

# **MLA Southern Beef Program**

## **Livestock Production Research & Development Strategic Plan 2006-2011**

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## 1 Executive summary

### 1.1 Plan purpose and alignment

This plan outlines Meat & Livestock Australia's (MLA) Southern Beef Program (SBP) on-farm research and development (R&D) investment for the period 2006-2011.

The SBP plan is part of a broader MLA *Livestock Production Research & Development Strategic Plan 2006-2011* which aligns with the Federal Government's National Research Priorities, and Rural R&D priorities as well as key industry plans such as the *Meat Industry Strategic Plan* (MISP).

Extensive additional consultation was undertaken with southern beef producers and their representative councils - Cattle Council of Australia (CCA), the Southern Australian Beef Research Council (SABRC), other Rural Research and Development Corporations (RDCs), Cooperative Research Centres (CRCs), State Government entities, CSIRO and universities.

### 1.2 R&D priorities

The SBP invests in projects in four program areas; Strategic Science, Community Concerns (Environment and Animal Welfare), Improving Productivity, and Communication and Research Adoption. Investments will be made as follows:

#### 1.2.1 Strategic Science

- DNA markers for hard to measure traits;
- Genomic technologies applied to rumen and soil ecology, and gene expression;
- Functional and nutritional aspects of meat;
- Climate prediction and drought management;
- Whole Farm Systems Simulation Modelling;
- Scientist training.

#### 1.2.2 Community Concerns

##### 1. Environment

- Development of profitable livestock production systems that improve the environment;
- Contribute to the development of Whole Farm Systems Simulation Modelling Capability;
- Life Cycle Analysis and other environmental analyses or initiatives (eg, environmental management systems) to determine the resource use efficiency of red meat production and to demonstrate environmental stewardship;
- R&D into the genetics and management of methane production and water utilisation by ruminants.

##### 2. Animal welfare

- Developing objective systems for welfare monitoring and supporting the uptake of best practice in animal welfare through the provision of an animal welfare QA module;
- Improving livestock transport and developing alternative animal husbandry practices;
- Genetics and development of animal temperament and reaction to environment;
- Measuring and monitoring community perceptions;
- Training and education packages.

### 1.2.3 Improving Productivity

- New or improved tools to support the More Beef from Pastures decision support framework;
- Genetics for temperament, disease resistance, feed conversion efficiency, survivability, carcase and eating quality;
- Understanding the economic impact of endemic disease, followed by research aimed at reducing the impact of the most costly diseases;
- Improving disease surveillance to demonstrate freedom from disease and to assist bio-security;
- Determining genotypes fit for environments;
- Increasing return per hectare through pasture utilisation while controlling risk;
- Improved pasture plant genetic evaluation (PasturePlan);
- Climate Risk Strategies;
- Implementation of Whole Farm Systems Simulation Modeling to R&D and decision support.

### 1.2.4 Communication and Research Adoption

- Support the development of a collaborative 'pipeline' for delivery of R&D output that leverages existing public and increasing private agribusiness investment in providing producer support services;
- Continue to create widespread awareness of opportunities for beef business improvement, and provide all southern beef producers with the basic 'do it yourself' tools and information required to consider and commence change;
- Development and provision of training where clear market failure exists;
- Provide support for the initial trialling of new technologies and management practices;
- Integrate advanced computer decision support tools into support services engaged in the R&D delivery 'pipeline'.

## 2 Introduction

This document outlines the strategy for Meat & Livestock Australia's (MLA) livestock production research and development (R&D) for beef production in southern Australia for the period 2006-2011.

### 2.1 MLA's mission and focus for livestock production

MLA's mission is 'to deliver world class services and solutions in partnership with industry and government'. In delivering on its mission MLA has adopted four main strategies:

- Increase market access;
- Grow demand;
- Develop competitive advantage from paddock to plate;
- Partner industry to build capability.

All four areas are covered by Livestock production R&D but the emphasis is on developing competitive advantage.

### 2.2 SBP alignment with MLA livestock production strategic planning process

This document sets down the strategic directions and priority areas for investment for the SBP over the period July 2006 to June 2011. It is the framework that will be used for decisions on how and where producer levies and Commonwealth government funds will be invested in southern beef livestock production R&D and related communication and adoption.

The Southern Beef Program strategic plan focuses on southern beef specific issues and investments that are consistent with the overall direction of the higher level MLA *Livestock Production Research & Development Strategic Plan 2006-2011*

The MLA *Livestock Production Research & Development Strategic Plan 2006-2011* has involved extensive industry consultation and it recognises the importance of:

- The Federal Government's National Research Priorities and Rural Research and Development Priorities;
- Delivery of benefits to both producer levy payers and the wider community;
- Ensuring R&D investments fill market gaps and complement the investments and innovations of producers, input manufacturers and suppliers, service providers and advisers.

We have drawn on expertise within and outside MLA, including reviewing the strategic plans of relevant organisations. Current and prospective industry threats and opportunities were evaluated. We have also undertaken quantitative analysis and evaluation of productivity and profit drivers and adoption scenarios for the livestock production industry and each of its sectors. The potential impact of different R&D investments has undergone economic analysis.

## 3 Strategy development

### 3.1 Overview and background

The SBP 2006–2011 plan builds on the 200–2006 plan, aiming for continuous improvement in decision-making, execution and delivery of outcomes. The SBP plan capitalises on considerable achievements during the 2001–2006 period, particularly the building of a pipeline for the delivery of R&D outputs.

### 3.2 2001 – 2006

Considerable review and analysis was conducted from 1999 to 2001 to develop the 2001–2006 program to meet the expressed needs of producers. The 2001–2006 plan was developed from three major reviews including:

- A producer survey and 2020 scenario planning;
- A comprehensive review of all known technologies, their application and impact on profitability and sustainability;
- A producer review of pasture utilisation.

See Appendix 1 of this document for summaries of these reviews.

Importantly, the planning process identified the existence of numerous strategies for improvement to profitability and sustainability, of which many were already being applied by leading producers. However, there appeared to be a major barrier to widespread adoption from the way in which information was packaged and communicated to producers.

As a result, for the period 2001–2006, the SBP focused on ‘harvesting’ R&D output from major research programs and presenting it in a form able to be applied by the majority of producers. Most notably this included the development and implementation of the More Beef from Pastures program and associated decision support tools.

### 3.3 2006–2011

For the current plan, analysis of industry trends and Benefit Cost Analysis (BCA) of potential areas for investment were repeated to determine continued relevance of R&D priorities and the More Beef from Pastures program delivery framework. Consistent with previous analyses, the greatest return on investment was from the development and application of strategies to increase the utilisation of pastures. Pasture utilisation was followed by increasing throughput of animals, or kilograms of beef produced per unit input.

With a strong pipeline for delivery and application of R&D established by the More Beef from Pastures program, the strategic intent of the 2006–2011 plan further develops innovative strategies and tools to underpin the decision support framework and to improve the capacity of the service provider sector.

### 3.4 Southern Beef Program R&D achievements in 2001-2006

The SBP for 2001–2006 focused on ‘harvesting’ and delivery of considerable R&D output from the Beef CRC, animal health research and programs such as Sustainable Grazing Systems,.

Some of the direct deliverables from this period include:

- Towards Sustainable Grazing manual;
- Cattle parasite atlas;
- Rainfall and Pasture Growth Outlook tool;

- New Estimated Breeding Values (EBVs) – such as for Net Feed Intake (NFI) and commercialisation of gene markers;
- The *More Beef from Pastures Producers Manual* and extension campaign which pulled together knowledge covering the entire beef business into a 'do-it-yourself' decision support framework for producers.

During this period a number of major new initiatives were commenced to develop innovations to improve producer decision making including:

- The Grain and Graze program targeted at the sheep wheat zone to develop livestock production systems that both increase profit and ameliorate environmental impact;
- Two new sub-programs within the CRC for Dryland Salinity to research and develop profitable animal production systems for recharge and discharge areas;
- A strategic research program investigating soil ecology and biological processes for adaptation of plants;
- Ongoing development of tools for genetic selection including discovery and incorporation of gene markers into Breedplan.

### 3.4.1 The More Beef from Pastures program

To address the required outcomes from the producer survey and to address the deficiencies in existing extension programs identified by the Pasture Utilisation review, the SBP developed and launched a flagship program 'MLA More Beef from Pastures'.

The cornerstone of the program, the *More Beef from Pastures – Producers Manual* took two years to write and involved over 40 leading southern beef producers and industry experts. Within a do-it-yourself risk management framework, it presents world's best practice for increasing profit and minimising the environmental footprint.

The program also established a communication and extension network to develop awareness of the program and the manual, and to encourage alignment of service providers to support producers wishing to apply the manual to their businesses. The network includes:

- The NSW, Tasmanian, WA, SA state departments of primary industry and the Mackinnon Project, University of Melbourne;
- 20 More Beef from Pastures producer advocates who work with their respective state coordinators to initiate local events, and champion the program throughout the media and their own networks;
- Numerous agribusiness and service providers.

More Beef from Pastures was positioned to equip, encourage and motivate producers to undertake training provided by the MLA EDGE<sup>network</sup>® and other relevant providers.

To July 2005 total (aided and unaided) awareness of the program was 61%, an outstanding achievement against the resources available.

Over 4,000 manuals and CDs were distributed to producers, with most of the manuals purchased. Readers (42%) were motivated to carry out one or more procedures from the manual and 31% actually changed management practices as a result. The major reason for not implementing the information in the manual was 'drought/no feed' (26%).

The SBP also invested in numerous producer initiated research and development projects (PIRD®) and funding was also made available to groups of producers to implement key principles from the More Beef from Pastures manual.

### 3.5 2006–2011 program planning

#### 3.5.1 Industry consultation

A series of state SABRC discussions and a national workshop was held to consider the strategic issues faced by the southern beef industry now and in the future, and to provide verification of the results of the R&D prioritisation (see Appendix 2). The emerging issues of importance (see Appendix 3) were consistent with outcomes required from the 2001 producer survey (see Appendix 1) with the additional emphasis on influencing community perceptions and cattle health and welfare:

- Management of the beef business to maximise productivity from the combined resources;
- Management of environmental risks without degrading the resource base;
- Sustainable husbandry procedures to manage cattle health and welfare;
- Enhanced community perception about beef production.

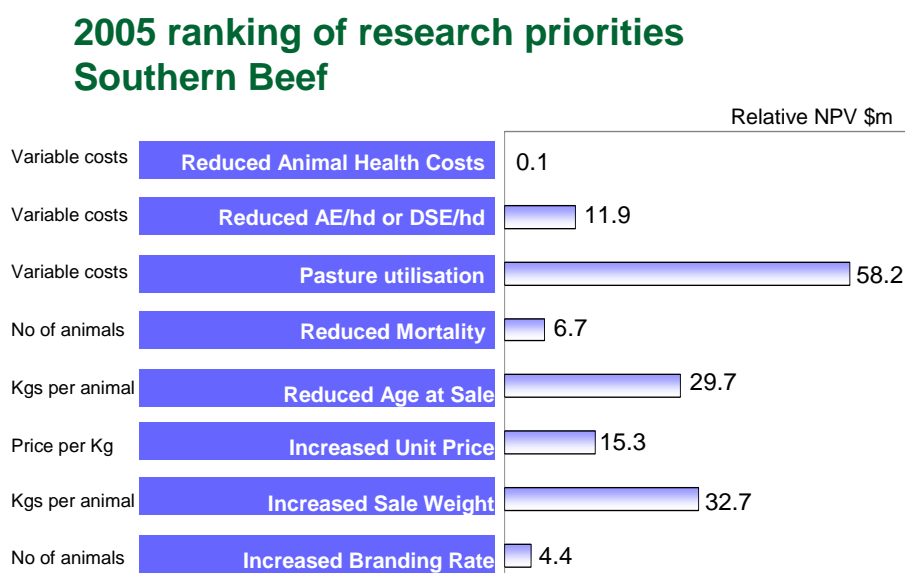
Strategies for addressing these emerging issues were also provided.

#### 3.5.2 Economic analysis

For the current plan, analysis of industry trends and Benefit Cost Analysis (BCA) of potential areas for investment were conducted using a different analytical framework to that used in 2001 in order to determine the continued relevance of the R&D priorities for 2001 – 2006 and the More Beef from Pastures program.

Figure 1 (below) shows the predicted relative benefits to Southern Beef R&D investment.

**Figure 1: Expected relative Southern Beef industry benefits from R&D investment**



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For more details about this analytical method refer to MLA's higher level strategic plan; *Livestock Production Research & Development Strategic Plan 2006-2011*.

In addition to the biological and economic modelling, the 2006–2011 planning process took greater account of other areas of importance such as animal welfare and environment for which detailed strategies were developed across species. This was consistent with the input from industry, particularly SABRC related to emerging but less quantifiable issues.

It should also be noted that in the model, reducing animal health costs related to treatment costs only. It did not consider the positive contributions of improved animal health to productivity or profitability through reducing mortality rates, increasing growth rates etc. or the improved productivity and increased return that can result from some animal health treatments.

## 4 Priority investment areas

### 4.1 Proposed SBP investments

Nine broad R&D priorities have been adopted nationally across sheep and beef programs through the higher level MLA *Livestock Production Research & Development Strategic Plan 2006-2011* and prioritised specifically for each sector. The relative importance of different drivers is presented in Table 1 below. The shaded area represents the priorities that are shared across sectors.

Each of the priorities includes an indicative target which is independent of the emphasis given the priority by each sector.

**Table 1: Identified priorities, targets and sectors**

Nine key priorities	2011 target*	Sectors				
		Lamb & Sheep-meat	Southern Beef	Northern Beef	Feedlot	Goats
Increase reproduction rates	5%	xx	x	xxx	N/A	xx
Decrease mortality rates	20%	xxx	x	x	xx	xx
Reduce age at sale	10%	x	xx	xxx	xx	x
Increase meat eating quality	5 consumer points	x	x	x	x	xxx
Reduce the cost of production (includes reducing costs and increasing kg/ha)	5%	xx	xxx	xx	xxx	x
Increase awareness of environmental risks and relevant management practices	20% of targeted producers	xxx	xxx	xxx	xxx	xxx
Increasing skills, knowledge and confidence of producers	10% of targeted producers	xxx	xxx	xxx	xx	xxx
Increase awareness of key animal welfare practices	10% of targeted producers	xx	xx	xx	xxx	xx
Improved biosecurity systems exotic/notifiable diseases	5 diseases	xx	xx	xx	xx	xx

xxx – highest priority, xx- medium priority, x - lower priority

Increase or decrease measures are over ABARE 2005/6 industry averages where applicable

The SBP has approximately \$6m per annum to invest in R&D to achieve these targets, with the overall aim being to expend 50% on applied research and development, 25% on strategic science, and 25% on communication and research adoption.

The SBP will invest funds in projects in four program areas:

1. Strategic Science;
2. Community Concerns (Environment and Animal Welfare);
3. Improving Productivity;
4. Communication and Research Adoption.

The project investment in each of these programs reflects:

- The continued relevance of reducing cost of production through minimising animal health costs, increasing pasture utilisation and kilograms of beef produced per hectare;
- The increasing importance of community perceptions of animal welfare, disease and environment;
- The continued logic of the decision making process encapsulated in the *More Beef from Pastures – Producers Manual* as the framework for awareness and tool development;
- The efficiency in leveraging awareness and products created by the More Beef from Pastures program to consolidate and improve the sustainable provision of training and support services to producers from public and private sector investors.

In addition, the investment in strategic science reflects key opportunities emerging from rapid technological advancements in three key areas:

- genomics
- measurement technologies
- information technologies

## 4.2 Strategic Science

Investments in the strategic science portfolio will include:

- Development of DNA markers for hard to measure traits such as reproduction and net feed intake (NFI);
- The application of genomics to:
  - Modification of the rumen ecology to increase feed use efficiency;
  - Identifying management strategies to influence the regulation of gene expression;
  - Manipulating soil health through better understanding of the soil ecology.
- Progeny testing for a wide range of functional and nutritional aspects of meat;
- Climate and pasture growth prediction methodology focusing on drought risk management;
- The development and application of Whole Farm Systems Simulation Models to livestock R&D and subsequent decision support systems.

In addition the Strategic Science portfolio invests significantly in post-graduate training to ensure human capacity to service the livestock industries into the future.

## 4.3 Community Concerns

### 4.3.1 Environment

Most of the SBP investment in environment R&D is through joint programs with the Sheep Meat and Lamb program.

- The Grain and Graze program and the Evergraze program for the High Rainfall Zone via the Dryland Salinity CRC are both investigating animal production systems that improve the environment and increase profit:

- The Grain and Graze program focuses on mixed farming systems in the sheep wheat zone, investigating issues related to crop – pasture rotations, grazing of stubbles and minimising chemical use in crops.
- The Evergraze program is developing livestock production systems for recharge areas concentrating on perennial pastures, and forage production for livestock on discharge areas.
- Toward 2011, outputs from both of these initiatives will increasingly contribute to the development of whole farm systems simulation modelling capability.
- The environmental program is also investing in life cycle and other environmental analyses to determine the resource use efficiency of red meat production, and investing in environmental initiatives that assist the industry in demonstrating environmental stewardship (eg, environmental management systems);
- R&D into the genetics and management of methane production and water utilisation by ruminants.

#### 4.3.2 Animal welfare

Investments in the animal welfare program will focus on:

- Developing objective systems for welfare monitoring and supporting the uptake of best practice in animal welfare through the provision of an animal welfare QA module;
- Developing alternatives for contentious animal husbandry practices;
- Improving livestock transport systems;
- Modelling animal health impacts to further prioritise investment;
- Improving the understanding of genetics and development of animal temperament and reaction to environment;
- Measuring and monitoring community perceptions;
- Training and education packages.

The initial emphasis for the SBP investment is to support the development of a common approach across species for measuring, monitoring and improving animal welfare and to address immediate animal welfare concerns.

#### 4.4 Improving Productivity

The Improving Productivity program focuses on bringing together the results of research on specific components of biological systems and/or specific technologies for application on farm.

The initial investment for 2006–2011 will focus on new or improved tools to support producers applying the More Beef from Pastures decision support framework.

Other investments will be made in:

- Enabling genetic selection for temperament, disease resistance, feed conversion efficiency, survivability, carcase and eating quality traits;
- The incorporation of gene markers for genetic selection through Breedplan;
- Determining genotypes fit for environments encountered across southern Australia that maximise profit per hectare through improved cow herd productivity and kilograms of beef produced;
- Understanding the economic impact of endemic disease, followed by research aimed at reducing the impact of the most costly diseases;
- Improving disease surveillance to demonstrate freedom from disease and to assist bio-security;
- Incorporating on-farm decision support with supply chain management systems to increase efficiency and improve product quality and consistency;

- Development of strategies for improving pasture utilisation, including better understanding of risk management strategies for increased stocking rate;
- Improved pasture plant genetic evaluation (PasturePlan), and new varieties;
- Climate risk strategies.

The concurrent development by the Strategic Science Program of Whole Farm Systems Simulation Modeling will change significantly the means by which applied research is conducted for the livestock industries. It is anticipated that toward the end of the 2006–2011 period investment from the Improving Productivity program will focus on implementation of this capacity. This will also flow on to affect on-farm management decision support and supply chain management.

## 4.5 Communication and Research Adoption

There are approximately 60,000 beef businesses across southern Australia. The annual SBP budget of approximately \$6m represents an average investment by each of these businesses of \$50 per annum, given that 50% of the \$6m is contributed by the Commonwealth Government. Of this budget 25% is allocated to communication and research adoption.

In this context, it is important for MLA to reach the maximum number of producers within the limits of available producer and government funding. The key goal for MLA is to ensure all sheep, cattle and goat producers are aware of:

- The outcomes of MLA's research;
- The potential impact of applying those outcomes;
- Where appropriate, encourage producers to incorporate this research into their decision-making to improve on-farm productivity, profitability and sustainability.

After widespread consultation with the industry, we have determined the following major priorities for communication and adoption expenditure:

- Access to information and decision support tools through various publications, tips and tools fact sheets, the MLA website and producer information forums.
- Opportunities for participatory learning for producers to increase their skills through MLA-directed workshops, genetics advisory services, *EDGEnetwork*® and Producer Research Support (such as Producer Initiated R&D and demonstration trials).

### 4.5.1 The More Beef from Pastures program will:

- Continue to create widespread awareness of opportunities for beef business improvement, and provide all southern beef producers with the basic 'do it yourself' tools and information required to consider and commence change;
- Continue to support the development of a collaborative 'pipeline' for delivery of R&D output that leverages existing public and increasing private agribusiness investment in providing producer support services;
- Through the Producer Initiated R&D (PIRD®) program provide support for the initial trialling of new technologies and management practices;
- Invest in the development and provision of training where clear market failure exists.

While we recognise the additional need for mentoring and advice to assist producers with their adoption decisions, MLA is not in a position to support this directly. Increasingly the More Beef from Pastures program will invest in training and development of public and private information and service providers whose core business is support of livestock producers.

We will actively pursue opportunities to work with extension people, farm consultants, agribusiness, and influential producers to help them fill this need, while working towards assisting producers to recognize and value the true cost and value of such services.

#### 4.5.2 Other investments

- We will also work in collaboration with other research and development corporations, Co-operative Research Centres and Catchment Management Authorities to leverage our respective resources to assist the industry achieve its goals across multiple states, provided they fall within the guidelines above. Examples of such initiatives which will continue to attract funding from the Communication and Research Adoption Program include Grain & Graze and Evergraze.
- Towards 2011 the SBP investment will be targeted towards integration of advanced computer decision support tools into support services engaged in the R&D delivery 'pipeline'.
- While we remain open to other options for producers to increase their skills and knowledge, in practice this means that we generally will not provide funding for such initiatives as support of education and training (other than *EDGEnetwork*® where clear market failure exists), extension networks, or facilitation of selected producer groups.
- Other potential areas of investment within our focus include exploration of opportunities for provision of benchmarking, e-learning and adoption research.

## Appendix 1: 2001 – 2006 SBP strategic planning

The 2001 – 2006 SBP strategic plan was developed from three major reviews:

1. A survey of southern beef producers ( $n=500$ ) to determine the outcomes from R&D they required, and a 2020 scenario development activity to consider the knowledge, skills and capability required to support the beef industry into the future.
2. A comprehensive review of current knowledge, adoption and research opportunities relevant to the southern beef industry, including a bio-economic analysis identifying the technologies that if applied would have the greatest impact on profitability and sustainability, and
3. An expert producer review of pasture utilisation and barriers to increasing the industry average of 35%.

### Outcomes required by southern beef producers

The producer survey identified twenty outcomes as important. The top five outcome statements articulate the knowledge and skills required to conduct a successful beef business:

- Know how to maximise beef production from the feed available;
- Know how to grow more feed without degrading the land;
- Know how to control and manage diseases and health problems;
- Have the knowledge and skills to adapt your production system to market specifications;
- Have the business and planning skills to maximise return on investment.

The relative ranking of importance of the outcomes did not differ between states, regions within states or, size and type of enterprise. In other words, producer desires for the outcomes were universal, although it is acknowledged that providing solutions to these outcomes may vary to match specific climates, regions and business structures.

### R&D review

From the R&D review and bio-economic analysis, the greatest opportunities for the southern beef industry in order of priority were;

- Increasing pasture growth and utilisation;
- Increasing the throughput of animals for sale firstly by increasing stocking rate and secondly by increasing cattle fecundity or purchasing calves;
- Improvements in profitability were also predicted from reducing the consumption of high quality feed by the breeding herd through early weaning and reducing the spread of calving.

The following three strategies were considered most important:

- Manage existing pasture to maximise growth and quality;
- Optimise stocking rate and minimise high quality pasture consumed by breeders;
- Adoption of a risk management procedure.

### Pasture utilisation review

The level of utilisation of pasture in southern Australia was in the order of 30 – 40 % and producers themselves saw this as a wasted opportunity that they needed help in correcting.

The review concluded:

- Increasing pasture utilisation from 33% to 50% doubled enterprise profit;
- Producers did not understand the grazing energy cycle;
- There was no common language of productivity and existing extension packages were of insufficient detail and scope to enable producers to integrate changes into a whole farm system;

- Risk management was of utmost importance to increasing pasture utilisation.

#### References:

More Beef from Pastures – Current knowledge, adoption and research opportunities. Project No. SBP.004, Sept 2002, ISBN: 1 74036 052 4

The Level of Pasture Utilisation in Southern Australia – A Producer View. June 2002. ISBN: 1 74036 471 6

Documents part 1, 2 and 3, 5 yr Strategic Plan 2001 – 2006.

## Appendix 2: SABRC consultation

### Southern Beef Program industry consultation

The Southern Australian Beef Research Council (SABRC) is an expert stakeholder forum for discussion, consultation, coordination and collaboration on the strategic R&D issues impacting on the southern beef industry.

SABRC is the central council of the southern state Beef Research Committees (or their equivalent groups) and collectively represents New South Wales, Victoria, Tasmania, South Australia and the southern part of Western Australia. Membership includes producer and state departments of primary industry representatives from each southern state, representatives from CSIRO, the university sector, the Beef CRC and other industry organisations such as the Beef Improvement Association (BIA). The MLA manager Southern Beef Program is a member of SABRC and ex-officio member of each state beef research committee.

SABRC is an affiliate member of the Cattle Council of Australia.

SABRC provides ongoing review and advice to MLA on the prioritisation of investment and strategic direction of the SBP to ensure its industry relevance and impact.

SABRC input to the Southern Beef Program plan has occurred at two levels;

1. Through the national committee:

- Review and feedback on the LPI strategic plan including the prioritisation of southern beef program investments in each of the LPI programs (Strategic Science, Animal Welfare, Environment, Improving Productivity, and Communication and Research Adoption).
- Provision of southern beef industry issues into the future.

2. Through each state committee:

- Issues of state significance
- Strategic plans for state beef R&D programs

SABRC oversaw the development and implementation of the SBP from 1999 through to the present day and has actively engaged in regular review and strategic development of the program.

## Appendix 3: SABRC emerging issues

A series of state SABRC discussions and a national workshop was held to consider the emerging issues faced by the southern beef industry into the future. SABRC identified 4 key outcomes required and supporting strategies.

<b>Sustainable beef production</b>
<i>Outcome: Management of the beef business to maximise productivity from the combined resources.</i>
<p><b>Strategies</b></p> <ul style="list-style-type: none"> <li>• Adopt procedures to improve beef enterprise productivity and profitability.</li> <li>• Manage the cow herd to optimise productivity and protect the environment.</li> <li>• Develop business and planning skills to maximise return on investment.</li> <li>• Increase the adoption of proven technology as the basis of farm practice change.</li> <li>• Employ trained and skilled labour in the beef enterprise.</li> <li>• Encourage succession planning within farm families and industry R, D&amp;E providers.</li> <li>• Consider new co-product markets.</li> <li>• Be aware of industry demographics and threats from competing land use.</li> </ul>

<b>Environmental impacts of beef production</b>
<i>Outcome: Management of environmental risks without degrading the resource base.</i>
<p><b>Strategies</b></p> <ul style="list-style-type: none"> <li>• Quantify the impact(s) of beef production on environment.</li> <li>• Develop production systems and guidelines that either enhance the environment; minimise impacts on the environment; or are aligned with community expectations.</li> <li>• Control the risks the production system poses to the resource base (land, water and biodiversity).</li> <li>• Develop Win : Win solutions for industry that enhance both environmental protection and business profitability.</li> </ul>

### Cattle health and welfare

**Outcome:** *Sustainable husbandry procedures to manage cattle health and welfare.*

#### Strategies

- Adopt management procedures to prevent and/or correct diseases
- Apply Codes of Practice and Operator Accreditation to husbandry procedures
- Employ/engage more rural based agricultural professionals
- Develop and monitor safe livestock handling and transport systems
- Prevent the introduction of infectious diseases
- Monitor risks with non-receptive and recreational producers

### Community opinions about beef production

**Outcome:** *Enhanced community perception about beef production.*

#### Strategies

- Maintain high standards of animal ethics
- Proactively promote the beef industry and manage community perceptions for:
  - a. Environment
  - b. Animal welfare
  - c. Animal transport
  - d. Food safety
  - e. Health benefits of beef.
- **Communicate about the beef industry's integral role in the Australian image through its:**
  - f. Lifestyle
  - g. Heritage value
  - h. Role in rural communities
  - i. Rural / Urban connectability
  - j. Initiating & enabling role of SABRC and MLA.