Pastures and Livestock Productivity Project

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Phase 1 Rural Social Research Final Report

Department of Primary Industries, Parks, Water & Environment
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Executive Summary

BACKGROUND AND METHODOLOGY

The Tasmanian Pastures and Livestock Productivity Project is seeking to improve pasture quality and quantity as a basis for increasing livestock production in Tasmania.

This social research study was Phase 1 of the project. The objectives of this study were:

- To conduct rural social research to understand the knowledge and/or skills that limit the ability of red meat producers to establish and maintain productive perennial pastures, and
- To inform the design of a Tasmanian red meat extension strategy.

Key research questions were:

1. What do producers do to manage and maintain perennial pastures?
2. How do producers make decisions about pasture management and pasture management practices?
3. What are the barriers and reasons for lack of adoption of technologies that maximise pasture production?
4. How can industry foster increased pasture production through a targeted extension program?

The methodology encompassed 25 in-depth interviews with producers, 15 in-depth interviews with advisors / supply chain members, four focus group meetings and an online survey (97 producers and 23 advisors).

This study was undertaken by RMCG and Pear Consulting during April to September 2018.

The project is supported by funding from the Tasmanian Government and the Australian Government.

SUMMARY OF FINDINGS

PRODUCERS ASPIRATIONS TO INCREASE PASTURE PRODUCTIVITY

A vast majority of producers (92%) either already have plans to increase pasture productivity or would like to increase pasture productivity’ (Figure 1).

There was a general feeling, based on interviews with advisors and processors, that pasture performance in Tasmania had improved in recent years. This has most likely been driven by good prices for cattle and prime lambs as well as irrigation development and in some regions a generational change. While performance had improved, advisors and supply chain representatives felt that there is still room for improvement.

A majority of the producers involved in this study were interested in developing their knowledge and skills and increasing pasture productivity. Results from the online survey showed that 87% of producers strongly agreed or agreed that they were always looking for new information about pastures.

The findings highlighted a substantial opportunity for the Pasture Productivity Project. Producers were interested in increasing pasture productivity and it is an opportune time.
WHAT DO PRODUCERS DO TO MANAGE AND MAINTAIN PERENNIAL PASTURES?

The report provides a current snapshot of pasture management practices in the Tasmanian red meat industry. This provides useful background information for development of the extension program.

Producers focussed most of their effort on pasture utilisation followed by grazing management. Only a small proportion identified pasture composition as their top priority and most producers were not deliberately monitoring pasture composition. However, they recognised that composition was influenced by their management practices.

The limited monitoring of pasture composition highlights an opportunity to increase understanding, knowledge and skills in pasture species identification, pasture health assessments; as well as how to use this information for decision-making e.g. grazing management.

The rule of thumb to graze ryegrass at the two- to three-leaf stage was well known and often mentioned. However, most producers were not deliberately assessing leaf stage for grazing management.

Producers reported that they focussed most of their efforts on utilisation. At the same time there was mixed levels of understanding of utilisation and how the growth cycle / phases of pasture species and grazing management based on growth phase, are important for maximising pasture growth and thus pasture productivity.

Some form of rotational grazing systems was used by a majority of producers. Many producers reported that they use a 'loose' rotational system or a mix of rotational and set stock systems. Set stocking was preferred in some situations such as at lambing or calving and also in areas where browsing mammals were an issue.

Re-sowing was not a priority for most producers, however a large proportion of them had re-sown at least some pastures in the last 12 months, even if it were only a very small area. While re-sowing was not a priority, they recognised that it had to be a priority in some situations e.g. when it was warranted in a particular paddock. Producers considered the economic cost of re-sowing as well as the risks as part of the decision-making process.
We found that Tasmanian pasture-based farming systems had become more flexible and there were new ways of growing feed, including the adoption of short to medium term pastures and forage crops. This was strongly evident in mixed-farms with irrigation.

Producers from dryland systems mentioned in focus group discussions that they were more likely to turn off lambs as stores and were less likely to enter into out-of-season production contracts due to the risk of low rainfall in summer and autumn.

Likewise, breeding enterprises were also less confident in taking on a market opportunity of carrying finishing stock through winter in order to keep winter feed for breeding ewes or cows. There was also concern about utilising the spring flush if cattle were turned off in August rather than being retained for longer into the spring months.

Producers with cropping programs were more open to the out-of-season production contract as they had irrigated land they can utilise for forage crops, access to dual-purpose crops for winter feed (e.g. grazing ryegrass seed crops or winter cereals), had access to irrigation and were able to manage the spring flush as land was taken out of the rotation for spring sown crops.

There was some scepticism about the performance and persistence of newer pasture varieties, but producers were interested to learn more about them and how to manage them. Examples were provided of where a particular variety had been recommended but was not suited to the region and had therefore failed. Examples were provided where producers had asked for a specific variety or species at the point of sale but were offered a different species or variety, which was not always suitable. This highlighted a potential need for upskilling re-sellers and advisors. It also highlighted a producer knowledge gap, because with better knowledge about which species or varieties are suited to their situation, producers would be more confident to request appropriate species or varieties.

Poor performance of re-sown pastures may be due to either: sowing unsuitable species or varieties for the situation, and / or, less than optimal management of re-sowing and grazing management.

Based on the interviews and focus groups, there appears to be a wide range in producers’ level of knowledge of species suited to their region / situation and also how to manage them. For example, while some producers and advisors mentioned that phalaris-based pastures were the most suited to the dryland areas through the central Midlands, other producers in the region had sown perennial ryegrass and clover mixes and these had not performed very well. In addition, there is scepticism about advice around species.

HOW DO PRODUCERS MAKE DECISIONS ABOUT PASTURE MANAGEMENT AND PASTURE MANAGEMENT PRACTICES?

The study explored pasture management broadly, and therefore encompassed a range of practices from grazing management to feed budgeting and from re-sowing to managing soil fertility.

Decisions about pasture management were sometimes simple (an easy decision with a clear correct answer) but often decisions were complicated (where a number of variables and relationships between these influenced the decision) or complex (where a number of complicated decisions came together and interact). Therefore, extension approaches need to recognise this complexity and use participatory and collaborative approaches. Extension personnel need to have a good understanding of the complexity of pasture management and also be skilled at facilitation, coaching and mentoring.
Factors influencing decision-making fell into four types:

- Bio-physical
- Personal
- Business
- The influence of others.

Managing seasonal variability was a strong influence on decision-making. Producers explained the need for **flexibility** to manage seasonal variability and they also reported a trend of less reliable seasons. Several producers mentioned that autumns have become increasingly unreliable and this influences their attitude to re-sowing.

> Seasonal variation brings me unstuck. Looking at my rainfall records for this century, so far 10 out of 18 autumns were a failure. I used to do all my pastures in the autumn in the 70s, after consecutive failures I moved to the spring and August. Generally, autumns have become more unreliable, but now the springs have caught up. [Focus group participant]

> In a normal year I don’t need any fodder crops but unirrigated fodder crops in a dry year you may as well tip some diesel out on the ground as it’s not going to grow anyway. If you get the rains and you get the crop you don’t need it anyway as you have feed. So it’s just frustrating. [Focus group participant.]

Other strong drivers / influences included: productivity and profitability (so productivity and profitability benefits should be highlighted), the influence of others (especially peers) as well as lifestyle factors. Lifestyle factors were often related to business phase and producers’ age. Some older producers mentioned the desire to take things easier and this influenced the decisions they made.

Decision-making was strongly influenced by the farming system. For example, mixed cropping producers were more confident in their ability to manage the spring flush with land being taken out of their grazing rotation for spring sown crops.

> [Having a cropping program] has really changed the way you look at it is the amount of cropping you are doing. You have all this ground that is going to be ploughed in August and September to put crops in so it helps to control your spring flush. [Focus group participant, Bishopsbourne.]

On irrigated farms, water allowed good pasture growth in the summer, so this influenced producers’ perceptions and decisions about pasture species and quality.

> I don’t mind annual pastures as they give me really good performance in the winter. I don’t need it in the summer as I’ve got irrigation to combat that. [Focus group participant, Bishopsbourne.]

**Advisors were important** for providing decision-making support especially for soil fertility (fertiliser requirements) and advice was often sought from re-sellers when selecting pasture species / varieties for re-sowing. Agronomists were often used to confirm a decision or to get a second opinion.

**WHAT ARE THE BARRIERS AND REASONS FOR LACK OF ADOPTION OF TECHNOLOGIES THAT MAXIMISE PASTURE PRODUCTION?**

A broad range of practices can contribute to maximising pasture productivity and these need to be adapted to the individual farm business and situation. So, there is no one-size fits and producers have legitimate reasons for the practices they use or not use.
Each practice has its own story. The barriers and challenges to adoption will vary for each practice and will also vary for each individual farm / situation.

When asked about the main challenges and barriers in their livestock businesses, the most commonly nominated challenges were: managing seasonal variability, browsing mammals, economic challenges (especially for smaller scale businesses) and labour and workforce issues (for larger scale businesses).

Information accessibility is holding back pasture productivity including a lack of regionally-specific information e.g. information that is relevant for lower rainfall, dryland, “run” country or regions with a shorter growing season.

**Challenges and barriers fell into four types:**

- Bio-physical e.g. seasonal variability, browsing mammals
- Economic e.g. cost of inputs
- Technological e.g. existing tools that are too time consuming
- Social e.g. including producer and advisors’ skills and knowledge

While both producers and advisors mentioned many of the same challenges, we found clear differences in the barriers / challenges that they found the most challenging. Producers were more likely to nominate bio-physical and economic challenges as the most important and advisors were more likely to nominate knowledge and / or skills gaps. Still, producers were interested in increasing their skills and knowledge.

In addition, we found that challenges and barriers fit into two levels which are illustrated in the conceptual model (Figure 2):

1. **Overarching business challenges** – these included bio-physical limits and economic factors at an industry and individual farm business scale.
2. **Social and technological challenges** – these are the challenges and barriers stopping producers making the most of their opportunities, acknowledging the constraints above. These included producers’ and advisors’ knowledge and skills (e.g. new varieties and how to manage them) as well as suitable technologies to support decision-making.
HOW CAN INDUSTRY FOSTER INCREASED PASTURE PRODUCTION THROUGH A TARGETED EXTENSION PROGRAM?

Producers wanted to build on their existing knowledge and skills in pastures and they were actively seeking information about pasture management. This highlighted an opportunity for the Pasture Productivity Project.

‘Talking to other farmers’ was, on average, the most highly rated information source to have a role in producers’ current pasture management approach (Figure 3). This was followed by field days or discussion groups, own experimentation and pasture management training. Therefore, extension programs need to include approaches that enable peer to peer learning.

Similarly, producers’ preferred method for sourcing information (out of a provided list) were field days, short training courses, trials or demonstrations and discussion groups (Figure 4).
When asked about past and current pasture management extension activities that were useful, the two most commonly nominated by producers and advisors were the ‘Pasture Principles’ program as well as dairy industry activities.
Seven interviewees (out of 40 in-depth interviews) felt that current extension programs were working well and not much else was needed. At focus group meetings and through the online survey there was a strong message that regionally-based on-farm trials at a commercial scale would be useful, as well as discussion groups. Producers highlighted that discussion groups need to be a small sized group, need to be well-facilitated and information needs to be provided by people who know the region and can effectively communicate the economic information.

The Pasture Principles course was highly regarded. However, there was a need for pasture management training tailored for different situations / regions and at different levels of management intensity, for example, in lower rainfall regions or farms with a mix of irrigated and ‘run’ country.

In addition, tools for ‘run country’ were needed. Producers found that tools and information were often designed for high rainfall, ryegrass-based pastures but not directly applicable in different situations.

*Most can tell you ryegrass growth rates and estimate Kg DM. You take that out to run country and they don’t know what’s there.* [Focus group participant, Bishopsbourne]

Responses by producers to the question “What does an industry extension program need to involve”, fell into two main categories: extension approaches or models; and skills and knowledge gaps or topics. The most common suggestions were as follows:

- **Trials and demonstrations’** was by far the most commonly suggested approach / model, followed by discussion groups, field days and farm walks, training and workshops (Figure 5).
- **‘Pasture species selection’** was clearly the most commonly suggested topic, followed by pasture management and grazing management (Figure 6).

While current extension activities were well regarded, what was missing, was a network of regionally-based discussion groups and farm trials and demonstrations. These should include a whole of business, market and value-chain approach. Producers strongly agreed that trials should be on farms and on a commercial scale, not small plots.

Survey results suggested the importance of tailoring extension activities for different target audiences. Farm scale was an important basis for segmentation as well farming system, enterprise type, region and age of producers. For example, larger scale (based on area farmed) businesses more likely to use formal feed budgeting and businesses with more than 2,000 ha were more likely to rely on paid advisors for providing new information on pastures.

While segmentation is important for tailoring activities, given that the Livestock and Pastures Productivity Project needs to fit with existing programs, target audience segmentation should not be over-used.

Key topics to be addressed through a pasture extension program include but are not limited to:

1. Pasture species and varieties suited to regions and situation; and
2. Pasture and grazing management to increase utilisation and productivity (including understanding of pasture growth phases, grazing management based on growth phase and how this links to pasture composition, maximising pasture growth and therefore optimising pasture productivity).
Figure 5: Extension approaches raised to the question ‘What does an industry pasture extension program need to involve?’ (source: online survey)

Figure 6: Topics suggested by producers to the question ‘What does an industry extension program need to involve?’ (Source: online survey)
RECOMMENDATIONS

The Tasmanian Livestock and Pastures Productivity Project should build on, and not replicate, the success of existing activities while addressing the gaps and opportunities identified in this study. Gaps include knowledge and skills of: pasture species (suited to purpose and region) and grazing management. This will be most effectively addressed through a combination of regionally-based farm trials, discussion groups and training. The program should be farmer and supply chain driven and should engage with supply chain representatives, advisors and re-sellers.

We recommend that the Tasmanian Livestock and Pastures Productivity Project:

- Builds on the existing successful programs (e.g. dairy industry programs as well as Pasture Principles) by expanding and adapting them to different levels (of skills / knowledge) and different systems. Ensure that they are regionally focused and not too prescriptive. Design a program that fits with and does not undermine existing programs.
- Selects / designs approaches that are suited to each topic / issue / opportunity.
- Designs approaches that support and enable confident decision-making and farm planning, that are suited to individual circumstances, taking into consideration the complexity of pasture decision-making.
- Utilises extension approaches that facilitate peer learning including discussion groups (small group size), on-farm trials, benchmarking, case studies and bus trips. Note that discussion groups not only enable peer learning but also access to information.
- For complex issues consider on-farm demonstration trials and co-learning with advisors and supply chain representatives. Involve advisors in extension activities with their clients to encourage co-learning and support decision-making and implementation of new practices (independent support and follow-up).
- Ensures that discussion groups enable a whole of business, market and value-chain approach and not just focus on the specifics of pasture information. Ensure that technical and business information are integrated.
- Ensures that on-farm trials are farmer-led, regionally focussed and conducted on a commercial scale.
- Identifies opportunities for technology, information resources and tools to support confident decision-making related to biophysical risks e.g. long-range weather forecasting, pasture growth rate calculators.
- Highlights the productivity and profitability benefits of technologies / practices, as these are important drivers for red meat producers.
- Determines how to engage with and provide up-skilling opportunities for re-sellers and merchandise representatives particularly in regard to species selection for regional and climatic suitability.
- Addresses skills and knowledge gaps or topics including:
  - Pasture species growth phases, grazing management based on growth phase and how this links to pasture composition, maximising pasture growth and therefore optimising pasture productivity.
  - Pasture health monitoring and assessment, highlighting the link between pasture composition and pasture productivity.
  - Pasture species selection and varieties – suited to local regions and climate. Focus best practice establishment, management and input requirements for persistence.
  - Grazing management – targeting different levels of knowledge / skills; and different farming systems
  - Soils and fertilisers – soil condition, nutrient balancing and budgeting.
  - Systems approach - the link from soils to pasture to livestock and to meat quality; including feed quality and finishing of livestock and how these influence eating quality and thus economic returns.
  - Browsing wildlife – control and fencing options and pasture species selection in wildlife prone regions.
PART A – Introduction and methodology

1 Introduction

1.1 BACKGROUND

The Tasmanian red meat industry was worth $1,657 million in 2015-16 (Sources: ABS and IBISWorld). The Tasmanian red meat industry has seen the development of multiple value chains focused on premium markets for Tasmanian sourced beef and lamb. These value chains are focussed on supplying an increasing consumer demand both domestically and internationally for safe, naturally produced meat from livestock raised on pasture-based systems. Pastures and grazing systems underpin red meat production in Tasmania and a significant opportunity exists to grow the productivity of Tasmania’s red meat industry and to be known for our premium red meat products.

Pastures form the basis for Tasmania’s red meat industry and pasture management is a key productivity driver for red meat businesses. Previous research suggests that the majority of Tasmanian pastures, that underpin red meat production, are characterised by a botanical composition that limits animal production.

Analysis of the botanical composition of Tasmanian pastures in 1997 and in 2011 revealed that 70 per cent of pastures in the midlands of Tasmania were characterised by a botanical composition that was below that considered to be the biological potential in the area. During the intervening time between surveys, many new pastures had been sown and considerable pasture research, development and extension (RD&E) has been undertaken with a focus on pasture species. This project aims to gain an understanding of how to encourage uptake of RD&E through targeted extension.

1.2 THE PASTURES AND LIVESTOCK PRODUCTIVITY PROJECT

The Tasmanian Pastures and Livestock Productivity Project is seeking to improve pasture quality and quantity as a basis for increasing livestock production in Tasmania.

This social research study is Phase 1 of The Project. The purpose of Phase 1 is to develop an understanding of pasture management decisions and using this to develop and deliver an extension program to work with producers to understand and adopt pasture management technologies. This social research study was undertaken between May 2018 and October 2018.

The Project is supported by funding from the Tasmanian Government and the Australian Government.

This study (Phase 1) was undertaken by RMCG and Pear Consulting on behalf of the Department of Primary Industries, Parks, Water and Environment (DPIPWE).

1.3 OBJECTIVES

The objectives of this social research study were to:

- Conduct rural social research to understand the knowledge and/or skills that limit the ability of red meat producers to establish and maintain productive perennial pastures
- Inform the design of a Tasmanian red meat extension strategy.
2 Methodology

2.1 LITERATURE REVIEW

A literature review was undertaken as background research for the project to inform the design of the study framework and key research questions. Literature included but was not limited to:

- Tasmanian beef feedbase survey (Tasmanian Beef Industry R&D Trust, 2017)
- Understanding pasture re-sowing decisions for meat producers (MLA, 2011)
- Using a Market Segmentation Approach to Better Target Agricultural Extension Programs - Aligning Learner needs with Learning Programs (Brown and Bewsell, 2010)
- Segmenting Victoria’s farmers (Wilkinson et al, 2011)
- Priorities for the Southern Australian Feedbase (Shovelton et al, 2011).

Based on the findings from the literature review, the following was considered for incorporation into the framework and data collection:

- Demographic data: producer age, business scale, breeding versus finishing enterprises
- Drivers: including aspirations for increased pasture productivity, experimentation, willingness to try new ideas, legacy
- Information sources: including use of experts
- Formal versus informal decision-making e.g. feed budgeting, visual pasture assessments
- Challenges / barriers and reasons for non-adoption: from the producers’ and advisors’ perspective.

2.2 KEY RESEARCH QUESTIONS

The project team developed an interview framework including key research questions.

Key research questions were:
1. What do producers do to manage and maintain perennial pastures?
2. How do producers make decisions about pasture management and pasture management practices?
3. What are the barriers and reasons for lack of adoption of technologies that maximise pasture production?
4. How can industry foster increased pasture production through a targeted extension program?

The interview framework included five pasture management practices or strategies: optimising pasture utilisation, maintaining pasture composition, grazing management, re-sowing and managing soil fertility. A series of questions was included in the producer and advisor interviews about these five strategies.

2.3 IN-DEPTH INTERVIEWS

Potential interviewees, including producers, advisors and supply chain representatives, were identified through RMCG and Pear Consulting networks. Interviewees were provided with a Project Information Sheet and Consent Form.

2.3.1 PRODUCER INTERVIEWS

In depth interviews were conducted with 25 Tasmanian producers during July 2018 and the interview guide is shown in Appendix 1.
The purpose of the in-depth interviews was to better understand pasture management practices and performance across Tasmania, and the underlying decision-making processes.

The producer interview guide consisted of:
- 14 quantitative demographic and enterprise questions
- 10 core qualitative questions, followed by
- 3 of 5 question sets on specific pasture topics.

The survey was tested as a pilot with three producers. Following this, the interview guide was changed mainly to shorten the interview by not asking about all five management strategies. Instead, producers were asked to rank them in order of importance and then respond to a series of questions about three of them.

Participants were identified using RMCG and Pear Consulting contacts, targeting a mix of:
- Farming systems including mixed cropping and livestock, specialist livestock, beef, prime lambs
- Enterprise types including breeding, finishing, trading
- Farm scale; small to large.

The target number of interviews by region was based on current red meat production (Refer to Appendix 4) in each of the south, north and north west regions (Table 1). As such, a greater number of interviews were conducted in the north compared to the south.

**Table 1: Number of producer interviews by region**

<table>
<thead>
<tr>
<th>ABS REGION CODE</th>
<th>REGION</th>
<th>NUMBER OF PRODUCER INTERVIEWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>601+603</td>
<td>South East and Hobart</td>
<td>5</td>
</tr>
<tr>
<td>602</td>
<td>Launceston and North East (including Flinders Island)</td>
<td>12</td>
</tr>
<tr>
<td>603</td>
<td>North West (including King Island)</td>
<td>8</td>
</tr>
</tbody>
</table>

The interviews averaged 45 minutes and were conducted in-person with the exception of two that were conducted via telephone. Interviews were recorded and transcribed.

### 2.3.2 ADVISOR AND SUPPLY CHAIN INTERVIEWS

In-depth interviews were conducted with 15 advisors / supply chain representatives (‘advisors’) during July 2018. The interview guides are shown in Appendix 2 and 3.

The interview questions for advisors were based on the following: *What are producers doing? What are the reasons for adoption or non-adoption? What would support increased pasture productivity? How to help?*

Supply chain representatives were asked about the influence of pasture productivity on livestock supply and meat quality.
The sample included:

- 3 Consultants
- 3 Livestock agents
- 2 Processor company representatives (2 interviews, 3 people)
- 2 Livestock buyers
- 2 Seed company representatives
- 1 Feedlot representative
- 1 Researcher
- 1 Extension Officer.

The advisor interviews averaged 30 minutes and were recorded and transcribed.

2.4 FOCUS GROUPS

The purpose of the focus groups was to validate the findings of the in-depth surveys and provide an opportunity for other producers to contribute to the project.

Participants were selected from both RMCG and Pear Consulting contacts, as well as through word of mouth and promotion through a flyer at an industry event. Participants did not include any of the producers who participated in the in-depth interviews, to maximise the overall sample.

The focus groups were two hours long, including time for producers to complete a print version of the online survey.

Four focus group meetings were held in each of key production regions of Tasmania and a total of 31 producers attended. Locations and dates were:

- North East: Scottsdale (31/07/2018)
- North: Bishopsbourne (31/07/2018)
- North West: Burnie (1/08/2018), and
- South: Brighton (02/08/2018).

The focus groups used facilitated discussions to workshop producers’ views on:

- What do producers do to manage and maintain productive pastures?
- How do producers make decisions about pasture management and pasture management practices?
- What factors are currently constraining red meat businesses?
- What could industry do to support an increase in pasture productivity in Tasmania?

An example session plan is included in the appendices of this report (Appendix 5).

At each focus group meeting, one session focussed on decision-making scenarios and the following two scenarios were considered / discussed:

1. What producers would do with a ‘run-out pasture’, and
2. Their attitude towards taking on a forward contract for out-of-season production for beef or lamb.

Responses were audio recorded, transcribed and analysed for emerging themes relating to their decision-making process.
2.5 Online Survey

The purpose of the online survey was to validate findings highlighted in the in-depth interviews, collect further data on producer practices and needs and to identify producer segments if possible.

Two surveys were designed. One for producers and one for advisors, service providers and supply chain representatives. Responses were collected online using SurveyMonkey.

An incentive in the form of two vouchers to the value of $150 for a store of choice was offered to encourage participation. Promotion for the survey was conducted through email campaign, social media (Twitter, LinkedIn and Facebook), individual phone calls, ABC radio and print media.

The survey was open for 3 weeks from the 26th of July to the 16th of August 2018.

2.6 Data Analysis

2.6.1 In-depth Interviews

Responses to quantitative interview questions were compiled in an Excel file. In the same spreadsheet, each interview was coded for a range of key aspects including: business stage, aspirations to increase pasture productivity, main business focus, main management strategies, influences and main challenges (for optimising pasture utilisation, maintaining pasture composition, grazing management, re-sowing and managing soil fertility).

Transcripts were stored with a distinctive number in an NVivo file for qualitative analysis. NVivo was used to code for categories and themes relating to each of the key research questions.

2.6.2 Focus Groups

Audio files were transcribed into separate Word documents for:

- Decision-making – ‘run-out’ pasture scenario
- Decision-making – ‘out-of-season’ production scenario
- Barriers and challenges
- Extension needs.

Each file was coded by theme and / or category within the document.

2.6.3 Online Survey

20 producer and 7 advisor surveys were incomplete (e.g. only the demographic questions answered) and therefore considered invalid. They were excluded from the data analysis.

A total of 120 valid responses were collected, comprised of 97 producer surveys and 23 advisor surveys.

Responses to quantitative questions were exported in an Excel file, tabulated and graphed.

Responses to qualitative questions were compiled in an Excel file and coded.

In addition, responses to demographic questions and also Likert scale questions were compiled in an Excel file and then transferred to SPSS® software for analysis to explore potential relationships for the segmentation.
The data was analysed using the Independent-Samples Mann-Whitney U Test to test for differences between two groups (e.g. two farming systems). The Independent-Samples Kruskal-Wallis Test was used to test for differences between three or more groups. The table in Appendix 7 lists the questions that were tested and indicates those that were significantly different (P<0.05).

2.7 DEMOGRAPHICS

Refer to Appendix 6 for a summary of demographics by data collection method.

2.7.1 OVERVIEW

Data was collected on key demographic and enterprise characteristics from all producer participants in the study. These included geographical region, age, education levels, farm size, business growth phase, enterprise type, number of livestock sold, pasture type and irrigation access. A summary of the demographic profile of participants in each of the producer interviews, focus groups and online survey follows.

The results indicate that a good demographic mix of producers participated with wide-ranging demographic and enterprise characteristics.

2.7.2 PRODUCER INTERVIEWS

Producers were interviewed from each of the three regions in Tasmania; Launceston and North East (52% of interviewees), West and North West (28%) and South East and Hobart (20%). The majority were business owners (20 out of 25 interviewees) with more than 10 years farming experience in the area. More than 40% had more than 20 years’ experience. There was an ideal spread of ages amongst interviewees including a strong younger cohort i.e. 45% were younger than 40 years old.

A range of farm sizes were represented by the sample with 40% medium sized (500 to <2,000 ha), 36% large (> 2,000 ha) and the remainder 24% were small farms. Most businesses were in their prime with some growth while 30% were actively expanding and 26% in a steady state, and possibly winding down.

The majority were livestock only producers (72%) with their primary livestock enterprise being beef cattle (68% of interviewees) and an even split between wool and prime lamb-based sheep enterprises (16% of each). The remaining 28% of producers were operating mixed farming enterprises. All but one producer was breeding livestock; three quarters were finishing, around one third trading and 20% were operating a stud.

Half of all producers were selling between 400 and 1600 head of cattle per year and around 20% selling less than 100 head. Of the sheep producers, the majority sold more than 2,000 head per year.

All producers had mostly improved pastures with some native or unimproved country and the majority (61%) were irrigating. One third of these were irrigating more than 200 hectares (crops and pastures) and more than half (60%) were irrigating some pasture, with two thirds irrigating less than 200 hectares and the remainder irrigating more than 200 hectares.

2.7.3 FOCUS GROUP PARTICIPANTS

Focus group participants included producers from Launceston and North East region (55%), West and North West (23%) and South East and Hobart region (23%). There were two focus groups held in the Launceston and North East region hence the higher representation from that region. There was a mix of ages represented with 60% of producers 50 years or older, 16% aged 40-49 years and 23% aged 30-39 years.
A range of farm sizes were represented in the focus groups with 45% small (<500 ha), 35% medium (500 to <2,000 ha) and 16% large (>2,000 ha) and 3% unknown sized farms.

The majority of focus group participants were mixed farmers with cropping and livestock production (68%), specialist livestock businesses represented (29%) and unknown (3%). There was a good representation of beef and lamb enterprises represented at the focus groups, beef only (45%), mixed beef and lamb (39%) and lamb only (10%). Most had breeding enterprises (70%), 83% were finishing livestock and 32% are trading livestock. Of the lamb producers the majority sold greater than 2,000 head of lambs per year (56%). Only 7% of beef producers sold greater than 1600 head of cattle.

68% of the properties had at least some irrigation and 29% had only dryland pastures.

Attendance at meat industry or pastures focussed events was high amongst the focus group participants. The majority attend two to four events per year (55%), a further 19% attend greater than four events and 16% attend at least one event. Only 6% of participants indicated they never attend events.

2.7.4 ONLINE SURVEY

Survey respondents including producers from the Launceston and North East region (54% of surveys), West and North West (21%) and South East and Hobart region (25%). There was a spread of ages amongst respondents including 32% younger than 40 years old, 44% between 40 and 59 and 24% 60 or over.

A range of education levels was achieved by the sample with a strong cohort (35%) having a University degree or higher.

A range of farm sizes was also represented by the survey sample with 35% medium sized (500 to <2,000 ha), 21% large (>2,000 ha) and the remaining 44% were small farms. 14% of the survey sample farmed less than 100 ha and as such the sample differs from the interview sample (see table of demographics in Appendix 6) for which we selected farms over 200 ha.

Just over half (55%) were specialist livestock (beef and/or sheep) producers and the remainder (45%) were mixed farms (cropping and livestock). The majority (79%) were finishing livestock, 76% were breeding, 33% were trading and 9% were operating a stud.

Of the beef producers, there was a range in the number of head sold per year, but only four producers were selling more than 1,600 head per year. Of the sheep producers, there was a range in the number of lambs sold per year.

The majority (63%) were irrigating at least some pastures. 34% of these were irrigating more than 200 hectares of pasture (i.e. not including irrigated cropping).

The majority (91%) attended at least one livestock or pasture event per year.
PART B – Results and discussion

3 What do producers do to manage and maintain pastures?

3.1 PRODUCER ASPIRATIONS

**KEY MESSAGE**

The results of the study present a significant opportunity for the Tasmanian red meat industry:
- Producers are seeking higher pasture productivity and stocking rates to match
- Pasture quality and quantity is the main business focus for a majority of livestock producers.

The goal of livestock producers is to achieve an optimal and sustainable level of meat production (in kg meat/ha) and have a profitable business. To operate a successful business, producers will need to optimise their productivity and profit while minimising their exposure to risk and uncertainty as best they can.

Managing the feed base is a central profit driver for any livestock business.

This study found that the large majority of producers were not fully satisfied with the performance of their pastures and aspired to improved pasture quality and productivity. A sizeable proportion of these reported having plans in place that aim to substantially increase the productivity of their pastures. Only a small minority of producers were satisfied with the productivity of their pastures and / or considered that it was at or near its peak (evidenced by the results from the online survey (Figure 7), interviews and focus group meetings).

There were also strong aspirations for increased stocking rates to capitalise on any increase in pasture productivity when achieved (Figure 8).

An aspiration for increased pasture and livestock productivity was found to be one of the most important drivers for producers at the moment. Other drivers that are most likely related to this included: wanting to achieve a good return on their investment, to be profitable and have a good disposable income and to develop their farms (online survey results).
Figure 7: Producer aspirations to increase pasture productivity (source: online survey)

Figure 8: Producer aspirations to increase stocking rates (source: online survey)
3.2 PASTURE PERFORMANCE

KEY MESSAGE

The results of the study present a significant opportunity for the Tasmanian red meat industry:

- Pasture performance is improving
- Producers feel that their pastures are reasonably good but could improve
- Advisors feel that there is substantial capacity for improvement and that knowledge and skills, and confidence and motivation of producers are limiting production.

When asked how pastures were performing in Tasmania, around half (7) of advisors mentioned that performance had **improved in recent years**. The reasons suggested for this were either a) irrigation development / investment; and/or b) recent prices for cattle and especially prime lambs, driving producers’ desire to increase pasture performance.

Around half (8) of advisors mentioned that **performance was mixed**, that is, some are performing well while there is room for improvement in others. One mentioned that performance was poorer in dryland, another mentioned that performance was poorer in the south and in beef versus lamb. It was suggested that lamb producers are more likely to have mixed livestock and cropping farms and therefore also more likely to use advisors; and that the use of advisors supported better pasture performance. However, mixed farms were more strongly driven by return on investment (refer to Section 6.3) and this may be driving a desire to improve pasture performance.

Around **two thirds of producer interviewees felt that the quality of their pastures was reasonably good**. Just over 20% of properties reported their pastures to be very good or excellent, and the remaining 10% of properties had relatively poor pastures.

However, **only 30% of interviewed producers were very satisfied with the quality of their pastures**: around 40% were moderately satisfied and over one quarter had a low level of satisfaction. The vast majority of producers felt that they could and wanted to improve the quality of their pastures, with a significant majority (68%) having high aspirations to do so. They also aspired to **increase livestock numbers** to utilise an increase in pasture production on their farms. These findings are illustrated in Figure 9.

![Figure 9: Pasture quality and stocking rate aspirations (source: in-depth interviews)](image-url)
Advisor and supply chain interviewees concurred that producer aspirations were mixed with some producers not interested while others had strong aspirations to increase productivity. They believed there is capacity to increase productivity including increased livestock numbers or increase weights.

The online survey results confirmed that advisors felt that there was significant capacity for increased pasture productivity on farms coupled with a moderately high level of producer aspiration. Advisor ratings suggested that there was definitely capacity for increased productivity, but producer aspirations were nearly always considered lower than farm capacity.

**Knowledge and skills, and confidence / aspiration / commitment / motivation** were reported by advisors as the most important limitations on increasing pasture productivity. Other factors currently restraining red meat producers’ business were identified as on-farm management issues (pasture management and composition), economic and financial factors (costs, stock availability) and poor extension provision.

### 3.3 Pasture Management Strategies and Focus

**KEY MESSAGE**

Producers are most focused on optimising pasture utilisation, closely followed by grazing management. Producers want to improve their performance in all pasture management approaches.

During interviews, producers rated five main pasture management strategies in order of importance and the results are shown in Figure 10.

Optimising pasture utilisation, closely followed by grazing management, were nominated as the most important pasture management strategies that producer interviewees were either currently adopting or aiming to improve on. These two strategies were deemed to have the most significance in increasing returns to the business and were worthy of the most attention by producers.

Managing soil fertility through monitoring soil nutrients and application of fertilisers was the next most important strategy being used by the producers interviewed. While this is closely tied to maintaining pasture composition, only a small minority of producers explicitly nominated maintaining pasture composition as their top priority.

The vast majority of producers interviewed reported doing some renovation and re-sowing of pastures, usually up to 20 hectares per year, however, this strategy was seen as a last resort to improve production levels on the poorest of pastures on their farms; once the other avenues had been exhausted. These findings were supported by the results of the on-line survey. There was a good level of aspiration amongst all producers to improve their performance in their selected pasture management approaches.
3.4 PASTURE MANAGEMENT PRACTICES IN TASMANIA

This study focussed on better understanding producers’ decisions on how they manage the pasture base on their farms.

Best practice pasture management has two main aspects:

- **Pasture quality and growth** – is about methods to ensure desirable species composition and production levels
- **Pasture utilisation** – is about methods to optimise stocking rates by adopting grazing management systems according to plant growth.

The following section is a discussion on what red meat producers do to manage their pastures in Tasmania.

**KEY RESEARCH QUESTION**

What is ‘usual' practice for pasture management in Tasmania?

Usual practices have been considered in the context of four main dynamics affecting pasture-based livestock farming systems, as shown in Figure 11.
The results of the study are discussed according to these four dynamics.

### 1. Farming System and Enterprise

**Key Message**

The results of the study make the following observations:

- Increased access to irrigation water has increased the production opportunities for mixed livestock and cropping farm businesses.
- Pasture-based farming systems have become more flexible and there are new ways of growing feed, including the adoption of short to medium-term pastures and forage crops.
- Many producers are seeking to finish livestock out-of-season and are finding adaptable feeding systems to help them to do this.

There were two main livestock farming systems identified during the study:

- Mixed farming – cropping & livestock
- Specialist livestock – beef and/or sheep.

Specialist red meat livestock businesses operating throughout Tasmania were often larger scale beef cattle enterprises in higher rainfall areas. However, it was highlighted that most commercial livestock businesses
will comprise mixed enterprises including cropping, fodder conservation (for use on the farm and or for sale) or wool production. In the mixed cropping and livestock systems, sheep are the most common livestock enterprise, as sheep fit well in this system.

Within these two main farming systems are a range of livestock production systems including: stud, breeding, finishing and trading enterprises.

A discussion on the role and management of pastures in each of these farming systems follows.

MIXED FARMING – CROPPING & LIVESTOCK

A shift to more cropping and increased access to irrigation water in some parts of Tasmania, has increased the production opportunities for mixed livestock and cropping farm businesses.

It was reported that irrigation had provided producers with greater flexibility with managing livestock and dryland pastures.

*Having irrigation helps take the pressure off the dryland blocks at certain times of the year; we can run large numbers, particularly where the grass seed fits really well, you can put high numbers of ewes, or whatever, and rest all your other country.* [Producer interview No. 21.]

*Where there’s irrigation there’s key drivers there to try and make use of that water. There’s financial incentives around input to maximise what they’re going to get out.* [Advisor interview No. 5.]

*With the development of the various irrigation schemes in the midlands, south east, ……, what this has provided is I suppose a little bit more surety in the fattening component. And even a little bit more emergency fodder availability in the dryland system as well.* [Advisor interview No. 4.]

Mixed enterprises were reported to be operating more flexible pasture systems where, for example, instead of sowing a new pasture and leaving it there for 15-20 years, farmers were sowing new pasture species and new ways of growing feed were being adopted. Some long-term pastures in need of renovation were being converted to medium term (3 to 4 years) pastures (such as lucerne) that fit better with a cropping cycle.

Cropping was found to be driving a lot of decisions for mixed farmers, especially in the north. Poppy production was said to be reducing on some farms and on some farms had been replaced with fodder crops, often for lambs. Mixed farm businesses with lambs reported trying different things (more so than specialist beef only producers).

Those producers in relatively high rainfall areas or with irrigation selling prime lambs into premium markets, for example, were found to have high producing grass pastures on shorter rotations, operating on a 3- to 5-year pasture base.

*Most of the lamb guys are all – especially in the northern parts of Tasmania, are all cropping guys and then have their rotations through their crops with different fodder crops through the winter time.* [Supply chain interview No. 12.]

Lucerne is being sown more for grazing (again, often for finishing lambs) and to cut for hay, or after a vegetable or poppy crop and would generally stay in for around 5 years. Greater access to irrigation (midland and south east schemes) had provided more fodder security.

Vegetable crops were reported to have synergies with a beef cattle operation, as explained by a key supply chain representative in Tasmania:
…one fella in particular, he does about 700 steers a year for us. Now, last year, out of 700 steers, he had two that didn’t grade, two, out of 700. Now, he is a vegetable grower, and there’s no doubt that vegetable growers using beef cattle in the rotation, fattening cattle in the rotation with their vegetables, it really works because they plant fresh grass after they finish their vegetables. They’ve got the fertiliser residual in the ground, they plant fresh grass, the young grass is full of sugar, full of energy, the cattle do extremely well on it, they get extremely good gains, and very good results. Now that’s just a perfect example of the difference that good pastures can make versus old worn out types. And pastures do wear out… [Supply chain interview No. 10.]

SPECIALIST LIVESTOCK

Beef

Beef cattle production in most parts of south eastern Australia tends to occur in conjunction with other broadacre farming enterprises. However, large commercial beef pasture-based farming systems are operating in the higher rainfall areas to the north, and north west and on the islands in Tasmania. They can be highly productive farms and tend to focus on perennial ryegrass and clover-based pastures.

There are however many more smaller-scale, lower input farm businesses throughout Tasmania with cattle grazing mixed quality lower production pastures.

It was reported that as a general observation, while specialist beef producers were less active in improving the productivity of pastures in some regions, in others, particularly the higher rainfall areas to the north and the islands, they were very proactive in pasture management. These businesses were found to be usually breeding and finishing cattle (around three quarters), with around one third trading cattle, and a minority with studs (supported by the interviews and on-line survey data).

Sheep

It was heard that sheep and cropping (especially irrigated) complement one another. The majority of lamb producers were doing it in conjunction with another enterprise such as cropping and/or wool.

….. to be optimising stocking rate on the base system, what we are seeing a bit of late is people are looking to integrate their irrigated and dry land systems to get some synergies there. So therefore, if they can produce a few more lambs over in the dry land system, they have the ability to do that and finish those lambs in the irrigated systems – they can therefore I suppose change their model based on a little bit more irrigation water surety, to also give them a little bit of opportunity to retain a little bit more margin in each of the steps through that value chain. [Advisor interview No. 6.]

What I see with my guys is that most are doing lambs, especially in the north of the state, [they] are doing cropping and then they swing into the lamb fodder crops. So obviously they don’t want the cattle on those places to be pugging their paddocks. [Supply chain interview No. 12.]

There was a strong awareness by lamb producers that feed quality matters throughout their entire growth cycle, and advisors and supply chain representatives reported that they tended to focus more on feed quality than beef producers.

People often think that if you run more stock, you get worse lambs, but I think it’s all about the clover-based stuff. That’s what we’re trying to do, probably get the increase in stocking rate, with [better] fertility, but also more legume content, which would mean the sheep would be better. [Producer interview No. 28.]
I think with the pasture improvements in Tasmania we see a lot more in the lamb producers more so than the beef. [Supply chain interview No. 12.]

There were also specialist livestock producers engaged in the study that run sheep and beef together.

**LIVESTOCK PRODUCTION SYSTEMS**

Breeding and finishing were found to be the most common livestock production systems adopted by producers engaged in the study (through interview, on-line survey and focus group discussions). Trading was important for less producers (around one third) and a small minority had studs.

Around 30% of survey respondents also reported that they **normally finished livestock out-of-season** and an additional 30% **opportunistically finished** livestock out-of-season. A further 8% indicated that they would like to finish livestock out-of-season. Use of **specific pastures or forage crops** for finishing livestock were used by more than two thirds of on-line survey respondents. Focus group participants also identified supplementary feed (including hay, silage, pellets and grain) as a very important strategy for finishing livestock out-of-season.

I’ve got lambs being processed in Melbourne this morning. They will be 24kg and some will be 25 and 26kg. To keep them going they have had a supplementary feeder. A non grain based oat hull pellet so it fits with the Farm Assured Program and combined with being on really good pasture and access to silage they will still power away through winter. [Focus group participant.]

Supplementary feeding was not raised as a deliberate or common practice by many producers even though it is likely that it is for many farm businesses.

Some producers raised that they try to minimise supplementary feeding.

*We, generally, try not to feed. We make silage to use for yard weaning, and whatever's left after that, we'll feed out, but we don't actively go feeding out cattle. We don't make hay, we buy hay.* [Producer interview No. 33.]

*We sort of see hay now as a, not something to worry about trying to use up every year, just something to – is a control measure for the bumper seasons and you make up 700 bales one year and not worry about it the next.* [Producer interview No. 37.]

*The hay is noise in the end, it’s about having an amount there for drought storage. So, we try not to, we feed a little bit of winter hay, but it’s more there as a dry storage, so essentially, you know, it’s just mouths, having optimum mouths through the winter to handle the spring.* [Producer interview No. 36.]

Pasture, through providing 'economic feed' was reported to be the foundation of the red meat industry in Tasmania. Pasture fed beef programs offered by the processors (JBS and Greenhams) exemplified this fact. This also meant that hay and silage were important for filling feed gaps, as well as fodder and forage crops. Grain supplementation was mentioned as important for some value chains e.g. Woolworths, Tasmanian Feedlot.

Interviews with supply chain representatives found that pasture productivity had a substantive effect on livestock supply and quality.

*Certainly, the better the pasture productivity and the better the nutrition of pastures the better the quality outcomes. It’s absolutely paramount to getting a good quality product into a box. There’s nothing else is there that will influence it as much as what nutrition does.* [Supply chain interview No. 12.]
…honestly, generally, if they’re off good feed and they’ve been well looked after and off of really good pastures, you’d always see that whether it be lambs or cattle, the stock will generally indicate what they’ve been on. If they’ve been on really good feed, generally the stock are really well finished and your live weight conversion to your dressed weight are always very good. Always dressed extra well, because they’re on extra good feed. I think a lot of people, probably missed the point a bit, that the better the feed, the better the stock, the better the grading, the better the yield, the better the dollars per head you’re getting back. [Supply chain interview No. 9.]

A lack of supply of finished livestock (particularly beef cattle) in winter was commonly mentioned by supply chain representatives and one interviewee commented that there are less split-calving herds now, with more producers adopting spring only calving, which has further reduced winter supply of cattle.

Most people have targeted and tried to finish their cattle before then so there’s not that many – it’s only, sort of, you’re dealing with the tailenders. Or people that haven’t really put a good autumn break on their cattle. So therefore, …they carried them through. You’d say the better producers have turned the majority of their cattle off before the end of July and they’d now only have a few stragglers going through. [Supply chain interview No. 11.]

Lack of supply in summer and autumn was also mentioned by a further two supply chain representatives. The need for a steady plane of nutrition (for livestock) was mentioned by three interviewees in relation to meat quality. Autumn was also mentioned as a time when pasture quality and therefore animal nutrition causes problems with meat quality.

Irrigation has enabled greater flexibility for some livestock producers who are trading stock to manage their feed supply enabling them to buy stock outside of peak times.

….. a lot of fattening guys won’t buy any stock in, whether it be lambs or cattle, until they’ve actually got the feed to do it, which may mean an April buy-in. Then, you’ve got other people that are buying all year round, selling all year round. But they are probably set up better with irrigation and [can] buy stock in December, January, February, when it’s dry, because they’ve got paddocks that have got feed that they can utilise, but of course, when everyone’s got feed, everyone wants to buy in. When no-one’s got feed, everyone wants to sell. So, it’s a bit of a Catch-22 and that’s where it’s, obviously, season related. [Supply chain interview No. 3.]

In the main, supply chain representatives reported that meat quality was improving under these production systems.

I think if you have a look at our meat quality over the last 10 or 15 years, it’s increased dramatically. A couple of reasons, one because they are finishing them better because the market demands that they want a certain article and they’re providing that. [Supply chain interview No. 39.]

Advisors strongly concurred that pasture quality and quantity had considerable impact on the supply and quality of livestock into the red meat supply chain.

A discussion on producers’ attitudes towards taking on a forward contract for out-of-season production for beef or lamb is provided in the following decision-making section (Section 4).
2. PASTURE QUALITY AND GROWTH

KEY MESSAGE
The results of the study make the following observations:

- Producers are focusing on grazing management and fertilisers to improve pasture composition and quality and they feel that there is room for improvement.
- Most are not deliberately monitoring pasture composition for desirable species, but they want to see a mix of grass and legume varieties that will provide balanced feed over the calendar year.
- Fertiliser use may be increasing with better returns from livestock and producers are planning to increase their use.
- Re-sowing is a low priority for most specialist livestock producers however nearly all producers engaged during the study had sown at least some pasture in the past 12 months.
- Producers remain concerned about the lack of persistence of some newer varieties of pastures.
- Advisors feel that there is both a need for and a capacity for more renovation and re-sowing in some parts of Tasmania; this would improve pasture quality and performance.

This section discusses the main findings on the methods being used by producers to attain desirable species composition and good production levels, i.e. in terms of quality and quantity of pasture grown.

The main aspects of pasture quality and growth are:

- Feeding systems (pastures / forage crops)
- Pasture species composition
- Pasture growth and feed quantity
- Soil fertility, and
- Renovation and re-sowing.

Feed systems (pastures / forage crops)

There were five main pasture-based and forage-based feed systems identified during the study:

- Perennial ryegrass/white clover – higher rainfall areas to the north, north east and north west and irrigation regions
- Phalaris/cocksfoot/fescue and sub clover based (dryland) – lower rainfall areas in the midlands and south, areas with terrain, out paddocks or run country
- Lucerne (dryland and irrigation) – lower rainfall areas and coastal sand country; also irrigated regions
- Annual ryegrass/clover based – transitioning between crops and reintroducing a more permanent perennial based pasture
- Forage and seed crops (rape, winter cereals, brassicas) – dryland and irrigated crops for feeding and dual-purpose cereals and ryegrass or clover seed crops (feeding and harvest).

PERENNIAL RYEGRASS / WHITE or RED CLOVER BASED

Perennial ryegrass / white or red clover based perennial pastures were considered the highest quality feed by many producers and are grown in the higher rainfall areas to the north and northwest or in irrigation regions. They are very productive pastures in Tasmania and respond quickly to rainfall and can persist on ‘heavy ground’.

"I like a bit of a composition of a couple of different varieties of ryegrasses, a little bit early maturing, a little bit later maturing. And then some clover in with that of two of three different types if we can get it. [Producer interview No. 13.]"
It was widely reported that they were susceptible to damage from grubs, and needed both reliable rainfall and good management, or they wouldn’t persist.

.... your perennial ryegrass just can’t handle it, well it’s a two-fold thing, low, sporadic, unreliable low rainfall and poor grazing management. [Advisor interview No. 1.]

PHALARIS / COCKSFOOT / FESCUE AND SUB-CLOVER BASED

Phalaris based pasture were deemed to be most suitable to the dryland paddocks in lower rainfall areas, out paddocks / areas with terrain, where perennial ryegrass doesn’t fit.

In my view phalaris-based pastures are the way to go in dryland areas through the central midlands corridor of Tasmania. [Advisor interview No. 1.]

Established / old phalaris (especially Australian phalaris) pastures were regarded as robust and able to withstand drought and heavy grazing.

There’s 50-year-old phalaris-based pastures in central Tasmania that if you looked at them you would say you won’t get a better pasture, so it can be done. Everything’s got to be done at the start, get a good establishment and then manage it well. [Advisor interview No. 1.]

Cocksfoot was regarded as a high-quality feed that can fill feed gaps, for example good summer production levels were reported and it was able to fill gaps in a paddock where perennial ryegrass hadn’t persisted.

Fescues were described as being less reliable and required more understanding of growth characteristics to ensure persistence and palatability. Fescues were also reported to withstand water logging better than some other species. In general, advisors were more positive about the performance and persistence of newer varieties of fescues than most producers.

LUCERNE

It was reported that more dryland lucerne is being sown again, particularly in the lower rainfall areas and coastal sandy country. It was also noted that producers are learning how to graze it for production and persistence.

Lucerne’s a great feed, but it also can be a horrible feed if you don’t manage it properly. [Advisor interview No. 7.]

Lucerne is being sown into mixed farming systems in particular and in these instances, it is often irrigated.

...you see with lucernes, that’s almost like a pasture phase now, that someone might put down, say, after vegetable cropping or poppies, they might put lucerne down for five years and then bring that paddock back into their cropping rotation. [Advisor interview No. 3.]

ANNUAL RYEGRASS /CLOVER BASED

The use of short-term ryegrasses (e.g. Tamar rye) and mixing this with forage crops and grazing cereals had increased throughout the Midlands area in particular. Annual ryegrass can be used with clovers (as a legume for nitrogen) or just annual ryegrass on its own (apply nitrogen fertiliser instead) which makes it more suited to a future cropping program. They were reported to perform well during winter which is helping to overcome the winter feed gap in many places.
We put in a winter forage crop of ryecorn or Moby barley under sowed with annual ryegrass. [Focus group participant]

I think there’s a lot more varieties, yes there’s a short-term, one-year grass and there’s also lots of good, two, three, and five-year grasses. [Supply chain interview No. 9.]

One of the issues with legume-based pastures in a cropping rotation, even if it’s for three or four years is they limit your weed control options which may even feed on the next phase of cropping. So some people are happy to put a white clover-based with a white clover slash short-term ryegrass pasture in and tolerate that they may have to really hammer the white clover during the weed control programme, others will just say no, I won’t worry about the white clover, I’ll get my nitrogen out of the bag and can be quite diligent with their weed control during that pasture phase. [Advisor interview No. 1.]

FORAGE AND DUAL-PURPOSE SEED CROPS

Some producers reported growing straight ryegrass stands (perennial or annual) for grass seed production. Seed crops were usually under irrigation and in rotation with poppies, for example.

The pasture seed industry (grass and clover seed) has grown substantially in Tasmania in the last 5 to 10 years. It was evident that these systems were also becoming increasingly important for red meat production e.g. grazing prior to locking up; and then grazing residual after the seed has been harvested. Producers also reported grazing suitable winter cereals (e.g. wheat and barley) were valuable as dual-purpose (graze then harvest) crops.

Forage crops are being used for finishing lambs and cattle as part of cropping programs. Forage crops were reported as a great advantage to fill short-term feed gaps and especially for producers with access to irrigation.

Some of the guys are putting, say, a brassica forage crop like a rape or something in, after peas or poppies - finishing lambs, or grazing lamb, on it over winter and then going into another into a crop the following spring – a vegetable or a poppy crop. [Advisor interview No. 3.]

In recent times we’ve been autumn sowing brassicas, usually post poppies, so a Leafmore or Greenland rape sown in February, post-harvest, and then irrigated up and used as an autumn/winter fattening feed, and then we’ve used leafy turnip the last two years as a really short grazing, kilograms of dry matter production increase over a short period of six to eight weeks of grazing before it’s sown down to a spring barley, or something. Just fills a short term gap. [Producer interview No. 21.]

In my situation I need to have a crop a leafy turnip to get the MJ of energy down their throat because my grass is basically fog grass and I can’t get the weight on them with that. I have 30 steers booked in for middle of August and they are chomping through this brassica and they are putting the weight on. [Focus group participant]

Forage crops and short-term new pastures were also being used to renovate rougher back paddocks by sowing turnips for example, then returning them to a more permanent pasture by re-sowing.

Pasture species composition

While pasture composition is front of mind when establishing a new pasture, generally, producers are not deliberately monitoring pasture composition for desirable species. But they do want to see a mix of grass and legume varieties growing to provide a balanced feed over the calendar year. They are thinking about pasture composition in a broad sense rather than in the specifics.
Ideal composition I reckon would be probably about 30% perennial ryegrass, at this current point in time I’d say, and then you’d probably have another 30% cocksfoot or some other perennial pasture species, and the rest would be legume. [Producer interview No. 17.]

Oh, we don’t measure, it’s all subjective. But so, visual assessments on whether the paddock has good enough ground species. [Producer interview No. 28.]

The study found that producers felt that it was ‘horses for courses’ when it comes to ideal pasture composition. They know what persists and does well in their region and on their farm. Some concerns were raised about the difficulties in establishing some species (cocksfoot), lack of persistence in drier years (perennial ryegrass) and lack of clovers without a strong autumn break. Comparatively high cost of seed of new pasture varieties was also mentioned.

… after years of sowing ryegrass, phalaris, cocksfoot and white clover and sub clover, we now realise that basically what persists is sub clover and phalaris and some of the new cocksfoots. So I guess we don’t try that hard on maintaining pasture composition, in the sense that that just happens. [Producer interview No. 20.]

…well it used to last longer, I don’t think a lot of the new perennials last as long as they used to, but I suppose perennial grass with an ideal amount of clover coming up. [Producer interview No. 29.]

So, it’s so seasonal and then, other years when you have good strong breaks, you’ll end up with a huge clover composition, but I suppose what I look at is, when I’m looking at pastures I look at the density of the ryegrass essentially and that’s with all the density of the perennials ….. so my aim with compositions is to try and get those perennials to thicken out. [Producer interview No. 36.]

I am more reluctant to try new varieties due to the cost of them. Some of the new ryegrasses are $20 per kg. At a sowing rate of 20kg per ha it’s $400 / ha just for the seed. [Focus group participant.]

There was acknowledgement that having the right grass and legume mix was beneficial and something to aim for.

So, we’ve got a mixed stand of mainly clover and ryegrass but the ryegrass takes over and as soon as the ryegrass takes over, the quality goes. The [stock] don’t do anywhere near as well. [Producer interview No. 20.]

Practices to improve composition and growth were mainly focused on grazing management and fertiliser to maintain soil fertility.

Grazing management was deemed the most important practice to sustain pasture composition.

The ryegrasses and things like that thrive on good grazing management. And they become that strong that the weeds can’t [outcompete] - if you’ve got your fertiliser and your nutrient program in place. [Producer interview No. 32.]

...species selection at the start so they have got varieties that will persist and they’re managing it with grazing management so that the pastures get a spell and they’re not persistently grazed, I think there’s set stocking and then there’s grazing management. I don’t believe set stocking is grazing management, rather than mis-management. [Advisor interview No. 1.]

Things like fescues and cocksfoots are a lot different to graze than ryegrasses are. With a fescue, for example, it’s an earlier heading plant, so it runs up into a head. Well, if they haven’t got the stock
numbers and the grazing pressure, it will go reproductive. But by keeping the grazing pressure on it, it will stay vegetative, or even using something like topping, if it runs up into a head by mechanically topping it, then providing you’ve got moisture and you can keep the numbers on it, it will stay vegetative. So, techniques like that, yeah, just utilise what you grow. [Advisor interview No. 3.]

Many producers reported that they were striving to improve their grazing management to facilitate pasture quality and quantity; some felt that they were good at it, but most felt that there was room for improvement.

Never good enough, but we are improving, which is encouraging. Trying to get a better rotational grazing system going, and each year we get it better and each year you can see a bit of a few more ryegrass plants coming in. [Producer interview No. 34.]

Fertiliser applications were seen as very important by the majority of producers and this practice could be increasing in prominence; coinciding with better returns.

Renovating pastures is expensive in relation to historic sheep and wool prices… but at current levels it’s feasible to start renovating, which we are now, using fertiliser and lime and renovations and fences to utilise our pastures better. [Producer interview No. 25.]

There was a view that pastures for grazing didn’t need to be pure or clean and a mix of species was desirable. Some autumn spray topping of broad leaf weeds (cape weed, erodium, thistles) to reduce competition from weeds was mentioned but infrequently.

**Pasture growth and feed quantity**

Producers spoke of a range of issues with growing pastures to ensure there is sufficient feed all year around for different livestock classes. Most reported a preference for more species rather than less and were growing pasture types depending on their feed requirements. Filling the winter feed gap is being assisted by the increasing range of varieties now available (e.g. winter active lucernes, shorter term turnips, rape hybrids) and applications of urea and ProGibb. A range of responses were heard:

So, you’ve got perennials, and when you get the autumn break, you get a good spurt from the sub clovers. The sub clovers will go off first in the spring. So you’ve got to have a balance of perennials and annuals. [Producer interview No. 32].

Finishing lambs and lambing on …… we get things like white clover and the lucerne and things. They are still active through winter really. We are finding that we can lamb down on them from August through to September and then have the ewes off and still get that lucerne active again ready to even fatten lambs on. [Producer interview No. 15.]

…. has been a great year this year for cocksfoot, it’s had a good summer, so we’ve had good feed off that all summer, and then it’s not as active in the spring but the clover takes over and there’s room for the clover to take over ‘cause there’s not the density of ryegrass and everything there …. [Producer interview No. 19.]

There is somewhat of a balancing act between pasture productivity and persistence. Producers want high production and good persistence in their pastures. Yet there was some concern about the persistence of some of the newer pasture varieties and their tendency to enter a reproductive phase if not managed well.

Based on the discussions with both producers and advisors, poor persistence related at least partly to a) selection of suitable pasture species, combined with b) pasture management. The study revealed gaps in knowledge of varieties suited to regions.
I’ve got advice from local community and dairy farmers on what [varieties] suits your area. Just because it works in the Coal Valley or Oatlands doesn’t mean it will work in the Derwent Valley. We have found that out the hard way. [Focus group participant.]

Some of the older grasses don’t seem to regrow as quickly, but then a lot of these [newer] ones that regrow quickly don’t seem to have the persistence either. [Producer interview No. 29.]

…..look some of the newer pasture species are highly productive but they’ve got problems, and I suppose that’s why we’ve thrown cocksfoot into the mix to let the cocksfoot take over where we’ve had grub problems and they don’t respond overly-well after flowering ….. or going reproductive after summer rains, some of the new ryegrasses, so yeah, the cocksfoot sort of fill the hole there. [Producer interview No. 17.]

On the other hand, there was some support heard for newer varieties:

I’ve seen the benefits of some of these newer varieties, and I’ve seen what we originally sowed. Some of that is 28 – 25 years old now and it’s done a bloody great job, but it’s tired, and you can see that, yeah, especially when you put in a new grass paddock beside it. [Producer interview No. 31.]

Survey results indicated that medium and larger-scale farms all used some form of pasture monitoring whether visual only or using tools. Of the very small-scale farms (<100 ha) 21% did not monitor pastures (Figure 12).

Figure 12: Use of pasture monitoring, by farm size (source: online survey)

On farms greater than 100 ha, a greater percentage of specialist livestock farms currently use or have previously used pasture monitoring tools compared to mixed farms. Furthermore, 38% of the specialist livestock farms used visual assessments only while a majority (61%) of the mixed farms used visual assessments only (Figure 13).
A lack of and need for monitoring tools for assessing and predicting growth rates on native run country was raised by focus group participants.

**Most can tell you ryegrass and growth rates and Kg DM. You take that out to run country and they don’t know what’s there.** [Focus group participant]

**We get a growth rate off the internet which is ok for most of our pastures but it puts us out for our run country as it doesn’t grow at the same rate.** [Focus group participant]

**Soil fertility**

Producers reported that they were using fertiliser on pastures and with the better returns from livestock it was evident that they had been or were planning to increase their use. Soil testing for nutrient status was a common practice and they often relied on advice from their agronomist about fertiliser requirements. Testing seemed to focus mostly on phosphorus, potassium and pH. Some producers interviewed used nitrogen and or gibberellic acid as a tool to increase pasture growth.

**Well basically whatever our agronomist tells us to do, within reason. As long as we can afford to do it, we try to follow that. So, if he’s got a program of trace elements that he can see that we’re lacking then we’ll ask them to be put on with our normal autumn fertiliser which is usually phosphorus and potassium. And, so we add any trace elements with that. If our pH is getting down a little bit he’ll tell us – “You’ve got one more year out of this and then you’ll have to put some lime and dolomite on.” and then this year we’ve started our little program of urea.** [Producer interview No. 13.]

**In the broadest sense on the grazing areas we would apply about 125 kilos to the hectare of either single super or, this year we applied a super potash mix and that was on the basis of soil tests which were down a bit in K. Phosphorus levels were good. And then the more intensive areas and irrigated areas and things we will tend to apply higher analysis fertilisers to those areas, all on the basis of soil testing**
and we will utilise urea as well. I haven’t yet used things like gibberellic acid. I probably have got a place here, phalaris responds really well to gibberellic acid but I haven’t really played with that yet. So that’s an opportunity I think. [Producer interview No. 20.]

I’ve always been told three rules. Good PH, good P, then worry about the K. So, that’s what we’re concentrating on at the moment. [Producer interview No. 31.]

We do use a bit of nitrogen, our annual spread over everything will be some kind of phosphorus potassium blend, and then other bits and pieces, like urea as required, on new pastures ……we soil test every two or three years, just to see what’s happening. [Producer interview No. 33.]

Many producers (particularly beef producers) reported that grazing management and pasture utilisation, were more important to focus on than soil fertility.

So we don’t put a lot of focus or effort into making sure that all that’s right [pH, nutrient levels], you’ll pick up more production in your rotation then how you graze your pastures than you ever will in fertility. [Producer interview No. 17.]

Cash flow was also raised as a limitation to optimising fertiliser use.

…. we don’t do any nitrogen fertiliser – I mean we don’t use nitrogen as a way of growing more grass like some people do, or gibberellic acid. Because, again, we are limited in our cash flow. And this year we actually should have put on more fertiliser but we’ve been expanding and that’s more of a priority for us at the moment. [Producer interview No. 30.]

When prioritising where fertiliser should be applied on the farm, the better pastures were considered most worth investing in.

We know the areas that aren’t producing much, so, therefore they don’t get as much fertiliser as the better producing areas… it’s those older pastures that aren’t performing much will basically get a maintenance program. Anything that does perform well will get a bit better program. Then we’ll try and pour a bit more into those productive types of grasses. [Producer interview No. 31.]

When asked what areas producers would invest in if additional cash flow was available, some reported that they would invest in more fertiliser.

Renovation and re-sowing

Re-sowing was a low priority for most interviewed producers with the exception of mixed farms where re-sowing was described as an integral part of the farming system and rotation with crops. Producers reported varying intensities of re-sowing, in terms of percentage of their pasture, and it was commonly regarded as the practice of last resort when the pasture was run down and couldn’t be revived by other means (for example, through grazing management, fertiliser application, spray topping).

Notwithstanding, a large majority of interviewed producers reported having re-sown at least some pasture in the past 12 months.

Ranging from 30 years to one year. So I’m doing lots of renovating. There’s 100 hectares getting renovated at the moment. [Producer No. 22.]

Similarly, 88% of the online survey respondents had re-sown a least some pasture in the past 12 months. 40% reported having a plan to regularly re-sow a proportion of the farm each year while others (27%) would re-sow
a pasture if it was not performing but usually as a last resort, or if it fitted with their cropping enterprise (13%) (Figure 14).

Some producers reported pastures that were performing well after 50 years. This appeared to be largely due to having species that were well-suited to the region/situation; and was most likely in combination with good grazing management.

Advisors confirmed that the need for re-sowing can be influenced by producers choosing the right species for that environment. The right species coupled with good grazing management can minimise the need for re-sowing. Yet some producers reported a relatively haphazard approach to re-sowing, yet fully appreciating that it is a high cost:

*Sometimes we just do a shotgun mix of whatever grass – like it might be ryegrass, or whatever, and just throw it all in the mix and drill it ……these days with a disk drill of our own, and let it get established and let it set seed and treat it with kid gloves in the first year or so, just so that we’re getting our maximum, because it’s a costly exercise to re-establish pasture.* [Producer interviewee No. 21.]

Producers acknowledged that sometimes their older pastures were less productive and were identified as part of a re-sowing program.

*So those really older pastures that are less productive we’re not happy with, and we’re slowly upgrading them.* [Producer interviewee No. 19.]

* …but the paddock that’s old, it’s really only there to waste time really because there’s not much production. It’s nice and dry and you can feed hay and silage it at any time.* [Producer interviewee No. 31.]

On the other hand, some older pastures were reported to be doing well and remain an extremely value feed base.
We don’t do a lot of re-sowing just because we’ve got, I guess, robust pastures that last. So quite a lot of the phalaris pastures here were sown in the 60s and we still harvest them today for phalaris seed that we sell commercially. [Producer interviewee No. 20.]

.... some of our pastures that are 60-80 years old, probably grow better than our newer pastures. [Producer interviewee No. 16.]

Producers in a focus group session described run-out pastures as being dominated by annual species, presence of weeds, pest pressure, bare ground patches and possible pugging, yellow in colour and having low dry matter production and of poor nutritional value (Table 13, Appendix 8).

During focus group meetings, soil testing was the most frequently raised tool used to identify issues in run-out pastures (12 mentions) followed by review of past paddock history and management (6 mentions), consulting an agronomist (5 mentions) and then visual observations (4 mentions). Other considerations or sources of information used included considering the seasonal conditions, stocking rate, topography or aspect of a paddock and information from on farm trials (Table 14, Appendix 8).

The majority of producers interviewed reported that they identified problems in their pastures by visual / observational means and then followed up with a soil test.

In addressing the issue of the run-out pasture most focus group participants agreed that something needed to be done to solve the issue and their strategy would depend on why it was run-out. Strategies with the most mentions were re-sowing as part of a cropping program (6), spraying weeds or spray topping (4), addressing nutrient imbalances (2) and use of sacrifice paddocks (2) were raised as possible strategies. Changing grazing management, resting the paddock and re-sowing with a mix of species were also mentioned (Table 15, Appendix 8).

In making their decisions on the run-out pasture producers indicated they would consider their financial position or budget available (2), assess the seasonal conditions and consider the soil type and associated management required.

A focus group meeting participant summed up the decision-making process well:

One of the challenges is having the ability to assess a seasonal stress trigger. Our operation has irrigation but we also rely on seasonal dryland pastures as part of our rotation and recognising them as a higher risk and we do. Take them on a season by season basis as you will see different characteristics in a good season vs a dry season particularly with our heavy clay soils. There is a lot of time and money to invest in replacing a pasture, so you want to really be identifying what has caused it rather than saying its bugged let’s put a whole new thing in. [Focus group participant]

Another interviewed producer reported:

Re-sowing is something you do if you can’t achieve it through pasture management or through soil fertility and grazing management …if the pasture needs to be re-sowed, yeah, for sure. But it does take cost. Once you’ve re-sowed you’ve got to look after it too. A lot of people re-sow a paddock and they just ‘pizzle’ it and it’s gone in a few years. Wasted all that money. [Producer interview No. 23.]

A more detailed discussion on decision-making and pasture re-sowing is included in the following section (Section 4).

Producers held different expectations on how long a new pasture should last:
Well it just comes down to a cost side of things, the longer you can maintain that the less it will cost you in terms of establishment costs and then again having to renew it, so in theory a perennial pasture once sown should last you a lifetime, it should be a once in a lifetime cost, then I think here in Tassie you’ll find there’s probably about five to six years and people are going in it again, so we’ve got - fundamentally something’s wrong with it. [Producer interview No. 17]

Advisors reported a need for and a capacity for more renovation and re-sowing in some parts of Tasmania. They reported a lot of dryland pastures, especially in former wool growing stronghold regions, being run down and in need of attention.

We’ll see a fair bit of money spent on dryland pastures as well but with the demise of the wool industry or the nearly 20-year hiatus in the wool industry, a lot of the dryland pastures have pretty well run-out. And that’s probably a legacy of the fact that a lot of them were established as perennial ryegrass pastures which haven’t persisted and then they’ve just reverted back to annual grass. [Advisor interview No. 1.]

At the moment, just driving down through the midlands, you would probably say there is no feed around and that they have got to do something. Then all of a sudden you have your winter rains and you get a bit of a fresh growth at spring time again. They will have a look and say, “Oh, no, there’s enough there. I don’t really need to worry about it.” It’s not until the end of summer when it is all burnt off again that they think, “We probably could do something.” But then you get an autumn rain and it comes back up. But I think there always seems to be a bit of an excuse as to why they shouldn’t, rather than why they should. [Advisor interview No. 8.]

3. PASTURE UTILISATION

**KEY MESSAGE**

The results of the study make the following observations:

- Beef producers are aiming to optimise pasture utilisation through a strong focus on grazing rotations.
- A wide range of rotational grazing practices are being adopted; some are only ‘loosely’ rotational and constrained by a range of factors (knowledge, infrastructure, time, farming system).
- Most producers rely on visual cues and back their own experience rather than use scientific pasture monitoring tools or formal feed budget calculations.
- Producers pay a lot of attention to mixing livestock classes and setting stocking rates to utilise pasture.
- They are faced with practical difficulties to utilise surplus feed through increasing stocking rates.
- Producers want to improve their performance in utilising pastures, while managing the risks.

This section discusses the main findings on the methods being used by producers to optimise stocking rates by adopting grazing management systems according to plant growth i.e. optimising pasture utilisation.

The main aspects of utilisation as a pasture management strategy are:

- Grazing rotation
- Pasture budgeting
- Livestock classes and stocking rate.

**Grazing rotation**

Beef producers resoundingly reported that good utilisation is primarily achieved through optimising grazing rotations (based on in-depth interviews). A large majority of producers interviewed were adopting a rotational grazing method (at some level), with varying levels of proficiency.
In the higher rainfall areas of Tasmania where the potential for excellent pasture productivity and high stocking rates are greatest, pasture utilisation surpasses other pasture management strategies in importance. This is especially pertinent to pasture-based beef cattle enterprises.

Well, utilisations got to be number one. It’s a key profit in any business, make sure you eat the feed. [Producer interview No. 28.]

Producers reported various reasons for the grazing management practices they adopt. For example, set-stock grazing was used by some, because it was better suited to areas with high pressure from browsing mammals.

It's probably a little bit surprising how many still set stock to be honest. I reckon it's probably – if I had to put a figure on it probably 30% might still set stock. I could be wrong with that but that's just a stab … I was actually talking to a [producer] the other day who set stocks and he’s in a fairly isolated position and surrounded by bush, he said if he locks country up the game just hammer it which is why he set stocks so yeah, that's an issue for some people. [Advisor interview 1.]

A considerable proportion of interviewed producers who said that they use rotational grazing identified this as a ‘loose’ rotational system. This seemed more evident in some sheep production systems where grazing had to fit in with a cropping program. However, across the board, a flexible approach was strongly evident with a mix of set-stock and rotational grazing depending on the season, the type of pasture and the business objectives.

…. we’re all the set stock system. It’s called strategic grazing. So, it’s a strategic rotation. Different times you’re matching your different pasture systems, your areas of ground for resting or for grazing hard. When you can get the most benefit from it. [Producer interview 25.]

I like to rotationally graze. Not very scientifically. Just basically hold them back, or either speeding them up or slowing them down, depending on what we’ve got in front of them but definitely rotation grazing…It’s pretty crude. Basically I drive around once a month, have a look what feed is available and where we’re at season-wise and we’re either slowing them down or speeding them up. [Producer No. 27.]

It’s a fairly loose rotational grazing system. At the moment we’re still trying to sort of make it a bit more streamlined and get some paddocks to more even sizes. [Producer No. 37.]

After being involved in 20 years of benchmarking, one producer felt that grazing management methods were mixed amongst the top performers.

…and I don’t think it changes their bottom line and our groups’ been going for 20 years, if you analyse the high performance operations, or high production operators, grazing management is mixed……everyone who does that, doesn’t stand out, it’s just a miss mash, it’s quite random in grazing management. [Producer interview No. 36.]

Producers extensively reported on how they operate their grazing management system and spoke of much effort with getting grazing rotations right, and also the challenges with this, which are discussed in further detail in Section 5). Producers spoke of techniques they use for rotational grazing including investing in infrastructure and fencing to reduce paddock size, strip grazing, running larger mobs and grazing paddocks for short periods of time then moving stock to allow it to re-grow.

So, we’ve fenced the farm into predominantly four-hectare paddocks. We try to have larger mobs of cattle, so we don’t have to use break fences. So, mob sizes could be a couple of hundred. We try to
have paddocks grazed ideally or areas ideally within three days, so on off grazing down to the required residual and then moved on. [Producer interview No. 35.]

We have broken up some of the paddocks into smaller paddocks. We are getting smaller paddocks all the time so we can rotate better, better management of the pastures knowing that we need to really get that – not chewing them down too much but you really need to let them rest and not go too hard on them to get the best out of them and get them to respond quicker to the urea and rainfall and things. [Producer interview No. 15.]

…look short graze period is number one, the shorter your graze period the more grass you’ll grow and the longer your rest period the better your pastures will be in terms of composition. [Producer interview No. 17.]

A considerable proportion of producers interviewed mentioned that set stocking was preferred during calving and or lambing or to avoid pugging of pastures in winter.

From sort of August through ‘til October pretty much becomes set stock, because that’s calving, lambing period so we go to the dryer country and we set stock everything and feed…so we are not disturbing them. [Producer interview No. 19.]

So, we lamb everywhere. Every paddock that has a ewe on it. [Producer interview 28.]

…to some degree we do, the poorer pastures tend to be on a better winter country, so they get flogged a bit in the winter by set stocking, calving cows whereas really good pastures will get spelled through the winter because they’ll be on the river flats and we don’t want to pug them, and then when they start to grow then they will be rotationally grazed. [Producer interview No. 19.]

While producers and advisors reported a range of practices with respect to grazing management, there was general agreement that it was essential to good pasture productivity.

Because you can do all the other things – re-sow, fertility and get the right composition and if you’ve got the wrong grazing management you’ll stuff it up and then five to 10 years’ time depending what pasture you sow you’ll be back where you started from …so I guess it’s more a training thing than grazing management. Making sure that they understand the implications of poor grazing management because there’s no point starting down the journey if you’re going to stuff it up through mis-management. [Advisor interview No. 1.]

Pasture budgeting

The interviews indicated that while some producers had plans that focussed on calculating the numbers for: matching feed supply with livestock demand, stocking densities, grazing time/durations and measuring pastures; most relied on past experience and adapting to the season based on visual assessment of pastures.

This was supported by the online survey results indicating that feed budgeting was usually informal and/or based on gut feel and own experience rather than calculated (Figure 15).
The study found that only a minority of producers take the time and effort to measure or calculate feed budgets. Those who did were found to be deliberate and enthusiastic about it:

*I’ve been pasture budgeting for a long time and in the end you realise that what we do fits our business.* [Producer interview No. 20.]

*Say the beginning of the month I’ll go around and by the time I’ve assessed all the paddocks adequately and then crunched the numbers into my pasture budget and got the outputs, it’s a two-day job.* [Producer interview No. 2.]

*So, the whole farm feed budget gives you a guide of where it’s going to be and then …. just weekly assessments of where you’re at with our utilisation.* [Producer interview No. 28.]

**Livestock classes and stocking rate**

Producers reported a lot of attention to mixing different livestock classes and setting stocking rates to utilise pasture.

*I try and mix stock it for sheep and cattle, I find we get a better utilisation out of it.* [Producer interview No. 16.]

*...sometimes especially this time of year you’ll follow young stock with older stock, ‘cause the older stock will eat the stuff that’s got a bit ranker and isn’t’ quite as palatable, and you can tighten them up a bit to utilise that.* [Producer interview No. 1.]

*A constant story on both farms is the sheep are too fat. So, we’re trying to just really utilise pastures and get condition off the ewes. So, it’s really about grazing them hard and letting them rest. So, we focus on the ewes, to try and get the condition off.* [Producer interview No. 28.]
However, when there is surplus pasture it is not always practical to purchase stock to utilise that feed in a timely way. Everyone tends to have surplus feed at the same time so the demand for trading stock is high and the buy-in price is also high.

So sometimes you might have surplus pasture …you might do the numbers and it mightn’t make sense to go and buy – you might need 500 cows. Or you mightn’t have the capacity to buy 500 cows. You might not have the capital. And also doing that in a time-effective way. You might really like all those animals within three or four weeks and you might want them ideally for eight weeks or something and then you want to move them on and that’s not always practical. [Producer interview No. 20.]

Some producers were very stocking rate focused and aimed to increase it wherever possible.

I think we’d be one of the higher pasture utilisers. Spring’s always an issue, eating the spring feed. So, our utilisation spring’s not great. But I’d say we’re a very high stocking farm. [Producer interview No. 28.]

High stocking rates. So, you’re running more sheep to get more profit, more income. [Producer interview No. 28.]

Producers also reported that high stocking rates mean higher risks that need to be managed.

…if the cows have got the pasture eaten and they utilise it, everything just works, everything just ticks along. It’s when you run-out of feed or push it too hard that the wheels start falling off. [Producer interview No. 33.]

With livestock you need room for error, breathing space otherwise the cost risk is too high. That’s been true. [Producer interview No. 25.]

So, there’s not a lot of room to move, and with the seasonal conditions they haven’t been totally reliable. You’ve just got to be adjustable I suppose. You’ve got to adjust very quickly when you’re running at the top end. I tend to come back a little bit and just cruise along. I may not be utilising all my feed sometimes but other times I may be well short of it. But it doesn’t take quite as much management. [Producer interview No. 27.]

4. GEOGRAPHIC AND FARM BUSINESS FACTORS

KEY MESSAGE

The results of the study make the following observations:
- Pasture management practices in the south have been more ‘traditional’ but are changing.
- Formal feed budgeting practice comes with increased business scale.
- Younger farmers are adopting improved pasture management practices and trying new things.

There was found to be regional differences and variations in practices due to business scale. These issues are discussed where relevant.

Regional differences

Southern producers who attended the focus group were noted to be less likely to take on a contract for out-of-season lamb production as well as several producers from eastern Tasmania. This was due to less access to irrigation, more reliance on dryland pastures, season variation, lack of the right type of animal for heavier export markets and producers needing winter feed for breeding ewes.
It was suggested that regional difference in pasture management may be related to differences in rainfall patterns, pasture systems and management skills.

Any rainfall brings different things, so there would be distinct differences in pasture performance between the rainfall regions because of that. But within that there would be different management intensities, management skills, attention to inputs which have another overlay, so just because you are in a high rainfall zone doesn’t mean you’ve got a great pasture or a functioning pasture system, grazing system. [Advisor interview No. 2.]

There was a common sentiment that practices in the south had been more traditional but were changing with investment in irrigation and newer pasture species.

Obviously, the southern guys, there’s a lot of older pastures down there where they don’t have improved pasture. New irrigation schemes have changed a few of those but that’s only been in the last two years. [Supply chain interview No. 12.]

Maybe they [cattle farmers in the south] can get away with more traditional type practises, but I think even some of those, the better operators, are you know, cranking into new pasture species and new ways of growing feed. [Supply chain interview No. 40.]

**Business scale**

Planning is more challenging for smaller scale farm businesses. They can however be very productive when run intensively using strip grazing and a lot of stock movements; these will usually be beef producers rather than sheep which tend to be larger and more commercial sized flocks.

If you’ve got a producer that’s probably got 50 or 100 acres, nine out of 10 of those would be doing beef. [Supply chain interview No. 12.]

……. and this is a generalisation, but you tend to see even some of those smaller operations are very productive. They’re running a lot of cattle on a small acreage. [Supply chain interview No. 12.]

Formal feed budgeting practices were found to be more likely to be adopted with increasing farm scale; especially larger than 2,000 ha. This could be (at least in part) attributed to more pastures training and a greater likelihood of using a paid advisor for information (evidenced by the on-line survey and interview responses).

**Producer demographic**

There was some agreement amongst advisors that it was evident that younger farmers were adopting improved pasture management and trying different practices.

It depends on the perhaps the age of the producer because no doubt people of my era are more prone to be poor pasture managers and more set stocking orientated …probably just information and education when they were younger. I think the younger generation have embraced better grazing management practices and trying to rotate and spell pastures. And there’s been a number of pretty good educational programmes that have contributed to that, Lifetime Ewe and Pasture Principles and they’ve been well-embraced by the younger generation of farmers but I think historically one could say that dryland pastures in Tasmania have been poorly managed, so I think we’ll see a transition, particularly, well with commodity prices the way they are. [Advisor interview No. 1.]
I guess a lot of the next generation of farmers – certainly a lot that I know – have probably got better education standards than probably their parents had, so probably a lot of them would be picking it up now from their training. [Advisor interview No. 5.]

...some of the younger guys are probably willing to try something different, I guess, a bit more risk – prepared to not so much take a risk, but I guess just to try something away from the norm, something that Dad’s been doing for 50 years. [Advisor interview No. 3.]

This was also evidenced by the on-line survey responses that suggested that younger producers were:

- More strongly driven by return on investment
- More strongly driven by building wealth
- More strongly influenced by talking to other farmers, and
- Planning is less challenging for 30-39-year cohort compared to the 60 or over cohort.

The decision-making differences of the younger generations is discussed in more detail in Section 4.

3.5 CONCLUSIONS

There is strong aspiration amongst producers for higher pasture productivity and stocking rates which presents a significant opportunity for the Tasmanian red meat industry. Pasture performance is variable but seemingly incrementally improving, and advisors feel that there is room to improve and capacity for producers to take on more livestock.

Specialist livestock producers are mainly focussed on optimising pasture utilisation and grazing management to improve production and profitability. A form of rotational grazing practice is generally being adopted as the preferred method, one that is adapted to individual biophysical, farm business and lifestyle factors e.g. time, infrastructure, capability, livestock classes and soil / pasture condition.

Better returns for livestock enterprises is driving contemporary ways of growing feed including forage crops and newer varieties of short to medium-term pastures. The rising influence of agronomists and paid advisors is contributing to a resurgence in re-sowing and more fertiliser use on pastures; not all producers are investing but a considerable proportion of productivity focused producers are.
4 How do producers make decisions about pasture management and pasture management practices?

4.1 Decision-making and pastures

What is a decision?

Key Message – What is a Decision?

- Pasture decisions involve processing, considering and weighing up many factors that occur in a complex farming environment to reach a conclusion.
- Sometimes choosing to do nothing might be the best decision for a particular circumstance.
- The majority of producers plan carefully and have a long-term plan to guide their business activities; they are guided by their own experience.
- ‘Good’ or ‘confident’ decision-making was found to be timely, planned and proactive rather than reactive.
- Improving pasture management involves many interconnected variables and often multiple complicated decisions to reach a conclusion. There may not be a right or wrong answer to some pasture decisions.
- Industry extension approaches should help support the complexity of pasture decision-making to assist confident decision-making approaches that are suited to individual circumstances.

A decision can be defined as:

A conclusion or resolution reached after consideration. It is the result of processing a situation and deciding what action to take. Choosing to do nothing is a decision and may be a good decision given the circumstances (Nicolson et al. 2015).

Discussions with Tasmanian livestock producers and advisors supported the above definition of decision-making in relation to their pasture management. Producers discussed having to weigh up and consider many factors to make decisions about how best to manage their pastures and the livestock grazing them.

Participants involved in the study raised the importance of decision-making to the success of farm business and pasture management. They expressed that pasture management is not easy because it occurs in a complex environment relying on many factors which may be out of a producer’s control and often with limited information to help guide them. Producers explained how they best gather the information available to them and often have to make judgement calls based on their experience, their plans and feel for what might happen in the future. For example, uncertainty around seasonal conditions, market influences on price and the impact these have on decisions of when to sell stock.

You have to educationally guess as best you can. The seasons are changing all the time but we can pretty much guarantee from the last 3 years that we are going to have wet July and Augusts. [Focus group participant.]

The hardest thing for a farmer to do in terms of renovation or sowing a crop is to do nothing. I found this last year I watched all my neighbours put their crops in. I had two paddocks earmarked one for
pasture and one for barley and it was hard not to do anything. But boy it was the best decision I ever made because everyone else’s crops failed. [Focus group participant.]

Decision-making that was perceived to be ‘good’ or ‘confident’ was often timely, planned and proactive rather than reactive. For example;

The more proactive operators are good decision makers, they will make decisions earlier or make decisions at review dates, so whether the seasons are variable or is at risk, then they’ve got decision time-frames in place on whether to sell to stock and what categories of stock to sell. So, the more proactive people, I think, are excellent decision makers. [Supply chain interview participant No.38.]

This year we’ve done a really comprehensive top dressing program, which is going to encompass, and hopefully be a more regimental approach to how we come to our super top dressing program decision-making rather than being haphazard. [Producer interview No. 21.]

I think it’s having confidence in what you expect the growth rates are and warranting them, so you can seasonally adjust it, knowing critical condition scores and what your targets are. So there are a lot of those things that you just need to be on top of and know where you can push and how hard you can push at times, without tripping over. [Producer interview 36.]

The online survey results also highlighted the importance of planning to livestock businesses. The majority of producers plan carefully and have a long-term plan to guide their business activities (Figure 16). They are guided by their own experience. Approximately half of respondents make decisions by gut feel. Less than 40% indicated they find it challenging to plan and respond to the season and market prices.

Statistical analysis revealed that larger scale producers were more likely to plan and that planning was more challenging for smaller scale farms (<100 ha). It was found that planning was more challenging for producers with lower education levels. People who attended events more regularly/often were more likely to have a long-term plan. Planning was more challenging for people who attend less events.

**Figure 16: Planning and decision-making approaches** (source: online survey)
TYPES OF DECISIONS

There are differences in the types of decisions, which influence the ease of reaching a decision. These differences were highlighted by Nigel McGuckian (GRDC 2015) and were listed as:

- **Simple** – easy decisions, a clear right / wrong answer.
- **Complicated** – there are a number of variables, and relationships between these, influence the decision. It may take time but there is generally a ‘right’ answer.
- **Complex** – often occurs when a number of complicated decisions come together and interact. The number of variables may be high and issues difficult to model. There may not be a clear right or wrong answer as the decision may be influenced by personal and individual circumstances, beliefs and values.

There were many examples of simple, complicated and complex decisions highlighted by participants in regard to pasture management in Tasmania as highlighted in the examples shown in Table 2.

Table 2: Examples of simple, complicated and complex decisions raised by participants

<table>
<thead>
<tr>
<th>DECISION TYPE</th>
<th>SUPPORTING QUOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple</td>
<td>Example: spray out weeds rather than re-sow. I don’t get too excited about a pasture being run-out. If it is overrun with erodium and cape weed then you can spray them out and you will be surprised with what is actually there. [Focus group participant.]</td>
</tr>
<tr>
<td>Complicated</td>
<td>Example: pasture budgeting. At the beginning of the month I’ll go around and by the time I’ve assessed all the paddocks adequately and then crunched the numbers into my pasture budget and got the outputs, it’s a two-day job. [Interview participant No. 16.]</td>
</tr>
<tr>
<td>Complex</td>
<td>Example: investing to attain a higher future stocking rate. Renovating pastures is an investment. You have to work out the opportunity cost that it is costing you and then look at what you can afford to spend on it and what it will return you in more DSE per ha [depending on what] you can run on it into the future. [Focus group participant.]</td>
</tr>
</tbody>
</table>

This grouping of decision types provides a useful way to consider pasture decisions as it helps to provide context to the type of support producers may seek to help them make more confident pasture management decisions.

An example of this was raised in regard to planning grazing rotations and feed budgeting using pasture measuring tools. Tools including rising plate meters, pasture rulers or dry matter cuts using pasture quadrats, exist to measure kg DM per ha. This information is then used by producers to undertake detailed feed budgeting and guide decisions on when and how long to graze a paddock. It would be assumed that the use of these tools would enable this to be a ‘simple’ easy decision, although it was found to not always be the case. Producers raised concerns about the tools being time consuming to use and expressed the need for a more accurate and simpler method to assist them in planning their grazing rotations.

I’d love something that was easy like satellite based that zapped over the property that said you have so much dry matter in front of you and you are running into trouble. It would make it easy to make decisions on when to sell stock. [Focus group participant.]

I have started doing plate metering once a month. It is so much work and is so time consuming. If I had the labour resources to do it, I’d get them to do it. It’s so archaic as you have to get out and measure it so you end up eyeballing it. [Focus group participant.]
WHERE DOES PASTURE DECISION-MAKING OCCUR?

Pastures decisions are made at all levels within a livestock business including at a strategic, tactical and operational level on the farm. Examples of this are highlighted in Figure 17.

Figure 17: Examples of strategic, tactical and operational level decisions relating to pasture management

4.2 INFLUENCES AND DRIVERS IN PASTURE DECISIONS

Influencing factors on pasture decisions was a key focus in the detailed interviews with producers, advisors and supply chain representatives to further understand how producers make decisions relating to pasture management.

RESEARCH QUESTION

What are the key factors influencing pasture decision-making?

The producer interviews highlighted that past experience was a major influence on pasture management decisions as well as desired stock numbers (productivity). Other influences were, having a deliberate finishing system that required a given level of pasture quality and quantity at certain times of the year, having a plan and adopting it. Cash flow and seasonal conditions were foremost in the mind of only a small minority of producers (Table 3). Figures in brackets relate to the number of producers mentioning each theme.

Table 3: Influences on pasture decisions (source: in-depth interviews)

<table>
<thead>
<tr>
<th>THEME (AND NUMBER OF INTERVIEWEES)</th>
<th>EXAMPLE SUPPORTING QUOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past experience (7)</td>
<td>We do use an agronomist when needed, but I’ve been lucky with probably having generational views and experiences and seeing it visually, and seeing what works and what doesn’t, and just working with older people helps, instead of having to spend a lot of money you can potentially do it through what people have learnt in the past. [Producer interview no. 16.]</td>
</tr>
</tbody>
</table>
### THEME (AND NUMBER OF INTERVIEWEES) | EXAMPLE SUPPORTING QUOTES
---|---
**Productivity**
- Desired stocking rate (6)
- Deliberate finishing system (2)
- Prioritise on quality (2)
It’s probably based around stocking rate and it’s about stocking rate and hitting targets and I think we hear a lot about stocking rates being the driver of profitability, but I actually think it’s the system that you have and ensuring that you actually hit your targets at stocking rate. [Producer interview No. 36.]
Again, it’s those older pastures that aren’t performing much will basically get a maintenance program. Anything that does perform well will get a bit better program. Then we’ll try and pour a bit more into those productive types of grasses. [Producer interview No. 28.]

**Having a plan (2)**
I’d just say planning full stop. So we do a lot of planning and we have a good management calendar, we do robust cash flow budgeting and robust pasture budgeting. So planning has as much influence on everything we do as anything else. So we do focus on that area. [Producer interview No. 20.]

**Biophysical**
- Seasonal conditions (1)
- Desired pasture composition (1)
Stocking rate is the king. But then of course you can’t keep increasing all the time, but just trying to run as many as we can for what the season allows I guess. [Producer interview No. 34.]

**Cash flow (1)**
Well in the end it’s your cheque book, you know, if you get your pasture right, you’ll have a healthy cheque book and have a low-cost production and away we go. [Producer interview No. 36.]

Advisors and supply chain participants mentioned factors relating to producer demographics (e.g. age, education, knowledge and farming systems), economic drivers, decision-making support, personal experience and resources (Table 4).

### Table 4: Advisor responses – ‘what influences producers’ pasture management decisions?’

<table>
<thead>
<tr>
<th>THEME &amp; NUMBER OF MENTIONS</th>
<th>EXAMPLE SUPPORTING QUOTES</th>
</tr>
</thead>
</table>
**Demographics**
- Age vs business phase i.e. older producers are running steady businesses or winding down and therefore are less likely to change (7)
- Education
- Knowledge
- Farming system
The younger generation are a bit more sort of wanting to try stuff and probably a little bit more, you’ve got to spend it to make it. They put the fertiliser on, to get the grass, to get the growth. There may be, you know, a little bit of the older generation could well be, you know, there’s nothing wrong with that paddock, it’s been there for 20 years, we’ll just leave it. [Supply chain interview No. 9.]
Depends who – what age they’re at too and where they’re at in their career, like, a 60 year old, who has been farming all their lives and not really pushing it, they’re not interested. Fair enough, they’re comfortable. [Advisor interview 23.]

**Economic drivers**
- Profitability or return on investment (4)
- Costs e.g. cost of seed (2)
- Prices for livestock (2)
Prices are a big influence. So, people are trying to run more stock because the prices are a lot better. [Advisor interview 04.]
Like profits are obviously very important, but for breeders, breeding profit is king, so if there’s opportunity for people at a good season to buy stores, or buy extra numbers, whatever, better grain, but other seasons would suggest that they can’t do that. [Advisor interview 38.]
<table>
<thead>
<tr>
<th>THEME &amp; NUMBER OF MENTIONS</th>
<th>EXAMPLE SUPPORTING QUOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision-making support</td>
<td>Which I said earlier, like about that lamb versus beef producer in Tassie, a lot of those guys that are in that lamb job have got agronomists doing their crop, so they’re probably getting a bit more information through those guys, whereas the beef guys are probably a bit more traditional; farms handed down through generations and it’s very hard to get a few of these guys to change their ways, I suppose. [Advisor interview 12.]</td>
</tr>
<tr>
<td>Personal experience</td>
<td>Tasmania is very probably parochial, so they will either listen to advice from Tasmanians or those with good Tasmanian experience. They will also fall back to a safety zone of well, Dad did this and Grandad did this so I do this. So they are probably still a little bit hesitant to really adopt change. But the ones who do adopt change are the ones that are always being looked at to compare to. Say, “Hey, if they are doing that and they are getting those sort of results, then hey I should actually give that a go myself.” I think there are a lot of farmers who are prepared to adopt new technologies, but don’t want to be the adopters initially. And I think they’re the guys that are probably the older ones that are sticking to what they’ve sort of done in the past probably. [Advisor interview 03.]</td>
</tr>
<tr>
<td>Resources</td>
<td>I think that a lot of farmers – a bit more complicated than probably a lot of us make it out to be – there’s numerous enterprises and numerous balls in the air that farmers have got to juggle making decisions all the time, and sometimes they mightn’t make the best decision because of time constraints or other priorities on their farm. [Advisor interview 05.]</td>
</tr>
</tbody>
</table>

The online survey built on these findings by testing the importance of drivers to livestock producer’s businesses. Drivers relating to financial performance and profitability, and increased productivity were ranked as the most important followed by lifestyle and then legacy (Figure 18).

![Figure 18: Importance of drivers to the farming business](source: online survey)
The findings of this study recognised four major areas of influence on pasture decisions: bio-physical, personal, business and the influence of others.

- Personal influences included own experience and background, family and lifestyle.
- Business influences included being driven by productivity, driven by profitability and business phase.
- Biophysical influences included seasonal conditions, pasture growth curve, rainfall and irrigation, pasture cropping mix, pasture species and composition, and soils and land capability.
- Influence from others included peers and advisors.

The pasture decision influence themes arising from this study aligned closely with the RMCG / MLA pasture decision-making model relating to re-sowing (MLA, 2011b). The MLA model highlighted three main types of factors influencing pasture decisions as shown in Figure 19 below.

![Figure 19: RMCG / MLA Pasture decision factors model](source: MLA, 2011b)

The findings from our study were consistent with the RMCG / MLA model. All of the ‘physical environment’ factors were raised as influencing factors and many of the ‘producer judgement’ and ‘producer characteristics’ emerged as themes from interview and focus groups transcripts.

Our findings build on the MLA re-sowing decision model by introducing the role of business influences and the influence of others into the model. The findings suggested four major areas of influence on pasture decisions; these being bio-physical, personal, business and the influence of others. These are highlighted as interlinking factors influencing farmer decision-making in relation to pasture management (Figure 20).
Figure 20: Types of decision-making influences on pasture decisions

The four main pasture decision-making influences are described as follows:

- **Personal influences** – are very important in guiding tactical and strategic level decision-making. Personal influences include a producers’ own experience, background, lifestyle and family. Personal influences are guided by the producer’s values and beliefs and are important in complex decisions. The feelings and emotions about a situation and ‘gut feel’ are also within this sphere of influence in decision-making.
  
  For example, a producers’ past background in the dairy industry may influence their attitude towards implementing a certain grazing management system or attitudes on certain lifestyle factors, and a willingness to feed cattle during winter months may influence a decision to finish cattle out-of-season for a particular market.

- **Business influences** – guides planning, strategic and business actions on how pastures and livestock are managed. These include business drivers (productivity or profitability and financial situation), and business phase (growth, steady, winding down). Business influences often guide complicated and complex decisions.
  
  For example, a decision based on increasing stocking rates to increase productivity (if the business is in a growth phase) fits here.

- **Bio-physical influences** – guide tactical, operational and planning decisions influencing specific pasture, livestock and marketing actions. Bio-physical influences include, seasonal conditions, pasture composition, soil and land capability, pasture growth curve, rainfall / irrigation and enterprise mix. Physical influences are important factors in complex, complicated and simple decisions.
  
  For example, the decision to sow a dryland forage crop may be influenced by current or predicted rainfall patterns expected for the season.

- **Influence of others** – including peers, advisors, consultants, agronomists, sales reps and extension staff. Avenues for this influence included benchmarking groups, learning from neighbours, use of trusted business advisors, attending pasture training workshops, and participation in discussion groups. Influence of others can occur at all levels of decision-making but was particularly evident at the tactical and operational levels and involved simple and complicated decisions.
For example, decisions of pasture varieties or seed mixes for re-sowing pastures was often influenced by agronomists, seed reps or what had been successful on neighbouring farms.

The major personal and business influence themes raised during the study, in relation to pasture decision-making, are highlighted in Figure 21.

![Figure 21: Major personal and business influences on pasture decision-making](image)

The influence of own experience, a profitability or productivity focus, family members and business phase were the decision influence themes raised most frequently in the producer interviews. It is important to note that the influence of these factors on a producer’s decision-making will vary between individuals and businesses according to their goals, financial situations, values and past experience.

The following section provides the results and a discussion on the four main pasture decision-making influences found in the study.

1. BUSINESS INFLUENCES

**KEY MESSAGE – BUSINESS INFLUENCES**

- **Production driven** businesses understood the importance of pastures in their business and treated them as a priority; they often focused on stocking rates, grazing management and techniques to grow and utilise more pasture.
- **Profitability focused** producers were driven by the return on investment of pasture decisions
- **Business phase** was shown to drive many strategic and tactical pasture decisions.
- It was suggested that a younger generation of farmers in a growth business phase may be more willing to take on higher risk or invest more heavily to increase pasture productivity than older generations in a steady or winding down business phase.

Profitability and productivity drivers in the business were the most frequently raised business influences in the producer and advisor interviews (based on thematic coding). This was further supported by the online survey which tested the importance of key business and personal drivers where productivity and profitability were ranked most highly (see previous Figure 21).
Production driven businesses understood the importance of pastures in their business and treated them as a priority. They were focused on growing more grass, increasing pasture utilisation, increasing stocking rates, growing more kg of beef or lamb per hectare and having the right animal for their target market.

Statistical analysis of the online survey data showed:

- ‘Productivity’ was a stronger driver for mixed farms than specialist livestock businesses
- Return on investment was a stronger driver for those with aspirations to increase pasture productivity compared to those with lower aspirations / already satisfied with productivity, and
- Increasing productivity was a strong driver for those with aspirations to increase pasture productivity.

*Utilisation’s got to be number 1. It’s a key profit in any business; make sure you eat the feed.* [Producer interview No. 28.]

*Stocking rate is the king, then of course you can’t keep increasing all the time, but just trying to run as many as we can for what the season allows.* [Producer interview No. 34.]

*Well, that’s managing and making the most of your land area, producing as much as you can, because your land area is set.* [Producer interview No. 34.]

Profitability focused producers were driven by the return on investment of pasture decisions. Financial constraints, cash flow and levels of debt were also raised as major influences in pasture decisions. Producers who were driven by profitability raised the importance of knowing the impact of pasture techniques or practices on the whole business and economic bottom line.

*Money. Profitability always comes into it. I mean, that’s always what you look at when you look at having a capital expenditure and pastures is a capital expenditure; that’s why you should look at it. So certainly, dollars per hectare to establish something and I suppose with beef it’s probably more so than the lamb and irrigator guys, but they’re looking at longer-term type scenarios.* [Supply chain interview 12.]

*Everyone has different financial constraints which influences what you do. For example, in considering the pricing offered by the processing companies there could be 3 different growers in 3 different scenarios sitting around the table. One is up to his eyeballs in debt to the bank. One who is free hold with no cash in the bank and one who is free hold with a heap of money in the bank. They are going to do 3 totally different things, one has got to grow, one can think about it and one is ‘well I don’t care I don’t have to’.* [Focus group participant.]

Producers mentioned benchmarking groups operating on King and Flinders Islands, and in the North and North East regions. These producers referred to the influence of financial benchmarking in providing assistance and confidence for their choices in pasture and grazing practices.

*I think there’s a lot of sales pitches on systems currently and I’m yet to see the evidence as it’s actually driving through the bottom line. It’s making people feel good, it gives a lot of people the ability to feed budget, which I think is really important, but it gives them the confidence because they can actually see what’s in front of them, but that’s about it and I don’t think it changes their bottom line. Our benchmarking group, been going for 20 years, if you analyse the high performance operations, or high production operators, grazing management is mixed, there’s not, everyone who does that, doesn’t stand out, or everyone who does that, doesn’t stand out, it’s just a miss match, it’s quite random in grazing management.*
RECOMMENDATION

- Relate pasture management messages to the productivity and profitability impacts on the business to appeal to producers influenced by business drivers.

Business phase was shown to influence many strategic and tactical pasture decisions and was highlighted as an emerging theme in the interviews. Business phases include: business developing, being steady, winding down or undergoing a changing enterprise mix. It was also a particularly evident theme raised in focus groups in discussions considering opportunities for entering into out-of-season production contracts.

*We have winter fattened ever since I have had cattle. I would like to change as it is a hard job. Every winter you have big cattle running on your paddocks. It used to fit with our cropping program. Now we are winding down our cropping so will move to finish more cattle in autumn. You will take less in price but that enables to restock through calf sales, do it easier in winter and not need so much hay and silage.* [Focus group participant.]

It was suggested that a younger generation of farmers in a growth business phase may be more willing to take on higher risk or invest more heavily to increase pasture productivity than older generations in a steady or winding down business phase.

*We’ve probably seen a generational change and the generation that’s come in have probably been more influenced by cropping than probably livestock. Having said that, they realise that they need better pastures and they’re probably of the belief that they’re not frightened to spend money, where their forefathers didn’t much.* [Supply chain interview No. 34.]

2. PERSONAL INFLUENCES

KEY MESSAGE – PERSONAL INFLUENCES

- **Past experience** was highlighted as a major pasture decisions influence. Producers are backing themselves and their knowledge in their decision-making to implement plans for increased production.
- **Family** was considered as a major personal influence in decision-making, in shaping a producer’s views or experience, their approach to pasture management and in strategic decisions for future business needs.
- **Lifestyle** factors were often closely related to business phase and producers’ age.

Background and experience: Past experience was highlighted as a major influence in the producer interviews and was supported by advisor comments. Producers are backing themselves and their knowledge in their decision-making to implement plans for increased production. Experience and background are major contributing factors to producer’s skills, knowledge and attitude. Producer skills, knowledge and attitudes have been developed through any combination of: a background in a different livestock industry (e.g. as a dairy farmer), their education (e.g. tertiary studies), participation in industry extension programs, participation in pasture training courses, though practical on-farm experience or through trial and error to learn what best suits their property and farming situation.

*Personal experience. I’ve been doing it for a fair while so I, sort of, know what paddocks need to be done and through how much – probably how much grazing time actually I can spend on the paddocks too.* [Producer interview No. 26.]

*I’m going to say me, I suppose, essentially we haven’t changed a lot in our pasture management for over 20 years, or since I’ve been home and it’s a combination of slow rotations, oh sorry, probably fast rotations and set stocking for critical times of the year, mainly, I suppose because we’ve come from a*
big sheep base, once upon a time, so, you know, you’re just lambing and what not, we’ve sort of tried it all and watched what people are doing and then make our own decisions on pasture management. [Producer interview No. 36.]

I come from a dairy background so I get really disappointed with the grazing industry where we tend to waste a lot of feed in a good season, so having grown up with that background I know the importance of utilising the feed. [Producer interview No. 20.]

**Family:** The majority of producers participating in the study were involved in family farms and therefore it is not surprising that family was considered a major personal influence in decision-making. The influence of family occurred at two levels. Firstly, as a guiding influence shaping a producer’s views or experience and their approach to pasture management (see Figure 21) and secondly in strategic decisions involving business growth, planning, driving a need for increased financial returns and legacy considerations.

*My grandfather was a big believer of having a lot of different species within your grasses.*

*We’re fans of rotational grazing, so what’s influenced that. Well, my dad was into it.* [Producer interview No. 28.]

*I came into a situation with a four children family, and the needs were greater. I had to get productivity from somewhere. It’s come from the pastures.*

**Lifestyle** factors were often closely related to business phase and producers age. Some older producers mentioned the desire to take things easier or that the business was in a ‘winding down phase’ which influenced the decisions they made.

*Work life balance and age influences decisions.* [Focus group participant.]

*I guess a lot of people have different goals and their goal might not be to maximise productivity and increase their wealth or something, they might just be happy with the way that they’re ticking along but providing incentives for them to actually try and realise they could be doing so much better if they just implemented these little things.* [Producer interview No. 20.]

### 3. BIO-PHYSICAL INFLUENCES

**KEY MESSAGE – BIO-PHYSICAL INFLUENCES**

- The importance of planning, having timely strategies and flexibility in actions were raised as important factors in confident decision-making relating to changing *seasonal conditions*.
- Pasture growth curves influenced decisions relating to stocking rates, breeding programs such as calving time and market considerations.
- Operational decisions including when to re-sow pastures or forage crops, market options for stock and turn off dates were shown to be influenced by seasonal rainfall patterns particularly for dryland producers.
- Many producers mentioned a strong desire for persistence in their pasture species when re-sowing pastures.
- The presence of a cropping enterprise was shown to influence pasture, grazing and market decisions.
- Soils and land capability influence the types of pasture species grown, fertiliser needs and grazing management.

The major biophysical influences identified in pasture decision-making are highlighted in Figure 22. Biophysical influences are the on-farm, physical and environmental factors that underpin livestock businesses. They include seasonal conditions, pasture growth curve, irrigation and rainfall, pasture species and composition, pasture and cropping mix, and soils and land capability. The level of control that producers have
over biophysical influences varies. For those where producers have little or no control e.g. rainfall or seasonal conditions, producers will use what tools they have available to predict what might happen and often have to rely on their gut feel and hope for the best. Rules of thumb were raised by producers and often related to the bio-physical influences for their particular region.

**Figure 22: Biophysical influences on pasture decisions**

**Seasonal conditions:** It is well known that seasonal conditions have a major impact on farm decision-making. The results supported this and were particularly evident for those reliant on dryland pasture systems. Seasonal conditions are considered in decisions relating to: when to re-sow pastures or forage crops, managing stocking rate, when to buy and sell stock or entering into forward contracts for finishing stock out-of-season. The importance of planning, having timely strategies and flexibility in actions were raised as important factors in confident decision-making relating to changing seasonal conditions.

*What we do see is the people who are most successful in the dryland system are those who are most adaptable to the variability. So this means they can sustain a high stocking rate in times of hardness, to such that when they do arrive at a time aplenty they can launch into that and make good of that rather than having to de-stock, re-stock and go into that cycle... they try and think a bit ahead and also have a bit of a plan and some of them have even got their own strategies that they will have different phases of times of hardship strategies and they will implement them as required. That’s according to a plan rather than the back of an envelope. It is done prior to the issue rather than in the issue. [Advisor interview No. 6.]*

*Need to adjust. You might plan to finish the cattle but if the weather turns against you, you might sell off a few early. You need to make the hard decisions before it’s too late. Once you dwell on a decision and time travels past it might be too late to regain that ground. So quick and strong decision-making is pretty important. [Focus group participant]*

Producers mentioned using weather forecasting information and past historical records to help predict seasonal conditions and aid their decisions.
Look at the long term weather forecast. If you don’t get an autumn break you are not going to have the feed to get them through. If you get decent rain in Feb and March you can go into it with a feed wedge and not have to rely on hay and silage. [Focus group participant.]

So, always reviewing stock numbers and comparative of where we are comparative to the season before or five-year trends and comparing that to the season we’re in just to make sure that we can - we have an average growth curve that we expect to meet and then you’ve got seasonal adjustment in that, so, up or down. [Producer interview No. 36.]

**Pasture growth curve:** Influences decisions relating to stocking rates throughout of the year, breeding programs such as calving time e.g. autumn vs spring and market considerations e.g. time when stock are turned off. Utilising the spring flush was raised often throughout the interviews and focus groups. Producers varied on their views from ensuring they have high stocking rates in spring to utilise spring feed vs turning stock off in winter to capture winter price premiums. Mixed cropping livestock producers mentioned they remove pastures from their grazing rotations for spring sown crops which helps to manage spring growth.

*I hate hay and silage. So, we are doing more where we take country out and put fodder crops in is probably the main strategy.* [Producer interview No. 28.]

Hay and silage were important strategies for managing spring and were particularly mentioned by beef producers who may utilise the feed conserved for finishing stock in winter.

*So managing stocking rate; so we trade cattle. So buying and selling and managing the stocking rate to line up with the pasture growth curve and seasonal conditions and leaf stage.*

**Rainfall and irrigation:** The influence of rainfall and irrigation was observed to influence decisions. Investment in irrigation throughout Tasmania has increased production opportunities for mixed livestock and cropping farm businesses. Many irrigated pastures, forage crops, dual-purpose crops and short-term pastures under irrigation are prioritised for growing out and finishing young stock.

*We are on irrigation in the midlands. These are dreams I could never had had without irrigation. It comes back to the bits that fall off the cropping operation such as winter wheat, rested cropping ground in ryegrass for 2 or 3 years. But it does require water.* [Focus group participant.]

Dryland pastures however still form a significant basis of livestock production systems and are solely reliant on seasonal conditions and rainfall to drive pasture growth. Operational decisions including when to re-sow pastures or forage crops, market options for stock and turn off dates were shown to be influenced by seasonal rainfall patterns particularly for dryland producers. Dryland livestock producers mentioned in focus group discussions that they were more likely to turn off lambs as stores and were less likely to enter into out-of-season production contracts due to the risk of low rainfall in summer and autumn.

*One of the challenges is having the ability to assess a seasonal stress trigger. Our operation has irrigation but we also rely on seasonal dryland pastures as part of our rotation and recognise them as a higher risk. We take them on a season by season basis as you will see different characteristics in a good season vs a dry season particularly with our heavy clay soils.* [Focus group participant.]

Seasonal variation brings me unstuck. Looking at my rainfall records for this century so far 10 out of 18 autumns were a failure and 7 out of 17 springs were a failure. In a normal year I don’t need any fodder crops but unirrigated fodder crops in a dry year you may as well tip some diesel out on the ground as it’s not going to grow anyway. If you get the rains and you get the crop you don’t need it anyway as you have feed. So it’s just frustrating. [Focus group participant.]
Pasture species and composition: Desired pasture species and composition influences re-sowing decisions and grazing management practices. Many producers mentioned a strong desire for persistence in their pasture species when re-sowing pastures. Some were reluctant to choose new pasture varieties due to high costs and a belief that they will not persist under their farming conditions.

The frustrating thing is a lot of the new grasses, especially ryegrasses, they are only bred to last 4-5 years. That really gives me the shits as it is very dear and you are lucky to get 4 to 5 years of full production out of it. [Focus group participant.]

Producers acknowledge the importance of grazing management decisions in influencing pasture species composition on their farms.

I feel grazing management is the biggest factor. I've seen old pastures improved just through rotational grazing. The faster growing perennials will get growing up before the weeds and if you rest it between and pick the right rotational length for the season and with a half decent species and a little bit of fertility, just with grazing management you can improve that pasture out of sight. [Focus group participant.]

Cropping and pasture mix: Almost half (46%) of the producers involved in the study were operating mixed (cropping and livestock) farms. The amount of cropping was shown to influence pasture, grazing and market decisions as evidenced in focus group and interview discussions. Rotation planning and grazing management is influenced by the availability of irrigated forage crops and the use of short-term pastures (sown as a break crop in cropping rotations) by providing high quality feed often prioritised for young stock. Many producers expressed the benefits of having grass seed and winter cereal crops they can utilise for grazing. These were often used for growing and finishing stock during the autumn and winter months. These options gave mixed cropping / livestock producers more confidence to consider out-of-season market opportunities which was evidenced in the focus group discussions. The mixed irrigated cropping / lamb producers were more open to considering out-of-season production contracts and buying and finishing trade lambs specifically for a premium market than the dryland livestock producers.

We have an opportunity with winter wheat where we are locking up end of July early August [for a grain crop]. I would not want to be in a position where I was just fattening a merino to grow wool with a high value feed and missing the chance to pick up this market. It is the benefits of having a cropping program that allows this. [Focus group participant.]

As already mentioned in the ‘pasture growth curve’ section above mixed cropping producers were more confident in their ability to manage the spring flush with land being taken out of their grazing rotation for spring sown crops.

That has really changed the way you look at it is the amount of cropping you are doing. You have all this ground that is going to be ploughed in August and September to put crops in so it helps to control your spring flush. [Focus group participant.]

Soils and land capability: Influences the types of pasture species grown, fertiliser needs and grazing management. Producers consider soil and land type in selecting pasture species suited to particular conditions.

If it poorer ground, you need to treat it quite differently to red soil. Most of the red soil in the traditional developed areas of Winnaleah and Ringarooma you have good base fertility anyway. The run-out may be mis-management, lack of topping up that fertiliser in that we are asking more of it but not necessarily putting more on, and the management of the livestock on it. Whereas low grade granite banks, with low pH it’s a different exercise all together. More often than not, different species are required. We tend to treat them as two streams rather than one. [Focus group participant.]
4. INFLUENCE OF OTHERS

KEY MESSAGES – INFLUENCE OF OTHERS

- Both peers and external advisors have a very strong influence in pasture decisions.
- Larger scale farm businesses were more likely to have a paid advisor who influenced their current pasture practices compared to smaller scale producers.
- Mixed cropping livestock producers were more likely to use an agronomist for pastures advice than livestock only businesses.
- Re-sellers and sales reps often influenced pasture variety and seed mix decisions at the point of sale.

The influence of others was consistently raised throughout the study as having a strong influence on pasture decisions. It can be categorised into peers and external advisors. Both categories were ranked very highly as influencing factors in pasture decisions.

Peers were raised as a very strong influence in the producer interviews. Many farmers expressed the benefits of looking over the fence and learning from other farmers including neighbours and industry peers. Participation in farmer discussion groups, membership of a benchmarking group and visiting other farms often facilitated the peer learning. It also occurred on an individual level through existing relationships.

Talking to other farmers was the most highly rated source of information indicated in the online survey; see Figure 28 in the industry extension section (Section 6) of this report.

Peer influence may not always be about education as producers raised the benefits of shared conversations and positive social benefits for rural communities in getting together in group settings with other producers.

*Generally, if you see a neighbour doing something you think is better, you have a chat to him about it and see what they’re up to.* [Producer interview No. 37.]

*So [Consultant], [Consultant], [Consultant], and [Consultant], they are just some of the key heads that we tap into. Then myself and my brother are just talking to each other and also some of our peers that are in that same enterprise mix, and some of the closer buddies that we can share information and bounce ideas off, of what seems to be working and what doesn’t.* [Producer interview No. 21.]

*I look a bit online, but more just my peers around me. Ring people, neighbours, people that have been farming for a lot longer than me and just get advice from them. But definitely agronomists.* [Producer interview No. 22.]

External advisors provide a very important decision support, training and influencing role to livestock businesses. They often influence the pasture management approach used.

Analysis of the online survey highlighted the following findings relating to advisors:

- More traditional producers have less reliance on paid advisors for information than more “innovative” producers.
- Larger scale (total hectares) farms were more likely to rely on paid advice.
- Pasture management training influence on practices - possibly some increase with increased farm scale.
- People who attended events more regularly / often, were more likely to have current practices that had been influenced by advice (paid and/or unpaid) and were more likely to learn from peers; compared to people who attended fewer event.

*What has worked really well for me is to have an advisor come, and he was a good operator, like one-on-one, drives around the farm and suggests what could be done for this productivity in each paddock.*
you drove into. That was a game changer for me. Yes, you can go to the trials and say, oh yeah, I need to put fertiliser on. But he was very clever and he knew his stuff. Yeah, that was a big game changer. [Producer interview No. 27.]

In more recent times I’ve completed Pasture Principles with [Consultant], so I was firing a lot of questions at home and using him as a sounding board as to some decision-making in recent times about, particularly honing in on getting my mindset from just running DSE per hectare to more what the animals require. So kilograms of dry matter per requirement of sheep, and depending on what class of sheep. So we’re still fine-tuning that. I’m thinking from running a grazing chart to running a fodder budget, and fodder budget is just a more intense version of looking at your asset base of pastures and really honing in on each area of land class. [Producer interview No. 21.]

Mixed cropping livestock producers were more likely to use agronomists and sales reps for pastures advice, often due to the existing relationship with their cropping enterprises. Many of these farmers were regularly re-sowing pastures or growing forage crops as part of their cropping rotations. Re-sellers and sales reps often influenced pasture variety and seed mix decisions at the point of sale. The advisor interviews raised some scepticism in the level of skill and knowledge and motivations of re-sellers relating to the suitability of certain pasture species and mixes to regions and land type. It was suggested that often the advice given may be influenced by sales targets, margins or a need to sell a particular pasture seed mix.

If they’re not doing any cropping they probably don’t use an agronomist per se but they have a merchandise rep that sells them their seed and their drench. Some of these reps, the companies have put them through a TAFE course or something, so they’ve got a diploma of agriculture or something, so they might do a little bit of pasture agronomy.... I’d say they have the most influence in what someone decides. Because, at the end of the day, they are selling the product to the farmer. [Advisor interview No. 3.]

This also highlighted a producer knowledge gap. Equipped with better information and knowledge, producers can be more confident to request / demand particular species.

**RECOMMENDATIONS**

- Peer to peer interactions are a strong influence. Extension approaches that facilitate peer learning should be considered by industry, including discussion groups, on farm trials, benchmarking, case studies and bus trips.
- Involve advisors in extension programs when targeting larger scale businesses i.e. use a co-learning model.
- Investigate how to best engage with and up-skill re-sellers and sales reps.

**4.3 OTHER TRENDS**

**KEY MESSAGE**

- High commodity prices are driving a desire to increase livestock productivity, especially for mixed farmers as returns from some traditional crops e.g. poppies are currently in a down turn phase.
- A generational change was referred to, especially in the Midlands and Circular Head regions. This was suggested to bring differences in decision-making to that of the previous generation of farmers e.g. increased use of technology, a greater acceptance of risk, the need to grow the business and invest and maximise the return on their asset.
OPERATING ENVIRONMENT AND MARKET

High commodity prices are driving a desire to increase livestock productivity: There is a drive for mixed farms to increase the productivity of their livestock enterprises as commodity prices are good and some crops e.g. poppies, are in a down turn phase (due to supply and demand). Pastures and forage are seen as a major driver for achieving this and producers are doing this by:

- Improving pastures through re-sowing, improved fertility or weed management
- Use of forage crops (e.g. brassicas, short-term pastures) and dual-purpose crops from cropping programs (e.g. grazing winter cereals or seed crops) to grow out or finish stock
- Increasing stocking rates
- Improved grazing management.

With wool and stock prices where they are now, I have changed my focus so much from being cropping orientated to now basically I’d love to have no crop at all and just have livestock and we are getting there. Because of that we are changing our grazing management. I don’t mind annual pastures as they give me really good performance in the winter. I don’t need it in the summer as I’ve got irrigation to combat that. [Focus group participant.]

GENERATIONAL CHANGE

A generational change was referred to by advisors and producers especially in the Midlands and Circular Head regions. It was suggested that with this generation change, comes differences in decision-making to that of the previous generation of farmers. This may be attributed to a greater acceptance of risk or the need to grow the business and invest in order to maximise the return on their asset. It was suggested they are using technology to aid their decisions.

Analysis of the online survey highlighted the following generational findings; compared to older producers, younger producers are:

- More strongly driven by return on investment
- More strongly driven by building wealth
- Are more strongly influenced by talking to other farmers, and
- Planning is less challenging for 30-39 years old compared to the 60 or over cohort.

I’m going to say our 30 top numbers wise, beef producers in Circular Head, out of that 30 there would be 20 to 23 of them would be under the age of, say, 45... .... they’ve got technology at their fingertips, they’ve got all this type of industry feedback that’s coming back to them, and I just think it’s a wonderful, exciting period. [Supply chain interview No. 10.]

... [the younger generation] they know, they’ve got $3 million invested in their properties and they want to return a 10%, so it’s got to return them $300,000 for the year. So there’s a lot more sitting down and working out their budgets like that and if they can get it out of cropping or if they can get it out of livestock, that’s what they’ll do. [Supply chain interview No. 39.]

Before a lot of the other generations, they just farmed from year to year and if they came out with something, with more money in their bank, but improved the farm a little bit. How do you know they weren’t looking for a return on their assets? Whereas a lot of this new crowd, they certainly are. [Supply chain interview No. 39.]
We have had depressed livestock prices until recently and good cropping prices so that is where we have tended to focus. But now it is coming back the other way. There has also been a generational change particularly in the Midlands. [Focus group participant.]

**RECOMMENDATIONS**

- Focus on the profitability impacts of pasture management practices to have a greater appeal to younger generations of producers or those in a growth phase of their business.
- Consider technology that supports decision-making, when targeting younger generations of farmers.

### 4.4 DECISION-MAKING SUPPORT

**KEY MESSAGE – DECISION MAKING SUPPORT**

- Advisors are considered an important part of decision support for pasture management.
- Tools including soil testing, plate meters and visual observations are commonly used to support pasture decisions.

The producer interviews identified a range of decision-making support tools. Some have a strong reliance on an agronomist or re-seller; while others refer to an agronomist to get a second opinion or only when there is a problem. Some use a combination of advisor, own research and ‘over the fence’ support from peers whereas others use mainly their own experience to support their decisions. Information gained through benchmarking was also referred to in the interviews and focus groups as supporting pasture decisions.

**MONITORING PERFORMANCE AND IDENTIFYING PROBLEMS IN PASTURES**

The producer interviews found that in the main, producers backed their own experience and relied on visual observations to identify problems in their pastures, using some tools such as soil testing to verify their judgment as needed. Only 20% of producers interviewed had a high reliance on tools and / or new technologies to monitor problems or the performance of their pastures (Figure 23).

![Figure 23: Producer responses: monitoring and identifying problems in pastures (source: in-depth interviews)](source: in-depth interviews)
Many producers referred to past use of pasture measurement tools e.g. a plate meter but now use visual assessments only. It was explained that the tools were useful for getting their ‘eye in’ and then once they had learnt the skill of visual assessment were confident to use this to monitor their pastures.

The focus group ‘run-out pasture’ decision-making scenario highlighted the use of tools for decision-making support including soil testing as well as reviewing past history and management, consulting an agronomist and visual observations. These results are discussed in more detail in the section below. See Table 14 in the Appendix 8.

The online survey further explored the use of monitoring tools and is discussed in the pasture practices section of this report (Section 3).

**DECISION-MAKING SCENARIOS**

The focus group decision-making scenarios provided useful case studies demonstrating how different decision-making influences and decision-making support is applied by producers to make a decision related to pasture and livestock management.

Two scenarios were explored, 1) re-sowing a ‘run-out’ pasture and 2) ‘out-of-season’ livestock production.

**RE-SOWING A RUN-OUT PASTURE**

The scenario related to a ‘Run-out Pasture’ and participants were asked to describe what it looked like, how they would identify what the issue is and how they would improve the pasture. They were also asked about their attitude to re-sowing. The responses across the four focus groups were grouped into themes and the number of quotes relating to that theme tallied (frequency). Themes, frequency and supporting quotes to the pasture scenario are listed in tables in Appendix 8.

Soil testing was the most frequently raised tool used to identify issues in run-out pastures (12 mentions) followed by review of past paddock history and management (6 mentions), consulting an agronomist (5 mentions) and observations (4 mentions) were also raised as common methods and sources of information. Other considerations or sources of information used included considering the seasonal conditions, stocking rate, topography or aspect of a paddock and information from on farm trials (Table 14 in Appendix 8).

Producers described run-out pastures as being dominated by annual species, presence of weeds, pest pressure, having bare ground and possible pugging, yellow in colour and having low dry matter production and of poor nutritional value (Table 13 in Appendix 8).

In addressing the issue of the run-out pasture most agreed that something needed to be done to solve the issue and their strategy would depend on why it was run-out. Strategies with the most mentions were re-sowing as part of a cropping program (6), spraying weeds or spray topping (4), addressing nutrient imbalances (2) and use of sacrifice paddocks (2). Changing grazing management, resting the paddock and re-sowing with a mix of species were also mentioned.

In making their decisions on the run-out pasture producers indicated they would consider their financial position or budget available (2), assess the seasonal conditions and consider the soil type and associated management required.

Producer’s attitude towards re-sowing was expressed by the priority given to re-sowing. Many expressed that re-sowing came at a significant cost and the decision to re-sow wasn’t considered lightly. Those who were willing to re-sow and saw it as a high priority, may have had previous success with re-sowing or integrated it as part of a forage crop program. Many were unsure if they would re-sow due to: wanting to know why the...
pasture had run-out in the first place, concerns about persistence of newer pasture varieties, financial and return on investment reasons, seasonal conditions (especially for those in dryland situations) and a need to change management first. Those who were not willing to re-sow or saw it as a low priority indicated that they could increase their returns in other ways such as increasing stocking rate or changing their management. One producer was strongly against re-sowing but would consider sod-seeding or minimal tillage. (Table 16 in Appendix 8.)

OUT-OF-SEASON LIVESTOCK PRODUCTION

Two livestock market scenarios were used to seek to understand focus group participants’ decision-making approach relating to entering into forward contracts for finishing stock out-of-season (autumn or winter). One scenario related to lambs and involved a choice between a domestic market (lighter weight) lamb turned off in autumn or export (heavier weight) lambs turned off in winter at a premium price. The beef scenario was to turn off finished cattle in August for a processor pasture-fed beef branded program to meet weight, fat and MSA grading specifications. The Brighton and Longford focus groups considered the lamb scenario and the Burnie and Scottsdale groups considered the beef scenario.

Participants were asked to describe how they would make a decision, if they would take a contract and what strategies they would use to meet the specifications. The responses across the four focus groups were grouped into themes and the number of quotes relating to that theme tallied (frequency). Themes, frequency and supporting quotes to the out-of-season scenario are listed in tables in Appendix 8.

Decision-making influences relating to entering contracts for out-of-season production were guided by feed availability (including pasture, fodder supplies and forage crops) (23), economics and margins (9), availability of the right livestock for the market (8), fit with other enterprises (5), seasonal conditions (5), need for feed for breeding stock (5), ability to manage the spring flush (5), flexibility of contracts (5), labour requirements (4), the producer’s attitude towards contracts (3), suitability to the farm (2) and planning (1). (Table 17 in Appendix 8.)

Producers who are finishing stock out-of-season during winter are using a range of strategies to do so. These include supplementary feeds, use of forage or dual-purpose crops (e.g. winter wheat) and use of irrigation, fertiliser and pasture amendments to establish a feed wedge going into winter and promote live weight gain in autumn. Having access to sheltered and dry paddocks was also mentioned as a strategy to boost live weight gains during cold winter months. Flexibility to seasonal conditions and timely decision-making was also raised as important when finishing stock out-of-season.

Willingness to enter into a forward contract for out-of-season lamb production varied according to the region. Most producers at the southern region focus group indicated they would not target the heavier export weight lamb market due to lack of a suitable animal, small property size and needing to conserve a feed wedge through winter for lambing ewes. Most producers at the northern region focus group were more open to the domestic and export weight lamb option. They indicated they would be willing to buy trade lambs to suit this market if they had feed or forage crops available. The exceptions were dryland livestock only businesses who opted to sell the stock off as stores rather than finish them through summer and autumn. At the north east and north west region focus groups, there was openness to beef winter finishing contracts provided that the right type of cattle (e.g. genetics, maturity pattern or age) and feed (including conserved fodder) was available or on hand.

Breeding enterprises were less confident in taking on a market opportunity of carrying finishing stock through winter in order to keep winter feed for breeding ewes or cows. There was also concern about utilising the spring flush if cattle were turned off in August rather than being retained for longer into the spring months. Producers with cropping programs were more open to the out-of-season production contract as they had
irrigated land they can utilise for forage crops, access to dual-purpose crops for winter feed (e.g. grazing ryegrass seed crops or winter cereals), had access to irrigation and were able to manage the spring flush as land was taken out of the rotation for spring sown crops.

4.5 CONCLUSIONS – DECISION-MAKING

Although some pasture management decisions are simple, decision-making is often complex. This study has highlighted that there are a range of factors influencing the decision-making process and a range of reasons for deciding to adopt or adapt a practice – as well as legitimate reasons for non-adoption. Decisions to ‘do nothing’ are valid and can be the right decision for the conditions. There is no one-fits-all.

There are four major types of influences on pasture decisions: bio-physical, personal, business and the influence of others. Personal influences include own experience, background, family and lifestyle. Business influences include being driven by productivity, driven by profitability and business phase. Biophysical influences include seasonal conditions, pasture growth curve, rainfall and irrigation, pasture cropping mix, pasture species and composition, and soils and land capability. Influence from others includes peers and advisors.

Understanding decision making influences will help industry to tailor extension message to those influences which are most relevant to their target audience. In the whole, producers are backing their own skills and experience in making decisions on their pastures. Peers are a strong influence on pasture decisions. Advisors are considered an important part of decision support in pasture management. Tools including soil testing, plate meters and visual observations are commonly used to support pasture decisions.
5 What are the barriers and reasons for lack of adoption of technologies that maximise pasture production?

5.1 INTRODUCTION

While a range of factors can be a motivation for adopting a practice or technology, there is a range of factors that impede adoption or act as challenges and barriers to maximising pasture productivity. In addition, producers often have legitimate reasons for non-adoption.

First, before considering challenges and barriers, it is worth considering the potential practices and technologies - recognising there is no one size fits all – that can contribute to maximising pasture productivity. They include the following:

- Setting and adjusting stocking rates to match feed supply and demand
- Grouping livestock according to their nutritional requirements
- Maintaining soil fertility
- Selecting pasture species suited to the region
- Re-sowing or removing pastures that would benefit from re-establishment, economically
- Grazing pastures at the appropriate time and growth phase (when to start and when to stop)
- Providing grazing rest periods to allow pasture regrowth
- Maintaining quality of pastures for animal nutrition
- Weed control
- Pest control.

Managing the above-listed practices often involves complicated decision-making (refer to Section 4 about types of decisions). Some of them involve complex decision-making and require a commitment to ongoing learning. Therefore, the challenges / barriers to adoption are many and varied. The challenges / barriers vary for each specific practice or technology (each has its own story) and also depending on what fits at the individual farm level.

Adoption is a learning journey. Depending on where you are on that journey, the relative importance of factors that influence adoption will vary.

There is a huge number of factors that influence adoption. Pannell (2007) organised them into three main groups:

1. Social, cultural and personal factors
2. Relative advantage of the practice, and
3. Trialability of the practice.

The relative importance of each of these vary at the various phases of adoption (Table 5).
Table 5: Relative importance of different types of factors in phases of adoption (Source: Pannell, 2007).

<table>
<thead>
<tr>
<th>Phases of adoption (learning journey)</th>
<th>SOCIAL, CULTURAL, PERSONAL FACTORS</th>
<th>TRIALABILITY OF THE PRACTICE</th>
<th>RELATIVE ADVANTAGE OF THE PRACTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>✓✓✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Non-trial evaluation</td>
<td>✓✓✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Trial evaluation</td>
<td>✓</td>
<td>✓✓</td>
<td>✓✓</td>
</tr>
<tr>
<td>Adoption</td>
<td>✓</td>
<td>✓</td>
<td>✓✓</td>
</tr>
<tr>
<td>Review and modification</td>
<td>✓</td>
<td>✓</td>
<td>✓✓</td>
</tr>
<tr>
<td>Non- or dis-adoption</td>
<td>✓</td>
<td>✓</td>
<td>✓✓</td>
</tr>
</tbody>
</table>

Therefore, challenges / barriers to adoption:

- Vary depending on the practice / technology
- Vary depending on the individual farm and situation, and
- Vary in their relative importance depending on the stage of adoption.

5.2 CONSULTATION FINDINGS

5.2.1 PRODUCERS

**KEY MESSAGE**

The relative importance of different types of challenges / barriers from a producers’ perspective, was dependent on farm scale (i.e. based on total number of hectares farmed):

- ‘Managing season variability’ was a key challenge across all business scales
- ‘Economic’ challenges were important for small and medium-scale farms; suggesting that economies of scale are a key challenge
- ‘Browsing mammals’ were a challenge for some but not all businesses.
- ‘Labour and workforce issues’ including keeping skilled staff, was a challenge for some larger-scale businesses.

Producers interviewed were asked about the challenges and barriers for five different pasture management practices / strategies. Analysis of the interview transcripts identified that ‘biophysical’ and ‘economic’ types of challenges / barriers were the most important from the producers’ perspectives (Table 6 and Table 7).
Table 6: Challenges and barriers to adopting preferred pasture management strategies (source: in-depth producer interviews)

<table>
<thead>
<tr>
<th>1. UTILISATION</th>
<th>2. GRAZING MGT</th>
<th>3. SOIL FERTILITY</th>
<th>4. COMPOSITION</th>
<th>5. RE-SOWING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest importance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilising the grass</td>
<td>Fencing / infrast / water</td>
<td>Cost / cash flow</td>
<td>Biophysical – pests, seasons, climate</td>
<td>Costs / returns</td>
</tr>
<tr>
<td>Biophysical – pests, seasons</td>
<td>Adapting seasons / climate</td>
<td>Soil constraints</td>
<td>Grazing management</td>
<td>Poor results / mgt / weeds</td>
</tr>
<tr>
<td>Paddock size / fencing / infrastructure</td>
<td>Time / labour / skills</td>
<td>Terrain</td>
<td>Mindset</td>
<td>Biophysical – soils, climate, flood prone</td>
</tr>
<tr>
<td>Mindset / knowledge / decision-making</td>
<td>Wallabies/pests</td>
<td>Understanding soil tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managing feed supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drainage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of inputs / cash flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lowest importance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7: Importance ratings – based on level of risk

<table>
<thead>
<tr>
<th>IMPORTANCE RATING</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest importance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd highest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd highest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substantially less important than others</td>
<td></td>
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</tr>
</tbody>
</table>

A list of the main challenges as identified through the interviews were provided for discussion at **focus group meetings**. Participants were asked to reflect on these and discuss the key challenges or barriers for their region.

The main challenges / barriers raised by producers at the focus groups focused on:

- Knowledge and skills gaps e.g. grazing management
- Cost of new pasture varieties
- Grazing management challenges
- Climate and seasonal variability
- Economic constraints e.g. cash flow
- Soil constraints
- Tools (e.g. for pasture assessments) are too time consuming or not suited to ‘run’ country, and
- Farmer attitude towards using inputs.
These were consistent with the findings from the interviews but with a stronger focus on skills and knowledge gaps. Refer to Table 20 in Appendix 8 for a more detailed list of focus group responses.

The online survey included an open question “What are the main challenges for your livestock (red meat) enterprise?”. Analysis of the responses to this open question revealed that:

- **Seasonal variability** was a key challenge for all producers.
- **Seasonal variability** was the main challenge nominated by larger-scale businesses. Challenges relating to seasonal variability were nominated by 45% of producers with businesses farming 2,000 ha or more.
- **Browsing mammals** was nominated as a key challenge by only smaller-scale businesses (however we know from the in-depth interviews and survey question 23 that this was a key challenge for some larger scale producers as well).
- **Economic** challenges were important for small and medium scale producers but were not nominated by larger scale businesses.
- **Labour and workforce issues** (e.g. keeping skilled staff) were important for larger scale businesses.

Responses about pasture challenges suggest knowledge and skills gaps exist at different levels, with some wanting to fill feed gaps and improve feed quality and others wanting general pasture management knowledge and skills.

- **Getting through the period of year from weaning until fodder crops ready (post cash crop). December - March = high stocking rate with reduced feed quality for growing Lambs. [Online survey - producer, 2,000 ha or more]**

- **Knowing how to measure and utilise available feed and best learning how to produce more feed off the same area. [Online survey - producer, 200-499 ha.]**

A subsequent question in the survey asked producers to rate the extent that 10 given challenges were holding back pasture productivity in their business. Based on a weighted average of the responses, ‘browsing mammals’ were the most important, followed by ‘time and labour resources’, ‘economics’ and ‘managing seasonal variability’ (Figure 24).
5.2.2 ADVISORS AND SUPPLY CHAIN REPRESENTATIVES

**KEY MESSAGE**

The most important challenges from the advisors and supply chain representatives’ perspective, fell into two categories:

- Producer knowledge and skills gaps
- Producers’ confidence / aspirations.

Based on analysis of the advisor and supply chain representatives’ interview transcripts, challenges and barriers for adoption of pasture management techniques included:

- Knowledge and skills gaps e.g. grazing management skills, understanding of benefits of re-sowing, business management skills
- Lack of farm plans
- Low aspirations
- Inconsistent autumn break
- Lack of time
- Costs e.g. infrastructure
- Inconsistent advice e.g. about pasture species.
However, in the online survey, when asked (via an open question) about current limitations to increasing pasture productivity, the reasons provided related mostly to only two types of challenges:

- Knowledge and/or skills gaps, or
- Producers’ confidence / aspiration / commitment / motivation.

Refer to Table 26 in Appendix 11 for a more detailed list of the survey responses.

### 5.3 Types of Challenges

**Key Message**

Challenges and barriers fell into four main types: bio-physical, economic, technological and social.

Challenges and barriers indicated by producers and advisors fell into four main types: bio-physical, economic, technological and social (Figure 25).

![Figure 25: Main types of challenges and barriers identified through the study](image)

Each of these types of challenges and barriers are described in the following sub-section.

#### 5.3.1 Bio-Physical

**Key Messages**

Managing seasonal variability was a major challenge for producers:

- Managing seasonal variability was a major challenge for optimising pasture utilisation.
- In dryland situations, it was a major limitation to re-sowing.

Browsing mammals were a major challenge for some but not all producers. It depended on the location of their farm and the feasibility of wallaby fencing. Where browsing mammals were a challenge, it had an impact on many practices / strategies including: re-sowing, maintaining species composition, and grazing management systems.
‘Seasonal variability’ was by far the challenge most commonly nominated by producers during the interviews and focus groups. This included managing the typical seasonal growth curve for their region through to managing variability between years.

When asked about the challenges of optimizing pasture utilisation, the main challenges mentioned by producers related to bio-physical challenges including ‘utilising all the grass’ [in the spring] or other challenges that related to pests and adapting to the season including winter feed gaps and summer feed gaps. Several producers mentioned that autumns have become increasingly unreliable and this influences their attitude to re-sowing.

*Seasonal variation brings me unstuck. Looking at my rainfall records for this century, so far 10 out of 18 autumns were a failure. I used to do all my pastures in the autumn in the 70s, after consecutive failures I moved to the spring and august. Generally, autumns have become more unreliable, but now the springs have caught up.* [Focus group participant.]

When asked about the challenges of maintaining pasture composition, producers’ first response was often around weeds. Browsing mammals were also a major challenge for some but not all producers.

…[wallabies] destroy your composition, yep, absolutely destroy it. [Producer interview 17.]

The main challenges in relation to adopting rotational grazing were: adapting to the season, fitting it into the system and a lack of infrastructure. In addition, larger scale producers were more likely to use at least some set-stock grazing which makes sense given the type and scale of land farmed.

*Well, yeah, I suppose I’ve always done it. I mean, to go into a rotational thing you need huge water infrastructure really and that’s something that we’re still trying to get on top of with irrigation, stock watering.* [Producer interview 29.]

### 5.3.2 ECONOMIC/BUSINESS

**KEY MESSAGES**

Economies of scale were a key challenge for small and medium scale businesses i.e. businesses farming less than 2,000ha.

Cost of inputs were a challenge particularly in relation to:
- Managing soil fertility i.e. cost of fertiliser, and
- Re-sowing i.e. cost of re-sowing and risks involved.

When producers were asked (via open question in the online survey) about the main challenges for their red meat enterprise, economic / business challenges were the second most frequently mentioned type of challenge, behind seasonal variability. Economic / business challenges mentioned by producers encompassed:
- Rising input costs
- Debt
- Prices versus cost of production
- Lack of capital
- Lack of scale, fixed costs.

Further analysis of the open question responses revealed that small and medium sized farms (less than 2,000 ha) were three times more likely to nominate economic challenges than business with 2,000 or more hectares.
When producers were asked about managing soil fertility, the main challenge related to cost (of fertiliser) and bio-physical challenges such as soil constraints e.g. management of waterlogged soils or management of coastal sands. Interpretation of soil test results was mentioned by a few producers as a knowledge gap, however overall this was less important than costs or soil constraints. Some producers observed a range in fertiliser management strategies.

*Look at it this way, those of us who come from a cropping background we don’t ever cut short on fertiliser or requirements for our crop. So what is grass, it’s a crop too and what you produce off that grass whether it be milk or beef is your crop. So you don’t spare the expense.* [Focus group participant, Burnie]

*There are two ends of the scale. Those doing well and those who aren’t. Often those who aren’t will say they can’t afford to put lime or fertiliser on but they don’t realise that they can if they increase their stocking rate.* [Focus group participant, Burnie]

When producers were asked about challenges for re-sowing, the main challenges related to costs and risk of failure. The cost of seed for newer pasture varieties was seen as a risk.

*I am more reluctant to try new varieties due to the cost of them. Some of the new ryegrasses are $20 per kg. At a sowing rate of 20kg per ha its $400 / ha just for the seed.* [Focus group participant, Brighton]

*It’s all well and good to put a new species in to grow more grass but someone who grows more grass has to purchase more stock to utilise it so you can get to the stage where you have spent a lot of money but if you don’t have the money to buy more stock it is a waste… Then you have to fertilise it to the rate of the higher stocking rate so you are creating a bit of a monster.* [Focus group participant, Scottsdale]

Economics were a barrier to finishing stock ‘out-of-season’ (refer to Section 4 about decision-making). Often producers found it more economic to stick with seasonal production because it fitted with their growing season, farming system and enterprise mix - especially if they were also operating a breeding enterprise.

*I go through a big stack of hay and silage to carry stock and cows and calves through winter. Is it worth it, they are paying premium but is it worth it or enough?* [Focus group participant, Burnie]

*Processors will make the August price but if you do the figures then you might say if I poke through August and then get into September and utilise the spring flush. It will all depend on what I thought that margin was as it would have to be pretty good to get cattle out the door in August.* [Focus group participant, Scottsdale]

*Maybe you are better to keep them through until spring as it costs you a lot of money to make hay and silage.* [Focus group participant, Scottsdale]

*Need to do what suits your country is the bottom line. Having some turned off all the time freed stuff up for everything else but also having the right flock structure. For example, if you are heavily loaded towards breeders you are not going to have that opportunity without a hell of a lot of risk. If the crop doesn’t come thorough you have no slack anywhere else.* [Focus group participant, Brighton]

In the online survey, economic challenges were rated highly as holding back pasture productivity (Figure 24). ‘Time and labour resources’ was the second highest ranked challenge with 66% of producers rating ‘time and labour resources’ as a challenge holding back their business to a large or moderate extent. ‘Economics (e.g. cost of inputs, cashflow)’ was the third highest ranked challenges with 62% of producers rating ‘economics’ as a challenge holding back their business to a moderate or large extent. Therefore, from the producers’ perspective economic challenges are important. This was encapsulated by one focus group participant who felt that cash flow was the key challenge that everything else fitted under:
Unless you can predict cash flow it makes it hard to advance or improve the operation. That’s the challenge that solves all the other problems. [Focus group participant, Scottsdale.]

5.3.3 TECHNOLOGICAL

KEY MESSAGES

Tools / technologies to support decision-making (e.g. pasture assessment tools) are too time consuming and/or not suited to some land e.g. run country.

Information accessibility is holding back pasture productivity including a lack of regionally-specific information e.g. information that is relevant for lower rainfall, dryland, “run” country or regions with a shorter growing season.

While technological challenges were not specifically explored during interviews or the online survey, these types of challenges became apparent at focus group meetings and was a central line of discussion at the Bishopsbourne meeting.

I have started doing plate metering once a month. It is so much work and is so time consuming. It’s so archaic as you have to get out and measure it so you end up eyeballing it. [Focus group participant, Bishopsbourne.]

We had 3 different people eyeballing our pastures for assessment. It depends what they are feeling as to what assessment is in the paddock. If he’s feeling that the drought is getting to him then he’s going to go low, or if he’s optimistic about the season he will go higher. There is too much noise if you can’t have the one person doing it and the information becomes irrelevant. [Focus group participant, Bishopsbourne.]

I’d love something that was easy like satellite based that zapped over the property that said you have so much dry matter in front of you and you are running into trouble. It would make it easy to make decision of when to sell stock. [Focus group participant, Bishopsbourne.]

If soil temperature and leaf emergence was recorded in a central database would be great. After a few years you would get an idea and would start to calibrate it for each of the seasons and compare to different years. Say for example in July 2006 my leaf emergence rate was X. What were the conditions in 2006? E.g. Above average rainfall and soil temps, the amount of cloudy days vs sunshine days. If someone could analyse all that and put it in a database. It allows us to say well the forecast for this July is above average temperatures, above average rainfall therefore we will have above average leaf emergence, so we don’t need to measure it as we will know it will be about 20 days. That would be amazing as it sets up a whole rotation. [Focus group participant, Bishopsbourne.]

Most can tell you ryegrass growth rates and estimate Kg DM. You take that out to run country and they don’t know what’s there. [Focus group participant, Bishopsbourne.]

We get a growth rate off the internet which is ok for most of our pastures but it puts us out for our run country as it doesn’t grow at the same rate. [Focus group participant, Bishopsbourne.]

Producers also identified gaps in access to information. Producers want information that is regionally-specific e.g. pasture species suited to their region and situation specific e.g. dryland or low rainfall.

Need a flip chart in the ute for run / native country. And had soil temperature and rainfall, you could use it to provide good info to help us identify if we are running into trouble. [Focus group participant, Bishopsbourne.]
If we had a Central monitoring of all farmers who have run country and were monitoring it and sending in photos we would soon get a good idea and useful info. [Focus group participant, Bishopsbourne.]

A lot of the new pasture spp are bred for dairy situations and the fertiliser demands are much higher. [Focus group participant, Scottsdale.]

Need agronomists with knowledge of your local area and what species will do well. [Focus group participant, Brighton.]

Still text book approach. North west coast advice vs local knowledge. It would help if more practical to our area. The more local the better. [Focus group participant, Brighton.]

I’ve got advice from local community and dairy farmers on what [varieties] suits your area. Just because it works in the coal valley or Oatlands doesn’t mean it will work in the Derwent valley. We have found that out the hard way. [Focus group participant, Brighton.]

As new varieties come on board and there is unknown there has to be trials somewhere and sometimes the farm is the trial. [Focus group participant, Brighton.]

I’d like to think I’m reasonably well-read but I’m not – I’m not aware the – the Department’s established a really good pasture site at Cressy, and I don’t know where’s that’s gone. I’m hoping it’s still ticking over, but I’ve seen nothing in the media or press or rural information that says it is still going. [Advisor interview 01.]

5.3.4 SOCIAL

**KEY MESSAGES**

Knowledge and skills gaps are a key challenge for adoption of technologies and practices that maximise pasture productivity.

Producers who are interested in increasing pasture productivity are also keen to improve their skills and knowledge, so this represents an opportunity. This includes a range of skills including species identification, re-sowing, how to manage specific species and grazing management.

Up-skilling for advisors and re-sellers is also an opportunity. This includes in particular up-skilling for people who give advice on selection of pasture species and management of re-sowing.

Workforce and labour challenges

In the online survey, workforce, labour or skills gaps were indicated by 30% of the larger scale producers. We expect that a majority of the smaller scale businesses are not employing many if any staff. So, this would explain the difference in responses by business scale. Responses about labour challenges included ‘finding and keeping skilled staff’, ‘people issues’ and ‘labour efficiency’.

Producer characteristics

Producer characteristics including lifestyle, beliefs and business growth stage influence pasture management decisions. Producers who are running steady businesses or winding down are less likely to want to change. This is described in detail in Section 4 about decision-making.
Information, knowledge and skills gaps

Specific knowledge and skills gaps nominated by producers in the online survey included:

- “Knowing how to measure and utilise available feed and best learning how to produce more feed off the same area”
- “Upskilling staff towards irrigated pasture and crop grazing skill sets.”

Advisors suggested that producers’ knowledge and skills in identification of pasture species was a gap. This was also evident during producer interviews e.g. where some producers could not confidently describe the pasture species on their farm. It was also identified at one focus group as a knowledge gap.

I think there is a problem in identifying all the species that are there. So you have a good basis for saying there is a fair amount of rubbish in here but there is also a fair amount of good stuff. So it might be worth just improving the fertility on it to save it or resting it at different times to let it seed and managing it like that. So identification of grasses especially when they are shorter is an issue I think. [Focus group participant, Brighton.]

A lots of farmers don’t know the species they are looking at. They sowed ryegrass 20 years ago and then 20 year later they think it is all still ryegrass here it is actually, erodium, cape weed, barley grass. [Focus group participant, Brighton.]

Interpretation of soil test results was mentioned by a few producers (focus group participants) as a knowledge gap, however overall producers felt this was a less challenge than fertiliser costs or soil constraints when it came to managing soil fertility.

Based on the interviews and focus groups, there appears to be a wide range in producers’ level of knowledge of species suited to their region / situation and also how to manage them. While some producers and advisors mentioned that phalaris-based pastures were suited to the dryland areas through the central Midlands, other producers in the region still had sown perennial ryegrass and clover mixes. In addition, there is scepticism about advice around species.

Yeah, I think there’s probably a tendency to use the faster establishing species because they can then graze them a bit earlier. I think it’s probably the ryegrass looks fantastic because it comes up so quickly and is showy and you can get sheep on it quickly or cattle on it quickly, and that kind of thing, but in low rainfall environments we know it just doesn’t fit. So there’s that temptation there to do it. I think also that there’s the advice that they’re getting from merchants, I reckon, might be questionable. Probably more just through the actual sales at the warehouse point of view. I’ve heard anecdotally a number of farmers going in and have their mind changed about what they needed. [Advisor interview 05.]

And, if you are putting those sort of high end grasses into dry land situations, you are not going to get the persistency under them. You are better off spending your money under irrigated pastures where you can really drive production. So you are back to probably a phalaris clover sort of traditional based situation in dry land. [Advisor interview 08.]

I find it almost – I don’t think the pasture companies – they don’t want to make super – they want something that grows quickly, they don’t want them to survive forever, like some of the old grasses you’d put in and they’d still be there 20 years later, where a lot of the new grasses they get now, they grow great for three or four years and then peter out. And I can understand why they’re doing that, because they want us to be re-sowing our pasture every few years, but it’s not cheap. [Producer interview 29.]
I suppose really, the seed reps are pretty good, but, you know, they’re selling seed too. I would like to use an agronomist a bit more. [Producer interview 31.]

Some of the older grasses don’t seem to regrow as quickly, but then a lot of these ones that regrow quickly don’t seem to have the persistence either. [Producer interview 29.]

So, yeah, the dry land here is a bit of a battle. To get a persistence versus productivity and quality feed. [Producer interview 28.]

Grazing management skills are key to pasture productivity. The Pasture Principles course was mentioned – unprompted – by about half of the producers interviewed, and they generally rated it highly. However, it was not always directly relatable to their farming situations. Some producers felt that it was too focussed on higher rainfall systems, more intensive operations and species suited to higher rainfall regions.

It’s too focused on numbers and too focused on numbers and three leaf and only three leaf. The Pasture Principle’s course, it frightens people ‘cause they’re like well how the hell am I going to implement this and then you’ve got [Prograze] that one, well that was too far the other way, that was too simplified and it – this needs to be a practical kind of course out there, just telling people grazing periods and – and residuals, if you talk to people about grazing periods and residuals and how the plan actually functions – if we focused on that well then, I think there would be a lot more production happen than talking about pasture species or three leaf stage and – and all that sort of stuff ………people just say oh this is when you’re meant to graze it three leaf but – and then you get to the middle of winter and there’s no way you’ll grow three leaves, so there’s sort of some information around that sort of stuff. [Producer interview 17.]

Based on feedback from advisors there is a need to increase producers’ knowledge and management skills in planning and preparation of paddocks prior to re-sowing. These knowledge and skills areas encompass weed management, seed bed preparation, fertility and pest management - in the context of re-sowing a paddock.

There is some scepticism of the advice provided about which pasture species and/or varieties to sow. It was suggested that there is a need for upskilling advisors and re-sellers particularly when it came to advice about seed, varieties and re-sowing.

We normally just get a seed mix from [re-seller] or something and probably haven’t managed them as well as we should do, or could do. [Producer interview 29.]

[merchandise reps] are probably the ones that get asked the most questions about pasture. [Advisor interview 01.]

I got a phone to say, “I put this in, it hasn’t worked, can you come and have a look?” Gone and had a look and said, “Oh, okay, did you spray it off before you sowed?” “No.” “Did you put some slug bait on?” “No.” They’ve had a bad experience because they didn’t get the right advice. Their expectations have been not right – they’ve expected that it’s going to be – in an old pasture just put the new seed in and miraculously it’s going to grow. But the advice they got from their rep wasn’t good advice. So they’ve ended up costing them some money. [Advisor interview 03.]

It’s like, well, I’ve asked a few of them, you know, “Why don’t you try something different?” “Oh no, well Vic rye is cheap,” and, “Oh, I’ve used it in the past and it goes well. [Advisor interview 01.]

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1 ‘Pasture Principles’ is a pasture grazing course developed by Macquarie Franklin.
5.4 CONCEPTUAL MODEL

Figure 26 illustrates our conceptual model of the main types of challenges / barriers and how they affect decision-making and adoption. In this model, there are two levels. The first level includes biophysical as well as economic constraints (i.e. the biophysical limits of the farm and the economic and farm business factors). This gives you the practices / technologies that are viable at a farm level.

At the second level, the viable practices and their adoption / implementation, are influenced by producers’ judgement (e.g. enterprise mix), producers’ characteristics (e.g. stage of life) as well as being affected by other social and technological barriers.

Producers’ judgement and characteristics (e.g. values, beliefs) influence economics (e.g. debt level), indicated by a dotted line in the diagram (i.e. feedback). The biophysical and economic factors in the first level also affect actions at the second level, which is also indicated by a dotted line.

Figure 26: Conceptual model of key challenges
5.5 **CONCLUSIONS – CHALLENGES AND BARRIERS**

While many of the same challenges were nominated by both producers and advisors we found clear differences in the types of challenges that were nominated as being the most important. Advisors were far more likely to nominate skills and/or knowledge gaps as the most important challenges. Producers were more likely to nominate biophysical and economic types of challenges. Still, producers are keen to learn more about grazing management and pasture species suited to their region.

Challenges and barriers fit into two levels:

- **Overarching business challenges** – these include biophysical limits and economic factors at an industry and individual business level.
- **Social and technological challenges** – these are the barriers / challenges stopping producers making the most of their opportunities (but acknowledging) within the constraints above i.e. the practices that are viable for their farm business. This includes knowledge, skills and suitable technologies to assist decision-making.

Practices and technologies that maximise pasture productivity can be considered via two main categories:

- **Species** – growing pasture species suited to the region and purpose, and
- **Management** – managing pastures well (knowledge, skills and implementation).

Given these two main categories, and based on the data gathered in this study, the main challenges holding back adoption of practices and technologies that increase pasture productivity include:

- **Managing seasonal variability**; including increasingly inconsistent autumns, summer feed for growing lambs and winter feed gaps
- **Pasture species**; knowledge, skills and information accessibility (e.g. new varieties, how to manage them, where to sow them)
- **Grazing management**; knowledge, skills and implementation
- **Tools/technologies** to support decision-making (e.g. pasture assessment tools) are too time consuming and/or not suited to some land e.g. run country
- **Information accessibility**; a lack of regionally-specific information e.g. information that is relevant for lower rainfall, dryland, “run” country or regions with a shorter growing season.
6 How can industry foster increased pasture production through a targeted extension program?

6.1 Influences on current pasture management

This sub-section describes what or who has influenced producers’ current pasture management practices.

Key Message

Producers’ main influences are either internal or external:
- Internal: own experience based, trusted peers (neighbours (other farmers), friends and family)
- External: group-based learning, one-on-one expert advice (paid and unpaid).

The strongest influences on how producers currently managed their pastures, fell into three broad categories: trusted peers (family, neighbours and friends), their own judgement based on experience, and external support, for example, group-based learning (pastures courses delivered by experts), paid advisors and/or resellers, and combinations of these. Figure 27 shows a breakdown of each of these main influences. Another way of interpreting these findings is to consider producers’ main influences as either internal or external. They were found to be broadly split between the two.

![Figure 27: Who or what had influenced producers’ current pasture management approach](source: in-depth producer interviews)
The online survey results supported the above findings where ‘talking to other farmers’ was, on average, the most highly rated information source to have a role in their current pasture management approach. The next most influential information sources included: field days or discussion groups, experiments and trials on my own farm and pasture management training, newsletters and external advice (either paid or unpaid), respectively, as shown in Figure 28.

Figure 28: Extent that information sources had contributed to current pasture management approach / techniques (source: online survey)

6.2 PRODUCER LEARNING STYLES AND METHODS

**KEY MESSAGE**

The results of the study revealed the following:

- Producers want to build on existing skills and knowledge in pastures and they are actively seeking information.
- This provides good scope and opportunity to offer extension support to willing producers.
- Producers find approaches involving learning alongside peers as the most effective for them.
- Training type workshops and courses, and field days were identified as the most preferred methods.
- Pasture management courses were highly regarded by those producers who have attended them.

6.2.1 LEARNING APPROACHES AND INFORMATION SOURCES

A range of learning approaches were highlighted through the in-depth producer interviews. These included:

- Learning from peers e.g. “I love getting on and going and checking out other people’s places and talking to them about what makes their business tick.”
- First hand observations of trials on farm to see what works.
Will adopt once the benefits have been proven by others
Own research and reading
More traditional and slower to adopt – would prefer to wait a bit longer and learn over time through more informal information channels.

The online survey supported this, with producers having a strong preference for peer learning (Figure 29). 87% of respondents either agreed or strongly agreed that they actively seek new information on pastures and only 41% agreed or strongly agreed that they were generally satisfied with their level of knowledge and skills in pasture and livestock production. This suggests there is a desire amongst producers to build on existing skills and knowledge in pastures and livestock management, providing good scope and opportunity to provide extension support to willing producers.

The online survey showed that producers find that learning alongside peers is very effective (80%) and that on average, paid advisors were rated more highly than unpaid advisors to provide new information on pastures. Only one third agreed or strongly agreed that independent learning such as reading and online sources was their preferred learning method.

![Figure 29: Level of agreement about learning approaches (online survey)](image)

Advisors agreed that peer to peer learning was highly valuable.

I do think they learn a lot from each other. So, getting a farmer off his own paddock and look at someone else’s and hearing another farmer talk about his experience, his successes and failures is a fantastic way for farmers to learn. They are not very good at learning in a classroom or in a lecture theatre. [Advisor No. 6.]

Field days and workshops were rated most highly as preferred learning methods by online survey participants. This was followed by trials and demonstrations and then discussion groups. There was less interest in webinars, online or fact sheets (Figure 30).
Pastures and Livestock Productivity Project

6.2.2 Past and Current Pasture Extension Offerings

Producers were asked about their involvement in past and current extension programs that were useful for them. Two-thirds of producers interviewed identified training type workshops and courses to be the most highly regarded extension methods, with pasture specific courses identified by around half of these. Based on our coding of interviews, around 50% of producers had had a moderate level of previous engagement with industry provided extension programs and around one third had a high level of engagement. A small proportion had previously high engagement which had now lapsed.

Focus group participants were asked to discuss the best extension program they had been involved in and why. Themes relating to their responses and supporting quotes are listed in Table 21 in Appendix 8. Popular extension programs included the pasture management course ‘Pasture Principles’ (9 mentions), followed by discussion groups (6), benchmarking groups (3), Life Time Ewe Management course (3) and trials (3). Producers commented on their relevance, small group approach, practical on-farm aspects and ability to learn from other farmers as reasons why they enjoyed these programs. Other extension programs mentioned are listed in Table 21 in Appendix 8.

Mix of theory and practice. Go around each other’s farms, you had to host the group. Talk about issues in the field which works well as you are going around the farms. [Focus Group participant]

Advisor and supply chain interviews supported these findings where the most often cited examples of useful extension was pasture specific courses e.g. Pasture Principles and that the dairy industry was delivering good extension activities / approaches. Other programs and information sources mentioned included: Lifetime Ewe Management, dairy industry information, Red Meat Updates and the MLA website.
Producers who had attended pasture specific training courses regarded them highly, an example was the Pasture Principles course currently being delivered by Macquarie Franklin which was often raised throughout interviews and focus groups.

I am doing pasture principles at moment it is great. I’m glad I’m doing it. [Focus group participant.]

Small group, its ongoing, not a once-off field day. You are actually doing it. [Focus group participant.]

Almost every presenter that spoke at Red Meat Updates have all done a course and have changed their pasture management as a result of the course. They have learnt the skills and applied it to change their grazing management and stocking rates and have had a change in attitude as a result. [Focus group participant.]

However, one producer explained that were not always pitched at the right level.

It’s too focused on numbers and three leaf and only three leaf ….. the Pasture Principle’s course, it frightens people ‘cause they’re like well how the hell am I going to implement this and then you’ve got Prograze, that one, well that was too far the other way, that was too simplified ….. needs to be a practical kind of course out there, just telling people grazing periods and residuals ….. well then, I think there would be a lot more production happen than talking about pasture species or three leaf stage and all that sort of stuff. [Producer interview No. 17.]

Focus group participants at Scottsdale raised the past success of Department pastures extension officers running training and trials in their region.

[Department Extension Officer] – he had a passion for growing grass, shown us how to grow grass and how to measure it, slapped us around the ears when we don’t measure grass and gave us chocolate frogs when we do. [Focus group participant.]

The region has been very well serviced in the past. There are still a few trials in the region. There is the beef discussion group operating who meet once a month. [Focus group participant.]

Both advisors and supply chain representatives mentioned the value of dairy extension in Tasmania and that the red meat industry should consider more closely modelling its programs on these.

The best people to watch with growing grass are dairy farmers……they grow grass to make money, to make money to grow grass, to make milk, and it just goes round and around in a big circle, so if they don’t grow their grass, they don’t produce milk. [Supply chain interview No. 10.]

Some producers agree …

Since moving into the dairy industry I’m blown away by how much extension the dairy industry offers the farmers; compared to beef it’s almost non-existent. And I would say 90, well, 80% of things that are offered to the dairy industry can also transfer over to the beef industry and it’s not offered. So, I’m blown away by how much extension is available to dairy…..they’ve got something on almost every week on the field day; we could go and look at this or that. And a lot of it is relevant to the beef industry. [Producer interview No. 35.]

The dairy people. So they’re really good…so they’re definitely well above beef farmers with their extension work. [Producer interview No. 30.]
...Dairy Australia every month you get a brochure, comes with your milk cheque. So you’re up-to-date. [Producer interview No. 23.]

Once advisor commented that participation in field day type extension events had been waning.

I don’t think we get nearly as many farmers today at events as what we used to. Time pressures, interest and also I think that farmers are seeing that gathering of that advice is being pushed more onto agronomists, if they’ve got agronomists. [Advisor interview No. 5.]

6.3 PRODUCER SEGMENTS

6.3.1 INTRODUCTION

Industry segmentation is a method for dividing a population into groups. It allows delivery of targeted information and activities.

Segmentation helps to address the questions:
- What outcome are we looking for?
- Who is the target audience?
- What is the best way to engage with the target audience?
- How will we know if something has changed (evaluation and indicators of success)?

Segmentation is only one of the tools or approaches which can be used in designing an extension program and therefore should not be relied upon solely.

6.3.2 SEGMENTATION QUESTIONS

Different characteristics can be used to segment a population. The online survey in this study included questions about individual characteristics and contextual characteristics. These are listed below:

- Individual characteristics
  - Mind sets (approach to innovation, planning and decision making)
  - Aspirations for increased pasture productivity and increased stocking rates
  - Types of information that have influenced current pasture management practices
  - What motivates red meat producers?
  - Age bracket
  - Education
  - Frequency of attendance at extension events
  - Practices (approach to pasture monitoring, feed budgeting, pasture renovation / re-sowing, use of forage crops and out of season production)

- Contextual characteristics
  - Farming system (mixed cropping and livestock or specialist livestock, irrigation or dryland and enterprise types)
  - Farm scale (total hectares farmed, head of cattle and number of lambs)
  - Region
  - What are the main challenges for red meat producers’ businesses?
6.3.3 **DEFINITION OF FARMING SYSTEMS AND MARKET SEGMENTS**

We identified two main farming systems:

- Mixed (cropping and livestock)
- Specialist livestock (beef/sheep) – acknowledging that these systems may include dual purpose or wool flocks in addition to prime lambs.

Refer to Section 3 for further description of these farming systems.

We used ‘total number of hectares farmed’ for farm scale in the data analysis to keep the segmentation simple. Otherwise, livestock numbers could be used, however this would require further interrogation of the data.

6.3.4 **RESULTS AND IMPLICATIONS**

The following results are based on statistical analysis of the demographic data and Likert scale questions i.e. this analysis did not cover all survey questions. Refer to Appendix 9 for a copy of the survey questionnaire. The P-values for significant results are shown in Table 12 in Appendix 7.

**Table 8: Implications of online survey results for extension to various producer populations/segments.**

<table>
<thead>
<tr>
<th>RESULT</th>
<th>IMPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming system:</td>
<td>Highlight the productivity benefits of practices. Although productivity was a stronger driver for mixed farms, it is still a strong driver for specialist livestock farms.</td>
</tr>
<tr>
<td>‘Productivity’ is a stronger driver for mixed farms than specialist livestock producers.</td>
<td></td>
</tr>
<tr>
<td>Area (ha) farmed</td>
<td>Engage advisors when targeting larger scale businesses. Consider different ways to engage with smaller scale businesses including other key influencers e.g. re-sellers. Consider farm scale and the different approaches they use e.g. their approach to feed budgeting (formal versus informal). This could mean delivering training at different levels and/or it could mean different aspirations/needs.</td>
</tr>
<tr>
<td>Smaller scale farms find planning more challenging</td>
<td></td>
</tr>
<tr>
<td>Formal feed budgeting - there was a general increasing trend with increasing farm scale to undertake formal feed budgeting. The range jumps up at farms of 2,000ha or more.</td>
<td></td>
</tr>
<tr>
<td>Paid advice influence on practices - there was some increasing trend with increased farm scale for paid advice to influence current practices.</td>
<td></td>
</tr>
<tr>
<td>Pasture management training influence on practices - there was possibly an increase with increased farm scale</td>
<td></td>
</tr>
<tr>
<td>Reliance on paid advisors for information - increasing trend with increased farm scale</td>
<td></td>
</tr>
<tr>
<td>Compared to older producers, younger producers are:</td>
<td>If younger producers are a target audience, highlight economic benefits of practices; and provide opportunities for networking with other farmers.</td>
</tr>
<tr>
<td>More strongly driven by return on investment</td>
<td></td>
</tr>
<tr>
<td>More strongly driven by building wealth</td>
<td></td>
</tr>
<tr>
<td>More strongly influenced by talking to other farmers; and</td>
<td></td>
</tr>
<tr>
<td>Planning is less challenging for 30-39 years old compared to the 60 or over cohort</td>
<td></td>
</tr>
<tr>
<td>Region:</td>
<td>This makes sense given that the north west includes some regions with high rainfall.</td>
</tr>
<tr>
<td>Low rainfall is less of a barrier for producers in the north west compared to the south and north.</td>
<td></td>
</tr>
<tr>
<td>RESULT</td>
<td>IMPLICATIONS</td>
</tr>
<tr>
<td>--------</td>
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</tbody>
</table>
| **Education level:**  
• Planning is more challenging for producers with lower education levels. | Ensure extension activities are flexible and designed to meet a range of education levels. |
| **Aspirations to increase pasture productivity:**  
• Producers who have aspirations to increase pasture productivity, rate ‘knowledge and skills gaps’ as a bigger challenge, compared to those who don’t have aspirations to increase productivity.  
• Producers who are satisfied with the existing productivity of their pastures were more satisfied with their current level of skills and knowledge compared to those with aspirations to increase productivity.  
• Producers who ‘already have plans’ to increase productivity are more likely to be using formal feed budgeting and also more likely to be influenced by a paid advisor, than those who ‘would like to’ increase productivity.  
• Return on investment is a stronger driver for producers with aspirations to increase pasture productivity compared to those with lower aspirations / already satisfied with productivity.  
• ‘Increasing productivity’ was a strong driver for producers who have aspirations to increase pasture productivity. | This suggests that producers have aspirations to increase their knowledge and skills and represents an opportunity for the pasture productivity extension program.  
Provide context as to how pasture management decisions relate to the business bottom line and productivity. Highlight the productivity, profitability and return on investment benefits of pasture management practices in extension messages and approaches. |
| **Approach to innovation:**  
• Low rainfall is less of a challenge for the more innovative producers.  
• Producers ‘open to new ideas but only once they see the benefits’ were more influenced by family members compared to more traditional producers.  
• More traditional producers have less reliance on paid advisors for information. | Consider methods to engage with producers who have less reliance on advisors and those who ‘like to see the benefits’ e.g. this may include peer learning in small groups or farm trials, or potentially through more traditional media and case studies. |
| **Frequency of event attendance:**  
• Freight and logistics were a larger barrier for people who attended more events  
• Skills gaps were more important for people who attended 4 or more events per year compared to those who attended fewer events.  
• People who attended events more regularly/often were more likely to have a long-term plan.  
• Planning was more challenging for people who attend fewer events.  
People who attended events more regularly/often were more likely to:  
• Undertake formal feed budgeting  
• Be influenced by paid advice  
• Be influenced by unpaid advice  
• Be influenced by pasture management training courses  
• Be influenced by field days or discussion groups. | Based on survey responses most of the people who found freight and logistics a larger challenge, were from the Islands and the North East, but not exclusively. Based on our experience, these regions have strong discussion groups and social networks. So, respondents from these regions were likely to attend more events. Location is likely to be a challenge for logistics in some regions.  
As expected, people who attend more events are likely to be interested in increasing their skills and knowledge.  
We are unsure of the aspirations of the group who attend fewer events; and we are not sure if they are a target audience. Alternative extension methods may be needed to engage with this group. |
Based on the results, segmentation by ‘farm scale’ is key. Also important are age and level of engagement with industry activities. We did not attempt to segment the industry into specific groups, because the target audience may vary, depending on the focus topic or activity and we expect the Pasture and Livestock Productivity Program will cover a number of topics. In addition, the Program will need to fit with existing programs.

Advisors are “key influencers” for larger scale farms. This highlights the importance of engaging advisors in extension programs targeted at larger scale farms.

We cannot easily determine from the results, the best way to engage with people who don’t normally use advisors and also don’t normally attend events. However, based on the survey and interview data, it is possible that key influencers for this group include re-sellers and processor representatives. Therefore, the best way to ensure producer engagement is to use a farmer and supply chain led approach for designing and guiding the extension program.

The survey results also supported findings from the in-depth interviews that producers have strong aspirations to increase productivity.

Further interrogation of the data is warranted but was not possible within the scope and budget of this study.

6.3.5 CONCLUSIONS – SEGMENTATION

Results from the survey highlight that:

- ‘Farm scale’ provides a basis for segmentation when designing extension activities
- Productivity and economic benefits are key drivers for producers, so these benefits should be highlighted in relation to pasture management
- Consider a supply chain and farmer led approach in design of the pasture productivity extension program to ensure engagement with different groups of producers e.g. engaged producers vs those less likely to participate in industry activities
- Engage with advisors and others in the supply chain who also have an influence including re-sellers and processors
- The practicality of segmentation depends on the focus topic.

6.4 FUTURE INDUSTRY EXTENSION NEEDS

KEY MESSAGE

The main findings on future industry extension needs were:

- Producers have a strong preference to learn from other farmers and peers so extension methods that facilitate peer to peer learning should be used
- Regionally based discussion groups were recommended by focus group participants
- Extension programs need to pay attention to targeting audiences demanding different types and levels of information, and use a range of delivery models (no one size fits all)
- The dairy extension program was highly regarded by producers, advisors and supply chain representatives and their approaches should also work well in red meat extension
- Mixed feedback from producers on the need for regional trials of pasture species; some producers felt trials focused on fertilisers and soils were more needed.

The following section compiles information from the producer, advisor and supply chain interviews, focus groups and online survey in response to the questions:
‘What could industry do, through a targeted extension program, to support increased pasture productivity?’ or ‘What does an industry pastures extension program need to involve?’ The findings are separated into ‘extension methods and approaches’ and ‘skills, and knowledge gaps or topics’.

6.4.1 EXTENSION METHODS AND APPROACH

There was a wide range of suggestions amongst the advisors interviewed regarding what industry could do to support an increase in pasture productivity. The main findings from the advisor interviews are outlined in Table 9. The most common suggestions (highlighted in bold) related to paying attention to target audiences, segmenting the extension offerings based on demographic and regions and using a range of delivery models. These included one-on-one advice, field days, group facilitation / peer-based learning / ongoing programs and make existing information accessible to more producers.

Table 9: Approaches and delivery method suggestions – for what industry could do to support an increase in pasture productivity (Source: In-depth advisor interviews).

<table>
<thead>
<tr>
<th>THEMES</th>
<th>SUPPORTING QUOTES (ADVISORS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approaches</td>
<td>My personal opinion is it needs to be a value chain approach. You need to – it’s no good having the value chain segregated; [Advisor interview 12.]</td>
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<tr>
<td></td>
<td>It looks to me from out outsider looking in, that the dairy industry is very good extension and teaching people to grow grass, and I think it looks like they’ve been the best at being proactive about teaching people to grow grass. [Supply chain interview No. 38.]</td>
</tr>
<tr>
<td></td>
<td>I think in one sense we are certainly lacking some really good impartial decision making in regard to a lot of those things now … 15 years when the DPI was still actually the DPI, and giving independent advice. Like that was worthwhile. You now have some consultants out there driving workshops and things like that, which I think are good for the high end producers who are prepared to do that, but you lack that middle ground. [Advisor No. 8.]</td>
</tr>
<tr>
<td>Delivery models:</td>
<td>I think certainly farmers who have trials on their farms get a lot out of it, absolutely, because they put a lot of weight in the results that they’re getting, because it’s on actually on their farm. [Advisor No. 5.]</td>
</tr>
<tr>
<td>- Farm trials</td>
<td>I think certainly farmers who have trials on their farms get a lot out of it, absolutely, because they put a lot of weight in the results that they’re getting, because it’s on actually on their farm. [Advisor No. 5.]</td>
</tr>
<tr>
<td>- Field days</td>
<td>Most farmers don’t go much on pretty graphs. They want to see it in the flesh. They want to be able to talk to their mate and say, “What do you reckon of that?” “Yep, it sounds pretty good.” And, “rightio, I will change because of that.” But there are some that just take quite a long time to get to that point. [Advisor No. 6.]</td>
</tr>
<tr>
<td>- Group facilitation / peer-based learning / ongoing programs</td>
<td>I think it’s a multi-pronged attack, if you like, about a number of different methods, because farmers learn in different ways. [Advisor No. 5.]</td>
</tr>
<tr>
<td>- Make existing information accessible</td>
<td></td>
</tr>
<tr>
<td>- Mix of methods</td>
<td></td>
</tr>
<tr>
<td>- Practical (not classroom-based)</td>
<td></td>
</tr>
<tr>
<td>- Information days</td>
<td></td>
</tr>
<tr>
<td>- One on one</td>
<td></td>
</tr>
</tbody>
</table>

Most producers involved in the in-depth interviews indicated that they continued to have a moderate to high level of interest in participating in future activities if available.
Noting, however, that almost 40% of producers interviewed learnt mostly from trusted peers (neighbours and friends) with around one third having indicated a relatively low level of interest in participating in future events or courses that would be offered.

There was feedback from some producers that they were well informed and that there was a lot of good information available but rather it was more about producers wanting to take the next step and change.

No. Look as far as I can see it’s pretty much all been done, somewhere – somewhere along the line we’ve looked at all that sort of stuff, I think it more comes around to if people are making money out of it, they will chase this information out and then they will seek it. [Producer No. 17.]

There’s a lot of R&D out there that’s not adopted. So, it’s actually about if we, in the broader picture of agriculture, it is about getting people to utilise pasture. [Producer interview No. 36.]

When asked about what industry could do more of to increase pasture productivity in Tasmania, the most frequently mentioned responses were around on-farm regional field trials and demonstrations, followed by training courses. This was supported by results from the online survey where trials and demonstrations was the most popular extension method raised followed by discussion groups and field days and farm walks and training workshops (Figure 31).

![Figure 31: Extension approaches raised to the question ‘What does an industry pasture extension program need to involve?’ (Source: online survey)](image)

Trials and demonstrations were frequently mentioned by producers but they needed to be region specific. Some producers felt that the pasture seeds are already available, and it was more about accessing independent advice.
Yeah, probably more on-ground trials … irrigation has a whole new set of challenges and things that we haven’t dealt with much before. Yeah, more ongoing trials. So, assessing pasture species and, you know, grazing techniques … I think it’s about measuring and trying different things and seeing what works. As long as it’s relevant to what our situations are. [Producer No. 28.]

[Assistance to farmers] I suppose, in what varieties grow better in certain parts of the state, more than just the whole state, and in what conditions. [Producer No. 24.]

….. the knowledge is out there and the seeds are already out there. The variety – just try and select the right seeds for the right areas is the biggest thing of all and then get independent advice. [Producer No. 26.]

Some producers also mentioned knowledge gaps on fertilisers and soil condition and fertility issues which demonstration trails could help address.

We’ve done pastures, maybe trial some more types of fertilisers, things like this rock phosphate and a few different products that aren’t commonly used and do a bit of analysis on them. Just try for a different…they’ve got these fish fertiliser and all that sort of stuff, you could possibly use them on the existing trial sites as well, to test out fertilisers and pastures, to see if there’s anything good there. [Producer interview No. 37.]

I feel like we’re pretty informed with the species, and I feel that there’s regularly new varieties of grass coming out, so I think somebody is doing a good job there. I feel pretty confident in that. I think it’s more just the soil that I still struggle with a little bit, because you can go and throw as much fertiliser you can afford at paddocks, and nothing will change if something else is out. [Producer interview No. 22.]

It was suggested trials were of most benefit to producers if they are conducted on farm, are of commercial size and in ‘real world’ situations rather than small plot replicated trials.

You get to see what happens without doing it yourself. Putting theory into practice. The trial we did changed our operation and grazing management. [Focus Group Participant]

Scientist trial plots at a lab or uni, small plots doesn’t work for us… It has to be large scale on farm, commercial scale. We need to know the commercial application. [Focus group participant]

Focus group participants were asked to identify what an industry pastures extension program needs to involve. Themes relating to their responses and supporting quotes are listed in Table 22 in Appendix 8.

Discussion groups were a very popular extension method raised by focus group participants (14 mentions) followed by trials (10) farm visits and learning from other farmers (7) and benchmarking (7). It was mentioned at two meetings that a smaller group size was preferred. Producers feel more comfortable to ask questions and contribute to discussion in small group situations (8 to 10 people) rather than larger groups.

Common themes raised by focus group members relating to discussion groups were;

- Needs to be small and localised
- Needs to be flexible
- Need to be facilitated / coordinated
- Activities need to be funded
- Incorporate and provide opportunities for practical learning, and
- Social benefits of discussion groups are important to producers and the community.
There was a mixed response to the idea of podcasts apps and technology-based methods with the participants attitude towards technology and time constraints being the main barrier against these extension tools. Industry conferences including Red Meat Updates, bus trips and glove box guides were also raised as extension methods.

Focus group participants also raised general approaches relating to an extension program including: learning from the dairy industry (8), acknowledgement that financial position influences decisions (5), the need to target those who don't normally attend events (4), a continuous approach and support is needed (4) as well as a coordinated industry approach (2).

**Summary of Extension Methods and Approaches**

Priority extension methods and approaches raised by industry include:

- Trials and demonstrations – held on farm, commercial scale and in localised regions
- Discussion groups – local small facilitated groups that encourage peer and practical learning
- Field days, farm walks and farm visits, and
- Training courses and workshops.

**6.4.2 Skills and Knowledge Gaps or Topics to be Addressed**

The online survey collated a range of topics suggested by producers for a pastures industry extension program (Figure 32). **Pasture species selection** was the most popular topic. This was followed by **best practice pasture management, optimising grazing management, pasture utilisation and fertiliser**, these topics align closely with the key areas of pasture management focus that were discussed in the producer interviews.
Pasture species selection was suggested not only a topic for information sessions but also for demonstration trials in local regions.

More info on varieties suited to different areas/climate, trials in many areas of the state of different varieties [Producer online survey respondent.]

More information sessions for farmers to attend. Eg when renovating pastures which species to use, each season the seed companies push new species, they all seem to be the best producers. It is hard to keep up with it all. [Producer online survey respondent.]

Replicated trials comparing different cultivars and mixes including lucerne, clover etc to determine weight gain potential per ha under Tasmanian conditions. Develop best practice grazing protocols when best practice is not practical. [Producer online survey respondent.]

Throughout the study producers raised a scepticism of the persistence of new pasture varieties. It was suggested by advisors and producers that persistence issues could be related to:

- Sowing species not suited to the region, climate or soil conditions
- Poor management and establishment of new pastures
- Lack of attention to detail in pasture establishment phase
- Skills and knowledge gaps on how to manage newer pasture varieties, or
- Higher input requirements (e.g. fertiliser) of new varieties that are bred for high input dairy systems.

Addressing these issues in a targeted extension program will help to bridge the skills and knowledge gaps related to new pasture varieties and lead to increased confidence when sowing new varieties.

Browsing animal management was raised as a topic and key challenge for producers in the interviews and in the online survey responses.

In addition to the survey, focus group participants also identified specific skills or knowledge gaps to be addressed through an industry extension program:

- Soil fertility, fertilisers and nitrogen use (2 focus groups)
- Pasture utilisation (1 focus group)
- Chemical use in pastures (1)
- Cattle condition scoring (1)
- Pasture monitoring methods for 'run out' country (1).

Focus group participants also raised a skills gap in accurately monitoring 'run country' and the ability to predict growth rates of native run country pastures in comparison to improved ryegrass pastures.

Advisors and supply chain participants raised several main topic areas including:

- Information by species for region and purpose e.g. species selection for persistence, phalaris, lucerne RD&E
- Breeding
- Animal health
- Economics
- Fodder crops for dryland
- Managing seasonal variability (seasons are becoming less consistent)
- Out of season production e.g. winter
- Seed handling.
Information by species for region and purpose was by far the most frequently suggested.

*I guess some sort of a campaign to increase awareness of the different species, I suppose, the benefits that the different species can give. That’s a thing that’s neutral to different seed companies… but just, across different species, the different grasses and obviously herbs and stuff and legumes as well.* [Advisor interview No. 3.]

*Look, it’s not a general thing as such. I mean, it tends to be specific to each producer and they tend to be doing different things. As [colleague] said, some can be feeding the pellets in conjunction with their pastures, some are rotationally grazing; some are feeding silage cut and carry. There’s a whole different myriad of things, and again, it’s what works for that farmer and that producer. So I don’t think there’s any one thing. Some guys have grown forage crops – it’s what works for them in their scenario.* [Supply chain interview No. 12.]

Some producer interviewees also identified *species selection for persistence* in different regions however others felt that there was already good knowledge in this area. Others raised the value of *fertiliser trials* and felt that there were knowledge gaps on *soil condition, nutrient balance and animal health*.

**SUMMARY OF SKILLS AND KNOWLEDGE GAPS OR TOPICS TO BE ADDRESSED**

Priority skills and knowledge gaps or topics to be addressed raised by industry include:

- Pasture species selection and varieties – suited to local regions and climate. Focus best practice establishment, management and input requirements for persistence
- Best practice pasture management
- Optimising grazing management
- Pasture utilisation
- Soils and fertilisers – soil condition, nutrient balancing and budgeting
- Browsing wildlife - control and fencing options and pasture species selection in wildlife prone regions
- Increasing dry matter production.

**6.4.3 TARGET AUDIENCE**

Advisors and supply chain representatives raised the following points in relation to target audience for a pastures extension program:

- Advisors (e.g. up-skilling for re-sellers, up-skilling agronomists on livestock)
- Independent deliverers (independent information)
- Women (re data and decisions)
- Value-chain representatives (include processor information)
- Breeders (need to ensure livestock numbers to support the industry)
- Segmentation based on skills or knowledge (e.g. mid-level course on grazing management)
- **Segmentation based on regions**
  - based on rainfall zones
  - focus on midlands and southern region
  - information by species and region.
Comments relating to merchandise sales representatives highlighted that sales reps are influential for at least some producer cohorts’ pasture species selection.

    Yeah, I mean one of the issues that as an industry you can probably face is the old mate decides he wants to renovate a paddock and he ploughs it up and he’ll graze it out and then he goes into his local rural merchandise store and says what pasture should I sow and having been in the industry for a little while as you’re well-aware they’re probably going to get sold the – the variety has got the best margin, you’d like to think it wasn’t like that but often it is. So, whether you – whatever we as an industry try and educate the merchandise people, because they are – they are the ones – rightly or wrongly they’re probably the ones that get asked the most questions about pasture. [Advisor interview 01.]

However, as mentioned in Section 4, this also highlights a producer knowledge gap i.e. knowledge of what species are suited or not. With better information and knowledge, producers can be more confident about the species they request.

Adviseors and supply chain representatives commented about regional differences that they had observed. Their comments suggested that there was greater room for improvement in low rainfall and dryland pastures.

    Which I think most of the general fattening places of Tasmania are pretty well covered in what they do. There’s probably areas where they can improve on, but with Tasmania that’s a lot of areas, like you say, with different species that a lot of these Midlands guys and southern guys probably haven’t ventured into checking out what they can and can’t do with it, and limitations of water and that are obviously different things, but there’s still fodder crops or different pastures that you can grow with different sort of rainfalls, and things. [Advisor interview 12.]

The target audiences that should be involved in an industry pastures extension program include:

- Red meat producers – key target audience
- Advisors e.g. consultants and agronomists – as key influencers and decision support for producers and as providers of pastures training and extension services
- Pasture seed representatives – as a key influencers and decision support for producers in selection of pasture varieties and species selection
- Merchandise sales representatives – often are key influencers for produces at the point of sale, especially for producers who do not use a paid advisor or agronomist
- Supply chain representatives e.g. livestock buyers, agents and processors – as sources of key market information and influence
- Research and development professionals – as key sources new information and R&D in pastures and to address knowledge gaps and research needs.

6.5 CONCLUSIONS AND RECOMMENDATIONS

The existing pasture management training course, Pasture Principles, is well regarded by industry and there is therefore no need to replicate it. The red meat industry event Red Meat Updates is also very successful, well attended and regarded by industry as a really good avenue for awareness raising and industry networking.

Red meat industry participants suggested learning from the dairy industry’s approach to pastures extension. The dairy industry is very active and run many events. Both the dairy and red meat industries rely on pasture and it was felt a large proportion of dairy pasture training and technical information is also relevant to red meat producers, so there is no need to re-invent that either.
What is missing from the red meat industry is a network of regionally based localised discussion groups providing ongoing support. Discussion groups should include a whole of business, market and value-chain approach and not just focus on the specifics of pasture information. Involving the supply chain in pastures extension activities will build relationships, skills and knowledge and address key supply and quality constraints in the market. Discussion groups need to be well-facilitated and draw on respected professionals who can context pasture decisions to business and economic impacts as well as in the context of the region.

Trials and demonstrations (possibly linked with discussion groups) also provide an opportunity to provide practical regional based learning to address key knowledge and skills gaps.

Segmentation results suggests the importance of tailoring extension packages to different target producer segments. This may include segmentation base on farm scale, enterprise type, regions and age of producers. The extension program should also consider the needs of different target audiences within the industry and tailor approaches and messages accordingly; as well as how it fits with existing extension activities.

Key topics to be addressed through a pastures industry extension program should include pasture species selection and best practice pasture and grazing management to increase pasture, growth, utilisation and productivity. A focus on soil fertility and browsing wildlife should also be considered.
7 Conclusions and recommendations

What do producers do to manage and maintain pastures?

There is strong aspiration amongst producers for higher pasture productivity and stocking rates which presents a significant opportunity for the Tasmanian red meat industry. Pasture performance is variable but seemingly incrementally improving, and advisors feel that there is room to improve and capacity for producers to take on more livestock.

Specialist livestock businesses are mainly focussed on optimising pasture utilisation and grazing management to improve production and profitability. A form of rotational grazing practice is generally being adopted as the preferred method, one that is adapted to individual biophysical, farm business and lifestyle factors e.g. time, infrastructure, capability, livestock classes and soil / pasture condition.

Better returns for livestock enterprises is driving contemporary ways of growing feed including forage crops and newer varieties of short to medium-term pastures. The rising influence of agronomists and paid advisors is contributing to a resurgence in re-sowing and more fertiliser use on pastures; not all producers are investing but a considerable proportion of productivity focused producers are.

How do producers make decisions about pasture management?

Although some pasture management decisions are simple, decisions are often complex. This study has highlighted that there are a range of factors influencing the decision-making process and a range of reasons for deciding to adopt or adapt a practice - as well as legitimate reasons for non-adoption. Decisions to ‘do nothing’ are valid and can be the right decision for the conditions. There is no one-size-fits-all.

There are four major areas of influence on pasture decisions: bio-physical, personal, business and the influence of others. Personal influences include own experience, background, family and lifestyle. Business influences include being driven by productivity, and driven by profitability and business phase. Biophysical influences include seasonal conditions, pasture growth curve, rainfall and irrigation, pasture cropping mix, pasture species and composition, and soils and land capability. Influence from others includes peers and advisors.

Understanding decision making influences will help industry to tailor extension messages to those influences which are most relevant to their target audience. On the whole, producers are backing their own skills and experience in making decisions on their pastures. Peers are a strong influence on pasture decisions yet advisors are considered an important part of decision support in pasture management. Tools including soil testing, plate meters and visual observations are commonly used to support pasture decisions.

What are the barriers and reasons for lack of adoption of technologies that maximise pasture production?

While many of the same challenges were nominated by both producers and advisors we found clear differences in the types of challenges that were nominated as being the most important. Advisors were far more likely to nominate skills and/or knowledge gaps as the most important challenges. Producers were more likely to nominate biophysical and economic types of challenges. Still, producers are keen to learn more about grazing management and pasture species suited to their region.
Challenges and barriers fit into two levels:

- Overarching business challenges – these include biophysical limits and economic factors at an industry and individual business level.
- Social and technological challenges – these are the barriers / challenges stopping producers making the most of their opportunities (but acknowledging) within the constraints above i.e. the practices that are viable for their farm business. This includes knowledge, skills and suitable technologies to assist decision-making.

Practices and technologies that maximise pasture productivity can be considered via two main categories:

- Species – growing pasture species suited to the region and purpose, and
- Management – managing pastures well (knowledge, skills and implementation).

Given these two main categories, and based on the data gathered in this study, the main challenges holding back adoption of practices and technologies that increase pasture productivity include:

- Managing seasonal variability; including increasingly inconsistent autumns, summer feed for growing lambs and winter feed gaps
- Pasture species; knowledge, skills and information accessibility (e.g. new varieties, how to manage them, where to sow them)
- Grazing management; knowledge, skills and implementation
- Tools/technologies to support decision-making (e.g. pasture assessment tools) are too time consuming and/or not suited to some land e.g. run country
- Information accessibility; a lack of regionally-specific information e.g. information that is relevant for lower rainfall, dryland, “run” country or regions with a shorter growing season.

How can industry foster increased pasture productivity through a targeted extension program?

The existing pasture management training course Pasture Principles is well regarded by industry and there is therefore no need to replicate it. The red meat industry event Red Meat Updates is also very successful, well attended and regarded by industry as a really good avenue for awareness raising and industry networking.

Red meat industry participants suggested learning from the dairy industry’s approach to pastures extension. The dairy industry is very active and run many events. Both the dairy and red meat industries rely on pasture and it was felt a large proportion of dairy pasture training and technical information is also relevant to red meat producers, so there is no need to re-invent it.

What is missing from the red meat industry is a network of regionally based localised discussion groups providing ongoing support. Discussion groups should include a whole of business, market and value-chain approach and not just focus on the specifics of pasture information. Involving the supply chain in pastures extension activities will build relationships, skills and knowledge and address key supply and quality constraints in the market. Discussion groups need to be well-facilitated and draw on respected professionals who can context pasture decisions to business and economic impacts as well as in the context of the region.

Trials and demonstrations (possibly linked with discussion groups) also provide an opportunity to provide practical regional based learning to address key knowledge and skills gaps.

Segmentation results suggests the importance of tailoring extension packages to different target producer segments. This may include segmentation based on farm scale, enterprise type, regions and age of producers. The extension program should also consider the needs of different target audiences within the industry and tailor approaches and messages accordingly.
Key topics to be addressed through a pastures industry extension program should include pasture species selection and best practice pasture and grazing management to increase pasture utilisation and productivity. A focus on soil fertility and issues around browsing wildlife should also be considered.

**Recommendations for designing a pasture productivity extension program**

We recommend that the Tasmanian Livestock and Pastures Productivity Project:

- Builds on the existing successful programs (e.g. dairy industry programs as well as Pasture Principles) by expanding and adapting them to different levels (of skills / knowledge) and different systems. Ensure that they are regionally focused and not too prescriptive. Design a program that fits with and does not undermine existing programs.
- Selects / designs approaches that are suited to each topic / issue / opportunity.
- Designs approaches that support and enable confident decision-making and farm planning, that are suited to individual circumstances, taking into consideration the complexity of pasture decision-making.
- Utilises extension approaches that facilitate peer learning including discussion groups (small group size), on-farm trials, benchmarking, case studies and bus trips. Note that discussion groups not only enable peer learning but also information access.
- For complex issues consider on-farm demonstration trials and co-learning with advisors and supply chain representatives. Involve advisors in extension activities with their clients to encourage co-learning and support decision-making and implementation of new practices (independent support and follow-up).
- Ensures that discussion groups enable a whole of business, market and value-chain approach and not just focus on the specifics of pasture information. Ensure that technical and business information are integrated.
- Ensures that on-farm trials are farmer-led, regionally focussed and conducted on a commercial scale.
- Identifies opportunities for technology, information resources and tools to support confident decision-making related to biophysical risks e.g. long-range weather forecasting, pasture growth rate calculators.
- Highlights the productivity and profitability benefits of technologies / practices, as these are important drivers for red meat producers.
- Determines how to engage with and provide up-skilling opportunities for re-sellers and merchandise representatives particularly in regard to species selection for regional and climatic suitability.
- Addresses skills and knowledge gaps or topics including:
  - Pasture species growth phases, grazing management based on growth phase and how this links to pasture composition, maximising pasture growth and therefore optimising pasture productivity.
  - Pasture health monitoring and assessment, highlighting the link between pasture composition and pasture productivity.
  - Pasture species selection and varieties – suited to local regions and climate. Focus best practice establishment, management and input requirements for persistence.
  - Grazing management – targeting different levels of knowledge / skills; and different farming systems
  - Soils and fertilisers – soil condition, nutrient balancing and budgeting.
  - Systems approach - the link from soils to pasture to livestock and to meat quality; including feed quality and finishing of livestock and how these influence eating quality and thus economic returns.
  - Browsing wildlife – control and fencing options and pasture species selection in wildlife prone regions.
8 References

Brown and Bewsell (2010) Using a Market Segmentation Approach to Better Target Agricultural Extension Programs - Aligning Learner needs with Learning Programs

GRDC (2015) Farm Decision making: The interaction of personality, farm business and risk to make more informed decisions. GRDC project code: SFS000028. Authors: Cam Nicholson (Nicon Rural Services), Jeanette Long (Ag Consulting Co), Danielle England (Aginnovate), Bill Long (Ag Consulting Co), Zoe Creelman (Southern Farming Systems), Barry Mudge (Barry Mudge Consulting), David Cornish (Cornish Consulting).


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