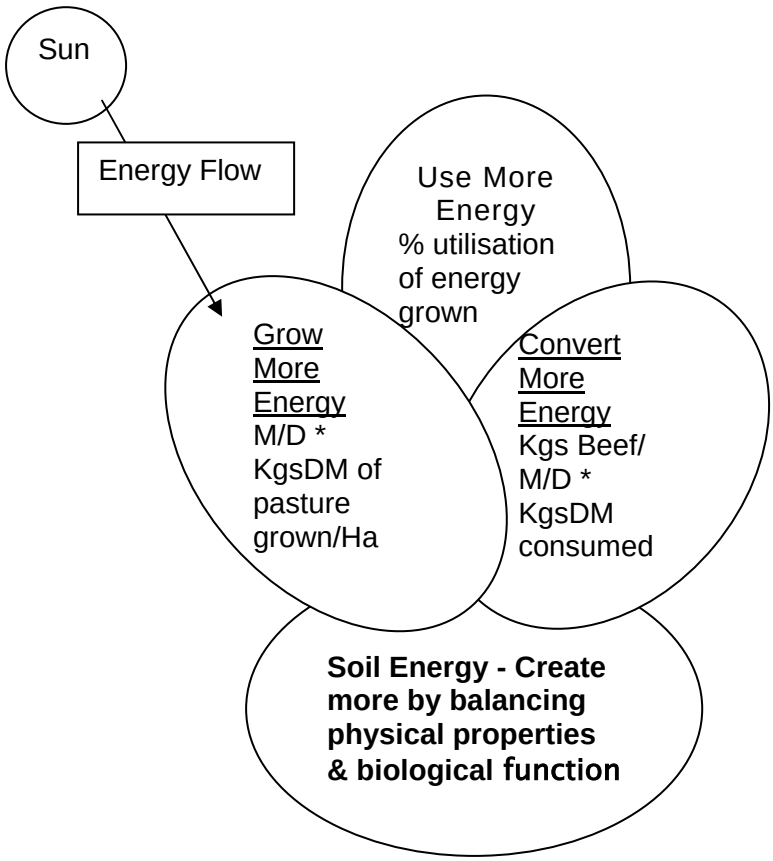
Definition: 'When the biological systems of soils, plants animals and humans are sustained collectively, the system is sustainable.'

No discussion of productivity or biologically based energy cycles can take place without understanding and acknowledging the need to preserve and build sustainable systems.

5. The Grazing Energy Cycle

Figure 1 is a diagrammatical representation of this cycle, the hub of farm productivity in a grazing enterprise.

Figure 1.



Units – M/D is the energy density of pasture in MJ of ME/Kg DM (dry matter)
Note – Protein and mineral content are also important components of animal nutritional requirements. Protein deficiency is rarely an issue in high energy pasture.

Beef grazing managers, through the use of knowledge and skills in three key areas, have the opportunity to greatly increase productivity and profitability, while reducing risk and building biological sustainability by:

1. Manipulation of the utilisation process to ensure timing, duration, degree and method of grazing to optimise both regrowth of pasture and conversion to saleable beef through utilisation of energy dense pasture
2. Attention to the soil resource base through appropriate management of soil and plant nutrients, water, pasture species, soil health and spatial/temporal design
3. Measurement and/or monitoring of indicators of efficiency at critical control points to guide management and control risk

The size of the potential gain from seizing this opportunity is demonstrated by the following examples as illustrated on the next page of this report. Be aware that the example using 33% utilisation approximates to current common practice.

6. Illustration of the gains to be made through high utilisation of high energy pastures

Figure 2. *The effect of pasture quality (M/D) and utilisation rate (33, 50, 66% of total annual dry matter production) on kg liveweight produced per annum. The simulation assumed an annual DM production of 8000kg DM/ha, yearling Angus steers of 360kg, and constant feed qualitythroughout the year (derived from GrazFeed). (Drawn from work by Hutton Oddy)*

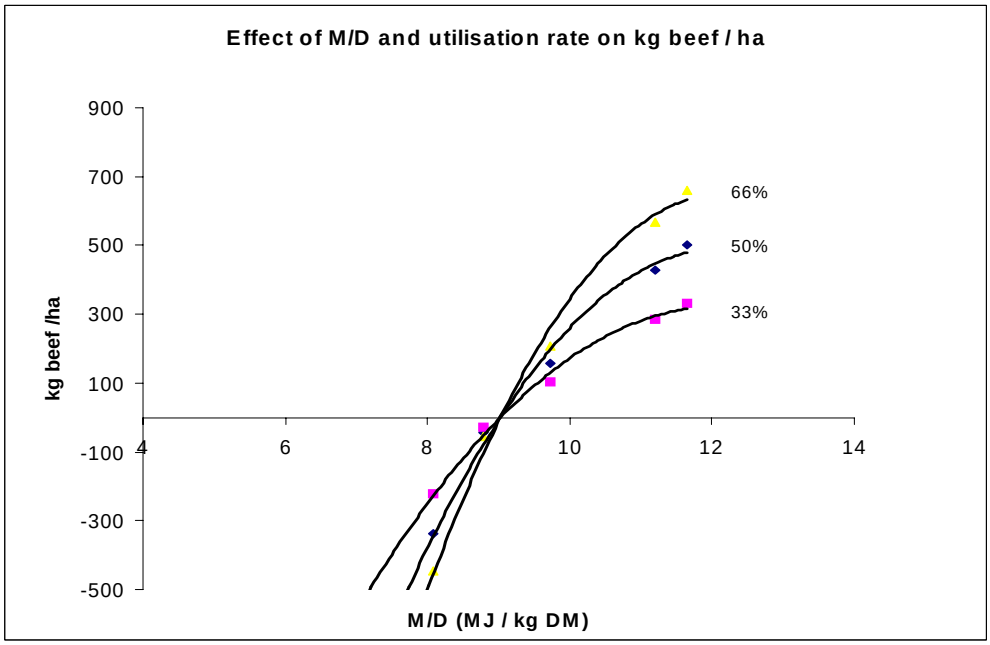
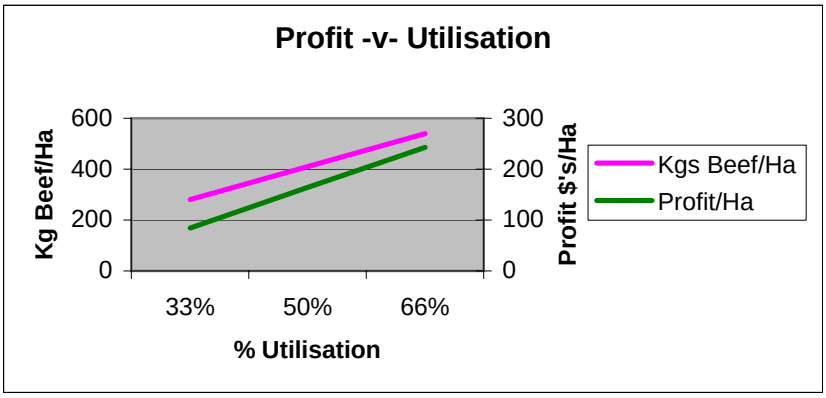


Table 1 – Profit assuming use of 11 M/D feed (fig2) & Costs of Production fall as production per hectare rises as shown by the Holmes Sacket & Associates report

		% Pasture Utilisation		
	Units	33	50	66
Beef Produced	Kgs/Ha	280	410	540
Price Received	$/Kg L.Wt	1.30	1.30	1.30
Cost of Production	Cents/Kg L.Wt	100	90	85
Profit per Hectare	$/Ha	84	164	243

Figure 3 – Graphical representation of table 1



7. Methodology Used

The PAC's report, findings and recommendations, in response to the questions posed to it by our terms of reference, have been made by reference to five resources.

1. Consultation with selected groups of producers and individuals across the MLA's southern beef zone.
2. A benchmarking study commissioned by the PAC and prepared by Holmes Sacket and Associates, and similar information from South West Monitor Farms and BeefCheque projects in Victoria
3. Discussions with John Black through planned links and meetings
4. A workshop of invited producers, scientists and other professionals held in Sydney on 5th and 6th of June.
5. These resources were combined with the personal knowledge and experiences of the members of the PAC to produce this report.

(For more detail see Appendices)

8. Vision for the Southern Beef Industry in 2020

The views and opinions of people are dynamic in that they change over time. This report includes a vision for the future developed by the PAC to be used as a reference point for understanding our recommendations in response to our findings. A brief description of this vision follows. A table outlining what we see as the key differences between present practice and what will be needed to meet this vision is included as Appendix E – Towards 2020.

The Southern Beef Industry is on the threshold of great change that will see a rapidly increasing level of professionalism and profitability among dedicated beef producers. This change is being driven by globalisation of markets and structures that will demand production of competitively-priced product that meets the highest standards of food safety and suitability for end point markets, and provides absolute assurance that these quality specifications have been met.

The southern industry will respond to these forces by:

- Adopting an increasing level of specialisation by region and purpose, where land use will be determined by potential return on investment and its capacity to meet environmental guidelines
- Defining and using planned growth pathways for production stock, with target markets identified prior to conception
- Creating strong and flexible alliances between specialist operators at all levels of production, and to market partners beyond the farm gate
- Following integrated quality assurance throughout this chain, meeting all market specifications in terms of eating quality, supply patterns, food safety, animal welfare and environmental protection
- Developing a web of highly motivated and confident business managers, empowered through personal growth and support networks, with high demand for new technology to drive productivity and quality

9. Findings

9.1 Core Finding

There is generally poor understanding of the 'grazing' energy cycle among Southern Australia beef producers.

Leading producers look at their paddocks and see ***energy and energy converters*** and:

- Understand the dynamic links between the two
- Manage the linkages through grazing management and inputs of tools and resources such as fertiliser and new species as part of an 'energy cycle'
- Measure, monitor and analyse their performance to proactively balance energy demand to supply
- Systematically benchmark their business performance linked down to productivity indices
- Produce and sell more beef per hectare.

Traditional producers look at their paddocks and see ***pasture and animals*** and:

At best have an intuitive understanding of the links between pasture energy and animal performance

Don't appreciate the dynamics of this relationship

Manage using traditional pasture and animal discipline based practices as a 'pasture production, harvesting and conversion process'

They may measure pasture mass but rarely systematically and don't use it to plan forward

Generally analyse physical performance in terms of stocking rate and business performance in terms of gross margins at best.

Produce and sell less beef per hectare

Producers do not fit into boxes as simply as described above. In practise:

Their practice and knowledge vary around each of the descriptive parameters used

Prograze, SGS and a number of private consultant driven programs have made progress

The problem is that there are far too few 'leading' producers and far too many near or in the 'traditional' producer category

Strategic Impact of this Finding

Given that manipulation of the energy cycle drives the productivity of beef businesses, it is essential that the level of understanding and knowledge of the cycle, its potential impact and the practices that allow grazing managers to benefit from it be addressed by the industry. Investment in programs that address this lack of awareness of the impact and underlying lack of knowledge of more traditional producers have the potential to bring relatively large and early returns on investment when compared to investment in research and development at present knowledge boundaries of the science of pasture utilisation.

9.2 Supporting Findings

What are leading producers achieving?

1. Leading cow-calf breeding herds are achieving greater than 300 Kg Beef per hectare, and up to 500 Kg/Ha. This equates to 45 to 60 Kg/Ha/100mm rain. Most producers are achieving less than 30Kg/Ha/100mm. While we were not able to collect as much data for specialist finishing/growing systems it is clear that they are generally achieving higher utilisation than breeding operations, and up to 120Kg/Ha/100mm rain.
2. The 'gap' between leading and traditional producers, in terms of production, is significant and consistent across the demography of southern Australia. There appears to be a north-south gradient in the level of production achieved by the best producers, with the highest levels being achieved in the south,
3. Leading producers possess common traits and attitude in that they were highly motivated, and had high technical and business skills. There did not appear to be any single or common production system, approach or issue that led to higher production efficiency, as measured by cost of production.

4. There appears to be a large range in the cost of production per unit of output (cents/Kg L.Wt), and there is no north-south gradient. High or low production can be accompanied by either low or high costs of production.

What is limiting producers moving forward from where they are?

Technical Issues and Impediments

1. There is an overall lack of uptake of existing knowledge in the Southern Beef Industry.
2. Information is seen as being fragmented and not readily accessible.

The language used to describe business and production is not consistent with that required to establish widespread interest and understanding of the potential on-farm impact of the technology behind high utilisation of pastures and its relationship to improved business performance

Producers are concerned about the impact of high production systems on the environment and see a great need for further research in this area

Many producers perceive high production systems involve increased risk. This perception is a major impediment to adoption of existing technology in this area.

Leading producers are proactive about managing risk, and believe strategies adopted to achieve higher utilisation or improved grazing management have actually reduced production risk.

Time is perceived to be an issue by many producers, and that high production systems involve increased time commitments

Leading producers believe they are near the boundary of existing R & D knowledge.

There are generally low levels of physical and financial monitoring and benchmarking in the beef industry. Leading producers routinely use monitoring and benchmarking as key management aids.

Leading producers understand the links between the production and use of high energy value pasture on animal performance, and profitability, and generally possess the skills and knowledge to improve utilisation of their pastures.

There are many commercial products being promoted to producers as technical solutions to components of their systems. Producers are generally finding it difficult to properly evaluate and assess the real potential impact of these products. “Miracle” cures are often a distraction from core problems, and seem to be poorly researched in terms of cost-benefit analysis.

Non-Technical Issues and Impediments

There are many non-technical barriers to change that involve high-level family and structural issues that could be seen as being beyond our terms of reference. At the same time the PAC observed many non-technical issues and impediments that impact directly on the ability of producers to adopt technology that will raise the level of pasture utilisation on their farms. As such they have the potential to severely impact on the cost/benefit of research and extension in this area. Many of these impediments may need just as much investigation, research and development as technical impediments raised above. These are discussed below.

1. There is low awareness of the opportunities presented from increased pasture utilisation, and of its potential impact on profitability. Without motivation and confidence practice change will not occur
2. Business and personal focus is a key driver of change. The presence of other enterprises, especially those of a technically demanding or more rewarding nature, was often seen as a barrier to higher productivity in beef enterprises.
3. Specialist businesses were seen to be driving forward more confidently and more quickly.
4. Leading producers mostly exhibit well-developed business and analytical skills and have a strong understanding of technology and its potential impact on their production and marketing system.
5. Leading producers also value and actively pursue training and opportunities for personal development and growth.
6. Support programs, consultants and groups, in all their forms, both technical and non-technical, were recognised by most producers as being highly valuable. This support often provided the awareness and original impetus for change by empowerment of individuals through group processes
7. Many leading producers routinely use high level business support programs as essential components of their strategic planning.

10. Recommendations

10.1 Program Focus

1. That MLA and the industry invest in research, development and technology transfer programs with the goal of increasing the level of pasture utilisation to above 50% by at least 30% of Southern Beef zone producers
   - The benchmark for high productivity from breeding herds should be 60 Kg/Ha/100mm.
   - The benchmark for non-breeding enterprises should be 100 Kg/ha/100mm.

2. That MLA's Southern Beef Program adopts a clear and unambiguous top-end approach in the development of strategy that supports the highest level of understanding of the grazing energy cycle and its core role in raising productivity.
   - Technology is currently presented at a level too low to adequately advance knowledge, understanding, measurement and implementation of practises that drive increased productivity
   - A complete understanding of all the links and interactions and their critical control points, addressing both key success factors and risk management, are needed before producers will confidently adopt changed practice.

3. That bridging strategies to the top-end be devised and used in technology transfer programs and literature to allow participants to move forward to and embrace this approach
   - The corollary of a 'top-end' approach is that there must be a means of bringing forward producers who are motivated and have the capacity to change, but find the language and detail of the 'top-end' approach intimidating at first exposure.
   - We further suggest that a stepped approach be used to move producers forward towards the productivity benchmarks, and that language and indices used be appropriate to each step, but ultimately consistent with that needed at the top end

4. That MLA appoint a producer advisory group (PAG) to help oversee the implementation of all recommendations contained in this report and associated programs
   - The strategies recommended above (2 and 3) depend on consistent interpretation and use to devise realistic, practical and accessible packages and programs for the target market
   - All recommendations will require close consultation with producers in the design and delivery phases
   - It is therefore strongly advisable that a core group of producers be used to ensure continuity and consistency of direction and approach
   - Given that this recommendation is accepted, all reference to 'MLA' in following recommendations should be read as inclusive of MLA appointed staff and this Producer Advisory Group

10.2 Language

5. That an industry wide consultative approach be used to develop a common language that defines all the elements of on-farm productivity and establishes clear links to all key indicators of profitability
   - There is no common language, even among leading producers
   - Language must support understanding and measurement of key events and control points in the energy cycle
   - Measurement and understanding opens up the opportunity to use knowledge and tools to manage the cycle for benefit
   - Variations in language lead to confusion, wrong interpretations, and impede cross-fertilisation of ideas and discussion
   - With no real existing language in place, there is a real opportunity to develop a common language that should not be missed

6. That this common language be widely promoted for use within the beef industry
   - The language of productivity is rarely encountered
   - Pasture is discussed in terms of mass only, with expressions indicating relative feed quality rarely heard
   - While Prograze has equipped many producers with the skills to monitor, there was little evidence of systematic monitoring and analysis other than by those we classed as leading producers

10.3 Packaging of Knowledge

7. That technical information and knowledge used to drive increased productivity in the beef industry be packaged and presented in a manner that allows the client to focus on the opportunity to increase production efficiency within each of the specialist component enterprises of their beef business.
   - Information is seen as being fragmented, difficult to access and paternalistic in presentation
   - Production technology is almost always presented in the traditional discipline based approach (pastures, animals, soils and nutrients)
   - Our recommended approach is consistent with the move towards specialisation
   - It can be tailored to fit the varying market needs of clients, and to recognise regional and climatic differences

10.4 Producer Awareness, Motivation and Focus

8. That MLA design and initiate a major publicity program aimed at increasing awareness and motivating producers to recognise the opportunities and size of the benefits that can flow from increased utilisation of pasture and farm productivity.
   - A planned marketing approach is required
   - Pathways to knowledge packages, training and support programs need to be identified with availability and suitability confirmed before commencement of the motivation phase

9. That MLA support a process that producers can use to develop their capacity to understand and determine priorities for building business performance, as an essential step towards improving whole farm productivity and profitability
   - The motivation for technological change at the whole farm level should be driven by identified and prioritised business and personal objectives
   - Benchmarking is available through various agri-business consultancy firms, and was seen to be tremendously valuable, and is often accompanied by one-on-one consultancy agreements
   - We noted a number of innovative commercial initiatives, that through personal development and peer support processes, appear to greatly magnify the impact of benchmarking
   - Personal growth is seen as a crucial strategy towards meeting the demands of decision making in an increasingly changing and complex web of business, social and personal interactions

10.5 Technology Training and Support Programs

10. That MLA actively facilitate the delivery of the BeefCheque program to all States and regions of the Southern Beef Zone, and that it seek to work with BeefCheque personnel to review its content and delivery processes to align where possible with the strategies and recommendations advanced in this report
    - BeefCheque was initiated in Gippsland, and is now available to the balance of Victoria

- The PAC saw much evidence of its success, and supports its introduction throughout the southern zone
- At the same time it believes that all programs benefit from periodic review against future goals and objectives

11. That MLA, with the assistance of state agencies, consultants and trainers, assist producers to develop regionally based peer support groups that are accessible and supportive of producers at all levels of skill and knowledge development.
    - Simple discussion groups can be very effective, and are used successfully elsewhere e.g. the Dairy industry
    - Use them for making gains in all areas, not just in pasture utilisation

12. That MLA identify 'champions' among leading producers and seek their support and involvement in delivery of these recommendations.
    - Provide training in communication skills and other areas of personal development
    - Build their potential effectiveness as key components of the program's human resources
    - Recognise their achievements as part of awareness and motivation

13. That MLA encourage and assist leading producers and the broader community (researchers and advisors) in the Southern Beef zone to develop a high level network for discussion of common issues, problem solving, and identification of opportunities and issues for ongoing research and development

10.6 Research and Development

There is a real need for further research and development in the area of on-farm productivity and pasture utilisation to refine existing knowledge, address perceived risk issues and provide new technology.
For ease of reading the following recommendations are presented in two classifications. While the PAC supports them all, early return on investment will flow from the recommendations addressing awareness, motivation and confidence. This strategy is an essential element of broadening the target market for the program. At the same time it is vital that technology research and development keep pace with leading producers and meet their need for new knowledge and tools.

10.7 Awareness, Motivation and Confidence

14. That MLA establish the opportunities and critical control points for sustainable higher utilisation in terms of pasture and animal productivity, business profitability and natural resource management
    - This is a high priority area impacting on the confidence of producers either to start towards or to continue to seek productivity gains through higher feed utilisation
    - NRM is becoming a major concern of producers, and high production is often perceived to be a major cause of environmental problems by many producers and much of the community.

15. The apparent south to north (higher to lower) gradient in productivity and related attitude towards high levels of pasture utilisation needs to be investigated by determining the impact of climate and any other regionally based environmental differences on principles and practices of high utilisation

16. The Holmes, Sacket and Associates (HS&A) report states that the relationship between cost of production and increased production is not linear. While the law of diminishing returns would tend to support this statement, initial examination of our data indicates that further analysis is needed to better understand this relationship.

10.8 New Knowledge and Tools

17. That MLA research alternative soil and plant nutrient replacement programs so that informed decisions can be made to ensure the sustainability of our grazing systems and meet future consumer demands
    - Current soil and plant nutrient analysis processes are one dimensional
    - Nutritional balance and value of a given quantity of pasture is seen to be diminishing
    - There is some evidence that both animal and human diseases are linked to nutritional imbalances in their diets

18. The industry needs to make substantial leaps in productivity from its breeding herds through better definition of management practices that:
    - Provide minimum levels of nutrition to breeders that lead to optimum conversion to beef (Total Kgs weaned/Ha and target market Kgs weaned/beast)
    - Achieve high fertility, high lactation on pastures of low to medium energy density
    - Use optimal timing of key events (calving and weaning) to lower energy waste and raise conversion
    - Increase stocking rate without increased risk

19. Higher utilisation polices are seen to increase complexity and risk. There is an urgent need for improved 'real-time' monitoring, control and planning aids
    - Measure and/or monitor all key indicators of pasture and animal performance and welfare
    - Improved climate prediction, along with extended weather forecasts
    - Decision support models to plan and proactively adjust feed supply and demand budgets

20. While the broad benefits of rotational and other grazing practices are now better understood and accepted, there is a great need for development and refinement of practice knowledge and guidelines for use to assist the development of whole farm grazing plans at the top level, and to increase confidence in implementing a suitable range of grazing tactics at lower levels

21. High levels of utilisation are hampered by the sheer size of the imbalance in seasonal supply patterns. Greatly extending the growth and balance of nutritious pasture beyond spring into summer and autumn will have a major impact on productivity.
    - Energy dense pasture species that respond to summer rain

- Greater range of high protein summer growing legumes
- Improved knowledge of timing and rates of fertiliser applications

22. Risk management and seasonal variation will, in all probability, always dictate the need for feed transfer practices such as lock-up of pastures for dry standing feed and fodder conservation.
    - It is essential that relative efficiencies be known and opportunities presented, together with optimal management practices
    - Evaluation of the economics of such practices must include an assessment of 'whole of system' costs and benefits.
23. Genetic improvement of beef cattle must be linked to the effective conversion of total feed supply, including pasture of varying quality, and address the efficiency of the maternal breeding unit as well as production and market performance of sale stock.

11. Program Implementation

The PAC was asked to advise on priorities for establishing and initiating a program to achieve the recommended goal. The following steps are suggested.

MLA to consider PAC report and, if accepted, commission a program to meet defined goal, and appoint/delegate key personnel

Establish a Steering Committee

- Producer advisory group
- MLA personnel
- Program management
- Committee can be enlarged and broadened when needed

Steering Committee to initiate planning processes

- Establish role of committee, scope its operations – simple business plan
- Marketing plan – delivery of recommendation 8 and initial products (e.g first set of tools using SGS Change model)
- Extension of BeefCheque – recommendation 10
- Review of BeefCheque
- Appoint a producer group to lead language development process
- Start prioritising research and development areas
- Define and commission all further planning process including a project plan with timings and milestones

12. APPENDICES

12.1 Appendix A – Terms of Reference

Southern Beef Pasture-Feedbase Research and Development Plan

"More beef from pastures"

Current performance and challenges for leading edge beef producers, and impediments to adoption of these existing practices by other producers

Terms of Reference for a Project involving a Producer Advisory Committee led by Terrey Johnson

Background

Only 30 to 40 percent of available pasture is estimated to be utilised by the current southern beef industry. MLA has adopted a target to increase utilisation of pasture by 10 percent (ie 3 to 4 percentage units), across the whole of the southern beef industry. If adoption of new technology is assumed to occur in only a third of the industry, systems will need to be developed that allows utilisation of the pasture resource on individual farms to increase by about 10 to 12 percentage units.

MLA believes that there is a considerable amount of information available that is not currently being used by the majority of the industry. This comes in the forms of currently known scientific information and the fact that leading producers in the beef and other grazing industries, (particularly the dairy industry), here and in NZ, are already performing at levels higher than the proposed targets. In addition, the pasture feedbase component of MLA's Southern Beef Program (SBP) is considered to be fragmented and weak as a consequence of being neglected in recent years.

As such it is proposed that a prospectus will be developed during 2002 for investment in RD&E to improve the feedbase and its utilization by the beef industry.

The project described here aims to provide insights into the current situation and challenges for leading beef producers, and exploration of the impediments to adoption of their practices by other beef producers. This study will run in parallel with another project being undertaken by Dr John Black, which will aim to provide a scientific foundation for developing this prospectus.

Project Objectives and Process

The Producer Advisory Committee (PAC) will be working to provide answers to three key questions:

- What are leading beef producers achieving, in terms of sustainable pasture utilization, or other relevant measures of productivity, (eg kg beef per ha)
- What do leading producers see as the impediments for them to achieve even greater productivity gains

- What are the impediments for other producers to achieve similar levels of productivity

The process that will be used will be defined by the PAC after it is formed and has met with John Black at the end of February. This is likely to encompass a mix of one on one interviews, by phone, and face to face, with individuals and focus groups of graziers, advisors and consultants, from the beef and possibly other grazing industries in southern states of Australia and NZ. A process for continual interaction with John Black will be developed.

The PAC will interact with the following aspects of John Black's project:

1. Proposing strategies that could be adopted to improve productivity of cattle from pastures using existing knowledge and technologies and by truly stretching horizons and concepts.
2. Presenting these strategies to a Workshop on 5-6 June 2002 attended by several progressive cattle producers, selected scientists and an economist.
3. Refining the strategies following Workshop discussion and identifying important gaps in knowledge.
4. Making recommendations for addressing deficiencies in the content and packaging of existing knowledge and skills for immediate delivery to the southern beef industry.

The PAC will provide a draft report by the end of April, and a final report to MLA by early July 2002. These reports will focus primarily on the conclusions drawn and recommendations relating to the questions being posed, and will be linked with delivering on the above strategies.

Deliverables

1. A draft report by end of April of conclusions and recommendations for discussion with MLA and John Black
2. A final report to MLA by early July 2002

12.2 Appendix B – Methodology

The PAC's report, findings and recommendations, in response to the questions posed to it by our terms of reference, have been made by reference to five resources.

1. Consultation with selected groups of producers and individuals across the MLA's southern beef zone.
   - A series of focus meetings were held between the PAC and selected producers in selected regions, starting in the north of New South Wales and ending in the south of South Australia (Mount Gambier)
   - Regions visited resulted in good coverage down the ranges and slopes of New South Wales and Victoria, and out to Mount Gambier. This selection was based on examination of the geographical distribution of beef cattle and beef producers combined with the practical constraints of time and cost
   - Producers were selected using a range of criteria largely based on advice from professionals in the regions and personal knowledge of members of the PAC. A list of those consulted follows in Appendix C.
   - Selection criteria used resulted in what we believe was a varied spread of producers from average to leading producers in terms of productivity.
   - A framework for note taking was used at all meetings to ensure some consistency in approach and detail for compiling responses (See Appendix D)
2. A benchmarking study commissioned by the PAC and prepared by Holmes Sacket and Associates, and similar information from South West Monitor Farms and BeefCheque projects in Victoria
   - The Holmes Sacket and Associates report is drawn from its extensive network of clients across the southern beef zone. The report has been separately forwarded to MLA
   - Key productivity indicators were further researched through personal contact at consultative meetings, and through summaries prepared and supplied by BeefCheque and South West Monitor Farms in Victoria
3. Discussions with Dr. John Black through planned links and meetings
   - Flow was two way in that cross fertilisation of ideas and information enabled both studies to assist the other and retain a direction that should add value to each final report
4. A workshop of invited producers, scientists and other professionals held in Sydney on 5th and 6th of June.
   - This workshop was arranged by MLA in consultation with Dr Black and the PAC
   - It's minutes are not completed at the time of writing. As the workshop provided an early test of direction for the PAC's recommendations, workshop reaction and input have been used in final preparation of this report
5. These above four resources were combined with the personal knowledge and experiences of the members of the PAC in preparation of our findings and recommendations. A description of the PAC is provided in Appendix F.

12.3 Appendix C – Producers

Town/Locality	Producer	Consultants
Delungra	Warren Turner	Andrew Wark
North West Slopes, NSW	Jim Hain	
	Troy Setter	
Glen Innes	Greg Chapple	
Northern Tablelands, NSW	Sam Crothers	
	Mike and Lynn Main	
Guyra	Sam White	Mathew Monk
Northern Tablelands, NSW	John McKemey	
	Peter Wyatt	
Tamworth, NWS, NSW	Geof Steinbeck	
Blackville, NWS, NSW	Peter Rose	
Scone, Hunter Valley, NSW	Peter and Phip Bishop	
Mandurama	Ross Wills	
Central Tablelands, NSW	Graham Whitehead	
Cootamundra	Steve Hardie	
South West Slopes, NSW	Doug Tozer	
	Bill Lenehan	
Holbrook	Andrew Mathie	
South West Slopes, NSW	Brian Corrigan	
	Ian Locke	
	Lynton Harrison	
	Ian Wettenhall	
Mansfield	Rod Manning	
Central Victoria	Chris Stoney	
	Mark Ritchie	
Gippsland	George Glasscock	
Victoria	Bruce Shenfield	
	Robert Bell	
	Ian Hengstberger	
	Jenny & Paul O'Sullivan	
Mount Gambier	Nik and Alexi Kentish	
South Australia	Catherine Bird	
	Alan Kain	
	Tom Ellis	

12.4 Appendix D – Framework used in consultative approach

Note that collected responses are not available in that confidentiality of responses was guaranteed to those consulted.

Question	Comments
Features of existing production systems	
Main enterprises?	
Rainfall & climate?	
Main beef markets?	
Production/grazing strategies?	
Use of feed flushes?	
Risk and how you manage?	
Measuring what – pasture, stock?	
Benchmark figures?	
Looking back - What would have helped you to get to where you are now more quickly?	
Motivation – how to improve?	
Role/value - business planning?	
Access to information? Any gaps?	
Training and skills?	
Support and groups?	
Market issues - v - production	
Risks and fears	
Tools and equipment?	
Looking forward – What would help you to move towards "B" or beyond "B"?	
Research, development or demonstration?	
Planning and support needs?	
Information and training?	
Risks and fears?	
Tools and equipment development?	
Sustainability issues?	
What's the best method for delivery?	

12.5 Appendix E – Towards 2020

This table outlines some of the differences we see between the current situation, both for traditional producers and leading producers, and leading producers in the future, which we have defined as the beef industry in the year 2020.

Descriptor	TP	LP	LP in 2020
Beef enterprise	Self-replacing cow calf operations, feeder steers, weaner production	As for TP plus dairy & beef backgrounders, pasture finishers, but more specialised	Specialist operations - Cow-calf, F1 breeders, backgrounders
Other enterprises	Typically 2 or more, with crop or sheep as main enterprise/focus	May have >1 enterprise, but have capacity to achieve specialist levels of efficiency in all	Typically nil, but some with specialist crops
Farm business focus	Independent operators, strong lifestyle component	Lifestyle located but business driven, with goals set by objective analysis	Tight specific goals define the location of the factory and business relationships
Market focus	Low – direct through agents OTH & feedlots & saleyards	Direct, often no agent, maybe in alliances, 1 or 2 market targets	Contract with negotiated forward price that gives margin over CoP
Grazing management	Set stock, deferred grazing	Intensive to slow rotations plus tactical set stocking	No change but with greatly refined knowledge
Spring pasture focus	Little animal demand or pasture supply mngt, opportunity trading when possible	Planned matching of demand to expected pasture supply	Planned matching of total feed supply to meet market-defined output targets
Surplus feed	Conserve as hay, silage & dry standing (no plan)	Planned dry standing & silage	All feed used or conserved at max food value
Animal performance	Seasonal pattern of growth, good (spring) to poor (aut-winter)	Cows controlled in score 3, sale stock on planned variable growth paths	All animals maintained in tightly controlled performance pathways
Risk management	Reactive	Proactive	Highly proactive
Measure	Seasonal animal performance, annual profit	Monthly for production and quarterly for business KPI's, against planned objectives	Real time production KPI's, monthly business monitoring of KPI's
Labour efficiency	5 – 8000 dse	12 –20,000 dse	30,000 dse plus

(/unit)			
Winter stocking rate	<1.7 dse/100mm rain,	2.0 – 3.0 dse/100mm	Nil to 3 plus dse/100mm
Kgs Beef/Ha/100mm rain	Rarely measured but < 30 kgs	30 – 60 Cow-calf, 50 – 100 intensive rotations	? (50 – 80 breeding) (150 – 200 intensive)
CoP cents/Kg	As above but in range of 70 to 200 cents/kg	50 – 100 cents/kg	? 30 – 60 cents in real terms

It should be noted that classification along the lines above is for illustrative purposes only. In practise, few producers fit entirely into one or other of the moulds described above.

12.6 Appendix F – The Producer Advisory Committee (PAC)

The PAC was selected by MLA, in consultation with Dr Roger Barlow and the appointed team leader (Terrey Johnson)

The outcome from this process was a team that:

1. Possesses many years experience in the production of beef cattle
2. Has members drawn from a range of climates, using a variety of approaches to produce with varying degrees of productivity
3. Has had wide experience in both the planning, direction and delivery of technology transfer programs
4. Combines these general skills and experiences with a diverse range of personal skills, training and experiences

Team Members

Terrey Johnson. (Team Leader)
Terrey runs a breeding herd, using cell grazing principles, in the Central Tablelands of NSW, to produce finished yearling cattle marketed through a producer initiated marketing alliance. He has been involved in the planning and direction of the Sustainable Grazing Systems (SGS) program for the past seven years, including chairing a team that carried out a mid-term review of the SGS National Experiment.

Alan Every
Alan operates a high-producing backgrounding and finishing operation on the Northern Tablelands of NSW, using an intensive flexible rotation grazing system. As well, he works as a consultant with specialist interest in the field of beef productivity, and has worked closely with the Beef CRC, based at Armidale, in technology extension.

Ken Lamb
Ken runs a breeding herd in Gippsland, Victoria, using an intensive flexible rotation grazing system, and has a strong interest in natural resource management. He also has been involved in the planning and direction of the SGS program for the past seven years, including chairing the Steering Group. As well, Ken has worked as program co-ordinator for BeefCheque in Gippsland and Victoria.

Jack Speirs
Jack farms near Casterton in Western Victoria, where he combines a dairy bull beef enterprise, using a highly intensive rotational system, with a merino flock. He has been a member since inception of the Western Victoria – South Australia SGS Regional Committee, including close involvement in the Mentoring Project being developed by that committee. Jack also works as a consultant.

Dr Roger Barlow
Roger was appointed by MLA to oversee the operations of the PAC, and provided much advice and support throughout its operations. Roger has had extensive experience in research and currently works as a research consultant working with various industry bodies.