SOUTHERN AUSTRALIAN MEAT RESEARCH COUNCIL

RESEARCH, DEVELOPMENT & ADOPTION PLAN 2016

First Release - April

THE SOUTHERN AUSTRALIAN MEAT RESEARCH COUNCIL MISSION

To provide regional direction for investment in Research, Development and Adoption to future proof the reputation and profitability of the Southern Australian Red Meat and Livestock Industries.

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SOUTHERN AUSTRALIA MEAT RESEARCH COUNCIL

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CHAIRMAN'S ACKNOWLEDGEMENTS

It is my pleasure to commend this Plan to you. My first draft was significantly enhanced by the SAMRC endorsed Editorial group of Robin, Jane, Jenny, and Mike and Marty Amidy, who volunteered his time to help. Bruce Brown added further comment to the later stages of the document to great effect. The bulk of the work was done by the Regional Chairs and their committees in bringing seven different regional perspectives into a common format. A special accolade is due to them. Angela McClelland then created the document working above and beyond her role in the secretariat to reconcile the various pieces of input into a coherent form. The team at 61 Design have added their special touch to Angela's efforts to produce the final polished document.

I would like to recognise the contribution of all SAMRC investors for a range of contributions in making this Plan a reality. It is evidence of a reinvigorated SAMRC for which MLA should be given special acknowledgement. Their decision to base their consultation model on NABRC, SAMRC and WALRC has given fresh impetus to SAMRC, so we acknowledge the efforts especially of Jane Weatherley, Matt McDonagh and Mary Goodacre in helping to make it all happen.

This document represents a team effort, so to everyone who has participated in the life of SAMRC for the past 9 months, my thanks. Finally, Mike Stephens has been an inspirational part of this whole process and added great wisdom at every stage. For his commitment and that of his team at Meridian Agriculture at Yendon, and for his personal encouragement, I am especially grateful.

Ralph Shannon

ABBREVIATIONS AND ACRONYMS

SAMRC	Southern Australian Meat Research Council
RD&A	Research, Development and Adoption
NABRC	North Australia Beef Research Council
WALRC	West Australian Livestock Research Council
MISP	Meat Industry Strategic Plan
SISP	Sheep Industry Strategic Plan
BISP	Beef Industry Strategic Plan
MLA	Meat and Livestock Australia

1. INTRODUCTION

The Southern Australian Meat Research Council (SAMRC) is an independent Incorporated Association and one of three National Councils set up to provide advice on Research, Development and Adoption (RD&A) within the Australian Red Meat and Livestock Industries. The other two Councils are the Northern Australia Beef Research Council (NABRC) and the West Australian Livestock Research Council (WALRC). Together the three Councils provide advice to the Red Meat Panel and act as a conduit for the flow of information from and to grass roots producers.

1.1 RED MEAT ADVISORY STRUCTURE

The Red Meat Industry RD&A advice and investment decision framework is shown in the diagram below.

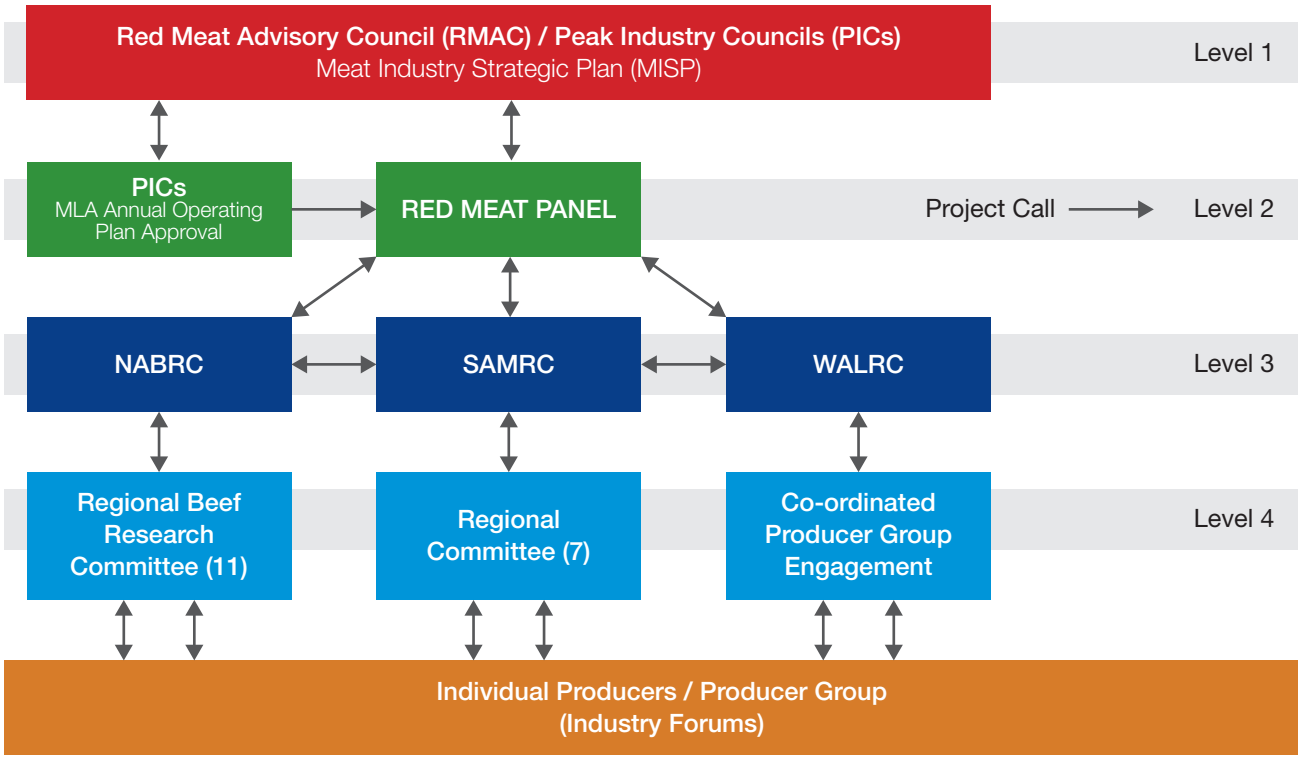


Diagram 1: Red Meat Industry RD&A advice & investment decision framework.

1.2 THE SAMRC GEOGRAPHIC AREA

The SAMRC geographic area is based on seven agri-ecological zones. The seven zones are depicted below in Figure 1 and include:

- South Australia;
- Central Victoria;
- Western Victoria;
- South-East Victoria and Tasmania;
- Northern New South Wales;
- Southern New South Wales;
- Central New South Wales and Queensland Sheep.

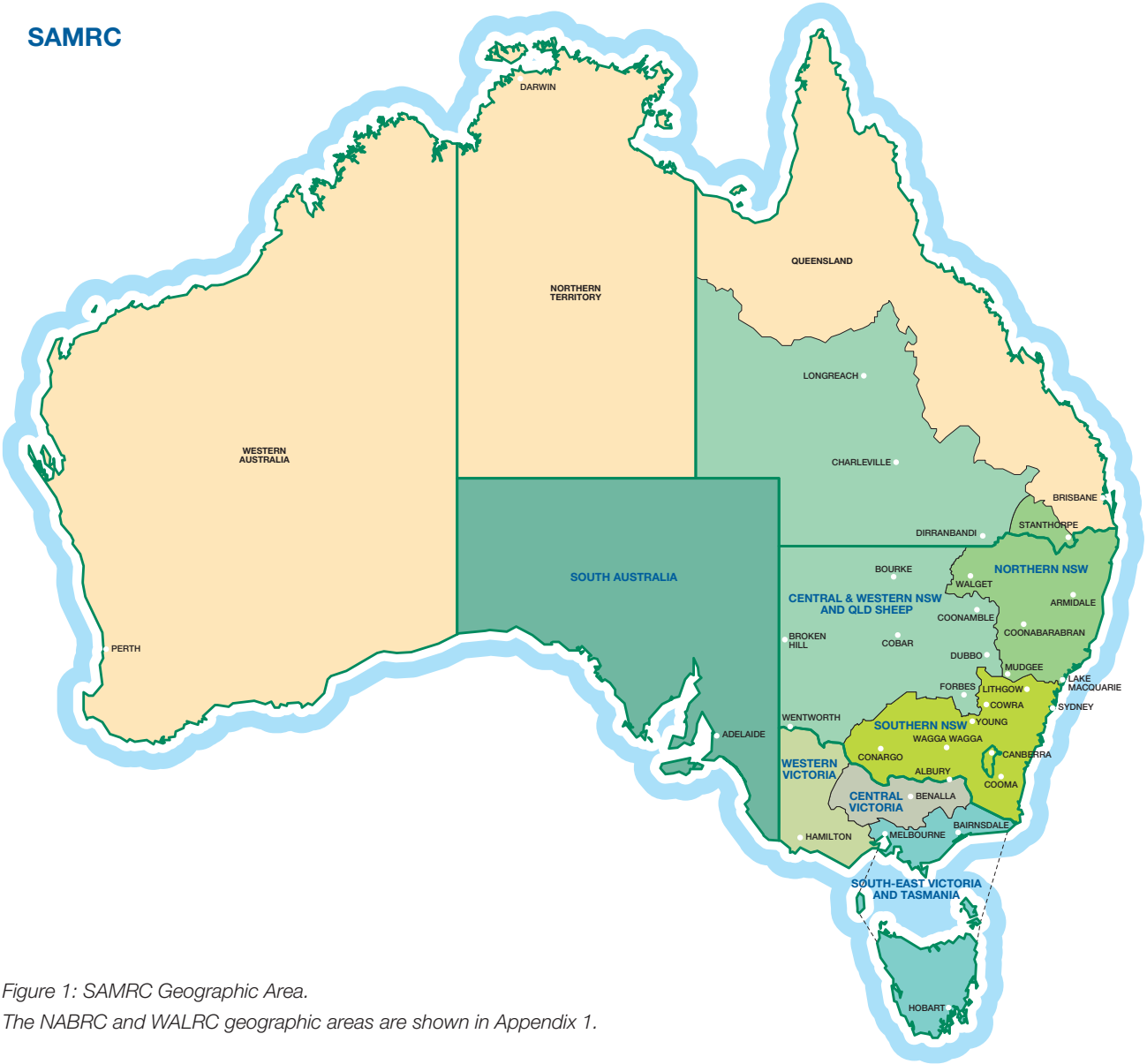


Figure 1: SAMRC Geographic Area.
The NABRC and WALRC geographic areas are shown in Appendix 1.

1.3 SAMRC STAKEHOLDERS

In addition to all those involved in the red meat production and distribution continuum, SAMRC stakeholders include co-investors (Table 1) and seven Regional Committees (Table 2). The Chair of each committee sits on the Council. In addition, stakeholders from other RD&A entities are invited to be members.

The Chairs were selected following a public call, on a skills basis, to ensure that the Council is 'skills based' and representative of the rural community. The Regional Committees are responsible for identification of the priorities defined in this plan.

Table 1: Current SAMRC Co-Investors

State	Co-Investors
National	– Commonwealth Scientific and Industrial Research Organisation (CSIRO) – Meat & Livestock Australia (MLA)
Tasmania	– Department of Primary Industries, Parks, Water and Environment (DPIPWE)
South Australia	– South Australian Research and Development Institute (SARDI) – University of Adelaide
Victoria	– Department of Economic Development, Jobs, Transport and Resources (DEDJTR) – Latrobe University – University of Melbourne/ Mackinnon Project
New South Wales	– NSW Department of Primary Industries (NSW DPI) – Local Land Services (NSW LLS) – University of New England (UNE) – Sydney University – Charles Sturt University (CSU)
Queensland	– Queensland Department of Agriculture and Fisheries (QDAFF)

Table 2 Regional Committee's & Chair

Regional Committee	Committee Chair Representative
South Australia	Allan Piggott
Central Victoria	Hannah Marriott
Western Victoria	Tim Leeming
South East Victoria & Tasmania	Jenny O'Sullivan
Northern New South Wales	Tom Amey
Southern New South Wales	Angus Hobson
Central New South Wales & Queensland Sheep	Gus Whyte

1.4 THE SAMRC BACKGROUND

A revitalised SAMRC was established by the major investors in red meat RD&A in South Eastern Australia in July 2015. The commitment of the five State Governments, six Universities, CSIRO, and Meat and Livestock Australia (MLA) has been instrumental to its successful revitalisation. MLA now vests this entity (and NABRC in the North and WALRC in the West) with responsibility for guiding its RD&A investment in the grassfed sheep meat and beef sectors.

The co-investors have adopted a regional structure based loosely on seven agri-ecological zones (as discussed in Section 1.2) and a collaborative planning process led by the SAMRC forum. A full list of SAMRC co-investor contacts appears in Appendix 2.

SAMRC convened in August 2015 and is committed to this Plan guiding investments from 2016 onwards. Regional Committees met during October and November and outcomes we consolidated at a meeting of SAMRC in late November 2015.

1.5 SAMRC STRUCTURE

The SAMRC 'Board' includes an independent Chair, the Chairs of seven Regional Committees and of the co-investor representatives.

The SAMRC 'Management Committee' comprises a Chair (nominated from and by the Regional Chairs), representatives of the Co-Investors (nominated by and from the Co-Investors) the SAMRC Chair and a representative of the SAMRC Secretariat.

Each Regional Committee has an appointed Chair (see Appendix 3), up to six producers (nominated representatives of key investor groups), selected members of the RD&A community and broader red meat industry in each region. A full list of Regional Committee Members appears in Appendix 4.

The Secretariat, which is provided currently by Meridian Agriculture, is a contracted role funded by MLA.

1.6 ENVIRONMENTAL SCAN

There are important environmental factors that influence this Plan's ability to help the industry achieve the outcomes that will advance the red meat industry within its geographic area.

1.6.1 GLOBAL FACTORS AND THEIR INFLUENCE

Australia stands on the doorstep of the most populous and rapidly developing part of the world. Projections show that by 2050, 60% of the world's population will live in Asia and Africa. Standards of living are rising at a significant rate, particularly in Asia, which is predicted to underpin a 25% increase in the demand for red meat by 2030. (Meat Industry Strategic Plan 2015 - 2020).

This growth is predicted to have the following key features:

- The rise of the middle class;
- Greater empowerment through education;
- Greater polarisation between haves and have nots;
- Gender issues and biases.

These features have been summarised as the five 'Mega trends' (Hajkowicz & Eady, 2015) and are depicted in Figure 2.

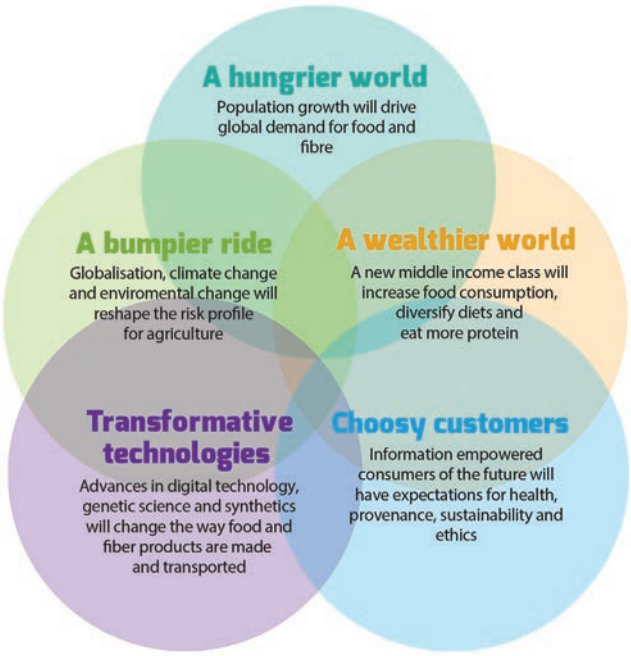


Figure 2: Five Megatrends.
(Hajkowicz & Eady, 2015)

The Oxford Martin Commission Report entitled "Now for the Long Term" postulates a new world order dominated by China, India, Russia and Brazil, but also one where the global marketplace will be paramount. Scientific collaboration is one area cited where the trend is toward global information sharing, research and publishing. This predicted globalisation (of trade, markets and knowledge) is a double-edged sword for red meat producers in Australia.

On the one hand, it will influence markets via increased demand for beef and lamb, particularly as standards of living improve in Asia. Increasing domestic production to supply international export markets also magnifies the industries exposure to volatile export markets and exchange rates, and subsequent price risk. When combined with the intensification of production systems and enterprise expansion, the management of financial and business risks will be the key to the continued viability of grazing operations.

Water and land availability for agricultural use will continue to be emerging issues from this global trend and overseas investors will seek to capture Australia`s potential in this regard. Grazing natural pastures is probably the only agricultural pursuit suited to the regions in the Australian pastoral zones. Ruminant animals can contribute to world food supplies in a world via their utilisation of low-grade proteins.

World Bank projections cite 2.4 billion people facing absolute water scarcity by 2025, yet, to feed the world in 2050, we need food production to rise by 70%, which may require 50% more water. The continuing degradation of agricultural land will add to this problem (University of Oxford, 2013).

In emphasising this the Oxford Martin Commission Paper cites a lack of leadership and vision, short-termism and an absence of oversight in politics, amongst others, as contributors to the worsening of this situation. Australia is not immune from these factors.

Recent FAO estimates (FAO, 2013) suggest that between 35-40% of the earth's land area is used for agriculture, of which approximately 60-70% is used for grazing (Figure 3). This situation is even more pronounced in Australia, with approximately 50% of the nation's land area under agricultural production, of which over 90% is devoted to grazing systems, an area of over 350 million hectares (ABS, 2015). Thus, an efficient and productive grazing industry is critical in meeting this growing food demand, while also delivering sustainable stewardship of vast areas of natural resources. Grazing systems based on non-arable lands also have the capacity to increase the global supply of protein without impacting the area dedicated to the grain based production.

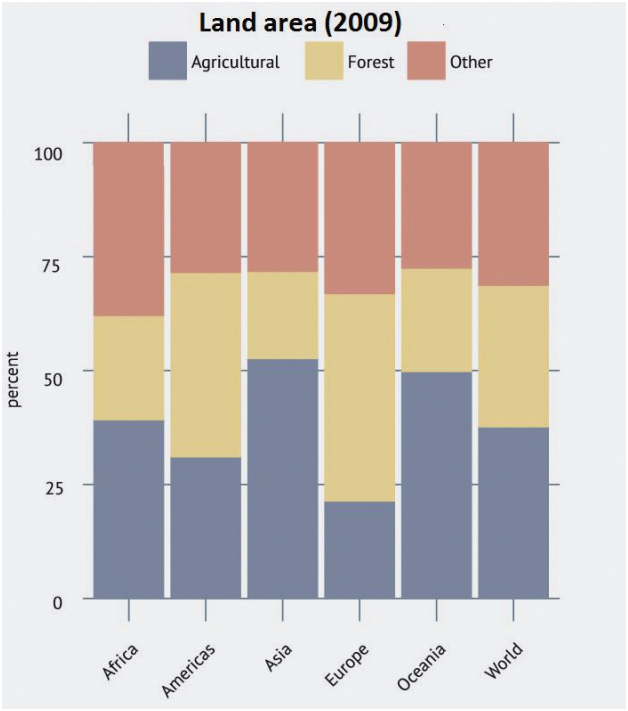


Figure 3A: Total % of Global Land Area Devoted to Agriculture Forest and Other Uses.

(Source: FAO 2013, p.11)

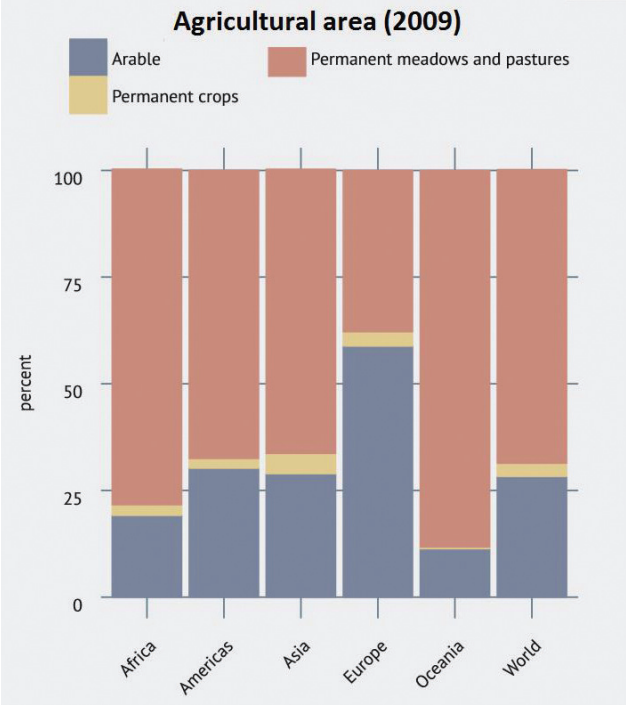


Figure 3B: Total % of global and regional agricultural land area devoted to arable crops, permanent crops, and permanent meadows and pastures.

(Source: FAO 2013, p.11)

1.6.2 NATIONAL FACTORS AND THEIR INFLUENCE

Australia is not isolated from the effect of these global trends. If current conditions at the beginning of 2016 continue, we will have strong demand for our red meat, buoyed by a decline in our herds and flocks due to drought. Traditional 'safe' areas are suffering 'worst ever' scenarios. A spate of these 'extreme' events has served to exacerbate the rundown of water, pastures and soils, as has ten years of poor profitability for many beef and sheep producers.

There is also a looming challenge resulting from the historically low national beef herd and sheep flock numbers, as depicted in Figure 4. The low breeder base has implications for herd re-building whilst trying to maintain market share through competitive pricing and boosting production to meet domestic and growing export demand. For the beef industry, this may require lateral thinking and greater use of the productive resource available in the dairy industry, which in turn will create biosecurity and quality consistency challenges.

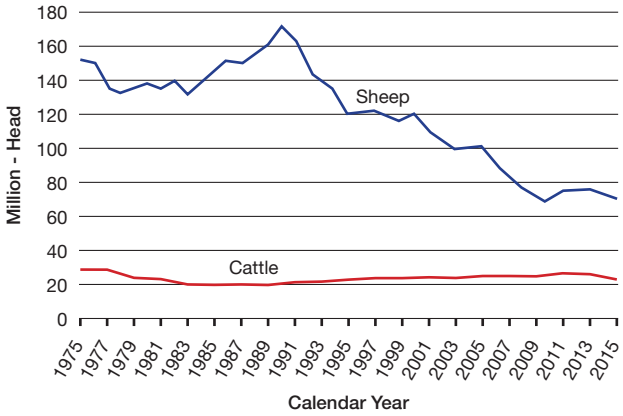


Figure 4: Australian Livestock Herd Population - Sheep & Cattle 1975 - 2015.
(ABARES, 2015)

Productivity growth across a wide range of Australian agricultural industries has stalled in recent years and there are no obvious lifts from the RD&A pipeline. Attitudes across Australian agriculture need to change and the need for innovative leadership based on a long-term vision is growing. The effect of short-termism in politics has tended to cause public investment in agricultural R&D to decline.

There is greater competition for the available resources, as will be shown later in this Report. This competition sharpens the "onus of proof of value" from the sorts of investments that this Plan suggests and highlights the need for the compelling narrative, which will be expanded in a subsequent section of this Plan.

In addition, the industry needs to confront the depletion of our natural agricultural resources and the associated threats of salinity, soil degradation, weeds, feral animals and climate change.

This Plan needs to operate in the abovementioned environment and bring collaborative focus to critical issues and marshal the RD&A effort at a regional level.

1.7 INDUSTRY/REGIONAL FACTORS

Changes in land-use also pose a significant challenge to the grazing industry. Increased competition from residential and lifestyle or "tree-change" uses have led to increased demand for land, most often highly productive land close to regional centres and metropolitan areas. This in turn leads to increasing land prices and land valuations that may no longer reflect the productive capacity of the land assets, but instead their residential or amenity value.

Increased scarcity of land resources will inevitability lead to greater competition from other agricultural industries attempting to expand their production base. This may require improved inter-industry collaboration and co-existence that could take many forms such as: a return to increased use of pastures in crop rotations; the introduction of dual-purpose crops in grains regions; a greater use of dairy resources through cross breeding, or embryo transfer in the high rainfall/coastal regions.

1.8 RED MEAT CONTRIBUTION TO STATES

In spite of the challenges above, the red meat industry continues to be of significant value to Southern Australia's regional economy as follows:

Table 3: Red Meat Contribution to Agricultural production by species and State

State	Area (Ha)	Sheep	Cattle
QLD	47,418,599	$ 47,648,571	$ 695,349,430
NSW	38,830,711	$ 1,138,241,600	$ 1,367,878,380
VIC	8,364,595	$ 638,076,870	$ 514,182,660
SA	49,126,550	$ 482,053,696	$ 328,196,526
TAS	905,987	$ 60,648,680	$ 104,230,750
SAMRC Totals	**144,646,442**	**$ 2,366,669,417**	**$ 3,009,837,746**

(Adapted from ABARES, 2015)

Table 4: Red Meat Area and Contribution, SAMRC and Australia

	SAMRC	Australia	SAMRC %
Area (Ha)	144,646,442	351,648,621	41%
Sheep Value	$ 2,366,669,417	$ 2,824,686,310	84%
Cattle Value	$ 3,009,837,746	$ 5,164,779,090.00	58%
Total Value	**$ 5,376,507,163**	**$ 7,989,465,400**	**67%**

(Adapted from ABARES, 2015)

2. LINK TO MISP SISP/BISP

The Meat Industry Strategic Plan (MISP, 2020) frames the overarching strategic priorities for Australia's red meat and livestock industry, comprising the production, processing and live export sectors of Australia's beef, sheepmeat and goatmeat supply chains. The strategy was built with the direct input of major red meat and livestock co-investors including levy payers, Federal, State and Territory Departments of Agriculture, CSIRO, the University sector and agribusiness (including pastoral houses, financial institutions and the consulting sector).

As a whole-of-industry strategy, the four priorities identified in the MISP 2020 are by definition, common to all sectors (see Figure 5). The MISP 2020 defines what industry needs to invest in to achieve the priorities and outcomes. The strategic and operational details specific to each sector are found in the respective industry plans e.g. the Sheepmeat Industry Strategic Plan (SISP, 2020) and Beef Industry Strategic Plan (BISP, 2020). It is the role of service companies such as Meat & Livestock Australia (MLA) to ensure the operating plans are aligned with the respective plan key performance indicators to ensure each area is addressed and the impact of investment is measured.

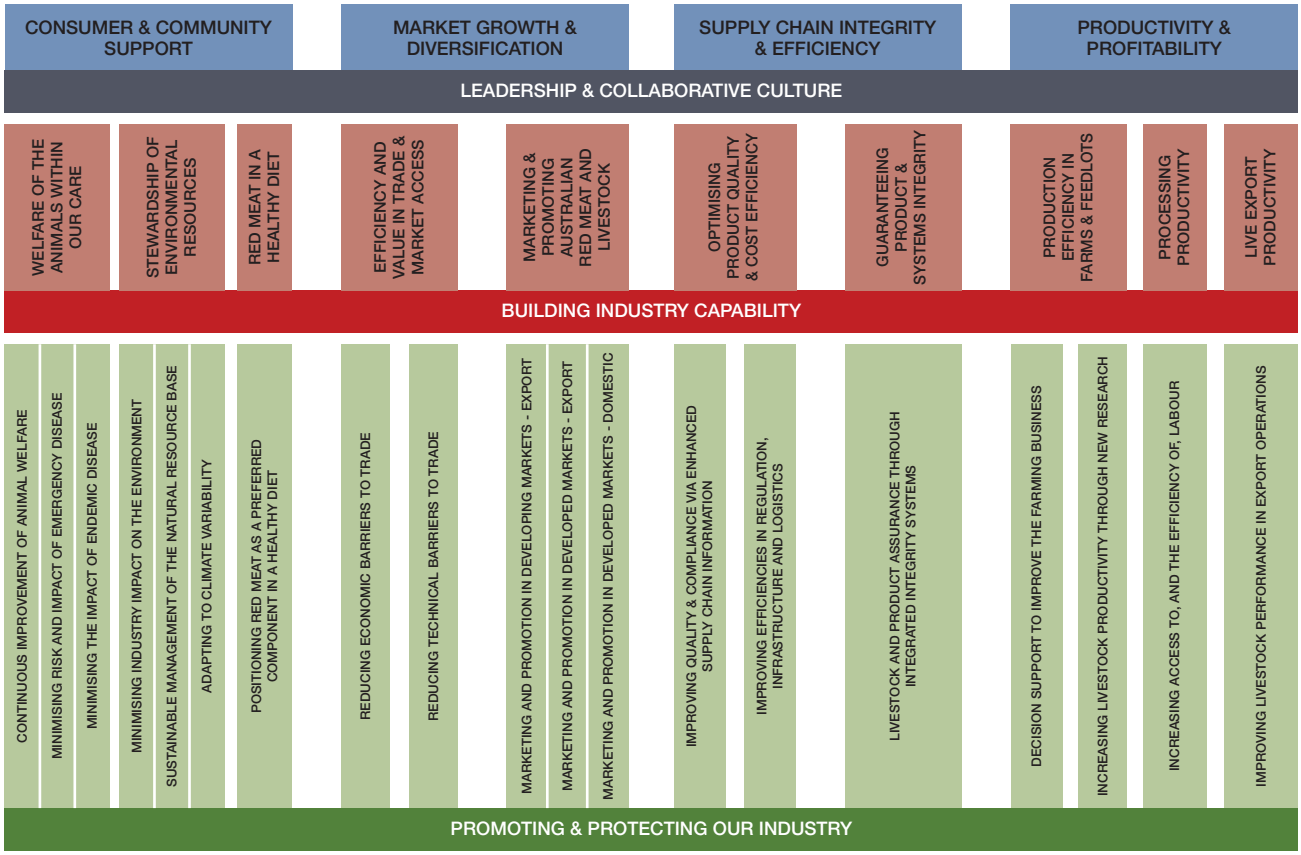


Figure 5: MISP 2020 Framework.
(MISP 2020, p.16)

The future of the red meat and livestock industry is one of valuable opportunities and significant threats – neither can be ignored if we are to maintain a sustainable and competitive presence. There is almost a 50/50 split between the benefits associated with capitalising on the upside opportunities and those associated with mitigating downside risks (see Table 5).

Table 5: Distribution of changes in net industry income by pillar to 2030 (total MISP 2020)

PILLAR	BASELINE ($m)	DOWNSIDE RISK ($m)	UPSIDE OPPORTUNITY ($m)	NET MISP BENEFITS	
				$m	BCR
CONSUMER & COMMUNITY SUPPORT	48 320	-3898	220	**4118.0**	**13.4**
MARKET GROWTH & DIVERSIFICATION	48 320	-227	2953	**3180**	**5.4**
SUPPLY CHAIN INTEGRITY & EFFICIENCY	48 320	-2086	1361	**3447**	**6.4**
PRODUCTIVITY & PROFITABILITY	48 320	0	2113	**2113**	**6.9**
TOTAL PLAN	48 320	**-6211**	**6660**	**12871**	**7.4**

(MISP 2020, p.16)

As an industry service company, MLA has responsibility to deliver against the relevant MISP 2020 pillars, priorities and imperatives. MLA's strategic plan, due for release in March 2016, will provide the framework for the key areas of investment that will contribute to delivering on the MISP 2020 priorities.

MLA will work with SAMRC to map the Council priorities to MISP 2020, engage sheepmeat and grassfed beef producers and co-investors to identify gaps in RD&A investments and also assist in reporting against MISP 2020 achievements.

SAMRC provides unique opportunities to identify areas for co-investment and the initiation of strategic partnerships in RD&A that address the MISP 2020 pillars and other co-investor priorities.

3. THE REGIONAL DEVELOPMENT STORY/ THE CO INVESTORS IMPERATIVE

A summary provided by a Regional Workshop attendee summed up the current investment climate as follows:

> *"From an investment perspective, everyone needs to accept that government dollars have to be fought for, and the best ideas get the dollars. Setting priorities is just part of the process. Setting shared goals and focusing efforts on those goals (one or two) with narratives around the economic and community benefits, will have some chance of winning the dollars."*

The past decade has seen a marked decline in the amount of investment in Red Meat RD&A as traditional major investors (State Governments) have withdrawn significantly from extension services and rationalised their research and development capability. Similarly, CSIRO has had to rationalise its investment in red meat research. Capability within Universities has remained strong, but generally comes on a fee for service/full cost recovery basis. Industry funding bodies face the need to fund an increasing share of project costs and therefore are able to support fewer projects with the same amount of funding. This is the context in which we now operate.

Recognising this need, the former Primary Industries Standing Committee commissioned the development of a national collaborative approach across government-funded bodies (States, CSIRO, Universities and RDCs) to develop collaborative strategies for key industries and cross industry programs. This is known as the National RD&A Framework and continues as a mechanism for the development of National programs and for the deployment of resources according to state specialities.

Whilst this national imperative still exists and fosters the development of larger cross-jurisdictional projects and programs, the competition amongst major investors noted above for the within state taxpayer dollar has led to a new and compelling agenda which is compatible with the broader government agenda in each jurisdiction. The most obvious of these is that of regional development and the place of the red meat industry in a broader development context for regional Australia. Although producers like to see RD&A investment by RDC's in their individual states to be at least equal to the levies emanating from those state, from the national perspective a change of approach is clearly needed. Fundamentally, regional development is a key priority for all states, however the agricultural RD&A that supports this should be able to be undertaken anywhere providing the outputs have relevance.

Taking these factors above into account, this Plan has an emphasis as the regional RD&A Plan developed in response to a compelling narrative for each of the regions within SAMRC. There will still need to be continued investment in across region 'generic' RD&A. This will likely include; genetics and genomics, biosecurity, animal health and welfare, business management, extension & adoption, and other issues that will need to be supported nationally but applied regionally.

4. A PLANNING APPROACH – MOVING FROM PRIORITIES TO COMPELLING NARRATIVES

In response to a challenging funding environment, this Plan is more than simply another 'list of priorities.' Prompted by the experience of others working with governments in other sectors, SAMRC took the approach of asking the investors *"what would ensure that they continued to invest in red meat RD&A?"* From that, the notion of a 'compelling narrative' emerged and regional Chairs were each challenged to define this for their individual region and to use this to give context to the priority project areas that were identified in their plans. Section 5 of this Plan outlines these results.

To keep the balance between outcomes and methods (which priorities reflect), SAMRC developed a Planning Matrix where the outcomes (imperatives) were shown as columns and methods (strategies) were shown as rows (Appendix 5).

4.1 OUTCOMES/IMPERATIVES

- Maintain and enhance community support, including welfare and the environment;
- Resilient and profitable farms in a healthy environment;
- Quality products from efficient supply chains;
- Skilled and competent business operators;
- Growing productive investment in red meat RD&A;
- Build capacity to advance industry in regions;
- Planned industry investment.

4.2 METHODS/STRATEGIES

- Feedbase development;
- Better extension of existing technologies;
- New technology development and application;
- Business skills development, including financial literacy and risk management;
- Building human capacity;
- Improving animal welfare practice and perception;
- Improving animal health and productivity;
- Effective communication amongst stakeholders in RD&A system;
- Improved management of the Natural Resource;
- Greater vertical coordination in supply chains and use of VBM;
- Adoption of regional best practice;
- The operation of a vibrant SAMRC;
- Demonstration of industry credentials;
- Effective advocacy.

In developing this Plan and in allowing it to drive investment, there is a key question to be answered. That is: *"what is the likelihood of an investment in a 'method' achieving a positive long-term effect in an outcome?"*

The answer to that question should guide priorities to ensure an outcome focus is maintained.

5. SAMRC CONSOLIDATED PRIORITIES

The systems approach links the complex interactions between production, economic, financial and social components of the farming system, providing a mechanism for understanding the flow-on effects of each on the other, while also allowing feedback between the on-farm components of R&D and the off-farm aspects of the value/supply chain.

Figure 6 shows the complex interactions and linkages between the five priority areas, and the pivotal role of both the (1) *system approach* and (4) *research adoption* as the foundations underpinned the linkage between RD&A, on-farm profitability and BISP/SISP and MISP goals. This below figure also demonstrates that R&D is a means to an end, and emphasises that research outcomes and interactions may be complex and cumulative and ultimately require on-farm adoption to meet their objectives. Thus, research programs require a whole-farm systems and whole-of-value-chain approach to identify barriers to adoption and capture the greatest return on investment. A key to achieving this objective in an increasingly competitive funding environment is ensuring that RD&A programs are targeted to meet the industries strategic objectives and that strategic planning frameworks are streamlined and efficient, with regional priorities which form the foundation of this process being embedded in the BISP/SISP and MISP.

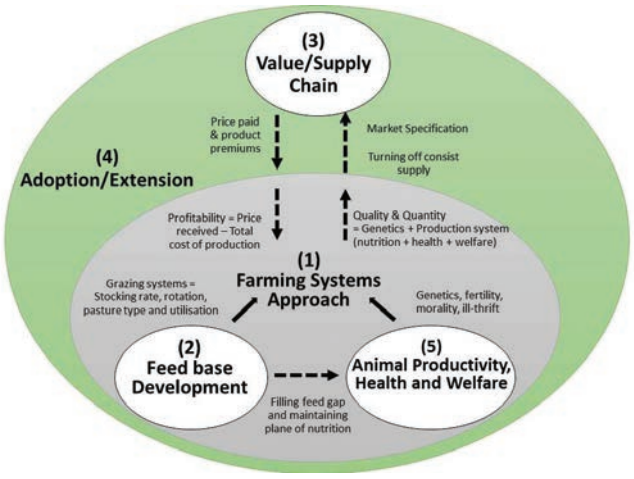


Figure 6: Systems Approach.

The above conceptual diagram provides an example of the integral role that both the systems approach and adoption & extension play on the R&D framework. Two main points can be identified:

1. The systems approach is critical to understanding the cumulative whole-farm impacts of research informed management changes;
2. Without adoption, research will not have an impact on meeting individual farm and wider industry needs and goals.

The systems approach links the impact of changes in one area to another and also the possibility of synergies and multiplier effects. For example, in modifying the feedbase to provide better nutrition, enhancements in animal productivity, health and welfare can be achieved, resulting in improved conception, weaning and mortality rates. Furthermore, better on-farm welfare can increase animal condition and reduce the incidence of stress related dark cutting. In turn, this can increase compliance and prices and thus may directly increase profitability so long as the cost of implementing the change (adoption) is less than the premium now received.

5.1 A FARM SYSTEMS APPROACH

It was consistently reported in the SAMRC process that historically there had been a failure to adequately approach R&D in a systems context, and that this should be an overarching objective or premise when addressing the SAMRC priorities. Increasingly, farmers are presented with many complex interactions that they must manage in order to be successful. Research and development, and indeed the adoption effort, needs to take into account these complex interactions.

This was summed up by one participant in consultation for this Plan, who stated that “Adoption of individual R&D components into the whole farm system” was essentially the highest priority.

From this perspective, it is important to understand the impact of farm enterprise scale and financial viability on R&D adoption. While certain management changes or technological innovations may be viable for larger enterprises where these expenditures can be spread over a larger production base, this may not be the case for all producers or production systems. As a result, while the adoption of a particular practice change may be an incremental process for some operations, it may be a more radical departure from the status quo for others.

A systems approach also helps to identify and conceptualise the linkages between the different components of the production system and the wider value/supply chain. For example, it can help in determining links between soils, climate, feedbase, genetics and nutrition on turn-off rates, product quality and market specification premiums or the impact of animal health and welfare on productivity and profitability.

Risk management and system resilience (or sustainability) are also overarching themes across all the research areas as they are the key drivers of long-term productivity growth and business resilience.

This approach has significant implications for the conduct of research and development programs and projects. As such, project teams of the future will need to be multi-disciplinary, that is able to deal with various key components of the complex systems involved in red meat production. It is worth noting that the aforementioned Oxford Martin Commission Report for Future Generations proposes that 'creative coalitions' will be a feature of future innovative efforts globally. If this is to be realised, then in the SAMRC context we have a great opportunity to develop these coalitions from the SAMRC partners to address key issues that have been defined by our regional entities.

This also emphasises the need for collaboration with local producer groups and service providers to ensure than R&D outputs are ***adapted*** to suit local and regional specific conditions.

5.2 FEED BASE DEVELOPMENT

Whilst a changing climate could be seen as the main driver of this priority, the list of sub priorities also indicates the continued pursuit of improved feed sources to provide year round nutrition for sheep and cattle. Feedbase options for mixed cropping/livestock operators is critical given the number of mixed enterprises in some regions, as is the management of Total Grazing Pressure for rangelands producers. Regional emphasis will be defined in the regional priorities later in this Plan.

Within the feed base priority, the following were key sub themes:

a. Enhanced feed base – plants for lower rainfall, longer lasting, more resilient;
b. Grow and use more feed – better farm systems including fertiliser use;
c. Filling the late autumn winter feed gap – novel sources;
d. Better use of supplementary feeding and novel feed sources;
e. Better use of perennials and summer actives for year round persistence;
f. More ewes in cereal zone;
g. Water use efficiency;
h. Grazing management in the rangelands, especially Total Grazing Pressure;
i. Tropical species integration and management including legumes;
j. Pastures in the mixed cropping system.

In addition to the sub themes above is noted that soils (in particular soil type and structure) and climate are the base units on which all feed base systems are built. If the soils and climate are not suitable for a pasture type or production system, with the exception of fertilizer, liming and irrigation, there are limited options for system modification. As a result, soil and climate are often the primary limiting factors responsible for constraining production systems and the management options available to producers in a particular region.

5.3 SUPPLY CHAINS

SAMRC has recognised the emergence of more clearly defined supply chains relating to sheep meat and beef production in Southern Australia. These have been led by key processors operating in the regions. It is anticipated that this trend will continue and strengthen, leading to increased emphasis on the points listed below. The strengthening of systems which recognise and reward producers for the quality of the product that they supply to the consumer is a key aspect of the future success of southern red meat producers.

Sub Supply Chain priorities include:

a. Increased objective carcase measurement and feedback/ improved producer understanding;
b. Certification, branding, benchmarking, transparency;
c. Improved use of technology; (EIDs), data analysis;
d. Consistency of supply;
e. Consumer issues, packaging, shelf life, perception;
f. Novel solutions for kangaroo meat marketing;
g. Supply chain development (enhance producer knowledge of wider supply chain issues and the linkages between seedstock, calf/lamb producers, backgrounders, lot feeders, packers, processors and retailers).

In addition, supply chain diversification and direct marketing should be considered. These may become more of an issue if shocks to the supply chain (e.g. low turn off in the coming years) lead to consolidation or loss of smaller processors that cannot ride the cycle out. Business skill development, for producers, in marketing, branding and product development may also become important.

5.4 EXTENSION - BETTER ADOPTION OF EXISTING KNOWLEDGE

There was considerable agreement around the poor uptake of existing best practices in all regions. Adoption needs to be the foundation of all research areas. If research is not being adopted or adapted on-farm, then it will fail to both meet industries needs and deliver on MISP/BISP/SISP outcomes and objectives.

There was discussion around what models of extension work best, and general endorsement of the producer group approaches used in Best Wool Best Lamb and others. The decline in resourcing for extension was noted, as was the need for a clear value proposition for any adoption of new technologies or practices. The need for better linkages between the SAMRC Regional Committees and the local extension groups was also discussed. This would facilitate good linkages between research and adoption and aid the process of identifying the barriers to adoption. This in turn should feed into research priorities and ensure that they are targeted to meeting strategic goals and are thus "fit for purpose".

It was suggested that integrated supply chains might provide a "pull through" for practice change. There was comment about needing a new model based on the private sector to fill the gap, and therefore the need for professional development for private advisors. The key to this will be the development of a "fee for service" culture in the industry, rather than the every diminished socialised model or the advice linked to commission model provided by product retailers.

A long-term approach was recommended.

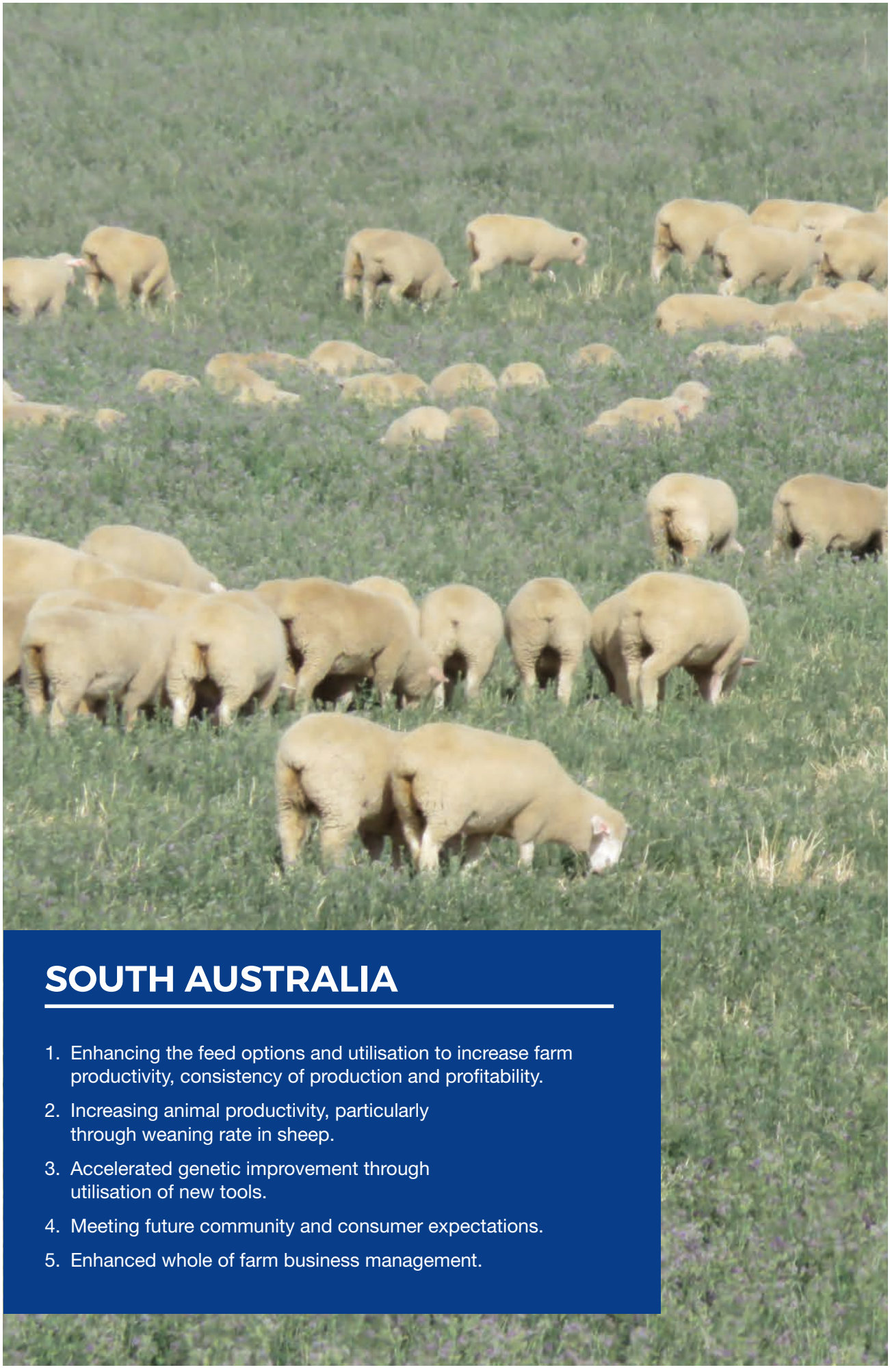
5.5 ANIMAL PRODUCTIVITY, HEALTH AND WELFARE

Animal health, welfare and productivity are inextricably linked and seen as such by the SAMRC group. A key to maximising the benefit of expenditure on animal health and welfare for producers is understanding the "win-win" links between animal health and welfare, and profitability. For example, higher reproductive rates and low pre and post weaning losses are also key aspects of production risk management, as producers maintain or increase turn-off while strategically reducing total grazing pressure at key times by reducing base breeder numbers.

Sub themes/priorities of animal welfare:

a. Animal/ feedbase interactions, feed conversion efficiency;
b. Genetic improvement;
c. Improved animal welfare practices;
d. Increased weaning rate, reproduction; reduced mortality;
e. Use of new technology in animal management;
f. Managing disease and parasite risks given a changing climate;
g. On-farm biosecurity;
h. Proving credentials;
i. Response to parasite resistance in cattle and sheep.

6. SAMRC REGIONAL PRIORITIES



SOUTH AUSTRALIA

1. Enhancing the feed options and utilisation to increase farm productivity, consistency of production and profitability.
2. Increasing animal productivity, particularly through weaning rate in sheep.
3. Accelerated genetic improvement through utilisation of new tools.
4. Meeting future community and consumer expectations.
5. Enhanced whole of farm business management.

NARRATIVE

Our opportunities lie in the continued development and implementation of profitable and resilient livestock production systems across South Australia. These systems will be managed by efficient and innovative people in our industry and will consistently produce premium red meat from our clean environment for the world. Significant gains can be made through innovation and improvements in feedbase and grazing systems and animal management. Our greatest asset is the people that comprise our industry and the ability to achieve high impact outcomes through collaborative work.

BACKGROUND

Livestock production and the red meat value chain are important contributors to South Australia's economy and employment. Farm gate value of production is $900 million with gross livestock food revenue exceeding $2.5 billion. Across SA, it is estimated that there are 6,271 sheep producing and 4,363 beef producing farms running over 1.1 million beef cattle and 11 million sheep.

South Australia is the driest state of the driest continent with a seasonal Mediterranean environment with considerable seasonal and annual variability. South Australia's livestock producing regions vary significantly with production conditions ranging from arid to high rainfall. Over 80% of beef and 90% of sheep production occurs in less than 17% of the state's area. This indicates there is significant area with very extensive production as well as highly productive regions. It also indicates that there are many areas of the state where there is potential to increase red meat production, particularly in the cropping regions.

The South Australian SAMRC Regional Committee convened six producer workshops across South Australia involving 150 producers and industry stakeholders. Research, development and adoption priorities for SA were identified and all material collected from the workshop was collated and considered by the Committee. Despite the range in production conditions, common opportunities and challenges have been identified which have shaped the RD&A priorities for grassfed beef and sheepmeat in South Australia.

PRIORITIES

1. Enhancing the feed options and utilisation to increase farm productivity, consistency of production and profitability

Much of South Australia's livestock production is in extensive and/or pasture based and there is enormous potential to increase livestock production in cropping systems. Within these systems, animals typically will experience periods of low growth due to low feed availability and quality. This can subsequently impact reproductive rates via suboptimal body condition in sheep and cattle. Furthermore, low feed availability creates an impediment to having animals suitable for pasture finished production on a consistent basis impacting both consistency of supply and meat quality. Potential exists to develop systems that have a wider window in which animals can be productive and which can be resilient to variable seasons.

The research specific needs are identifying which measures are likely to be most effective for producers and then assisting in their development and implementation at a regional and enterprise specific level. This includes understanding plant-animal interactions to then optimise them for highest productivity.

2. Increasing animal productivity particularly through weaning rate in sheep

Optimising ewe and cow management to increase weaning rates is a proven method to increasing farm productivity and profit. There are various RD&A opportunities to increase weaning rates and productivity including:

- Continued widespread improvement in ewe and cow management through programs such as Lifetime Ewe Management (LTEM);
- Development of production systems that increase lamb survival;
- Identifying heifers and ewes that will have a higher reproductive rate.

3. Accelerated genetic improvement through utilisation of new tools

Significant advancements in DNA technology, genetic evaluation and reproductive technology represent a new paradigm in genetic improvement for both sheep and beef producers. This will assist the industries priority of achieving the highest possible genetic gain in seedstock herds and flocks and ensuring rapid dissemination of superior genetics throughout the industry. There are further blue-sky opportunities associated with gene programming for the development of new traits to improve animal welfare, and including human health enhancing properties in red meat.

4. Meeting future community and consumer expectations

Increasingly consumers will demand products with credentials in animal welfare, environmental stewardship, product quality and health enhancing properties. These elements represent the future high value opportunities for South Australia. These opportunities will require RD&A commitment in several areas including establishing objective measures of animal welfare, programs for establishing environmental credentials, on-going improvements in carcass assessment and eating quality, and improving and promoting the health enhancing properties of red meat.

5. Enhanced whole of farm business management

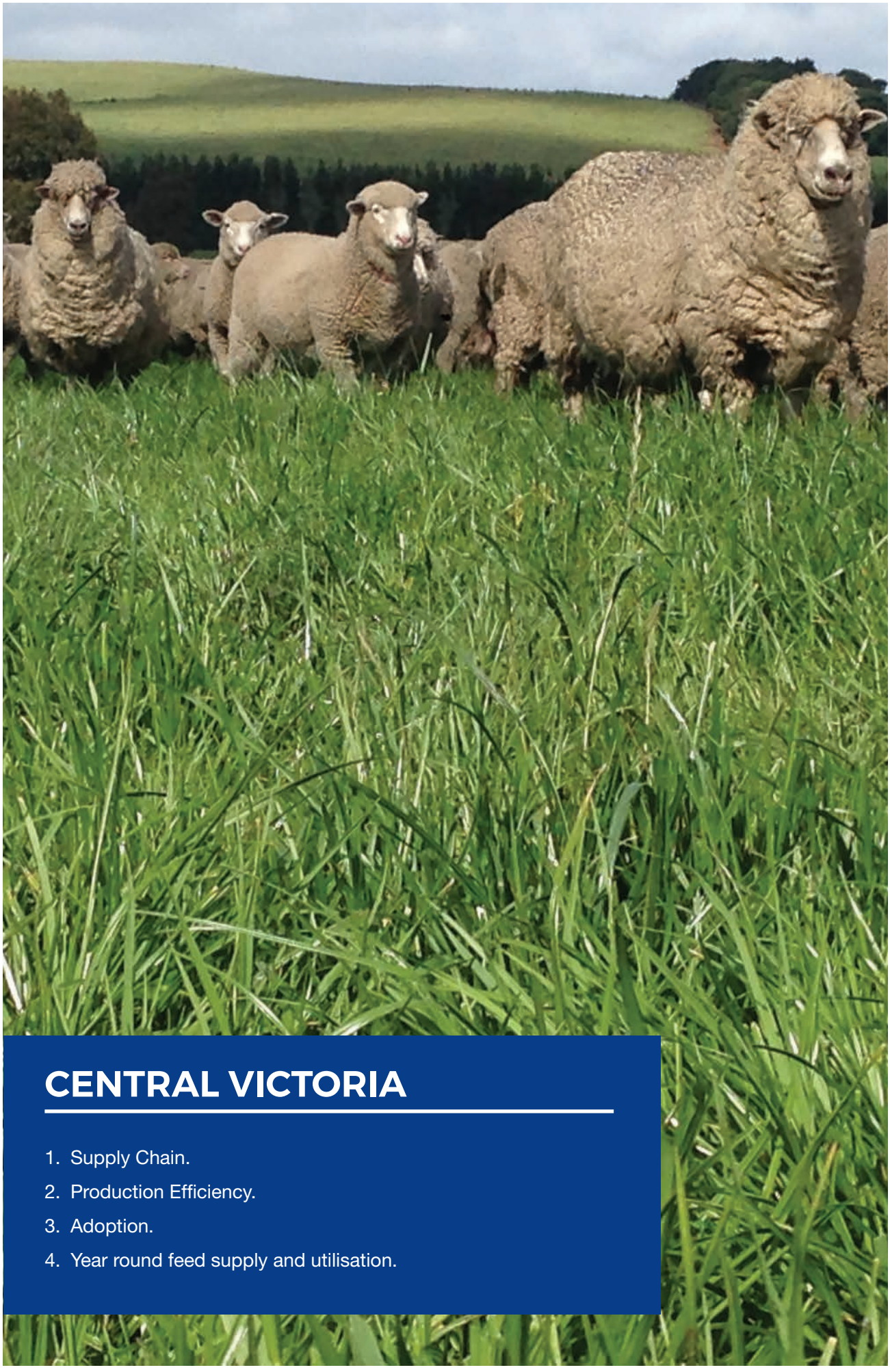
Achieving higher productivity is often associated with increased risk, particularly in below average seasons. Producers need to have a detailed understanding of their enterprise profit drivers and be equipped with decision support tools that will best enable them to effectively manage risk whilst sustainably increasing production.

This requires on-farm activity in identifying and measuring key productivity and cost components in a system to assist in decision-making. Development and implementation of efficient data collection and analysis platforms is required. This will allow producers to also have a greater appreciation of their current financial performance. This information can then be captured in apps to aid decision making (e.g. cost feeding of feeding options, finishing vs. selling).

Further priority areas were raised at each workshop including:

- The need for greater labour efficiency;
- A desire to position livestock production as career of choice;
- Implementation of new models for succession, ownership and investment in livestock production systems to better enable new entrants;
- Ensuring we have an innovative, efficient and coordinated supply chain where all participants are profitable;
- Targeted payment grids and improved feedback to producers are required to improve market signals which will encourage a more consistent product.

Priority	Outcome	Action
Enhancing the feed options and utilisation to increase farm productivity, consistency of production and profitability	Develop systems that have a longer period in which animals are productive and are resilient to variable seasons	– Enhance livestock cropping interface – Pasture species with longer vegetative stage and resilient to climate variability – Strategic irrigation for fodder crops – Increased use of perennials to utilise out-of-growing season rain – Development of cost effective novel feed sources (e.g. ensiled grape marc)
Increasing animal productivity particularly through weaning rate in sheep	Cost effective increases in weaning rate and average daily gain of growing stock	– Continued widespread improvement in ewe and cow management through programs such as Lifetime Ewe Management (LTEM) – Development of production systems that increase lamb survival – Applied research on increasing breeder fertility and progeny survival
Accelerated genetic improvement through utilisation of new tools	Achieving the highest possible genetic gain in seedstock herds and flocks and ensuring rapid dissemination of superior genetics throughout the industry	– ASBV/EBV awareness for commercial producers – Continued development and adoption of DNA technology and performance recording
Meeting future community and consumer expectations	Red meat value chains with demonstrable best practice	– Establishing objective measures of animal welfare, – Clear environmental credentials – Improving eating quality – Systems for health enhancing red meat products
Enhanced whole of farm business management	Producers can effectively manage risk whilst sustainably increasing production	– Development and implementation of efficient data collection, sharing and analysis platforms – Apps to aid decision-making (e.g. cost feeding of feeding options, finishing vs. selling)



CENTRAL VICTORIA

1. Supply Chain.
2. Production Efficiency.
3. Adoption.
4. Year round feed supply and utilisation.

NARRATIVE

The opportunities in Central Victoria are expansive. With the right RD&A model of ground up/ producer driven research, benefits will be based on what is needed rather than what is interesting to researchers. There are good networks in the beef and sheep sectors throughout Victoria, which if utilised could help maximise the benefit of the SAMRC ground up research approach and enable significant action to take place.

Linking production on farm, including the feed base and animal genetics, to the end product is an opportunity the whole industry could benefit from and could help develop farming in a systems approach. Objective measurement of production and economic analysis or benchmarking, including product feedback, are not widely adopted, however present significant opportunity.

The Central Victorian SAMRC Representatives are committed to developing priorities by identifying the outcomes sought and listing the actions required to ensure RD&A in the red meat sector not only continues, but also becomes increasingly relevant to producers and the overall Australian economy.

BACKGROUND

The Red Meat industry in the Central Victorian region is subject to a range of climate and land types, which leads to a range in production intensity and scale. The producer representatives stretch from the north-west of the state to the north-east, including north central.

The location of the region lends itself to close proximity to markets, a large number of consultants and industry groups, and a clean-green image. It is an area with a lot of innovative farmers, good training facilities for young people and good research facilities. Due to the range in climate and land type, there is quite a lot of mixed farming in the area, which includes cattle, sheep (meat and wool) and cropping.

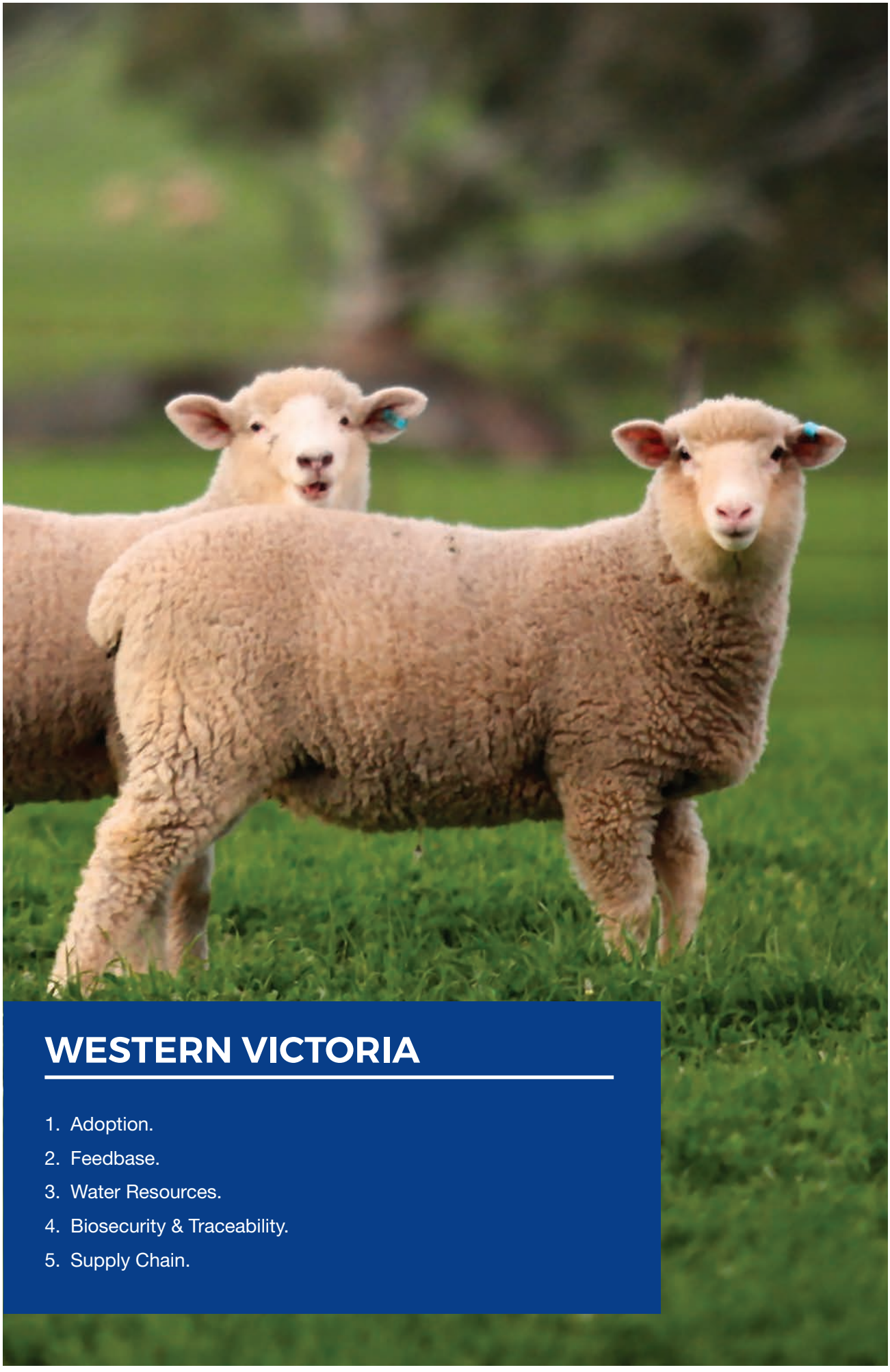
The location of the central Victorian region means that parts of it have been, and are being, subdivided into smaller blocks. These are largely bought for lifestyle reasons rather than red meat production being the core business. In some areas, this has put unrealistic values on land for a Return On Capital comparison. Coupled with this is the increasing awareness from the greater public to maintain sound animal welfare and environmental/land management practices. While small landholder occupancy is large in this area, there is still a lot of farming businesses that rely on red meat production as their core business.

PRIORITIES

1. Supply Chain
2. Production Efficiency
3. Adoption
4. Year round feed supply and utilisation

Priority	Outcome	Action
Supply Chain 1. Improving feedback to achieve more consistent quality	– Objective measurement of carcase quality – Consistent quality of supply – Increased percentage of carcasses hitting specifications	– Fast track development of objective, accurate carcase measurement technologies (Fat score and eating quality) and implement in abattoirs – Increase % of direct sales to processors – Commercial driven implementation of breeding values and value based marketing (VBM) based on Lean Meat Yield (LMY)/Eating Quality (EQ) to increase percentage of carcasses hitting specification
2. Integrate on-farm production with product quality/specifications	– Producers (including seedstock) utilise feedback to inform management decisions – Utilise breed plan carcase data to inform genetic selection – Individual carcass feedback linked to electronic identification – Micro-chipping in Bulls acceptable	– Upskill producers to understand and utilise feedback and to plan for the future VBM systems on the horizon – Objective and timely feedback reaches producers (including seedstock) in a useable form. – Translating specifications and feedback into economic value to drive decision-making. – Replace NLIS tags with microchips in bulls – what are the downsides
Production Efficiency 1. Efficiency in genetic selection to maximise production	– Optimise balance between production, reproduction and meat/ wool quality – Ability to measure maternal efficiency (kg weaned per dam live weight) – Establish EBVs for feed conversion efficiency (FCE) – Sound knowledge of using breeding values for genetic selection and the links to commercial production changes – Identify risks with twinning in cattle	– Regional Demonstration / Focus farms looking at industry best practice (optimising the balance) – Support the development of a farming systems model for Central Victoria building on the work Bill Malcom has done in South/West Victoria – Identify other techniques/technology that can remotely link Dam and Progeny – Start research on Feed Conversion Efficiency (FCE) with an aim to establish a breeding value or a correlation to existing breeding values – Investigate attitudes and Barriers to larger-scale twinning in cattle
Adoption 1. Increase adoption of existing relevant R&D to the late adopters	– Better extension ability of industry consultants and early adopter farmers – Late adopters understand ‘why’ adoption of relevant R&D is needed – Improved understanding of economic and production drivers of the business	– Segment producer needs and motivations and provide alternative pathways for adoption (Elders/Feedmills/service providers) – Identify other reasons for adoption (other than economic) and implement a pathway for this (lifestyle, animal welfare, environmental, labour preferences) – Continue to support the existing successful Victorian network to drive adoption of value based research (Better beef, Best Wool Best Lamb)

		– Increase extension capability of advisors (farmers will listen to who they trust) – Put new research in a farming system approach to enhance relevance to farmers – Look at Southern Farming Systems model in grain and implement a similar approach in the livestock industry – Compile a database of existing research outcomes as a resource to farmers
2. Ensure correct extension of relevant new R&D to commercial red meat producers	– Future R&D projects are the result of producer buy-in – Improved understanding and management of risk (in a variable climate) – Adoption is encouraged through efficient extension of R&D outcomes	– SAMRC regional committees and producer groups are utilised by investors and R&D providers – Economic analysis provides a platform for the extension/recommendations of all new R&D – Build on existing groups by providing further training on new R&D outcomes
Year round feed supply and utilisation 1. Filling the winter/ summer feed gap and extending the growing season	– Meeting winter feed/nutrition demand In Central/Northern Victoria – Adapting feed production and utilisation in a changing climate – Improved adoption of feed/pasture production and utilisation	– Purpose bred cereals for livestock utilisation (i.e. More suited mineral balance to minimise metabolic problems during grazing) – Integrating sound risk management options for variable seasons – Understand soil moisture levels to inform management decisions (such as feed budgeting)
2. Efficient utilisation and selection of feed/ fodder to optimise production	– Ability of producers to match fodder selection/utilisation to animal production requirements – Improve feed utilisation under objective measurement	– Improving perennial pasture persistence and quality for central/northern Victoria – Monitor disease prevalence in clover/pasture – Independent and commercial evaluation of pasture varieties – Continuing development of pasture species for Southern Australian conditions (where there is an absence of commercial development through lack of international interest) – Stimulate programs based on group based learning models (eg LTEM) for programs that capitalise on Pro-graze, PPP etc type information as well as new research



WESTERN VICTORIA

1. Adoption.
2. Feedbase.
3. Water Resources.
4. Biosecurity & Traceability.
5. Supply Chain.

NARRATIVE

The western Victoria committee have developed the priorities with an unselfish sense of making real improvements at the farm level for all producers. It is no surprise that adoption of existing information and targeting adoption at the larger segment of red-meat producers who have had lower than desirable uptake, is a dominant theme. The priorities also address the need to invest in the feed base and improve the utilisation of the feed that is grown from the existing resource base. Maintaining livestock on-farm in a changing environment will be a major challenge in order to utilise the improved feed base and drought proofing western Victoria to sustain and enhance the red meat industry is a priority. Priorities around traceability and feedback systems are themes that resonate around the need of producers to ensure they are producing the desired product, whilst ensuring the ongoing viability of the industry by reducing the risk of a biosecurity threat – essentially safeguarding their businesses that they are heavily invested in.

An overarching principal of the committee is to consider these priorities in the context of:

- What is the end point we need to reach?
- How are we going to reach it?
- Who are the beneficiaries?
- Why would this project work?

The committee hopes that they have provided simple and uncomplicated priorities that will provide RD&A providers with clear focus and direction on the issues facing re-meat producers in the western region of Victoria.

BACKGROUND

The Western Victoria SAMRC committee represents a geographic region from low-rainfall cropping dominant enterprises in the northwest of Victoria to the high-rainfall grazing dominant systems of southwest Victoria. The diversity in production systems and its clean-green image is seen as a strength of the region and presents opportunities for red-meat businesses to diversify, integrate, procure and trade based on sub-region differences in enterprises.

Although agriculture is well supported by the Victorian government, reduced investment in regional infrastructure and declining populations in regional towns impact on red-meat businesses through reduced labour availability, an increase in operating costs and decreased accessibility to local services. A strength of the region has been the Wimmera-Mallee pipeline that has allowed greater opportunities to integrate livestock into the lower rainfall areas in the northwest by guaranteeing water supply. Ironically, the medium to high rainfall areas are now becoming more exposed to drought conditions due to changing climate and water security for livestock is a major disruption to business growth in these areas. The region faces some challenges in the growing disconnect between agricultural production systems and populations in major regional centres and urban areas. This disconnect is a major threat in terms of the social perception of animal welfare and environmental standards.

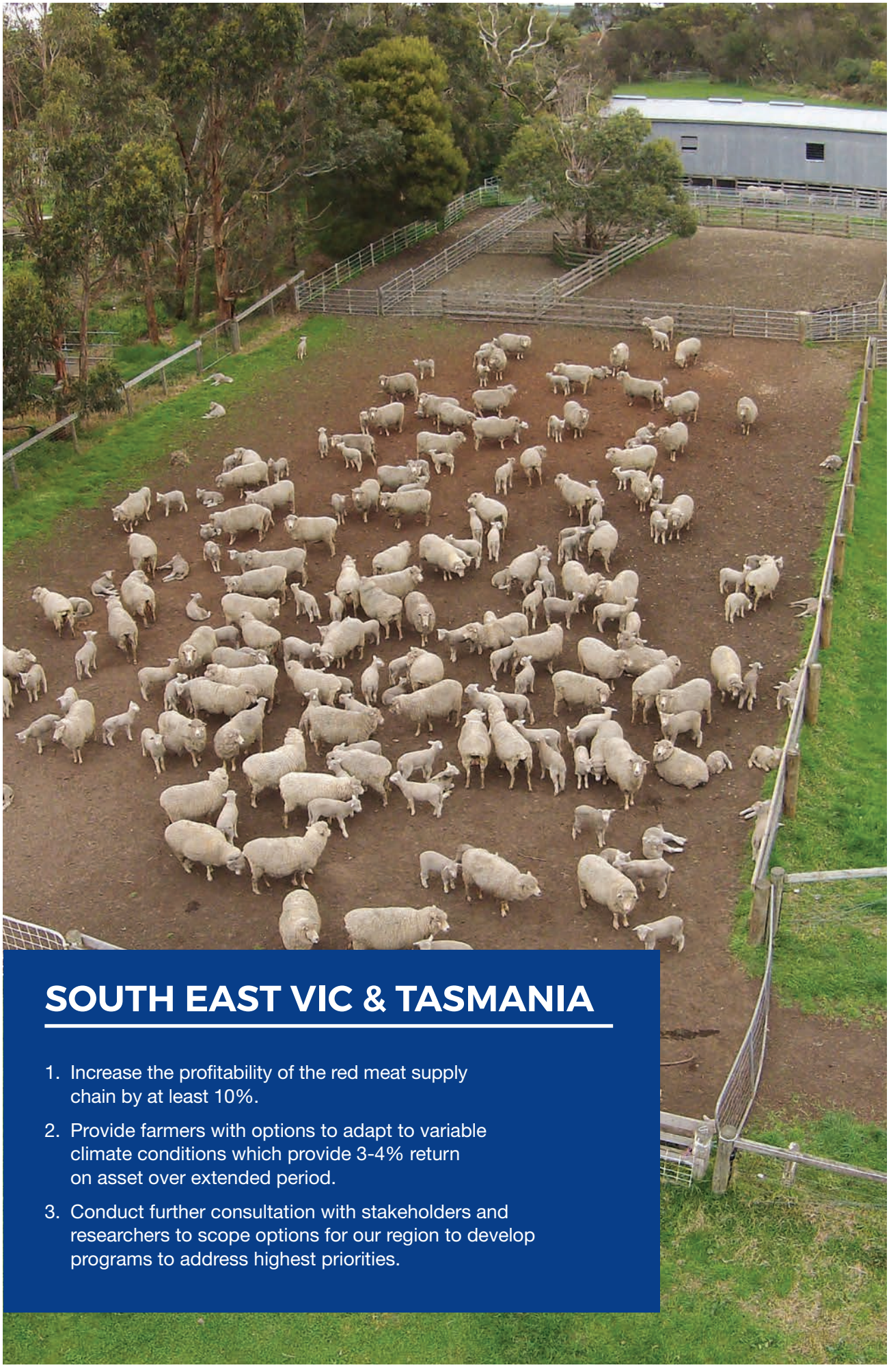
At the farm-level, the strong demand for red-meat globally and close proximity of enterprises to the processing sector in the region are viewed as strengths for growing red-meat businesses. To capitalise on these strengths there are opportunities to implement traceability systems and derive feedback on product quality, while concurrently ensuring threats to biosecurity are managed. Developing supply chain partnerships and adoption of technologies are essential to these aims. An under-utilised feed base and poor adoption of genetic selection programs are seen as key weaknesses in red-meat businesses. Limited forward planning to deal with climate variability and poorly developed risk management strategies on-farm are viewed as key threats to red-meat businesses.

REGIONAL PRIORITIES

1. Adoption
2. Feedbase
3. Water Resources
4. Bio security and traceability
5. Supply Chain

Priority	Outcome	Action
Adoption – Integrate adoption and extension methods and models into the design and planning of current and future research	– Current and future research has a clear route to market and will address barriers to adoption	– Rank R&D proposals on how well end users and adoption strategy has been defined
– Target adoption and extension strategies at the "80%" segment that is resistant to change and adopt best practice	– The risk of the "80%" segment as a liability in terms of welfare, consumer perception and low productivity is reduced	– Investigate alternative methods and launch a campaign to engage the "untouched" producers that don't participate in existing programs or activities
– Increase uptake of existing programs (eg. Sheep genetics; Breedplan) and develop existing R&D into extension materials	– Red-meat producers capitalise on regional strengths and opportunities by implementing best-practice	– Demonstrate gains especially in maternal genetics for longer term breeding objectives – Extend Bred Well Fed Well workshops and investigate other hands-on genetics training opportunities
– Implement education programs based on small group methodology	– Red-meat producers receive education that is tailored in a fostering, rewarding and adaptive environment	– Use Lifetime Ewe management models for other extension activities
Feed base – Investigate feed base systems to increase animal production, improve efficiency of pasture and grain use and improve finishing ability on-farm	– Red-meat producers have access to alternative systems to improve production and finish more product from their resource base	– Investigate the differential management of livestock based on feed requirements according to pregnancy status and progeny performance and survival – Investigate methods of harvesting home grown forage and utilisation in mixed rations for both finishing and containment feeding
– Investigate pasture species, fertiliser systems and genetically modified cultivars to provide more options to increase pasture production	– Red-meat producers are able to double pasture production from the existing resource base	– Breed plants and develop systems that can best utilise moisture and adapt to changing conditions
– Optimise the whole-farm feed base by improving the monitoring of livestock and pastures, better integration of livestock and cropping, improving risk management skills in managing the feed base	– Red-meat producers can improve the whole-farm feed base by having more options, better adaptability and greater integration of systems	– Undertake and investigate methods to encourage adoption of livestock-crop interaction – Investigate labour efficient methods of monitoring livestock and pasture

– Improve the utilisation of the existing feed base by reducing wastage, managing spring growth, prioritising livestock class with feed characteristics and maintaining grazing pressure	– Red-meat producers have the knowledge and tools to utilise more of the feed grown from their existing resource base	– Develop methods to increase grazing pressure by maximising reproductive rate – Research optimum paddock size for pasture growth and utilisation – Identify strategies to overcome the barriers to the uptake rotational grazing – Develop containment feeding systems that enable higher grazing pressure during peak pasture growth
Water resources – Investigate the opportunities to supply sub-regions with alternative water supplies to enable livestock to utilise the feed base (eg. utilise existing storages, underground resources, engineering solutions)	– Red-meat producers are able to drought proof livestock enterprises in a changing climate and utilise the feed base	– Convene a cross industry (Sheep, Beef, Dairy, grains) regional discussion – Undertake a survey across region to gather extent of water resource problems and impacts to livestock numbers/production – Analyse data from surveys to generate projections and scenarios of what needs to be undertaken to manage and improve water resources better in the future
Biosecurity & traceability – Discover and implement a mandatory system that allow red-meat producers and the industry to trace animals from conception to consumption	– Prevent and reduce the risk of a biosecurity threat from closing trade and causing industry shutdown – Red-meat producers receive accurate and meaningful feedback on carcass and eating quality of individual animals that allow them to maintain or improve product quality and consistency	– Implement a mandatory EID tag for sheep in Victoria. All retained breeding stock in the first stage leading to all slaughter stock by 2018 – Review deficiencies in current EID systems and conduct an environmental scan of alternative technologies to achieve traceability and demonstrates a clear value proposition for red-meat producers
Supply chain – Investigate new models of supply chain partnerships that provide red-meat producers with feedback and traceability through the supply chain from conception to consumption	– Red-meat producers have access to alternative models of receiving feedback and ensuring traceability through the supply chain	– Engage technology specialists from other industries (ICT, Mining, Manufacturing, Food processing) to investigate alternative models of feedback and quality assurance
– Implement systems that provide feedback on individual carcase attributes and on-farm management to improve or maintain product quality and consistency and establish credence values	– Red-meat producers can provide evidence and market products on the basis of regional strengths, welfare, consumer guarantee and biosecurity standards	– Implement systems and interfaces that allow two-way information flow up and down supply chains – A proactive marketing campaign to demonstrate improvements in lamb survival and genetic gains in meat eating quality, animal husbandry and welfare by using systems that allow information flow up and down the supply chain



SOUTH EAST VIC & TASMANIA

1. Increase the profitability of the red meat supply chain by at least 10%.
2. Provide farmers with options to adapt to variable climate conditions which provide 3-4% return on asset over extended period.
3. Conduct further consultation with stakeholders and researchers to scope options for our region to develop programs to address highest priorities.

NARRATIVE

Growth will be driven by innovative, resilient and profitable farming systems and supply chains.

Being close to large urban and large regional centres across our region means our farmers feel the pressure of right to farm issues. Good farming systems can assist with demonstrating our integrity to the supply chain.

Improvements will be driven by a more coordinated and collaborative approach to services delivered to farmers.

BACKGROUND

Red meat is a key driver of regional development in Tasmania and Gippsland. The regions have significant grazing and meat processing industries with significant quantities being exported as high value products.

Fertile soils, a moderate climate, high rainfall and access to supplementary water resources provide a strong foundation. It is predicted that our regions should be less severely affected by climate change than other Australian regions, creating great opportunities in the future.

Much of the region has high reliable rainfall, which results in high density of stock and capacity to produce high amounts of meat. We have around 3.2 M sheep and 1 M cattle across the regions with over 6000 farmers.

REGIONAL PRIORITIES

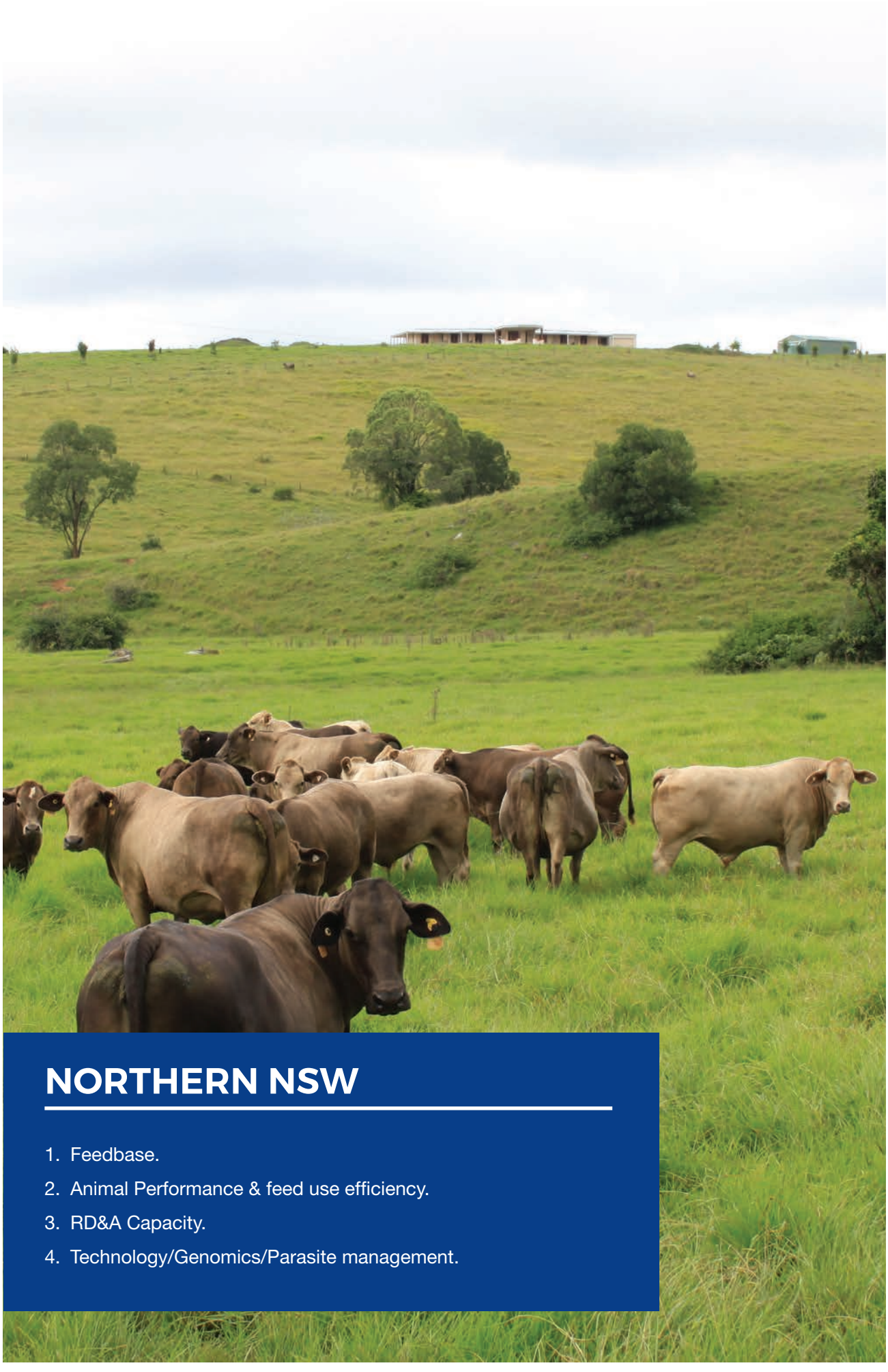
1. Increase the profitability of the red meat supply chain by at least 10%
2. Provide farmers with options to adapt to variable climate conditions which provide 3-4% return on asset over extended period
3. Conduct further consultation with stakeholders and researchers to scope options for our region to develop programs to address highest priorities

Priority	Outcome	Action
1. Adopt a Farm Systems approach Pasture/animals/water	Grazing Management: Increase quality, quantity and utilisation of pasture resulting in increased farm profits	– Review information from past successful pasture and grazing programs to include latest research and extend in new ways – Provide resources and tools related to feedbase planning and management maximising pasture utilisation and quality – Get people to value pastures and look- raise to same level of consciousness as animal production – Develop knowledge and database on the performance of existing and new pasture species – Investigate opportunities for virtual fencing
	Find/develop Farm Systems Research relevant to our region	– Instigate local research and data collection/benchmarking relevant to the immediate area – Develop and use a local reference group of farmers to guide research – Ground truth national research at a regional level
	Develop options for farmers to adapt to and prosper in a variable and changing climate	– Development of decision making tools (e.g. pasture growth models) and farmer extension programs – Investigate timing and quantity of pasture fertiliser requirements in different climate conditions – Develop an index for different enterprises that highlights priorities and where each $ invested will yield greatest profit – Extension of best practice management for dry and wet seasons
	Game and pest management is part of management program	– Farmers aware of impact of game and pests and resulting total grazing pressure for both pastures and bush – Establish sustainable pest and game population thresholds – Implement clear protocols for humane control of pests and game

Making the most of water	Water: Ensure adequate water infrastructure for growth and development of industry at regional and farm scale	– Extension program regarding water quantity and quality needs for livestock, now and in the future to meet the needs of variable climate and business growth – Water is available but often expensive. How can this resource be best tapped into on a livestock front? – Explore hydrology of regions and develop opportunities for agriculture (Red meat often linked with other enterprises under irrigation systems) to continue to grow, based on harnessing water availability
	Reach productive capacity for new and existing schemes for red meat	– Development of decision making tools for irrigation in red meat production
2. Animal performance Health and Nutrition	Increase production/unit/ha: Continually improve performance by meeting animals nutritional and health needs and creating a stress free environment Farmers know productive potential of herds/flocks and have skills to minimise potential animal health risks	– Develop warning system re new seasonal animal health threats (e.g. pink eye, barber's pole worm) – Continuing education about drench resistance, testing, worm counts etc. and evaluation of existing products
	Build genetic improvement for animal health outcomes	EBV's in cattle for enhanced parasite resistance – Develop over a number of breeds and business – Early work done 3 years ago- build on this work
3. Animal Welfare	Develop a biosecurity and animal welfare plan for regions and farms	– Develop tool to manage biosecurity risks – Central place to access information as to how to react to different diseases/ conditions. Like a poisons hotline
	Demonstrate world's best practice with animal welfare	– Educate farmers to articulate what they do to ensure welfare of animals
	Improved lamb survival	– Continue research into foetal loss/lamb mortalities – Extend best practice to farmers to minimise lamb losses – Benchmarking occur across the regions to monitor progress and quantify benefits

Priority	Outcome	Action
4. Prove commitment to sustainable produce - Value add to products **Value add: innovative products- retain supply chain revenue? How?**	Develop an evidence based programs that provides producers with the science to prove their commitment to achievements of quality, sustainably produced red meat from well cared for livestock	– Create Base level information – results people can trust – Educate producers why we need evidence based programs- QA and animal health and welfare Implement targets at regions and farmer level to: – Reduce and manage any negative impacts on environment – Monitor and improve soil health – Manage and improve water quality and system – Protect and enhance biodiversity on farm – Reduce emissions by over 10%
	Improve corporate social license- promoting actions on improved environmental outcomes	– Acknowledge farmers contribution to NRM regionally – Take Target 100 stories and promote at regional levels- into local newspapers, local radio etc – Feedback provided to producers on condemned carcasses – Producer feedback should be centralised at state level so trends show up and can be dealt with proactively
	Market driven extension Better communication between and through supply chain - work together	– Build on systems that work: across industry collaboration, collegiate approach to delivery
5. Increase rate of adoption of existing R&D **How do we find all good research that has been done?**	Increasing uptake of current MLA R D and E projects. A lot of great work has already been done but until producers are aware, make use and see the benefits of the information and tools that are provided, maximum payback of project cannot be achieved	– Design programs where farmers learn from farmers – Open up closed loops in information - develop a coaching model - those with information and skills coach and mentor others – Build on systems that work: across industry collaboration, collegiate approach to delivery – Invest in people to grow the industry w.r.t. training
	Better communication and extension with education, tools, trials and group learning Farmers adopt known technologies	– Invest in young scientist-training ground- promote private consultants in extension and delivery

	Build human capacity	– Develop voluntary accreditation system for stock agents- specific and targeted. Have them assist with extension – Educational programs of livestock systems at schools- Dairy doing a great job in Southern regions- get Red meat program taken up as well – Utilise producers that have taken up new research- then use them to spread the word
6. Increase Financial Literacy/business management	Develop business culture in red meat industry- what is it costing me? What are the economic returns of every investment?	– Build on benchmark systems that work: use private providers that are already doing it well and expand – Provide farmers and industry with detailed and rigorous objective farm level data – Creating a program to improve the financial management skills of producers – Teach businesses to understand key profit drivers – Create a practical and relevant program building on existing programs that work driven through private consultants. Important areas are KPI's in livestock production systems, gross margins, partial budgets and basic accounting principles
7. Technology	Increasing labour and production efficiency through use of technology leading to increased profitability	– Labour efficiency research- livestock handling systems that reduce labour inputs – Invest in technology that will allow us to bridge the gaps in management and business outcomes- Leap frog technology – Invest in smart phone technology



NORTHERN NSW

1. Feedbase.
2. Animal Performance & feed use efficiency.
3. RD&A Capacity.
4. Technology/Genomics/Parasite management.

NARRATIVE

Climate change predictions indicate that temperatures will increase. This means that more of the northern region will productively grow tropical grasses with companion tropical and temperate legumes and temperate grass crops. These pasture systems offer the potential to provide year round pasture production, maintain a higher number of efficient breeding females capable of producing more, heavier and better quality progeny. The challenge lies in adapting coastal and inland production systems to increase the supply of stock and red meat to satisfy the growing demand.

BACKGROUND

The Northern SAMRC region spans several Agro-Climatic Zones: Subtropical Moist, Temperate Cool Season Wet, Temperate Subhumid and Subtropical Subhumid. This gives a range of pasture growing periods as determined by temperature and soil moisture availability with an associated array of grass fed beef and sheep meat production systems.

The regions RD&A priorities acknowledge this variability and facilitate the grazing industries to progress with a more productive, profitable and sustainable grass fed beef and sheep systems.

The four outstanding priorities as determined by the Northern SAMRC regional committee are; feed base, RD & A capacity, animal nutrition and feed use efficiency and technology. Highest priorities and desired actions are:

1. Feed base

Selection, breeding and commercialisation of pasture species adapted to hot and dry or cold conditions. Develop tropical and temperate pasture systems to provide year round feed with positive whole farm impacts by filling feed gaps. Develop tropical and temperate legumes as companion species for tropical grasses. Develop management strategies and improved varieties for persistence, dry matter production and forage quality.

2. Animal nutrition and Feed Use Efficiency

Measure animal performance, product quality, pasture composition and management to improve the accuracy of feed budgeting from pasture based systems

Innovative supplementation for production, drought feeding and performance of early weaned stock. Supplementation of stock at pasture including protein for breeders, weaners and grain assisted finishing of slaughter cattle and sheep.

3. RD&A Capacity

Need to maintain/expand the RD&A capacity by continued government funding and an increase in MLA proportional funding. Develop a collaborative structure and funding model to enhance agricultural service capacity. Encourage co funding for graduate programmes.

Develop extension capacity by forming strong producer groups to access funding from MLA and other agencies. Integrate the decision support tools and simplify the extension packages.

4. Technology

Technology to facilitate value based marketing and precision grazing management. Use of smart devices (e.g. smart phones) to access decision support tools and measure pasture production. Develop animal health products and management practices to keep ahead of pest resistance. Validate the performance of existing technologies, such as walk over weighing. Develop sensors to allow producers to measure important but difficult to measure traits, e.g. growth efficiency.

Genomics for specific traits: female reproductive performance, carcase quality, growth rate, feed use efficiency and parasite resistance. Adoption of genetic tools; EBV's and genomics in commercial livestock production, multi breed EBV's underpinning genomics aided by easier sampling methods and lower unit cost.

Priority	Outcome	Action
1. Feed base	1. Species selection giving adaptation for production & persistence in extreme cold, hot & dry environments	a. Select/breed pasture species that are winter active in the tablelands section of the region b. Select/breed tropical pasture species that are frost tolerant c. Breed/select pasture species with morphology to allow drought tolerance & persistence in western plains part of the region
	2. Pasture systems incorporating tropical & temperate species to provide year round pasture production to give positive whole farm impacts	a. Develop tropical grass management to give higher; DM production, crude protein percentage & ME b. Develop tropical grass management systems to allow temperate legume growth in the winter period. c. Develop tropical pasture management to allow the establishment of highly productive rye/oats in the winter period
	3. Tropical and temperate legumes as companions species for tropical grasses with improved quality from N input	a. Develop management strategies for species persistence, dry matter production & forage quality
2. Animal Performance & feed use efficiency	1. Increased animal performance & product quality from tropical grass pasture based systems	a. Measure animal performance: growth rate, reproductive performance, quality of turn off stock & production costs under a beef grazing system in the Subtropical moist part of the region b. Measure similar animal performance in the tropical /temperate systems on the slopes for sheep and cattle
	2. Innovative supplementation during drought periods to facilitate the use of poor quality forage to minimise weight loss and improve reproductive performance	a. Continue work on rumen modifying products and rumen biota management b. Develop options for use of bi-products from other industries as feed sources
	3. Innovative supplementation of early weaned stock for increased growth & sexual development	a. Continue work on protein sources, their delivery and measure whole herd impacts
	4. Supplementation at pasture with grain rations & protein to ensure finishing & carcase quality in periods of reduced pasture quantity/quality	a. Measure grain feeding costs relative to performance increases b. Promote desired carcase quality without negative perception of yard feeding

3. RD&A Capacity	1. Increased RD & A capacity in the grass fed beef and sheep meat industries	a. Lobby for increased Government funding & increased MLA proportionate funding as we are approaching periods of unpredictable climate and industry requires support to adapt
	2. Collaborative structures and funding models with enhanced service capacity	a. Develop a strong SAMRC with increased regional focus b. Engage all the stakeholders in a collaborative approach
	3. Increased extension capacity with proactive producer groups	a. Producer groups to conduct on farm RD & E, host field days and mentor other groups b. Groups to access funding from MLA and other agencies
	4. Integrated support tools & simplified extension packages	a. Extension packages to be utilised by producer groups, consultants & other service providers
4. Technology/ Genomics/ Parasite management	1. Technology that facilitates value based marketing	a. Develop technology to allow on-farm carcase measurement
	2. Technology that allows precision grazing & supplementation management	a. Develop pasture quantity/quality measurement equipment
	3. Decision support tools available on smart phones	a. Develop apps to simplify routine tasks. eg use of EBV's
	4. Genomics for an increased number of productive traits- reproductive performance, growth rate & carcase quality, feed use efficiency & parasite resistance	a. Continued work by AGBU, CRC, MLA and others in animal genetics and genomics research
	5. Adoption of genetic tools	a. EBV's in commercial livestock production b. Multi breed EBV's underpinned by genomics c. Easier sampling methods and lower unit cost
	6. Animal health products & grazing management strategies to keep ahead of parasite resistance – allowing continued prime lamb production on the tablelands	a. Continue investment in animal health products with varied mode of action b. Breed resilient animals c. Develop grazing management strategies to impede parasite life cycles and infective capacity d. Prepare the non humid subtropical sections of the region for the invasion of subtropical pests and diseases

SOUTHERN NEW SOUTH WALES

1. Integrations and integrity in the supply chain.
2. Building resilience in livestock production systems.
3. Farm Business performance.
4. Improve industry engagement.

NARRATIVE

Compelling Narrative SAMRC's Southern NSW region comprises the Riverina, Southern and Central Slopes and Tablelands, and the coastal hinterland from Greater Sydney to the NSW/VIC Border. In terms of broadacre industries, two key features of this region include the relatively intensive (and often integrated) nature of crop and livestock enterprises, and the diverse range of production systems that they encompass. These systems largely align with the main agro-climatic zones present in the area – namely cool/cold temperate, warm temperate (sub-humid) and Mediterranean.

It is the intensive and integrated nature of broadacre production systems in southern NSW, and the large climatic variation under which they are managed, which gives rise to at least two of the major issues impacting red meat and livestock production (and agriculture more generally) in this region. Aside from the pronounced 'winter feed gap' that impacts all southern States and Territories, the increased volatility in seasonal extremes, along with the progressive changes in climate away from long-term averages, places unprecedented importance on the ability to make accurate and timely management decisions around livestock, pastures and crops. As related weather patterns shift, the ability to find and exploit synergies between livestock and non-livestock enterprises has become even more crucial to extending production and productivity (and profitability) throughout the year.

Equally, southern NSW has a number of characteristics that give rise to significant opportunities in the future. The region is relatively well-resourced with road and rail infrastructure, and numerous large rural and regional centres, all of which provide valuable access to markets and marketing facilities, professional services and labour. Southern NSW also benefits from easy access to some of Australia's largest lot-feeding and processing facilities, thereby enhancing its capacity – and reputation - for producing and processing high-quality red meat and livestock. Importantly, however, the ability to fully realise this capacity will rely heavily on building greater connectivity between producers and consumers through red meat and livestock supply chains.

Against this backdrop, the RD&A investment priorities for southern NSW can best be summarised into two categories: strategic, long-term investments with a largely "all of industry" benefit; and short-term, operational priorities aimed at the (small number of) issues specific to the region. These are summarised in the table below.

BACKGROUND

An analysis of any medium- or long-term farm performance dataset suggests that Australia's broadacre livestock industries are not without their challenges. Be it on an enterprise, farm business or whole-of-industry basis, productivity levels have struggled to keep pace with inflationary pressure on input costs. Meanwhile, the combined effect of increases in regulatory requirements, community scrutiny of production practices, climate / weather anomalies and consumer expectations around food quality have placed unprecedented post-farm-gate demands on the pre-farm-gate environment. Aging farming populations, landuse and other resource competition, and a growing divide in the understanding and demands of rural and metropolitan Australia cap off a list of significant challenges.

At the same time, the resources (financial and human) with which the industry tries to address some of these issues are under strain. Given competition from the likes of the education and health sectors, it is improbable that the levels of public investment in agricultural RD&A of yesteryear will be seen again. Meanwhile, the expectations for results (including levy-payer satisfaction) from industry bodies forms a double-edge sword: first, such entities often react to these expectations by commissioning large numbers of projects with smaller, more immediate results (rather than large-scale, longer-term investments to drive a major outcome); second, industry monies are increasingly used to support baseline (public sector) RD&A capacity, rather than solely invested to drive an RD&A outcome.

So what does all this mean for SAMRC and/or the RD&A needs of southern NSW? Simply put, the RD&A system is under unparalleled pressure to "do more with less". It is critical that industry leverages its influence to encourage co-investment into fewer, larger issues (opportunities and challenges). The resolution of these will almost certainly provide far more significant, lasting and/or relevant results for red meat and livestock producers.

It is also essential that monies are deployed into areas that are likely to offer, and engender an appreciation of, value to and by producers. The notion of "research for research's (or researchers') sake" is a luxury we can no longer afford. Equally, the recognition of value in quality RD&A is a cultural and generational issue within the livestock industries, and will require a consistent and concerted focus by all RD&A providers.

A NOTE ON ADOPTION

The importance of conducting RD&A in a manner which encourages adoption cannot be underestimated, as is evidenced by the common prioritisation of this area across the SAMRC regions. However, the notion of having "better adoption" has been deliberately avoided in the priorities outlined below. This is for two reasons: first, it is all but impossible to attribute changes in business performance to the adoption or otherwise of a particular tool, technology or practice; and second, it is the capacity of producers to integrate such tools, technologies and practices successfully and in order of rate-limiting importance that is the key outcome sought.

It is, for example, of no benefit to the individual or the industry to have a producer paying a premium for the top EBV bull at the local sale while their enterprise struggles to achieve 70% calving. Likewise, even the most sophisticated automated pasture measuring tool has marginal value in a set-stocked grazing operation. This is not to underrate the importance of adoption, but rather clearly differentiate that "adoption for adoption's sake" is a futile (and very expensive) target to resource.

PRIORITIES

1. Integration and integrity in the supply chain
2. Building resilience in livestock production systems
3. Farm business performance
4. Improve industry engagement

Priority	Outcome	Action
Integration and integrity in the supply chain – Instil consumer (and community) focus and understanding – Foster producer-processor relationships	– Greater (more accurate and/or timely) connectivity through the supply chain – Transparency and accuracy in payment systems – Objective, informed decisions in livestock breeding and production – Integrity in (and positive reputation for) red meat and livestock products	– Market-ready objective carcase measurement and value-based payment systems – Sophisticated, easy-to-use information feedback (and feed-forward) – Information / extension support to enhance compliance in integrity systems (LPA, NLIS, MSA, PCAS, etc) – Greater speed, accuracy and mobility in data management

Building resilience in livestock production systems – Integration of livestock-cropping systems	– Year-round production base – Versatility in enterprise management – Increased enterprise and business productivity	– Integration of short-season grazing crops (esp. for winter) – Increasing resilience of grazing systems (through crop-based feed) – Decision support tools to optimise crop-pasture interactions

– Increase feedbase (pasture and forage crop) efficiency	– Greater utility in the feedbase
	– Increased feedbase productivity and resource use efficiency
	– Improved speed and accuracy in grazing management decisions
		– Varietal and species research to enhance:
		  – Persistence / grazing tolerance / perenniality
		  – Drought / acidity / water-logging tolerance
		  – Winter growth
		  – P use efficiency
		– Automation and accuracy in:
		  – Pasture assessment
		  – Fertiliser use

– Enhancing animal efficiency	– Enhanced levels of (and reputation for) productivity and welfare – Reduced environmental footprint (CH4, H2O, etc)	– Increasing reproductive efficiency (esp. in sheep production) – Optimising rumen efficiency (productivity and environmental basis)

Farm Business Performance
– Engendering a business-minded culture in commercial red meat and livestock production
	– Increased farm business profitability
	– Improved skills with respect to financial management
	– A more dynamic, responsive industry
		– Build business acumen and planning to:
		  – Enhance resilience (in the business) and adaptability (in management)
		  – Reduce risk
		  – Optimise the farm system
		– Focus resources on:
		  – Accurate and automated data
		  – Applied learning (esp. groups and case studies)*
		  – Decision support (linked to data)

Improve industry engagement
– Strategic focus to enhance the efficiency and efficiency of RD&A investment in southern NSW
	– Increased skills and confidence in the production sector
	– Greater efficiency in RD&A investment, and RD&A outcomes
	– Effective integration of tools, technologies and practices
		– Systematic focus on quality D&E (leading to A) with emphasis on:
		  – Programs, not projects
		  – Outcomes, not attribution
		  – Objectivity, not anecdotes
		– Improve (RD&A provider) collaboration
		  – Harmonize / package common themes and messages
		  – Leverage co-investment
		– Leverage southern NSW advantages
		  – Clean & green image
		  – Quality of genetic base (livestock performance and meat quality)
		  – Better integration and collaboration between FSGs

NSW CENTRAL WEST & RANGELANDS INCLUDING QLD SHEEP

1. Total Grazing Pressure (TPG) – Perennial Pasture Management.
2. Communication/Extension.
3. Lamb/Calf Survival.
4. Message Management.

NARRATIVE

The NSW Central West and Rangelands including Qld Sheep is an iconic region encompassing a diversity of livestock enterprises. From Rangeland to mixed farming the region necessitates a multitude of land management activities to enable the continuing sustainability of the region.

Arguably, the rangelands offer the greatest opportunity throughout all regions of Australia to improve the productivity and more importantly profitability of grazing enterprises through improved management of both land and livestock. To optimise the success of the region's land managers, it is imperative that the skills of those managers are strengthened by sharing the knowledge and skills of the many successful individuals, and encouraging the adoption of the latest research.

BACKGROUND

1. Total Grazing Pressure TGP (Perennial Pasture management)

As a finite system all grazing puts pressure on the resource base.

Within the rangelands areas this pressure is felt through relatively static livestock numbers in a highly variable climatic environment combined with the uncontrolled grazing by unprofitable species, namely Kangaroos and Rabbits. The provision of watering points, control of the apex predator (Dingos), (extending the effective grazing area), the culling of only large males have all helped to see major population increases. The relatively static livestock numbers compounded by this uncontrolled pressure is reaching a critical stage and now effects the ongoing viability of certain areas

The mixed farming and grazing enterprises throughout the region also experience TGP but from a differing perspective as the pressure invariably stems from stocking rates and management decisions in dry seasons.

The regeneration and maintenance of healthy, diverse, deep rooted, perennial pastures is critical to the future of profitable livestock enterprises. Western NSW is located within a brittle environment, where overgrazing (overgrazing is a function of time, not too many animals) and over rest, both quickly lead to bare ground. The establishment of the above described native perennials reduces bare ground and creates a more stable production system throughout the year. Planned grazing & planned rest, with the use of TGP fencing, can make an enormous difference to the regeneration & health of perennial pastures. A perennial based production system has benefits that go past simple profitability, the improved landscape management through reduced erosion and increases in feed available, soil carbon and biodiversity present a "win - win" scenario for land managers. Control of non-domestic grazing animals must be planned for to allow plants to rest and recover and be prepared for the next rain event.

2. Communication / Extension

Adoption of the latest research is one of the few ways forward for the agricultural sector as a whole. Be it technology, management, TGP, labour efficiencies or use of advisory services, all of it requires efficient communication.

The poor telecommunication and internet infrastructure in rural communities only exacerbates the barriers to this adoption. A critical issue also is the attitude towards adult learning, on-going training and knowledge accumulation. This factor amongst many bush people is also a critical factor in terms of gaining adoption in the pastoral and rangelands.

Given the exceptional isolation and vast distances that are common within the region as a whole, a new or improved extension model is needed to respond to these challenges.

3. Lamb/calf Survival

The reproductive wastage of the nation's livestock enterprises is of major importance in terms of both animal ethics and enterprise profitability.

The Rangelands is no exception to this problem, but certainly presents unique challenges to land managers in identifying the upside in productive output and maintaining the healthy rangeland welfare image they currently enjoy.

While both of these issues are also present in the mixed farm areas, the intensity of livestock production adds another dimension to the challenges faced.

4. Message Management

The environmentally, ethically and socially aware society we operate in demands that all livestock and landscapes are respected and nurtured. All land managers share these responsibilities and are duty-bound to uphold them. The bombardment of negative and often misleading information is a major challenge to the whole industry.

Through effective research development and adoption the industry can clearly demonstrate its willingness to embrace these responsibilities.

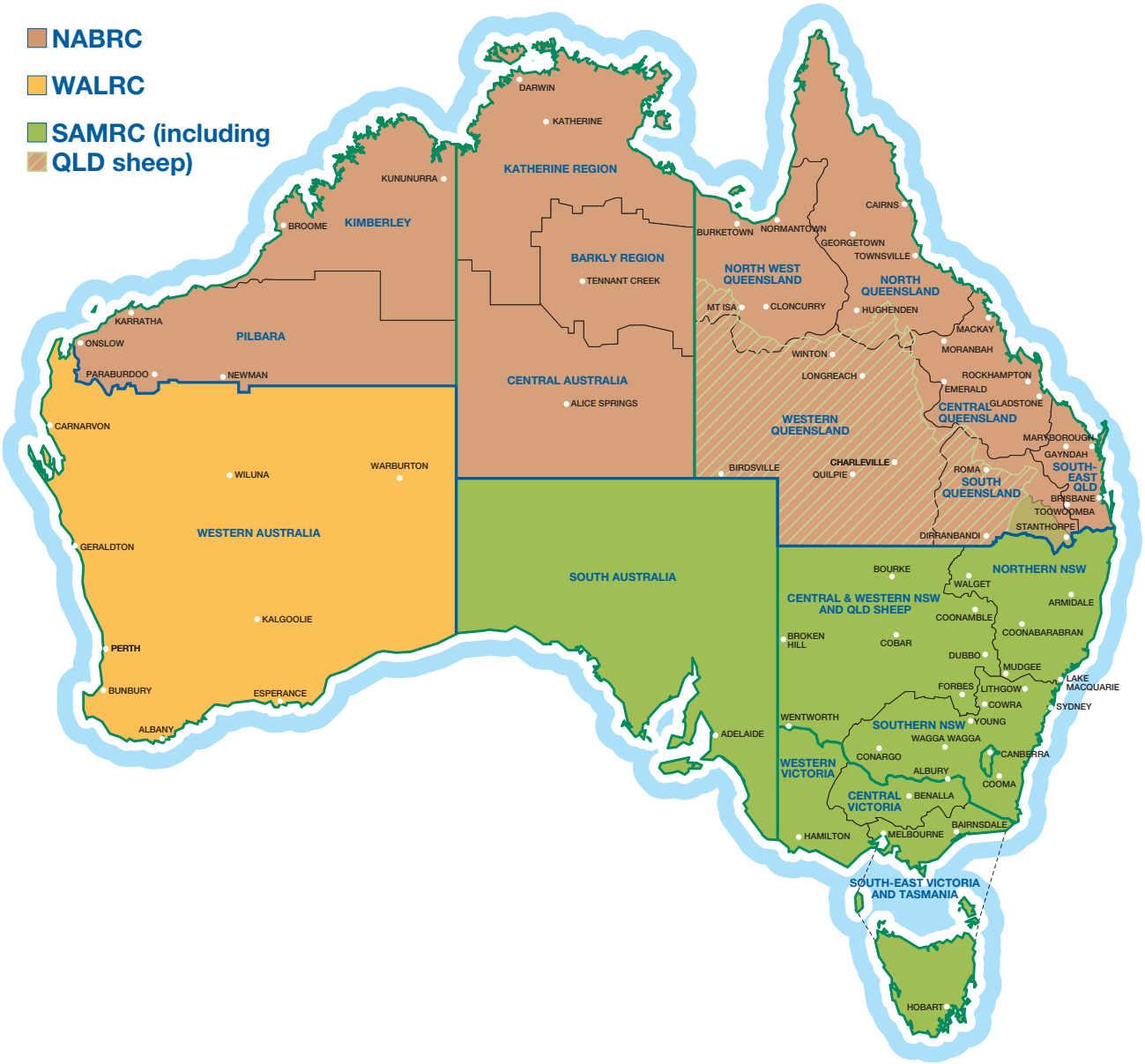
Priority	Outcome	Action
Total Grazing Pressure (TGP) **(Perennial Pasture Management)**	– Sustainable Kangaroo populations – New TGP control methods – Improved Landscape management – Increased Soil Health – Increased Soil Cover – Utilisation of a high quality protein source (Kangaroo) – Increased Soil Carbon Levels – Farmers participating in the carbon market through soil carbon sequestration – Landholders to achieve economic returns from macropod harvesting	– Cost Benefit analysis of exclusion fencing (feral animal control including and kangaroos and dogs) – Education, Training/field days showcasing innovative farmers – Research into grazing management strategies and methods to use livestock to increase carbon sequestration – Perennial grass maintenance and re-establishment – Development of new markets & novel uses for roo meat – Establish sustainable kangaroo population thresholds – Implement clear protocols for humane control of unsustainable kangaroo populations, includes developing new more cost effective humane methods for reducing marcropod numbers – Extension of best practice management for dry seasons and invasive weeds – Adaptation of existing technology to suit the rangelands environment – Extension of the benefits of regenerative land management – Demonstrating the link between soil health, soil carbon levels, profitability and productivity
Extension - Central NSW and the Rangelands	– A more efficient extension model – Improved information exchange – Increased management capability resulting in improved landscape health, animal welfare and profitability – Increased awareness of new more profitable methods – Increased appreciation of the need for measurement in decision making	– Case studies of leading farm businesses showcasing real examples of success – Development of an Innovator / information network – Support improved business and financial literacy in livestock businesses – Extension programs tailored to locations and producer training preferences – Annual benchmark report of livestock enterprises in the pastoral zone, including all major enterprises i.e. goats, meat sheep, wool sheep, cattle – Facilitation of a farming systems group servicing the rangelands region

Lamb Survival	– Reduce reproductive wastage in this region – Improved animal welfare outcomes	– Research into (and extension of) foetal loss/lamb mortalities in rangeland sheep operations – Extension messages developed illustrating the impact on sheep production systems – Development of best practice management guidelines for lamb survival for both the rangelands and mixed farming regions – Customize current extension to suit pastoral/rangeland zones e.g. LTEM
Improved Industry communication (Message Management)	– Improved producer / consumer relationships – Positive public perceptions – Increased processor / producer communication – Rangelands Meat seen as a key participant in a clean green ethical supply chain	– Encourage increased processor feedback on carcass traits – Promote the benefits of “Rangelands Meat” to build market advantage – Promote a positive producer narrative with consumers – Proactively manage emerging animal welfare issues – Prioritize animal welfare issues

APPENDICIES

APPENDIX 1: SAMRC, NABRC AND WALRC

The below figure shows SAMRC in relation to NABRC and WALRC.



APPENDIX 2: SAMRC CO-INVESTORS

Investor	Investor Rep	Email
Meat & Livestock Australia (MLA)	Jane Weatherley	jweatherley@mla.com.au
Charles Sturt University (CSU)	Michael Friend	mfriend@csu.edu.au
University of New England (UNE)	Julius Van der Werf	julius.vanderwerf@une.edu.au
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	Aaron Ingham	Aaron.Ingham@csiro.au
NSW Local Land Services (NSW LLS)	Bruce Brown	bruce.brown@lls.nsw.gov.au
NSW Department of Primary Industries (NSW DPI)	Dougal Gordon	dougal.gordon@dpi.nsw.gov.au
Department of Primary Industries, Parks, Water and Environment (TAS DPIPWE)	Robin Thompson	Robin.Thompson@dpipwe.tas.gov.au
Queensland Department of Agriculture and Fisheries (QDAFF)	Bob Karfs	robert.karfs@daf.qld.gov.au
South Australian Research and Development Institute (SARDI)	Janelle Hocking Edwards	janelle.edwards@sa.gov.au
University of Melbourne / Mackinnon Project	John Larsen	j.larsen@unimelb.edu.au
Department of Economic Development, Jobs, Transport and Resources (VIC DEDJRT)	Greg Harper	greg.harper@ecodev.vic.gov.au
University of Adelaide	Wayne Pitchford	wayne.pitchford@adelaide.edu.au
La Trobe University		
The University of Sydney	Luciano Gonzalez	luciano.gonzalez@sydney.edu.au

APPENDIX 3: REGIONAL CHAIR PROFILES

SOUTH AUSTRALIA REGIONAL CHAIR

Allan Piggott

allansue@illoura.com.au

Allan is a primary producer from the Murray Mallee where he produces prime lambs and rams for the prime lamb industry as well as some grain. He has been actively involved in the South Australian red meat industry for 35 years and has an excellent grasp of the issues confronting the cattle, sheep and goat industries as well as a strong contact base across the sector.

Allan is currently a member of the SA Sheep Advisory Group which provides advice to the Minister for Agriculture on sheep related issues and manages the SA Sheep Industry Fund on behalf of SA sheep producers. He is also a board member of Livestock SA and was recently appointed as chair of the SA Sheep Industry Blueprint Working Group to help set the strategic direction for the SA sheep industry for the next five years and beyond.

In 2013 and 2014 Allan chaired the LambEx Conference organising committee one of the nation's leading livestock events focusing on innovation and technology to improve supply chain efficiencies.

CENTRAL VIC REGIONAL CHAIR

Hannah Marriott

hannahmarriott14@gmail.com

Hannah Marriott manages a beef and sheep property near Greta, North East Victoria encompassing self-replacing ewes and Angus cows. She has been farming full-time for eight years, has run a lamb feedlot and established a lamb brand which she ran for five years.

Hannah holds a degree in Rural Science from the University of New England and has completed the Institute of Food and Grocery Management's Meat Executive Program as well as the Lifetime Ewe Management program and MLA's Bredwell Fedwell workshops.

Hannah has convened the Southern Australian Grasslands conference in Wangaratta, sat on the Victorian Farmers' Federation's livestock council and has been the recipient of a prestigious Nuffield Scholarship which she used to investigate the commercial benefits of individual animal management in sheep.

WESTERN VIC REGIONAL CHAIR

Tim Leeming

pconsult@bigpond.com

Tim and his wife Georgie run a self-replacing prime lamb flock, a seed stock business, run cattle and grow some cereal pasture crops at Pigeon Ponds in Western Victoria. They have substantially expanded the business over the past decade and have a strong focus on productivity and land development.

Tim has been involved with and still manages extension activities with a number of Lifetime Ewe Management groups and a BestwoolBestlamb group and delivers qualified training in agriculture at Rural Industries Skills Training, Hamilton.

Tim has been involved at executive and committee level in many and various local organisations including the Balmoral Branch of the VFF, Balmoral Pastoral Agricultural Show Society and Coopworth Genetics Australia. He also sits on the BestwoolBestlamb Advisory Committee and has been an implementation committee member for Land and Biodiversity for the Glenelg Hopkins Catchment Management Authority.

In 1999 Tim was recognised as a Young Rural Ambassador for Victoria and has participated in a number of rural leadership programs during his farming career in Canberra and at Marcus Oldham College.

SOUTH EAST VIC & TAS REGIONAL CHAIR

Jenny O'Sullivan

osulliva@dcsi.net.au

Jenny is well known for promoting sustainable agriculture, particularly in Gippsland where she and her husband run a 680ha beef and sheep property.

Over the past 29 years she has helped develop and deliver many initiatives to encourage farmers to adopt sustainable management practices including working with the South Gippsland Landcare Network, MLA's scoping study for sustainable agriculture, Dairy Australia's DairySage mentoring program and the Westernport GipRip Project. She is also the recipient of a number of awards including the Beef Improvement Association's Service Award, the Hugh Mackay Farming Award and the Gippsland Women's Honour Roll for her work to advance agriculture and protect and enhance the area's natural resources.

More recently, Jenny and her husband Paul have created an exciting agri-tourism business, Gippsland Food Adventures, promoting Gippsland as a premium food region.

NORTHERN NSW REGIONAL CHAIR

Tom Amey

ameyag@bigpond.net.au

Tom has been a cattle producer for 38 years and has experience across the grazing and processing industry. He runs a cow and calf operation west of Casino, NSW, servicing the MSA-graded trade yearling market and spent 14 years as a director on the board of the Northern Cooperative Meat Company with some time spent as Deputy Chairman.

Tom has an honours degree in Rural Science from the University of New England which has given him a strong understanding of maximising productivity and profitability using sustainable practices and has encouraged him to drive and coordinate finishing trials for weaner producers, field days, workshops and seminars. Tom is a director on the North Coast Local Land Services board and chairman of the Strategic Planning Subcommittee.

SOUTHERN NSW REGIONAL CHAIR

Angus Hobson

gushobson@yahoo.com

Angus is a sixth generation primary producer and owner and manager of Bukalong in the Monaro region of South East NSW. Here he runs a self-replacing Merino flock as well as a self-replacing Angus herd to supply weaners for the grass and grain finishing market. He also grows a range of forage crops, predominantly lucerne and winter cereals.

Angus has considerable technical, practical and strategic planning experience spanning more than 25 years in the red meat and livestock industries. This includes managerial and livestock experience on properties throughout Australia and New Zealand and as a trainee manager with Australian Country Choice (primary supplier of beef and veal products to Coles Supermarkets).

Angus has also held a range of corporate positions in the livestock industry, including Chief Executive Officer of the Red Meat Advisory Council Ltd, Director of Monaro farming systems, Director of XF Enterprises (a multinational provider of ruminant nutrition products and consultative services), and Policy Officer with Cattle Council of Australia.

Other roles have included senior positions with MLA, the Southern Australian Beef Research Council (SABRC), Performance Feeds and Unipro International. Angus holds a Bachelor of Rural Science from the University of New England, has completed the Australian Institute of Company Directors course and has worked as a qualified MSA Grading Officer and AUS-MEAT Chiller Assessor.

CENTRAL NSW & QLD SHEEP REGIONAL CHAIR

Gus Whyte

wyndham3@bigpond.com

Angus, with his wife Kelly, runs a mixed grazing operation over two properties in the Wentworth/Broken Hill area on the Anabranch River. Here, they produce mainly store lambs and calves for on-selling to finishers, while mutton is sold over the hooks.

Merino genetics are predominantly used in the sheep flock, although most years White Suffolk rams are placed over a portion of the enterprise's ewes. Angus' cattle herd includes cross-bred cows, predominantly Santa Gertrudis cross, with the use of Angus bulls.

Angus is chairman of the Southern Community Advisory Group for the Western Local Land Services and past chairman of the Lower Murray Darling Catchment Management Board. His strong work in the area of soils has seen his operation selected by Soils For Life as one of two case studies for the Western NSW region.

APPENDIX 4: SAMRC REGIONAL COMMITTEES

South Australia Regional Committee	
Name	**Position**
Allan Piggott	Regional Chair
Troy Fischer	Producer Rep
Jane Kellock	Producer Rep
Joe Keynes	Producer Rep
Andrew Bell	Producer Rep
Steve Radeski	Producer Rep
Ralph Shannon	SAMRC Chair
Stephen Lee	Committee Member
Janelle Hocking-Edwards	Committee Member
Wayne Pitchford	Committee Member
John Williams	Committee Member
Michael Blake	Committee Member
David Michell	Committee Member
David Rutley	Committee Member
Jane Lutt	Committee Member
Mark Inglis	Committee Member
Paul Sandercock	Committee Member
Richard Harvie	Committee Member
Rod Miller	Committee Member
Stephen Radeski	Committee Member
Steven Read	Committee Member
Jane Weatherley	Committee Member

Central VIC Regional Committee	
Name	**Position**
Hannah Marriott	Regional Chair
Ron Harris	Producer Rep
Michael McCormack	Producer Rep
Stephen Poole	Producer Rep
Julian Carroll	Producer Rep
Bill Wilson	Producer Rep
Simon Riddle	Producer Rep
Ralph Shannon	SAMRC Chair
Lyndon Kubeil	Committee Member
Lisa Warn	Committee Member
Mark Inglis	Committee Member
Kate Linden	Committee Member
Michael Friend	Committee Member

Western VIC Regional Committee	
Name	**Position**
Tim Leeming	Regional Chair
Georgina Gubbins	Producer Rep
Edward Blackwell	Producer Rep
Ben Young	Producer Rep
Richard de Fegely	Producer Rep
Fiona Conroy	Producer Rep
Andrew Kennedy	Committee Member
Dougal Purcell	Committee Member
Jane Weatherley	Committee Member

South East VIC & TAS Regional Committee	
Name	**Position**
Jenny O'Sullivan	Regional Chair
Peter Honey	Producer Rep
Ian Sauer	Producer Rep
Peter Tyson	Producer Rep
Georgie Burbury	Producer Rep
Aaron Brown	Producer Rep
Ralph Shannon	SAMRC Chair
Ben Hayes	Committee Member
Richard Eckhard	Committee Member
Darren Hickey	Committee Member
Robin Thompson	Committee Member

Northern NSW Regional Committee	
Name	**Position**
Tom Amey	Regional Chair
Jared Doyle	Producer Rep
Tim Norton	Producer Rep
Richard Peitsch	Producer Rep
Michael Vickery	Producer Rep
Christine (Chris) White	Producer Rep
Michael O'Brien	Producer Rep
Ralph Shannon	SAMRC Chair
Lu Hogan	Committee Member
Sue Boschma	Committee Member
Todd Andrews	Committee Member
Tony Haggarty	Committee Member
Rob Banks	Committee Member
Roger Hegarty	Committee Member
Aaron Ingham	Committee Member
Matias Suarez	Committee Member
Jane Weatherley	Committee Member

Southern NSW Regional Committee	
Name	**Position**
Angus Hobson	Regional Chair
Anthony Sheppard	Producer Rep
Matthew Pearce	Producer Rep
Michael Campbell	Producer Rep
Garry Armstrong	Producer Rep
Luke Hutchinson	Producer Rep
Felicity Anderson	Producer Rep
Ralph Shannon	SAMRC Chair
Dale Stringer	Committee Member
Phil Graham	Committee Member
Matt Lieschke	Committee Member
Richard Simpson	Committee Member
Michael Friend	Committee Member
Jasmine Nixon	Committee Member
Jane Weatherley	Committee Member

Central NSW & Rangelands QLD Regional Committee	
Name	**Position**
Gus Whyte	Regional Chair
David Watt	Producer Rep
Duncan Banks	Producer Rep
Tony Thompson	Producer Rep
Megan Mosely	Producer Rep
Phil Holmden	Producer Rep
David Counsell	Producer Rep
Ralph Shannon	SAMRC Chair
Trudi Atkinson	Committee Member
Gemma Turnbull	Committee Member
Mitchell Plumbe	Committee Member
Jane Weatherley	Committee Member

APPENDIX 5: SAMRC PLANNING MATRIX

	Enhance & maintain community support (welfare & environment)	Resilient, profitable farms (healthy environment)	Quality product in an efficient supply chain	Skilled and competent Business operations	Grow productive investment in Red Meat RD&A	Build capacity to advance industry in regions	Industry investor plan
Feedbase							
Extension							
Technology							
Business skills development, financial literacy & risk management							
Human capacity building							
Animal welfare							
Animal health & productivity							
Communications plan							
NRM Plan							
Vertical coordination in supply chain (VBM Strategy)							
Regional Best Practice							
Vibrant SAMRC							
Demonstrate Credentials							
Advocacy							

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