RMCG
Consultants for Business, Communities & Environment

mla
MEAT & LIVESTOCK AUSTRALIA

Final Report

Project code: **B.PBE.0011**

Prepared by: **RMCG**
Nigel McGuckian & Jencie McRobert

Date published: **July 2012**

PUBLISHED BY
Meat & Livestock Australia Limited
Locked Bag 991
NORTH SYDNEY NSW 2059

Understanding Pasture Re-sowing Decisions for Meat Producers

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

Table of Contents

Executive Summary

This project, *Understanding pasture re-sowing decisions for meat producers*, is focused on decisions taken in relation to improving and grazing of pastures (annual and perennial), with a particular focus on the pasture establishment component of the feedbase. The project method has used a social research approach to better understand producers' decisions associated with two key decision points during pasture sowing and re-sowing – the decision to sow or re-sow a pasture, and the subsequent decision(s) associated with choice of species, varieties and mixtures.

The data collected in this study has come from a wide range of farming environments and social situations across Victoria. A number of conclusions have been formed from careful listening to producer's stories and hearing them toss around their opinions and ideas between themselves, and using the experience of the consultant working on the project. The main conclusions of the study are presented in this report for discussion and debate under the following themes:

- The rules of the "Squatter" game are changing
- There's plenty of feed and not many stock
- Resowing isn't always profitable
- Pasture resowing isn't "best practice"
- Resowing locks in high inputs
- Mixed approaches to cropping and pastures
- Lack of confidence in pasture performance
- Producers are taking opportunities

Recommendations

The following recommendations are made following discussions with producers and industry. To prepare a complete set of recommendations a deeper knowledge of MLA's Feedbase Investment Plan would be necessary, which is beyond the scope of this project.

Research

The following research needs have been identified:

- Accurate, reliable and credible information on the performance of pasture varieties.
- Better persistence of perennial grasses through genetic improvement and clear management information.
- Clarification of yield and stocking rate benefits of improved pastures. Relating a pasture yield improvement to improved profitability in a livestock system is difficult. The amount of trial work done on this relationship is small.

- Pasture varieties (and suitable management) that will provide feed when it is presently scarce (there is usually sufficient springtime feed).

Extension

The following extension needs have been identified:

- Clear and unbiased information to producers on how new varieties perform.
- A simpler way of analysing costs and benefits. Working with producers and developing a useable method could be productive.
- Advisors having a better understanding of producers' decision making process: this includes the business decision (a five year pay back isn't good enough), and the social and intuitive or 'gut feel' factors influencing the decision.
- Producers better managing a feedbase that is highly seasonal (increasing utilisation) Advisors need to know how to manage a discussion on pasture management, resowing and risk that will assist decision making.
- Encourage a conversation between producers and advisors rather than recommending pasture sowing as best practice. Ensure the conversation includes the risk involved in resowing and the increased commitment to higher stocking rates.

1 Introduction

1.1 Background

Meat and Livestock Australia (MLA) and its partners developed a *Feedbase Investment Plan* (or FIP) in 2010. This provides a review of all aspects and relevant technologies of feedbase production and sustainability that can improve red meat production for the Southern Australian feedbase. As described in the FIP, the Southern Australian feedbase is defined as:

> *Herbage provided by pastures, grazing crops and shrubs from sown, naturalised and native plant species within the area south of the 26° line of latitude*.

This project, *Understanding pasture re-sowing decisions for meat producers*, is focused on decisions taken in relation to improving and grazing of pastures (annual and perennial). It has a particular focus on the pasture establishment component of the feedbase. The project method has used a social research approach to better understand producers' decisions associated with whether to sow or re-sow a pasture, and the subsequent decision(s) associated with choice of species, varieties and mixtures.

An in-depth understanding of decision-making processes can assist in the development of innovative ways to increase the adoption of better practices, such as improved pastures. A thorough understanding of the motivation, aspirations, limitations and risks involved in producers' decisions is essential to enable the design of meaningful research and extension projects. These insights are also valuable in planning effective programs for farmers.

Despite comprehensive technical and general support information offered to meat producers already (through a range of programs), pasture re-sowing rates are evidently low.

1.2 Project objectives and outputs

MLA has identified a need for social research into the reasons for the evidently low rates of pasture sowing/re-sowing across the main meat producing agro-ecological regions of Southern Australia. In particular, there is a need to understand the reasons for the low rates of adoption, including the effects of drought and the more recent change to favourable seasonal conditions in South Eastern Australia. This research on meat producers' decision making will provide direct insights into why there is resistance to pasture sowing, given the apparent benefits. This study is likely to produce greater understanding of value to the MLA and others more generally.

The objective of the project is to investigate producers' decision making processes associated with two key decision points during pasture sowing and re-sowing – the

initial decision to sow or re-sow a pasture, and the subsequent decision(s) associated with choice of species, varieties and mixtures.

Around these objectives, there is potential to understand other issues such as:

- The costs and benefits of re-sowing pastures including cash flow implications and payback period
- The interaction between pasture sowing and increasing stocking rate
- How a shift toward cropping is being integrated with pastures and grazing systems
- Different approaches to sowing different varieties across various zones e.g. direct drill sowing (disc or tyne seeding) or cultivation prior to sowing, with or without a crop
- Changing attitudes on growing feed for livestock in different environments.

The main output of this project is this Phase 2 final report that provides an analysis of meat producers' current thinking about re-sowing pasture. It is intended that this investigation will also inform the development of a business case for MLA funding of projects that could assist red meat producers to increase the margin between cost of production and price received per unit of product.

The project methodology is in two phases: initial consultation and development of a discussion paper (which included a project implementation plan) followed by consultation with meat producers using a social research approach.

The development of the discussion paper involved targeted consultation with researchers and advisors, and other industry personnel throughout Australia. It provided a strategic overview of pasture issues and valuable insights that have helped model the chosen methodology for the social research involving consultation with meat producers.

1.3 MLA research questions

The primary objective of this study is to answer the following five research questions, as outlined in MLA's project brief:

1. *What 'stimulates' meat producers to think about re-sowing a pasture?*
2. *What are the main factors and influencers that meat producers take into account when deciding to re-sow a pasture (or not to)?*
3. *What would encourage meat producers in the different agro-ecological zones to increase their rate of pasture re-sowing (what would it take)?*
4. *What are the main factors and influencers that meat producers take into account regarding seed (species, varieties, mixtures etc.) selection once the decision to re-sow has been made?*

5. *What could MLA (or the industry, or advisors, or seed supply companies, or seed retailers) do to assist meat producers with the process of making the best decision about seed selection and the re-sowing process more broadly?*

Our lack of knowledge of the reasons for producers' seeming reluctance to invest in pasture sowing means that the research approach taken has been relatively open-ended while at the same time remaining focused on these key research questions.

Research into these questions has provided the MLA with an objective and robust basis for future investment planning in this area. It will enable them to contextualise individual or 'typical' producers and test the likely legitimacy of anecdotal information. It will also provide the insights that are needed to develop innovative and relevant solutions.

1.4 Current situation – pastures and livestock

This section provides an overview of the current situation in relation to livestock numbers and area of pastures in Southern Australia. This is a summary of information presented in the discussion paper or Phase 1 report.

1.4.1 Livestock production

Agro-ecological zoning is based on combinations of soil, landform and climate characteristics. The area of interest for increasing pasture production is Southern Australia (marked by the line on the map of agro-ecological zones, Figure 1).

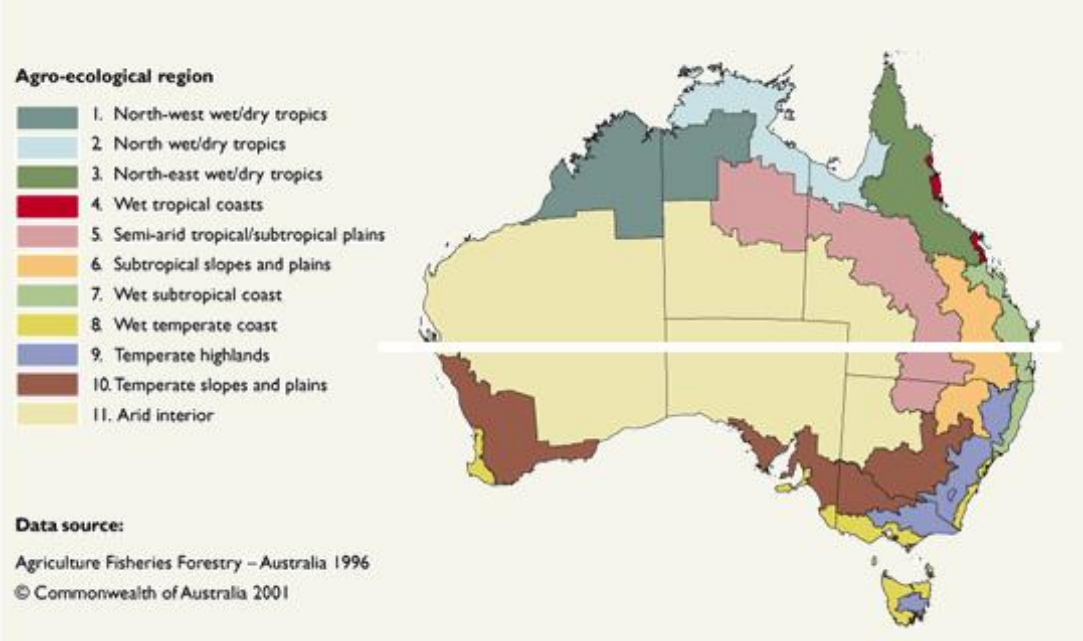

Figure 1: Agro-ecological regions of Southern Australia

There are six agro-ecological zones in Southern Australia and more than 80% of beef cattle and sheep are raised in three of these: the temperate slopes and plains, temperate highlands and the wet temperate coast zones.

The temperate slopes and plains is also the most significant region in terms of the value of livestock, pasture and winter crop production, generating around 50% of the gross value of production. Victoria and New South Wales are the main contributors by State, generating about 30% of gross value (MLA 2011).

1.4.2 Trends in livestock numbers

Sheep and lamb numbers are currently at their lowest level since 1905. Between the latest two survey periods, numbers decreased nationally by 6% to 68 million in 2009-10, with the largest decreases reported in Western Australia (down 1.0 million head or 7%) and in New South Wales, down by 5% or 1.2 million head (ABS 2011a).

In 2009-10 there were 24 million meat cattle, which is 1.3 million head, 5% lower than the previous year. Meat cattle numbers have decreased by 8% in both New South Wales and Queensland. Smaller falls in meat cattle numbers were recorded in Western Australia, South Australia and Victoria. The Northern Territory recorded the largest increase (385,000 head or 23%) and Tasmanian cattle numbers were also up (by 20,000 head, or 5%) (ABS 2011a).

The most profound change in the enterprise mix of broad acre farms has been a general shift from sheep and wool production into cropping activities. This shift began in the early 1990s coinciding with the price of crops (and to some extent beef) increasing relative to the price of wool, as illustrated in Figure 2.

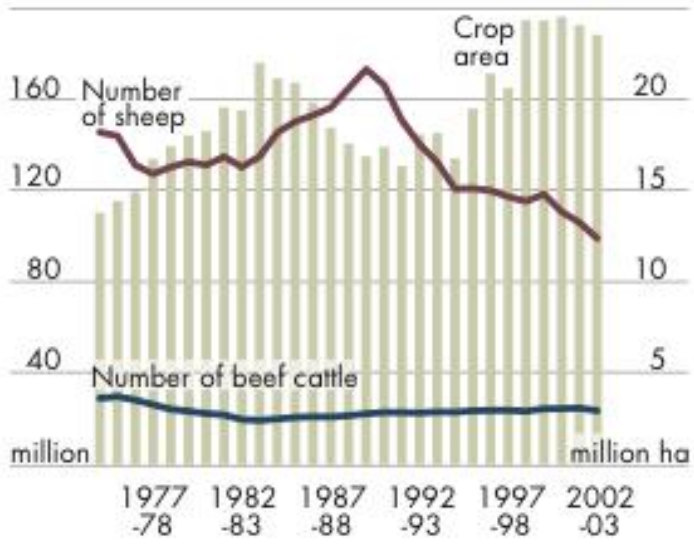

Figure 2: Trends in Australian broadacre activities

Source: Davidson & Elliston (2005)

Since 2002, beef cattle numbers have remained relatively stable while sheep numbers have continued to decline from around 100 million to a low 68 million head.

1.4.3 Trends in pasture sowing

There are no decisive figures available on trends in pasture sowing in Australia. Pasture seed sales data is not collected or collated nationally and the best estimates of pasture renovation rates (cited in MLA's Feedbase Investment Plan 2011) are in the order of 1% of the total pasture area per year.

The ABS Agricultural Census reported the area of combined 'sown pastures' (including lucerne) to be 25.6 million ha in 2000-01 (ABS 2008). From this time the ABS ceased to collect specific data on sown pasture areas. The most recent Agricultural Census has reported a much lower figure of 5.2 million ha of 'land prepared for pasture' in 2009-10 (ABS 2011b). These figures may not be fully comparable, given that they relate to similar but not exactly the same survey question i.e. area sown with pasture versus area prepared for pasture (either cultivated or 'no-till').

It is evident that there are low rates of pasture renewal occurring in Australia and it seems likely that the area being sown to pasture has decreased over the past decade. The extended drought across South Eastern Australia will have impacted on pasture sowing rates.

2 Methodology

2.1 Rationale for approach

This project has taken a qualitative social research approach. Qualitative research is exploratory and can be used to better define and understand the problem. Qualitative research is sometimes used first up in a research project, with quantitative methods used to follow-up and test or assess aspects of the problem once the subject is better understood.

The primary data collection method chosen was in-depth interviews focusing on Victorian producers. Breadth has been sacrificed in the sample of producers participating in order to achieve insights into the relationships and meaning behind responses. Focus or discussion groups have been used to enrich the information collected during the telephone interviews.

The research method has been chosen from insights gained from previous research on how farmers analyse and make decisions (McGuckian 2006), the Sustainable Grazing Systems (SGS) practice change model (Nicholson et al. 2003), and broader practice change adoption theory (Pannell et al 2011).

2.2 Project research questions – testing a practice change model

Our chosen research method uses the Sustainable Grazing Systems (SGS) practice change model of farmer decision making as a basis for formulating research and interview questions. The model has three stages based around: stimulating motivation; facilitating trials and demonstrating benefits from change (Nicholson et al 2003). Farmers will move through these stages when considering changing practices and implied in this are a number of decisions. For most producers, pasture establishment or renovation is not strictly a practice change but rather a part of usual farming practice; however, sowing decisions sit comfortably within the model. The research is aimed at testing all three parts of the model in relation to sowing pastures for grazing (as illustrated in Figure 3.)

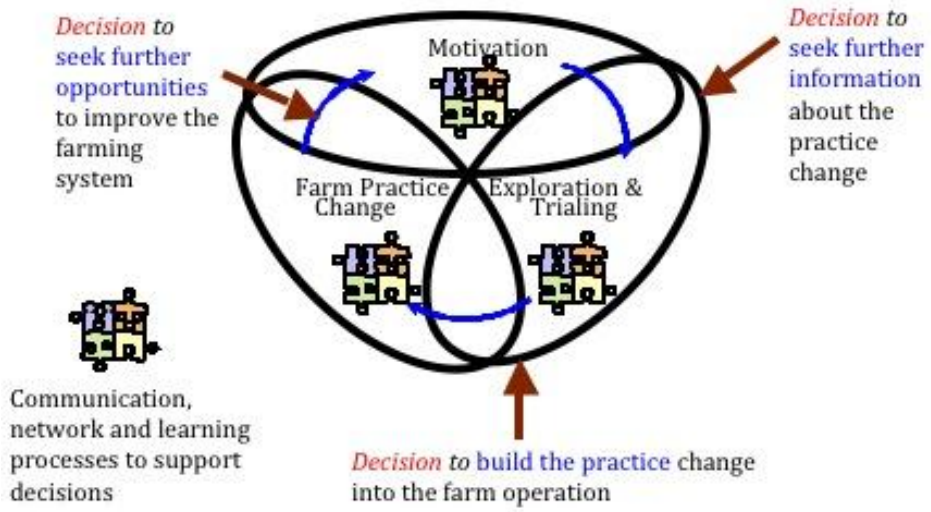

Figure 3: SGS practice change model
Source: Nicholson et al. (2003)

The three stages of the model are:

- Motivation (awareness) stage
- Exploration and trialling (or participation) stage
- Farm practice change (adoption) stage

The research method can be divided into four parts, which are:

1. Understanding the reasons behind producers' decisions and seeming reluctance to invest in pastures – Motivation stage.
2. Understanding how producers select the pasture seed mix most appropriate for them (once the decision is taken to sow) – Exploration and trialling stage.
3. Understanding how producers integrate all the information they have gathered and move toward or away from adoption – Farm practice change stage.
4. Understanding what MLA (and its partners) could do to encourage more producers to sow more pasture and build this activity into their operation.

Each component is focused on the following research questions:

Component 1 *– Understanding the reasons behind producers' decisions and seeming reluctance to invest in pastures.*

- Why aren't producers re-sowing improved pasture? What is stopping them? Why aren't they confident to sow?
- Why are some producers re-sowing pastures? What has influenced their decision? What opportunities have they seen?

- What are producers thinking in terms of perennials versus annuals e.g. payback, persistence? How are they integrating a livestock feeding system with a cropping program?
- What are their attitudes towards current (agency and industry delivered) pasture programs? To what extent do they identify with or are engaged by these programs?
- Do producers from different regions display different responses?
- To what extent are responses localised or are they relatively generalisable?

Data was collected from regular pasture sowers, past sowers (within the last 10 - 15 years) and non-sowers. This component has consciously explored the complex nature of producers' decisions to try and untangle the elements that are preventing them from sowing. It has also allowed an investigation of why and where the flow-on to adoption breaks down. This is especially relevant to the motivation and exploration/trialing stages of the practice change model.

Component 2 *– Understanding how producers select the pasture seed mix most appropriate for them (once the decision is taken to sow).*

- What are they looking for when choosing the seed mix?
- What factors most heavily influence their choice?
- Where do they get their advice and information on seed mixes and do they trust it?
- What do they make of the seed mix information available? Do they understand it? Are they convinced by the claims made about productivity and persistence of new varieties?
- How far do producers explore the potential opportunities or meat production benefits from new pasture types/cultivars?
- What else would they like to know before they make a decision?

This component has allowed us to better understand why farmers choose one seed mix over another and the main influences on what they purchase to sow down. For example, some producers are staying with older (tried and tested) seed mixes, rather than adopt the apparently better performing/newer varieties. This is frustrating for seed suppliers and could also be affecting productivity gains in meat production. This part of the research is more focused on the exploration and trialling stage of the model and has provided insights about producers' decisions to seek further opportunities to improve their farming system.

Component 3 *– Understanding how producers integrate all the information they have gathered and move toward or away from adoption*

- Where does the break in the cycle usually occur that prevents sowing?

- What are the main difficulties encountered by producers?
- What is the role of advisors? Are producers getting the service that they want?

This component moves across all stages of the practice change model. Understanding meat producers' decisions on pastures is relatively complex and the steps to adoption are not always linear or step wise, as the model might suggest (hence the choice of a qualitative social research approach over a more quantitative or questionnaire driven approach).

Conversations with producers have brought an understanding of how they come to a decision to sow or not – this usually involves some moving back and forth between the stages in the model. This part of the research is mostly related to the farm practice change stage of the model, which is about understanding the benefits and drawbacks from the change and producers' building the change into their farm operation where there is a relative advantage for them.

Component 4 *– Understanding what MLA (and its partners) could do to encourage more producers to sow more pasture and build this activity into their operation.*

- What programs have they found to be most interesting and useful?
- Is it lack of information or is the trialability of new pastures holding them back?
- Are they convinced of the benefits of sowing pastures?
- Do they understand the potential production benefits?
- What would they like to see happen and/or need - to sow more pastures?

This component has aimed to find out what MLA (and their partners) can do, notwithstanding the many programs operating on pastures, to improve the sowing rate. Where should they invest in this area and what regional differences need to be accommodated?

2.3 Data collection and analysis

The chosen data collection method involved a two-stage consultation process: one to one semi structured telephone interviews and focus (or discussion) groups of producers.

2.3.1 Formulating stage – 1:1 interviews

Given the project resources, RMCG conducted semi-structured interviews by telephone rather than face-to-face. Interviews were conducted with 20 producers and seven advisors.

Semi structured interviews involve a greater degree of two way conversation, and so offer the opportunity to not only obtain information from the participant, but test what is meant. The interviewer has some latitude to adjust the sequence of the

questions to be asked and to add questions based on participants' responses. With more structured interviews, the tendency is to focus on the precise questions on your questionnaire, rather than asking additional questions through the discussion.

Conducting the interviews was an iterative process whereby advisors were contacted in the beginning, interviewed and then asked to suggest names of producers that RMCG could contact and seek an interview. The interview questions evolved following discussions with advisors and interviewing several leading producers. A list of interview questions was then developed (based on the framework outlined in Figure 4) and used as a guide for both the phone interviews and discussion groups.

The scope of the study would not allow a statistically significant sample of producers to be selected but rather it allowed for the collection of qualitative and in-depth information from a smaller number of producers. It was our intention to interview both pasture re-sowers (operating at a number of levels) and non-sowers. The sample selection also tried to avoid smaller operators (or lifestyle farmers) and targeted larger businesses focusing on livestock production for meat.

The sample of interviewees was taken from across the three main meat producing agro-ecological zones i.e. temperate slopes and plains, temperate highlands, and wet temperate coast. Data collection was focused in Victoria with a small number of producers being interviewed in Western Australia.

2.3.2 Consolidating stage – group discussions

RMCG was able to attend and gather insights on pasture sowing from five producer group meetings held in Victoria. Scheduling workshops was difficult due to the timing of project delivery i.e. mid November through to December. This is a particularly busy time on mixed farms, which led to difficulties in scheduling interviews and workshops. Given the project resources, group meetings were held in regional Victoria only (again covering the three most significant agro-ecological zones). Some producers were followed up with telephone interviews after the discussion groups.

The aim of the producer group sessions was to test what was heard in the phone interviews. Most meetings were groups of between 10 and 20 producers where RMCG facilitated discussion amongst producers about their pasture sowing decisions.

An overview of the producer groups and individuals consulted during data collection is provided in Appendix A.

2.3.3 Qualitative analysis

This project has used a qualitative research method that is inductive or exploratory, which meant that data analysis commenced *while* collecting data. Combining collection and analysis has allowed the analysis to be shaped by the participants' responses. As data collection progressed, key questions were shaped and reshaped during and following talks with meat producers. This has enabled further issues to be explored as they arose by adding or modifying questions. The questioning process is shown in Appendix B.

The qualitative analysis has involved identifying patterns in the data and different ways that the data relates to one another. Two interviewers experienced in pasture management carried out all interviewing. All group discussions were carried out by both interviewers. The interviewers discussed the issues raised in both interviews and discussion groups to identify common themes. The ideas expressed by interviewees and discussion group participants have been identified, validated and classified according to types and levels of pasture sowing activities, and motivating or influencing factors.

The research method has included testing the main elements of the SGS practice change model and exploring where pastures fit amongst the many complicated and complex farming decisions made by producers. In many instances, decisions around pasture sowing are not specifically practice change but repeating similar practices from the past. However after a period of not sowing, overcoming the inertia and disinterest in sowing can be likened to a new practice change and this model becomes relevant. Using the model developed by Nicholson et al. (2003) has been a useful means of testing where in the adoption stage producers are being blocked in relation to sowing pastures.

Data analysis has also drawn on the mixed farming decisions work undertaken as part of the National Grain and Graze program (McGuckian 2006).

3 Results

3.1 Introduction

Broadly there are two types of factors influencing pasture resowing. First, there are ***physical environmental factors*** that govern the land's capability and to a large extent regulate what is possible in terms of pasture production. Then there is an array of other factors relating to ***producers' judgement and characteristics***, which can influence their decisions on resowing.

The range of pasture decision factors are illustrated in Figure 4.

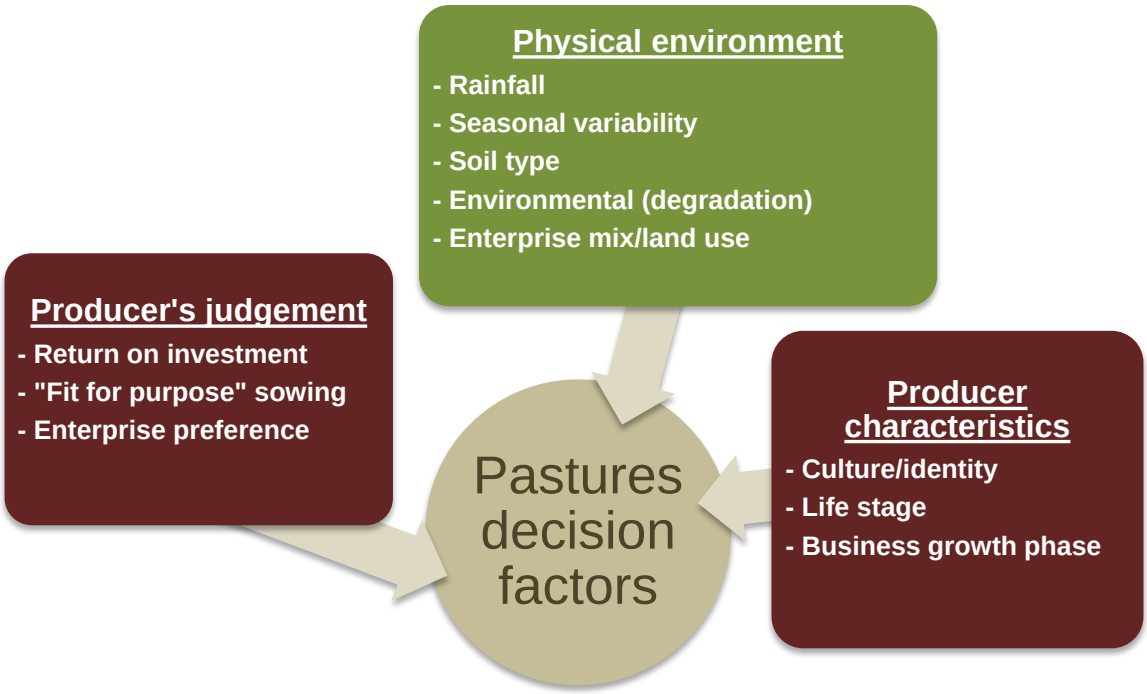

Figure 4: Pasture decision factors

3.2 Pastures decision factors

Physical environmental factors

Producers were consulted from three main meat-producing zones within Victoria. A small number of producers in WA were also interviewed. The geographical extent of each zone is shown in the earlier Section 1 (Figure 1) and the general areas where producers are farming are listed in Appendix A. A summary of the relevant characteristics of each zone is shown in Table 1.

Table 1: Agro-ecological zones, Victorian example

Agro-ecological zone		
Temperate slopes and highlands	**Temperate highlands**	**Wet temperate coast**
Northern and western slopes (Bendigo/Charlton/Edenhope)	Central highlands (Ballarat/ Seymour)	Gippsland and south western Victoria (Leongatha/Hamilton)
Moderate rainfall (400 – 550 mm)	High rainfall (600 – 700 mm)	Very high rainfall (750 – 1000 mm)
Stocking rate range**: 6 – 15 dse/Ha	Stocking rate range: 14 - 18 dse/Ha	Stocking rate range: 20 - 30 dse/Ha
Land use: Mixed cropping and livestock (sheep, beef)	Land use: Livestock (sheep, beef), minor cropping	Land use: Dairy, livestock (beef, sheep), minor cropping
Typical improved pastures: Clovers, phalaris, lucerne	Typical improved pastures: Clovers, phalaris, cocksfoot, perennial ryegrass	Typical improved pastures: Perennial ryegrass, clovers, cocksfoot, phalaris

Note: ** Theoretical maximum stocking rate based on rainfall only (CLPR 1991):

- Potential carrying capacity = (Annual mm rainfall / 25) – 10 = dse/Ha

The main characteristics of each zone in Victoria are:

- The *temperate slopes and highlands zone* supports mixed farming where the relative emphasis of livestock compared with cropping varies according to rainfall, terrain and soil type. Livestock enterprises are mostly sheep in this zone. The intensity of cropping increases moving from the highlands towards the slopes at the interface with the plains. This change in topography usually coincides with a reduction in rainfall and a corresponding reduction in sown pasture and increase in cropping. There can be soil constraints in the hill country and lighter rises, which inhibit perennial pasture establishment and persistence, e.g. low pH, poor drainage and aluminium in subsoils. Parts of this zone are suited to lucerne growing; especially on the alluvial plains areas in the valley floors and on the hills and rises supporting red soils (usually volcanic).
- The *temperate highlands zone* has moderately high rainfall (600 – 700 mm) and supports predominantly livestock enterprises. Cropping is restricted due to terrain (steepness and the presence of rocky outcrops). Similarly, subsoil characteristics

in sedimentary and granite based soils can present difficulties for some perennial grasses and legumes (such as phalaris and lucerne). Perennial ryegrass and clovers are grown successfully in this zone.

- The *wet temperate coast zone* is south of the ranges and has high rainfall (up to 1100 mm) supporting dairy and livestock production with an increasing cropping share, especially in southwestern Victoria. Perennial ryegrass and clover is the mainstay of improved pasture. Other grasses such as phalaris and cocksfoot are more likely to be grown on the lighter soils on the hills and rises within this zone.

The physical environmental characteristics include growing season rainfall, its variability, soil type and terrain, and susceptibility to degradation (such as soil erosion and salinity). These strongly influence the intensity of agricultural activity and associated land management practices in a district or zone.

Producers' judgement and their characteristics

Factors relating to producers' own interpretation of their environment and their farm business include:

- Their financial position and business growth phase
- Their attitude to risk
- Their values and history

3.3 Data by agro-ecological zone

3.3.1 Introduction

The following section provides an outline of the main findings in relation to better understanding the two key decision points during pasture establishment: The decision to sow or re-sow a pasture, and the subsequent decision(s) associated with choice of species, varieties and mixtures.

This section provides an insight into the discussions on pasture resowing that arose during the interviews and group meetings. It is presented as a summary of the main ideas expressed and supporting quotations from producers.

3.3.2 Temperate slopes and highlands

Edenhope district[1] – livestock (sheep and beef) – 550 to 600 mm

<u>Influences:</u>

Sowers stories
Producers around Edenhope have steered away from experimenting with increasing their cropping and have reverted back to almost 100% livestock. The resowers in

[1] Based on a discussion with the Apsley/Edenhope Best Wool Best Lamb group and follow-up interviews

the group who are committed to pasture sowing choose their 'worst paddocks' to resow at a rate of around 5% of their grazing land per year. Several have had difficulties with spring sowing in the drier years and had learnt from their mistakes. There was a general consensus that the risk of a resowing failure is now small, especially if a well-regarded local contractor is engaged using a disc seeder and optimal inputs.

When asked about the profitability and payback period of resowing they seemed sure it pays however they were unsure of the exact numbers:

> *"It has got to be profitable – if the pasture persists, it's profitable."*

> *"It would want to pay back in less than five years."*

> *"I must admit I've got a neighbour who never resows and he's making a killing."*

Pasture resowing is not just for profit:

> *"If the paddock looks bad I resow it."*

> *"Some people don't put anything back into their country and others want to pass it on in better condition."*

Lapsed sowers stories

Several members of the discussion group described themselves as lapsed sowers. They had stopped sowing in the mid-90s or some time later during the drought. Some of these had begun sowing again recently. Instead of resowing during this period producers invested in 'winter cleaning' of paddocks (selective herbicide use), applying fertiliser and grazing management, as a more cost effective way of increasing desirable pasture species and providing their required feed base.

They stopped sowing for a range of reasons including:

- There was a long run of dry seasons, some had failures and they felt they were not getting the benefit of improved pasture.
- Northern cropping neighbours were moving south and producers wanted to retain flexibility with cropping options, they didn't want to reintroduce perennial grass.
- Were not sure about the profitability of sowing with input costs so high and livestock and wool prices variable.
- Poor persistence of Sirosa phalaris in the 80s and 90s followed by dry seasons.

A selection of quotes from lapsed sowers:

> *"We are improving the management of the pastures we have rather than resowing."*

"If you want to increase profitability there's plenty that you can do before you need to resow the pasture."

"We are getting good production from our annual sub based and grass paddocks at the moment – if you want to go perennial you've got to add lime and manage it carefully for a couple of years to get it through."

"While I'm thinking about sowing perennials again now that it has rained and prices are good – it's not necessarily the best use of the extra money."

"I will only resow for a specific purpose e.g. a lucerne paddock for spring drop lambs or raising the fertility on some new ground."

Varieties:

There's some resistance to newer varieties amongst the sowers. The seed is usually more expensive and producers want to be sure it's going to persist. Producers are mainly sowing phalaris based grass pastures with some cocksfoot, in conjunction with Balansa clover and Trikkala subclover. Some had trialled a number of the high performance perennial ryegrasses without much success.

"I would never spray out an old Australian phalaris paddock to sow a new variety."

"We want to know how well it's performed under grazing for more than two years before we sow it."

Several producers had difficulties with Sirosa phalaris in the 80s and 90s that didn't persist. Several are now sowing Holdfast GT phalaris. There is interest in lucerne sowing north of Edenhope where there's drier and sandier soils, however, producers are unsure it will be a good investment at the moment.

Differing views on lucerne were heard:

"With spring drop lambs we'd love to have more lucerne to get the tail through."

"It's a fad – it looks good but it's nowhere near as productive as a good clover; it's only good for four months."

"It can help fill a feed gap in summer but you've always got to be prepared not to graze it."

Bendigo district[2] – livestock (sheep) and cropping – 500 mm

[2] Based on 7 face-to-face and telephone interviews

Influences:

Producers in the central Victorian mixed farming zone have a long history of pasture sowing and renovation. Livestock (wool and lamb mostly) is usually around 80% of the enterprise. Pasture seed (either annual or a mix of annual and perennial) is usually under sown with a cereal crop. For sowers, resowing rates are typically around 5% of the grazing area per year. Pasture improvement and provision of supplementary feed for sheep are the drivers for their cropping/pasture program. Provision of permanent groundcover to stabilise light soils prone to erosion and reducing recharge to groundwater, have been drivers for pasture improvement in the past.

Dual purpose merinos are the norm and stocking rates on some properties remain lower than pre-drought numbers. There is a lot of interest in grazing forage cereals at the moment rather than pasture resowing.

> *"Our aim is to have sheep bloom and finished properly and this means giving them higher quality feed."*

The drought placed pressure on incomes and resources and there was less sowing and fertilising of pastures.

> *"Fertiliser and pasture resowing is the first thing to go when things get tough."*

Good livestock prices and a return to better seasons have not influenced decisions to sow because farms are generally understocked. In the main, producers believe sowing pasture is profitable, however, no one was able to provide details on the unit cost and payback period.

> *"I don't know - you live on your wits don't you?"*

Varieties:

Generally producers are staying with the varieties they know. There is continuing under sowing of clovers (e.g. Gosse and Trikkala, Balansa) and phalaris based pastures are sown on lighter rises. There has however, been some move away from phalaris due to failures with some varieties (e.g. Sirosa) in the 90s and during the drought. Old stands of Australian phalaris are persisting and farmers were surprised at how well they "bounced back" after the drought. Some lucerne is being grown on the flats or better red soils (usually volcanic). There is also trialing with lower rainfall perennial rye. There is interest in growing more lucerne, however the expense (seed, fencing, liming…) and higher level of management required is preventing wider adoption. Summer rainfall is influencing farmer's desire to grow lucerne but several producers were unsure if it pays.

On lucerne:

> *"In theory it's brilliant but it's hard to manage; you need six paddocks of it and you need to keep an eye on it all the time. I've done the cell grazing course and it makes me tired thinking about it."*

Charlton district[3] - cropping and livestock (sheep) - 400 mm

Influences:

There was a resounding lack of interest in pastures and resowing amongst Charlton farmers in October this year. Long term poor wool prices, better margins in cropping and the prolonged drought are the main reasons for this. Annual sub based pastures declined during the drought and are not being renovated. There was some investment in lucerne over this time, however, recent flooding on the Avoca plains damaged existing stands and there is little prospect of them being resown in the near future.

Most farmers increased their cropped area over the past decade or more, but have retained some livestock:

> *" We are cropping more now but livestock got us through the drought."*

Grain prices have fallen this season alongside a turnaround in the wool market yet the response was:

> *"You can't do a quick changeover from cropping to livestock given the price of livestock at the moment."*

Wheatbelt region (WA)[4] – cropping and livestock (sheep) - 400 mm

Influences:

Those interviewed in WA are predominantly cropping farmers who renovate pastures by sowing annuals such as Serradella (an alternative to sub. clover adapted to acidic sands) and Dalkeith sub. clover, under sown as part of their cropping program. They also graze cereals and grow forage crops such as vetch. Sowing annuals in conjunction with cropping is seen as very cost effective and also provides other benefits such as building organic matter and fixing nitrogen.

> *"Improving pastures has allowed us to keep the crop area the same and increase sheep numbers – we have decided to invest in the livestock part of our enterprise rather than crop more and more."*

> *"We have doubled our stocking rate and are getting better quality feed and building soil organic matter at the same time."*

[3] Based on a discussion with the Charlton Sustainable Soils group
[4] Based on interviews with 2 producers (Esperance and Moora)

Varieties:

The farmers are involved in discussion groups and keep abreast of trials results. They get their advice from local agronomists and seed merchants. Farmers are experimenting with sub-tropical perennial grasses as permanent pastures on unproductive deep sands less suitable for cropping. One of the farmers is interested in Tedera and another has sown Rhodes grass (a perennial sub-tropical legume and grass). Initially the soft seeded Serradella varieties were sown and more recently the self-regenerating hard seeded varieties of Yellow Serradella are being trialed and sown.

3.3.3 Temperate highlands

South of Ballarat and Seymour districts[5]

Livestock (sheep and beef) and cropping – 550 to 700 mm

Influences:

The producers interviewed for the study farm in the relatively high rainfall areas of Shelford and Rokewood, south of Ballarat, and further east toward Seymour. Livestock is the predominant enterprise however cropping is increasing on some farms south of Ballarat; on the better soils. The Ballarat producers emphasised the need to get the grazing management and fertiliser right first however they were also investing in resowing to raise their livestock production levels. They were developing their properties by investing in sowing down run down paddocks (and also laneways and waterways). Cropping is mainly for the purposes of providing supplementary feed and pasture improvement. Pastures in the Seymour district were hit hard by the drought. Forage crops (oats and Brassicas) and annuals were sown to restore feed to sustain young stock and to finish lambs. Pastures are now being resown.

A range of responses was heard in relation to the profitability of resowing pastures. Producers could not state the costs of resowing and were unsure of the payback period.

> *"Now that the pastures are improved we can run ewes; we could only run dry sheep before that."*
>
> *"We sow pastures to meet a need."*
>
> *"A neighbour who doesn't sow is the most successful farmer in the district; they run good sheep, don't overstock and make decisions when it gets tough – they have bought farms."*
>
> *"My gut tells me it's more productive but buggered if I really know it pays."*

[5] Based on interviews with 4 producers

Varieties:

Recommendations on seed and pasture varieties are obtained from the Grassland Society, local agronomists and seed merchants. There was some disquiet expressed about seed merchants being dishonest (trying to sell generic phalaris seed mixes) as well as agronomists recommending "shot gun" mixes and not backing up their advice with evidence on performance, particularly persistence.

3.3.4 Wet temperate coast

West and East Gippsland[6] – livestock (beef and sheep) - 750 to 1000 mm

Influences:

Gippsland producers expressed a range of opinions on pasture resowing. There were regular resowers who sowed reasonably small areas (up to 20 ha per year) of perennial rye based pasture. These producers choose the worst paddock to renovate and in the main believe that they get better production and that it pays to resow. Establishing phalaris based pasture on the lighter hill country can lead to an increase in stocking rate, for example. Some are also sowing forage crops (summer and winter) in conjunction with annual pasture for additional feed at various times of the year. Resowing is usually done for a specific purpose i.e. to out compete weed problems, namely acid root mat, bent grass and others, or to raise the productivity of a very run down paddock. Paddocks with fairly well performing perennial rye/clover (but weedy) based pastures are not being resown.

> *"We are sowing perennial grasses to out complete Rat's-tail Fescue which is devaluing our farm."*

> *"I'm growing turnips to finish springs lambs and then resowing with ryegrass."*

An added difficulty with sowing at the moment is that paddocks are too wet and have not been trafficable through the winter and springtime. Newly sown pastures are more prone to pugging by cattle as well.

Several producers are non or lapsed sowers and not sowing because they strongly believe they are better off putting their time and money into grazing management, relocating watering points, and fertiliser and lime applications.

> *"While I can't keep up with the feed at this time of the year, I'm not resowing."*

> *"Utilisation is the problem – we have more grass than we can poke a stick at."*

> *"We can get benefits just by ripping and adding lime - rather than resow."*

> *"Farmers might get more production after resowing but they can't utilise the feed properly."*

[6] Based on discussions with 3 beef groups and individual interviews

"I would look at aeration and fertilise rather than resow – there are good species there and with the right grazing you can increase production."

"You can buy a lot of DAP for the cost of resowing."

"I started with fog grass and with good grazing I now have ryegrass and white clover."

Producers were unable to clearly articulate or quantify the additional benefits of more and better quality feed. Costs of between $450 up to $1000/ha were cited for a full pasture replacement and stocking rate increases of between 5 and 10 dse/ha.

"From what I've heard it takes five years to get that capital investment back."

"I don't know the figures but it might pay back in two years."

"It pays if you pick your varieties for certain soils."

"I'm a bit confused about the cost of it all."

"I've only ever got modest increases in production even when I've done everything right."

It was generally agreed that the production and financial benefits of resowing are substantial in dairying in Gippsland but are more questionable for beef enterprises. Dairy farmers tend to operate an ongoing pasture sowing program in rotation with growing forage crops (turnip, millet)

"If I was a dairy farmer I would be resowing."

Varieties:

Again there was a range of opinions about how they decided what to sow. Producers are sourcing advice on pastures and seed from neighbours, an influential local agronomist, and various seed merchants, and from information from on-line sources. There was agreement that the newer varieties of ryegrass needed regular fertilising to persist.

"I've had highly productive ryegrasses that only lasted three or four years – they need a lot of nutrition."

"You are only getting five years out of a new ryegrass pasture."

"If you are not going to fertilise then you are better off with Vic rye."

4 Discussion – what producers say about resowing

4.1 Introduction

The main contention of this study is that the frequency and extent of pasture sowing is lower than expected given the apparent benefits. Consultation with producers has provided a better understanding of the reasons for a lower than expected sowing rate.

The main findings are grouped around several key discussion areas:

- Types of sowers
- Motivations for sowing and not sowing
- Return on investment
- Advisors and pastures/seed advice.

4.2 Types of sowers

The majority of producers consulted during this study had resown some pasture in some form in the past five years. There's a group of sowers who are still routinely resowing pastures yet a significant proportion of producers are rethinking this approach. They have moved away from thinking resowing pastures is 'standard practice' on grazing land and they only sow for a specific purpose.

The study has highlighted three broad groups of producers with regard to pasture sowing: sowers, lapsed (and reformed) sowers and non sowers.

1. **Sowers** are committed to an ongoing pasture renovation program:
   - They are often 'developers' who have purchased country that is run down
   - Or they have a long history or tradition of pasture sowing and its part of their routine or yearly program
   - They believe that the return on their investment is good, however, they are mostly unsure of (or haven't done) the figures to know what the payback period is; they sow anyway.
2. **Lapsed (and reformed) sowers** have been committed sowers at some time, but for a variety of reasons have stopped:
   - They no longer have an annual pasture sowing program and will only sow for a specific purpose e.g. to fill a feed gap, renovate a particularly run down paddock, stabilise soil
   - They know the decision is grey in financial terms yet they are more likely to have done the figures and don't think there's enough advantage in it for them
   - This group has thought long and hard about its profitability so have become selective in their sowing.

3. Non sowers[7] have never committed to a pasture renovation program:

- They may have sown something for a particular purpose e.g. into a difficult soil to mitigate against salinity/waterlogging, for example, or a paddock of lucerne close to the house
- They could be more focused on profitability rather than production i.e. the canny farmer who has decided that the risks are too high and returns too low
- They have comparatively few experiences to share about sowing. They are less likely to be involved with extension networks.

4.3 Motivations for sowing and not sowing

The main motivations for sowing and not sowing have been summarised as follows:

High rainfall areas: reasons to sow

The main reasons for sowing pastures are:

- To capitalise on growing season rainfall and the favourable climate for pasture production on good soils (stocking rate can be in excess of 20 dse/ha)
- Sowing perennials on lighter hill country can also substantially raise production levels
- To repair damaged pasture (due to fire, pugging, drought, for example)
- To increase the productivity of run down or newly purchased land
- To outcompete invasive weeds (e.g. bent grass, acid root mat)
- Perennial species persist well in this climate so there is a low risk of failure
- If the right species are sown and the pasture is managed well, it will persist and provide rewards if stocking rate can be increased over time
- An established culture or tradition of sowing.

High rainfall areas: reasons for not sowing

The main reasons for not sowing pastures are:

- Using grazing management, soil aeration and fertiliser application as the primary means of increasing production from pastures (rather than resowing)
- Not convinced there is a large enough production advantage over what is already being achieved
- Uncertainty around the profitability of resowing with input costs so high; difficulties in fully understanding the payback period

[7] Nonsowers were difficult to make contact with to interview because they tend not to be involved in discussion groups or associated networks

- Production levels of previously established improved pasture can be adequate (30 year old Victorian ryegrass stands are persisting well)
- Can't utilise the feed that's already there during the springtime
- Stocking levels are too low at the moment (for a range of reasons)
- The desire to keep production below its maximum to reduce inputs and financial risk
- Established pastures are producing 'well enough' and no desire to run their operation any harder
- Paddocks not able to be trafficked due to an exceptionally wet winter
- Lack of confidence in the evidence of performance of new species
- A lack of species that resolve the winter and summer feed gap; most improved species result in excess spring feed. The increase in pasture production from resowing is not valuable enough.

Lower rainfall areas: reasons for sowing

The main reasons for sowing pastures are:

- To replace low production species (e.g. barley grass, corkscrew, capeweed.) with better feed quality and quantity (stocking rate can be substantially increased from a low base)
- Sowing can be more cost effective on mixed farms because pasture seed is typically under sown with a crop. Establishment cost is relatively low.
- To repair damaged pasture (due to drought, flooding or fire, for example)
- To increase the productivity of run down or newly purchased land
- To fill a particular feed gap, for example, lucerne to help finish off the tail end of spring drop lambs or grow out weaner ewes
- Growing pasture that will utilise increasing summer rainfall (especially lucerne)
- Keeping permanent groundcover on lighter soils
- An established culture or tradition of sowing.

Lower rainfall areas: reasons for not sowing

The main reasons for not sowing pastures are:

- Making do with the production levels of previously established improved pasture (Australian phalaris stands are persisting)
- Uncertainty around the profitability of resowing with input costs so high; difficulties in fully understanding the payback period
- Investment in pastures (fertiliser, resowing) was reduced during the drought and cash flow is only beginning to recover

- Stocking levels are yet to recover to pre-drought levels (for a range of reasons: more cropping, livestock too expensive)
- Using grazing management and fertiliser application as the primary means of increasing production from pastures (rather than resowing)
- Poor results with (Sirosa) phalaris in the 80s and 90s discouraged some farmers
- Not pushing the feed base and therefore stocking rates too hard, having learnt lessons from the drought
- A shift to more cropping and less investment going into good quality feed for livestock
- Fear of failure in establishing new pasture when seasonal conditions had been dry for so long.

4.4 Return on investment

Our research has found that the majority of producers are not confident about the profitability of resowing.

A long term study of the performance of two pasture systems at five farm sites in southwestern Victoria has provided evidence of the profitability of upgrading/resowing pastures (Saul et al. 2009). The experiment has shown that there is potential to improve productivity and quality of pastures by resowing with perennials; figures of 18% more dry matter and an increase in stocking rate from 10.2 DSE/ha to 18 DSE/ha are reported. Both pastures were set stocked and the upgraded pasture received higher fertiliser rates (13 to 25 kg/ha of P compared with 5 kg/ha for the control). Supplementary feeding requirements were the same for each treatment.

Accounting for current costs and prices, gross margins were $20/DSE for the control (typical pasture in the region) and $24/DSE for the upgraded pasture. A discounted cash flow analysis, assuming a 12-year life of the upgraded pasture indicated a break-even point at Year 7 (Saul et al. 2011).

Calculation of the payback period of a resown pasture is complicated and few producers interviewed had done these calculations. Most said they made their decisions based on their intuition or ‘gut feel’. Others will add a few numbers in their head to make a decision as to whether it pays or not. Most producers reported that if they felt the payback period was any longer than two or three years they wouldn’t do it.

From our research it was evident that producers who had seemingly done the figures were *less* likely to be sowing. No one mentioned that they had used the

Evergraze program's on-line (downloadable) calculator to try to help them determine the profitability of resowing[8].

It was also evident that a return to good seasons and an improvement in livestock prices has not had a major influence on producers' decision to resow. It will take time for understocked farms to increase stocking rate. Unless the existing pasture is very unproductive, the payback period will be more than five years and most farmers consider this too long.

Furthermore an improved pasture requires a more intensive system running at a higher stocking rate in order to achieve an increase in production. Therefore pasture improvement requires a commitment to a higher risk system to provide a return. Some farmers were reluctant to increase risk and workload. Profitability is the ultimate goal and this isn't assured unless everything goes right (pasture is well managed, it persists, and there are favourable seasonal conditions and commodity prices). The lower cost options of improving grazing management (including investment in fencing and water supply) and fertiliser application are a lower risk business model that suits a lot of farmers. This view was strongly supported by two influential farm business consultants.

[8] Our experience of using the calculator was it was difficult to use and interpret.

4.5 Pastures and seed advice

There was a broad consensus amongst producers that the new pasture varieties need to be more carefully managed and regularly fertilised. In real life, grazing can't always be rotated at the right time so the accompanying management package is too complicated for some. Producers want to be sure that the species being resown is more robust and persistent than what they've got now.

A range of opinions was heard about how producers decided what to sow. Producers are sourcing advice on pastures and seed from: neighbours, producer groups, local agronomists, various seed merchants, and from on-line sources.

There is a strong element of mistrust of resellers and seed merchants to provide objective and backed up advice. Producers who understand the attributes of pasture species were very critical of the advice given by local resellers. Farmers are sceptical of seed mixtures, which have a mixture of species, which aren't compatible. Seed resellers were accused of "throwing in cheap seed".

Producers are particularly concerned about persistence of the new varieties and there are little longer-term trials that provide evidence that one variety of seed is better than another. Producers struggle to understand the points of difference between the older and newer varieties.

Producers were critical of the lack of reliable information on the performance of new varieties. They also recognise the need for long-term trials in a wide range of climates and soils to provide useful information.

Several advisors who provide whole farm business advice were strongly in favour of improving grazing and fertiliser management prior to resowing.

5 Addressing the research questions

The primary objective of this study is to answer the following five research questions, as outlined in MLA's project brief:

1. *What 'stimulates' meat producers to think about re-sowing a pasture?*
2. *What are the main factors and influencers that meat producers take into account when deciding to re-sow a pasture (or not to)?*
3. *What would encourage meat producers in the different agro-ecological zones to increase their rate of pasture re-sowing (what would it take)?*
4. *What are the main factors and influencers that meat producers take into account regarding seed (species, varieties, mixtures etc.) selection once the decision to re-sow has been made?*
5. *What could MLA (or the industry, or advisors, or seed supply companies, or seed retailers) do to assist meat producers with the process of making the best decision about seed selection and the re-sowing process more broadly?*

Answers to these questions have been provided throughout the report, however we will address them specifically in this section.

1. *What 'stimulates' meat producers to think about re-sowing a pasture?*

Resowing of pastures is stimulated by:

a) The need to lift a very poor producing pasture

b) The need to provide for a clearly defined feed requirement

c) The need to rehabilitate damaged or vulnerable land

d) The need to cultivate due to acidity, compaction, weed infestation

e) The need to improve the appearance of a paddock

f) The need to be seen as a resower of pastures

g) The need to adhere to an annual program of resowing

2. *What are the main factors and influencers that meat producers take into account when deciding to re-sow a pasture (or not to)?*

There are many factors and influencers that meat producers take into account when deciding to resow or not to resow. This report has identified many of these factors and influencers and these are presented in sections 3 and 4. The conclusions and recommendations section of this report expands further on these factors.

3. *What would encourage meat producers in the different agro-ecological zones to increase their rate of pasture re-sowing (what would it take)?*

Implicit in this question is the assumption that resowing pastures is the right thing to do and producers should increase the rate at which they resow pastures. The research in this project would indicate that farmers aren't necessarily sowing less than they should. In the main, farmers have a wide range of reasons for sowing and not sowing and these reasons are, in the main, sound.

If we were to make a judgement about where their decision-making is poor or could be improved, the following issues are relevant:

- Some producers are resowing or not resowing without critically evaluating the decision. When interviewed about their decision, they hadn't thought about it. Therefore there is an opportunity to assist with decision-making.
- Reliable information on new pasture varieties is severely lacking and required to make a good decision. Producers are unsure of the relative benefits of new varieties and therefore would rather stay with the old ones. There is no incentive to resow if the new variety is no better than the old one.
- Encouraging discussion on the whole pasture improvement process (grazing/fertiliser/resowing) and the risks involved in adopting a more intensive system. We understand this is done in existing programs (e.g. more beef from pastures)

4. *What are the main factors and influencers that meat producers take into account regarding seed (species, varieties, mixtures etc.) selection once the decision to re-sow has been made?*

The factors and influencers on seed selection were clearly in three groups:

- The opportunity for a significant increase in feed supply or quality at a defined time of year. This is aimed at a particular purpose. For example lucerne in summer, plantain for feed quality, fodder rape for finishing lambs, balansa clover for feed quality.
- The need for a persistent drought tolerant perennial grass which will increase feed production and allow a long term increase in stocking rate.
- The price and availability of seed and accompanying advice from local resellers.

5. *What could MLA (or the industry, or advisors, or seed supply companies, or seed retailers) do to assist meat producers with the process of making the best decision about seed selection and the re-sowing process more broadly?*

The decision to resow is complex. There are many factors involved in the decision that are uncertain and involve risk. Some of the uncertain factors are social in nature and may not be fully acknowledged by the decision maker. The ways to assist complex decisions are:

- Provide an opportunity for honest discussion about all the factors involved

- Provide clear objective information where it is available
- Acknowledge “gut feeling’ is a part of the decision
- Provide simple analysis of the factors, which are known (the physical and financial) and provide an opportunity to discuss and analyse the uncertainty and risk
- A more useful discussion of the risks is required beyond the chance of the sowing failing. There are many risks involved in the decision to resow a pasture including livestock prices, drought, grazing management and fertilising, and the species being unsuitable. These need to be taken into account by the producer.

6 Conclusions

6.1 Introduction

The study has shown how the decision to sow or re-sow pasture must take into account a web of factors that are interrelated and complex. Pasture species must be matched with growing conditions and the potential for optimal pasture utilisation considered. Other factors to do with livestock types, scale of investment, integration with other aspects of the business, risks of increasing stocking rate, seasonal variation, cash flow and returns, and failure of establishment and/or persistence, are all important and have some influence on the decision.

The data collected in this study has come from a wide range of farming environments and social situations. A number of conclusions have been formed from careful listening to producer's stories and hearing them toss around their theories between themselves and using the experience of the consultant working on the project. They are presented in this report for discussion and debate.

6.2 Conclusions

The rules of the "Squatter" game are changing

In the 1950s onwards, Australian grazing land was in development. Pastures were sown to improve productivity and profitability followed. Pasture improvement was synonymous with resowing, to replace unimproved species. This process was used in the popular board game "Squatter", where rather than investing in the development of real estate as in "Monopoly", the farmer invested in pasture improvement and livestock, and became successful and won the game.

This study has shown that the development phase is ending and the rules of the "Squatter" game are changing. Pasture resowing is no longer necessarily a recipe for success. In parts of the higher rainfall areas, pasture composition can be good and older varieties of perennial grass have survived the drought. These pastures can be improved through grazing management and fertiliser. Producers are increasingly discerning in their decisions about pasture improvement generally and carefully weigh up their options for improving profitability. As has been stated the decision is much more complex and decisions are in general made more carefully.

Some producers believe resowing is the "done thing" and believe a regular program of pasture resowing is important because if you stop resowing your farm will gradually decline and all successful farmers resow pastures. They aren't all sure whether it is profitable. On the other hand, some farmers run a system with lower inputs and high profitability.

There's plenty of feed and not many stock

Some of the producers interviewed (especially in the lower rainfall areas) are yet to recoup their stocking rate following the drought. Many producers interviewed in the moderate to high rainfall areas have reduced their pasture improvement program to better controlling the feed they have. At the moment, they are "up to their ears in feed". Their biggest problem is maintaining feed quality. Livestock values are historically high and producers are wary of buying pricy stock. This limits their ability to use the extra feed grown.

Resowing isn't always profitable

Both the views of producers (despite very few having done a detailed analysis), and the published analysis, show resowing is marginally profitable in many cases. In some cases land can be purchased at a lower cost per DSE than increasing stocking rate through resowing. Resowing can be profitable when a factor is strongly in favour of profitability. For example, the existing pasture is very unproductive, there is a good market for livestock at a time of year and the pasture is resown to produce these valuable livestock, the potential production is high due to a high and reliable rainfall.

Very few of the producers interviewed had analysed the profitability of resowing. Many believed the profitability is marginal. The published data shows a payback period of seven years. Given the risks and uncertainty involved a payback period of three years or less is required. Paradoxically, when the payback period of a decision is less than three years, there is no need to do a detailed calculation of the profitability. Well-managed farm businesses generally have a 100% return on operating costs to allow for the risk.

Pasture resowing isn't "best practice"

When a farm practice is marginally profitable and complex, it can't be an indiscriminate recommended practice or considered "best practice". Pasture resowing is an option to improve farm profitability and natural resource management. The decision to adopt the practice is dependent on the individual circumstance.

There are best practice methods of sowing (once the decision is made) however resowing pastures is not best practice. Producers with some experience in resowing don't consider the risk of failure is high, as they have mastered the techniques of sowing small seeds and controlling weeds.

For the time being it is probable that the sowers are diminishing in number while the lapsed sowers are an increasingly large group. These producers have studied the numbers and are looking toward more cost effective means of improving production from pastures i.e. better pasture utilisation through grazing and fertiliser management. This includes investment in fencing and water supply rather than pasture seed, for example. They will resow but only for a specific purpose.

Resowing locks in high inputs

An overriding influence on the decision to resow is the need to increase inputs to ensure a return. This can involve increasing stocking rate, increased fertiliser, more intensive grazing management and increased workload. This increases risk. Many producers have become risk averse following a long drought. Some farmers are looking to reduce risk and work load after years of drought and are therefore selective about which paddocks they will resow.

The study has shown how producers are managing the natural variability in feed supply that is an essential component of farming in Australia. Higher variability means higher risk and producers are managing a system that is highly variable. This largely explains why resowing rates are evidently low. Farmers naturally farm conservatively because of these risks in relation to the unpredictable feed base.

Animal demand is more stable than feed supply. Therefore if stocking rate is increased, then there are inevitable periods where feed demand is greater than feed supply, which leads to stress, cost, and supplementary feeding. Producers have adopted a system that is conservative where supplementary feeding is minimised. In general the more variable the seasons, the more conservative farmers are about stocking rate.

Mixed approaches to cropping and pastures

A significant change in land use to more cropping has occurred in south western Victoria, which was a traditional stronghold for improved pastures. In order to maintain flexibility there is likely to be less permanent pasture replacement, and there are areas that are unlikely to go back into permanent pasture. Producers are more likely to sow something as a shorter term break in the cropping cycle.

In the traditional mixed farming areas (400 – 500 mm) resowing can be more cost effective because pasture seed is typically undersown with a crop and low production species (including barley grass, cork screw, capeweed) are being replaced with better quality feed that includes sub clover and also perennials, mostly lucerne and phalaris. There is growing interest in grazing cereals and other forage crops.

Lack of confidence in pasture performance

The study has identified a number of specific producer needs to do with pastures. The needs identified included: better pastures persistence, improved feed production in autumn/winter, quality summer feed and improved tolerance of perennial pasture species to soil constraints (acidity, salinity, waterlogging). Producers are not confident that the information being provided by industry on these matters is accurate.

Producers are taking opportunities

The majority of resowing is for a particular purpose where a clear opportunity can be capitalised on. There are many opportunities for profitable resowing that reduce risk and improve profitability. Producers seem aware of these opportunities and they are looking for them. Their ability to take these opportunities would be increased with less confusing and more balanced advice and information from seed sellers and agents.

7 Recommendations

The following recommendations are made following discussions with producers and industry. To prepare a complete set of recommendations a deeper knowledge of MLA's Feedbase Investment Plan would be necessary, which is beyond the scope of this project.

7.1 Research

The following research needs have been identified:

- Accurate, reliable and credible information on the performance of pasture varieties.
- Better persistence of perennial grasses through genetic improvement and clear management information.
- Clarification of yield and stocking rate benefits of improved pastures. Relating a pasture yield improvement to improved profitability in a livestock system is difficult. The amount of trial work done on this relationship is small.
- Pasture varieties (and suitable management) that will provide feed when it is presently scarce (there is usually sufficient springtime feed).

7.2 Extension

The following extension needs have been identified:

- Clear and unbiased information to producers on how new varieties perform.
- A simpler way of analysing costs and benefits. Working with producers and developing a useable method could be productive.
- Advisors having a better understanding of producers' decision making process: this includes the business decision (a five year pay back isn't good enough), and the social and intuitive or 'gut feel' factors influencing the decision.
- Producers better managing a feed base that is highly seasonal (increasing utilisation) Advisors need to know how to manage a discussion on pasture management, resowing and risk, that will assist decision-making.
- Encourage a conversation between producers and advisors rather than recommending pasture sowing as best practice. Ensure the conversation includes the risk involved in resowing and the increased commitment to higher stocking rates.

8 References

- ABS (2011a). Catalogue: 7121.0 - Agricultural Commodities, Australia, 2009-10. LATEST ISSUE Released at 11:30 AM (CANBERRA TIME) 11/04/2011
- http://www.abs.gov.au/ausstats/abs@.nsf/Products/7121.0~200910~Main+Features~Livestock?OpenDocument
- ABS (2011b). Catalogue: 46270DO001_200910 Land Management and Farming in Australia, 2009-10. Released at 11:30 am (Canberra time) Thurs 30 Jun 2011.
- ABS (2008). Catalogue: 7125.0 - Agricultural Commodities: Small Area Data, Australia, 2000-01. PREVIOUS ISSUE Released at 11:30 AM (CANBERRA TIME) 22/01/2008
- http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/7125.02000-01?OpenDocument
- CLPR. (1991). *Perennial Pastures for Productivity and Land Degradation Control*. Proceedings of Interdepartmental Training Workshop. Centre for land Protection Research, Bendigo, Vic.
- Davidson, A. and Elliston, L. (2005). Regulation and farm viability. *Australian Commodities Vol 12, 1, 200-208.*
- EverGraze Pasture Improvement Calculator (http://www.evergraze.com.au/tools.htm - sighted 4/10/11)
- McGuckian, N. (2006). *Decision Making on Mixed Farms – Managing Complexity* (http://www.rmcg.com.au/web/Grain_&_Graze_files/Managing%20Complexity.pdf - sighted 4/10/11)
- MLA (2011). *Feedbase Investment Plan: R, D & E priorities for the Southern Australian feedbase*. Report prepared for MLA by Mike Stephens & Assoc., Agricultural Information & Monitoring Services, Thomas Project Services, and Charles Sturt University.
- Nicholson, C., Barr, N., Kentish, P.M., Dowling, L.H., McCormick, M., Palmer, I., Simpson, K., and Walsh, J. (2003). A research-extension model for encouraging the adoption of productive and sustainable practice in high rainfall grazing areas. *Journal of Experimental Agriculture 43 (8) 685 – 694*.
- Pannell, D., Marshall, G.R., Barr, N., Cutis, A., Vanclay, F. and Wilkinson, R. (2011). Understanding and promoting adoption of conservation practices by rural landholders. In Changing Land Management: Adoption of new practices by rural landholders. Editors, David Pannell and Frank Vanclay. CSIRO Publishing, Victoria.
- Saul, G., Kearney, G. and Borg, D. (2009). Pasture systems to improve productivity of sheep in southwestern Victoria 1. Growth, composition, nutritive

value and persistence of resown pastures. *Animal Production Science, 2009, 49, 654-667.*

- Saul, G., Kearney, G. and Borg, D. (2011). Pasture systems to improve productivity of sheep in southwestern Victoria 2. Animal production from ewes and lambs. *Animal Production Science, 2011, 51, 982-989.*

Appendix A Producers and advisors consulted

Farmer groups (five) **Approx. 55 participants**	**Individual interviews** **27**	**Rainfall mm** **(average annual)**	**Agro-ecological zone**
	Western Australia (2)		
	1 Esperance	400	TSP
	1 Moora	400	TSP
Charlton Sustainable Soils group (12)	Central Victoria (8)		
	1 Charlton	430	TSP
	3 Toolleen	480	TSP
	3 Knowsley	500	TSP
	1 Seymour	550	TH
Apsley/Edenhope Best Wool Best Lamb group (10)	Western Victoria (6)		
	4 Edenhope	550 - 600	TSP
	1 Shelford	700	TH
	1 Rokewood	700	TH
Buffalo Beef Discussion group (13) Kongwak/Ellipak Beef Discussion group (10) Phillip Island BetterBeef group (10)	Gippsland Victoria (4)		
	1 Bairnsdale	750	TH
	1 Wellington	800	WTC
	2 Buffalo	1000	WTC
	Agronomist / Farm business advisors (7)		
	1 Hamilton (Vic)		WTC
	1 Gippsland (Vic)		WTC
	2 Geelong (Vic)		TH/WTC
	1 Wagga Wagga (NSW)		TSP
	1 Clare (SA)		TSP
	1 Gingin (WA)		TSP

Note - Agro-ecological zones:

- Wet temperate coast (WTC)
- Temperate highlands (TH)
- Temperate slopes and plains (TSP)

Appendix B Framework for interview questions