# final report


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# Assessing the Impacts of MLA's Southern Majority Market Program


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# 1 Abstract

The ‘Assessing the Impact of MLA’s Southern Majority Market Program’project was undertaken to measure the impact of the Majority Market Programs, More Beef from Pastures (MBfP)(southern beef) and Making More from Sheep (MMfS) (sheepmeat/lamb).

This report presents the results from 554 farmer phone surveys and 111 case study evaluations for farmers across Southern Australia that attended MLA funded MBfP and MMfS events. The results from the phone survey evaluations have been utilised to identify and present the proportion of farmers adopting intended and unintended practice changes as a result of attendance at MBfP and MMfS events. The data also provided insight into factors that have supported and hindered practice change adoption, reasons for non-adoption of intended changes, farm level scale of adoption, types of benefits expected, and social benefits gained from event attendance. The farm case study evaluations have quantified the productivity and profitability impacts of practice change adoption, in addition to identifying and rating likely impacts of practice change adoption on a range of environmental, management and animal welfare factors.

The results from this study have revealed that MLA’s investment in the MBfP and MMfS programs is having a very positive impact on increasing farmer’s skills, knowledge and confidence required to adopt new management practices to improve farm productivity and profitability. This study also generated a series of key learnings that have been presented as recommendations for improvements of practice change adoption from MBfP and MMfS events, and improvements in the process of collecting and evaluating of data to measure the impacts of practice change on farm.

# 2 Executive summary

The 'Assessing the Impact of MLA's Southern Majority Market Program' project was undertaken to evaluate the impact of the Majority Market Programs, More Beef from Pastures (MBfP) (southern beef) and Making More from Sheep (MMfS) (sheepmeat/lamb).

This report contains the results from 554 phone surveys and 111 farm case study evaluations forfarmers that participated in Making More from Sheep(MMfS) and More Beef from Pastures (MBfP) events held between 19/10/2010 and 05/07/2013.

## 2.1 Phone Surveys

Five hundred and fifty-four farmers were interviewed over a two-year period to determine the changes they had made on farm as a result of participating in MMFS or MBFP events and the benefits of these changes.

All farmers interviewed had previously stated they intended to make a change after attending an event sponsored by MMfS or MBfP. Of these farmers, 65% made the changes they had stated on their feedback forms, 10% had made different changes leaving 25% having made no changes. This figure was consistent across both MMfS and MBfP programs although there were state based differences due to seasonal conditions and other external factors.

Of the changes made by farmers, the majority (35%) of MMfSsurvey participants made changes in the area of improved ewe management and lamb survival (Wean More Lambs). For MBfPsurvey participants, changes were evenly split between Pasture Growth (20%), Herd Health and Welfare (18%) and Meeting Market Specifications (17%) categories. The number of farmers making change made per module wasproportional to the number of eventsheld for each module (i.e. no one module resulted in more change than others). However it was observed that simpler changes were more easily and quickly adopted than more complex changes. For example, EU accreditation events resulted in farmers being able to adopt EU accreditation within 12 months whereas changing pasture species and grazing management strategies took more time.

Simpler changes were also more directly attributed to the workshop the farmer participated in whereas more complex changes were completed over longer periods with more influences contributing to the change. This was evident when farmers were asked what source of knowledge or skills assisted them to implement change. The major influences (aside from attending the event) were discussion with other farmers (35%), being a member of an on-going discussion group (32%) and discussions with other professionals (33%).

Seasonal conditions were a contributing factor to a farmer's ability to make change. In the second year of the interviews QLD, WA, and parts of NSW were experiencing drought or tough seasonal conditions and this was a major factor in why fewer changes were implemented.

Time since the workshop was completed also influenced farmers' ability to make changes, especially in relation to buying genetics using ASBVs or EBVs and other seasonal activities i.e.fertiliser application. In the second year of phone interviews, some survey participants had only just completed the workshop so had not necessarily had time to fully implement any change.

When looking at 'intention to make change' farmers attending category C events for MBfP were no more likely to 'intend to make a change' at the end of the event than those attending Category A and B events (Table 4). However, MMfS category C participants were **more likely** to indicate 'intention to make a change' at the end of the event than those attending

Category A and B events (Table 4). It was observed that50% of Category C MMfS participants had attended events from the Wean More Lambs module. These workshops focused on factors that have an immediate impact on improving lamb and ewe survival and it was thought this might be why more farmers made change in this area.

In this project, we only interviewed farmers that indicated in their post event evaluation that they 'intended to make a change'. This was to ensure we could directly attribute changes to the event attended. However, there were also farmers who indicated they had 'already made a change' as a result of attending an event, particularly if it went over a number of days.

When this additional data was analyzed, **Category C events had a higher proportion of farmers either 'intending to make a change' and/or 'already made a change' compared with B and A events.** (Table 13 and Table 14). It was surmised that this was because the Category C events were usually delivered over a series of days or months and thus allowed participants to implement changes before the event (workshop series) was completed. Farmers attending category C events may also have attended a number of A or B events prior to the C event (although the MLA databases in its current format made it difficult to determine if Category C participants had in general, already attended other events) which had led to them being already in a process of implementation that was continued/supported by the next event they attended.

Attending the MMfS and MBfP events also had other benefits for survey participants in the social and environmental areas. For many farmers, the event motivated and inspired them to keep going and also to make changes. While many farmers already knew the participants at their events, others did not and this was source of new networks and relationships. The events also gave participants time to reflect on their farming operations and direction they were heading. Most found attending the events uplifting, especially if times were tough.

The greatest environmental benefits expressed by survey participants attending events related to improved management of their soil (22%) and pasture resources (30%). This generally was only observed if the changes farmers were making were pastures or soils based. However many commented that they were improving their pastures and soil resources due to involvement in non-MLA funded events i.e.Landcare etc.

The major insights gained from these phone surveys was the observation that if a farmer stated an intention to make a change as a result of attending an event, that most had made some change or had thought about making the change. When all the MLA databases were interrogated, 45% of MBfP and 53% of MMfSparticipants showed intent to change. **If the practice change figure observed from these phone interviews can be extrapolated to the whole database and the participants who had already made a change included, 50% of MBfP and 59% of MMfSparticipants that attended MLA funded events can be thought to have made changes as a result.**

From a funder's perspective, this analysis has shown that farmers receive many benefits from attending MMfS and MBfP events, and without these events farmers would need other avenues for gaining the knowledge and skills they are seeking. It can also be argued that the events help to make the process of change more rapid or easier, however we can't know this for certain as there was no control group of farmers in this analysis who did not attend any events but still made changes on farm.

Another observation made during this process is that farmers do not measure benefits of making change in terms that are easily measurable e.g. most would comment that the stock 'looked better' or the pastures seemed to produce more grass. Farmers also were more likely to adopt a change across the whole farm or enterprise without testing it (therefore used no control on which to base their observations). When it came to selecting farmers for the

case study part of this project, many farmers had difficulty quantifying their benefits or indeed having adequate production records to allow benefits to be estimated. Where farmers had participated in a workshop that encouraged measurement of production levels i.e. wean more lambs, managing scanned ewes, animal health events related to worms, and soil events, the farmers were more able to quote figures of production and identify where they had made improvements. This highlights that teaching farmers to record their changes and quantifying the benefits for themselves may actually improve adoption of change.

## 2.2 Farm Case Studies

One hundred and eleven farm case study evaluations were completed for businesses where a farmer had reported an intention to implement a practice change as a result of attending an MLA event. Sixty-four case study farmers had attended a MBfP event and 47 had attended a MMfS event. Some farmers had implemented or planned to implement more than one practice change, and where possible these changes were evaluated separately. A total of 126 practice changes were evaluated, 56 for MMfS case study farms and 70 for MBfP case study farms.

The actual or expected impact of practice change adoption on a range of productivity and profitability Key Performance Indicators (KPIs) was evaluated relative to the before adoption, or baseline farm level performance. Baseline year productivity and profitability data was collected from case study farms via an on farm visit during 2013, at which time information was also collected on the type of practice change intended and the actual or expected costs and benefits associated with implementation of the change. Information was also collected on the actual or expected impacts of practice change adoption on a range of management, environmental and animal welfare factors.

Case study farms were re-engaged in 2014 to ascertain what had happened in terms of costs and benefits associated with adoption of practice changes since the time of the farm visit. Where required, changes were made to original assumptions based on what had happened over the previous 12 months or so.

Individual farmers were provided with a baseline year farm financial analysis, in addition to a farm practice change analysis that presented costs and benefits for most likely, best-case and worst-case scenarios. Farmers had the option of having their data included in a benchmarking analysis, in which case they also received a farm benchmarking report.

The overall results of the practice change evaluations for all MBfP case study farms revealed an increase in average annual net income for the most likely scenario of approximately $6,000 per farm ($9 per hectare). Additional annual gross income was approximately $17,000 per farm ($31 per hectare), with additional annual costs of approximately $11,000 per farm ($22 per hectare). For the best-case scenario, average additional net income was estimated at $17,700 per farm ($28 per hectare), with additional gross income of $27,700 ($47 per hectare) and additional costs of approximately $10,000 ($19 per hectare). For the worst-case scenario, average additional net income was estimated at -$2,400 per farm (-$6 per hectare), with additional gross income of $9,600 ($19 per hectare) and additional costs of approximately $12,000 ($25 per hectare).

The overall results of the practice change evaluations for all MMfS case study farms revealed an increase in average annual net income for the most likely scenario of approximately $11,900 per farm ($10 per hectare). Additional annual gross income was approximately $24,400 per farm ($25 per hectare), with additional annual costs of approximately $12,500 per farm ($14 per hectare). For the best-case scenario, average additional net income was estimated at $27,850 per farm ($27 per hectare), with additional gross income of $39,550 ($39 per hectare) and additional costs of approximately $11,700 ($12 per hectare). For the

worst-case scenario, average additional net income was estimated at -$800 per farm (-$2 per hectare), with additional gross income of $14,500 ($15 per hectare) and additional costs of approximately $15,300 ($17 per hectare).

Relative to the baseline (before adoption) KPI data, MBfP case study farms recordedaverage gross margin increases of $11 per hectare and $0.21 per DSE, representing increases of 5% and 1% respectively. Average beef trading income per kilogram liveweight (LW) produced increased marginally ($0.01), while average cost of production fell by $0.11. This resulted in a 20% increase in average profit per kilogram of beef produced($0.12).

Relative to the baseline (before adoption) KPI data, MMfS case study farms with **wool enterprises** recorded average gross margin increases of $13 per hectare and $1.54 per DSE, representing increases of 6% and 4.5% respectively. Average gross income per kilogram of clean wool produced increased by $0.98, while average cost of production increased by $0.61. This resulted in a 24% increase in average profit per kilogram of clean wool produced ($0.37).

Relative to the baseline (before adoption) KPI data, MMfS case study farms with **prime lamb** enterprises recorded average gross margin increases of $18 per hectare and $0.04 per DSE, representing increases of 6% and 0.3% respectively. Average gross income per kilogram carcass weight (CW) of lamb produced fell by $0.23, while average cost of production fell by $0.42. This resulted in a 73% increase in average profit per kilogram CW of lamb produced ($0.19).

MMfS case study farms with **dual-purpose sheep** enterprises recorded average gross margin increases of $8 per hectare and $0.67 per DSE, representing increases of 3% and 2% respectively. Average gross income per kilogram CW of lamb produced fell by $0.37, while average cost of production fell by $0.45. This resulted in a 36% increase in average profit per kilogram CW of lamb produced ($0.09). Average gross income per kilogram of clean wool produced increased by $0.44, while average cost of production increased by $0.02. This resulted in a 52% increase in average profit per kilogram of clean wool produced ($0.42).

In terms of productivity improvements due to practice change adoption, partial productivity indicators for MBfP case study farm enterprises revealed a 7% increase in beef production per hectare relative to baseline data. This was driven by a combination of increased output per DSE (+2.8%) and an increase in stocking rate (+4.7%). Average labour efficiency (DSE per labour unit) increased by almost 5%.

For MMfS wool enterprises, wool production per hectare increased only slightly (1%), while for prime lamb enterprises, lamb production per hectare increased by 8%, largely driven by an increase in output per DSE (5%). For dual purpose enterprises lamb production per hectare increased by 6.5%, while wool production per hectare increased by 1.4%. Lamb production per DSE was 6% higher relative to baseline data, while wool production per DSE rose by 1%. Average stocking rate per hectare for MMfS farms increased by an average of 2%, while labour efficiency (DSE per labour unit) increased marginally by 1.5%.

Calculation of total factor productivity (TFP) indexes using baseline data (before adoption) and steady state after adoption data revealed TFP growth for MBfP case study farms of 5.4%, with 7.1% output growth and 1.6% input growth. When the time required for each farm to reach the steady state post adoption scenario was accounted for, average annual growth in TFP was 2.2%, with output growth of 2.7% and input growth of 0.5%.

For MMfS case study farms, calculation TFP indexes using baseline data (before adoption) and steady state after adoption data revealed TFP growth of 3.9%, with 4.4% output growth

and 0.4% input growth. When the time required for each farm to reach the steady state post adoption scenario was accounted for, average annual growth in TFP was 2.3%, with output growth of 2.5% and input growth of 0.2%.

TFP growth between the before adoption baseline year and steady state after adoption scenario for all case study farms regardless of time to reach steady state post adoption scenario was 4.8%, with output growth of 6.0% and input growth of 1.1%. When the time required for each farm to reach the steady state post adoption scenario was accounted for, average annual growth in TFP was 2.3%, with output growth of 2.6% and input growth of 0.3%.

In addition to impacts of practice adoption on farm profitability and productivity, case study farmers were also asked to identify any impacts on management, environmental and animal welfare outcomes. Negative impacts were recorded for some farms in terms of increased stress levels, decreased work-life balance, increased time required for further training and increased risk, however the majority of farmers recorded increases in knowledge and skills (78% of MBfP farms and 89% of MMfS farms), and confidence (88% of MBfP farms and 98% of MMfS farms) due to practice change adoption.

The majority of case study farmers (58% of MBfP farmers and 85% of MMfS farmers) reported improved animal welfare outcomes due to practice change adoption. Forty percent of MMfS farmers and 48% of MBfPfarmers reported no impacts of practice change adoption on the environment, while eight percent of MBfP farmers and one MMfS farmer reported potentially negative effects of practice change adoption on the environment. Positive environmental outcomes mainly included improved ground cover/reduced erosion, improved weed management, improved soil health and increased water use efficiency.

## 2.3 Summary of recommendation's for how MLA can improve adoption from MMfS and MBfP events

**Recommendation 1:**Capture participant's intention to change or not change at all MBfP and MMfS events. The results from this study show that this can be used as an indicator of adoption as well as start the adoption process.

**Recommendation 2**: When marketing events, MLA should emphasise the less tangiblelifestylebenefits as well as the production and profitabilitybenefits. Feeling 'more in control, less stressed; and having a 'better work/life balance' were mentioned by farmers as important benefits from making particular changes or not making changes if the affect is negative.

**Recommendation 3**: Events be designed where possible to have farmers identify and record SIMPLE on farm measures (applicable to the event) to enable them to track and monitor key productivity indicators over time i.e. stocking rate, kg P applied/ha, weaning % ewe mortality % etc. This would include follow-up events where farmers can get together to compare before and after the change to demonstrate progress.

**Recommendation 4:** MLA utilise the case study results to provide motivation for farmers to invest in practice change adoption and to promote an attitude of continuous improvement in farmer decision making.

**Recommendation 5:**MLA run events designed to provide the technical information AND the follow-up support required for participants to make the change on farm.

**Recommendation 6:** Events continue to be delivered that target MLA priorities for adoption as they do lead directly to more changes being made in these areas.

**Recommendation 7:** MLA continues to develop and support the tiered event structure (Category A, B and C events). The analysis in this report showed that participants' responses post event showed that more Category C and B participants either intended to change and/or had already made change compared to Category Aparticipants. This suggests that investing in the development and delivery of these categories of events is vital if MLA wants to maximise adoption from its investment.

**Recommendation 8:** The key messages from this report be made available to service providers to enable them to use the recommendations to continuously improve their service delivery. It is suggested that this be supported by a session for interested service providers to attend to enable questions and discussion of the recommendations and their application.

## 2.4 Summary of recommendation's for how MLA could improve the process of measuring practice change

**Recommendation 9:** Interviews be conducted 12-18 months after the event to allow sufficient time to make changes but not too long that farmers have forgotten what they attended and what they did as a result.

**Recommendation10:** The phone interview process be used to identify potential case studies. Alternatively a farmer case study could be identified for each Category C event during the event and their progress tracked as the event progresses (if the event goes for multiple days spaced out over time).

**Recommendation 11:**MLA databases be redesigned to be participant based rather than event based and structured to allow better interrogation of data.

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## 3.1 List of Figures

## 3.2 List of Tables

## 3.3 Glossary of terms

All effort has been made to use consistent terminology throughout this report. In particular the following terms have been used in place of others to maintain consistency. These terms are:

| | |
|---|---|
| Farmers | We have used the term farmers in favor of 'producers' in this report. When referring to farmers that were interviewed, we have opted for the term 'survey participants' to differentiate with all the farmers that have participated MBfP and MMfSevents. |
| Events | Describes any workshop, activity, presentation, field trip/tour, field day or other event sponsored by MBfP or MMfS. |
| Practice Change | Changes made by farmers to their farming practices with the aim of improving some aspect of their farm operation. Includes, implementing appropriate technologies and management strategies to increase profitability and productivity in their businesses'. |
| Adoption rate | Describes the amount of practice change undertaken by participants in the phone surveys. |
| Intended change | The changes implemented by participants in accordance to the feedback they provided MLA post MBfP or MMfS event |
| Unintended change | Any change that was not stated in the feedback provided to MLA post event but was undertaken instead of intended change. |
| Additional change | Changes made in addition to the ones described in farmer feedback to MLA post event. Implies the farmers made the intended change and additional changes. |

# 4 Background

Meat and Livestock Australia (MLA) packages the latest research and development for the majority of farmers, and delivers it in southern Australia through the Majority Market Programs, More Beef from Pastures (southern beef) and Making More from Sheep (sheep meat/lamb.)

A critical component of the delivery of these programs is rigorous and consistent monitoring and evaluation (M&E), to enable the tracking and reporting of the impact achieved through both MLA and delivery partner investment.

There are five levels in the MLA M&E framework, commencing with the overarching measure of “impact”, an objective to increase awareness of the program across the industry, followed by three categories (A, B, C) of key performance indicators (KPIs) that guide the on-ground activity and enable achievement of program impact.

The impact for both programs aims to achieve sustainable increases in the productivity and profit of southern Australia beef and sheepmeat enterprises. To determine this impact, MLA proposed to interview or ‘survey’ farmers by phone to determine what changes they had made on farm post event attendance. This information coupled with modeling of estimated gains, usingfarmer case studies with measurements of productivity and profitability, were proposed to enable baseline and ex post analysis. The sample of farmers for the case studies would be selected from those engaged in the respective program activities.

Category Aevents seek to engage with farmers at an activity level, and measure satisfaction and value of activities, and intention to change. Category B activities lead on from these events and provide participants with more in-depth information, including problem-solving activities and a focus on skill development. At this level, changes in knowledge, skills and confidence are the primary outcomes measured.

Category C activities (characterised by in-depth, locally-adapted, problem-solving activities that enable positioning of information into individual businesses, and the use of facilitators to manage group discussion and interaction) seek to influence practice change (adoption), along with shifts in knowledge and skills, to assess ‘how well’ farmers understand and can subsequently implement what they have learned.

Program targets were set for 1,500 beef farmers to have implemented at least one management practice change from participating in a More Beef from Pastures activity between July 2010 and June 2013, and 690 sheep farmers from participating in a Making More from Sheep activity, between December 2010 and November 2013.

## 4.1 Project Objectives

1. Collate and detail evidence on the impact of practice changes undertaken by farmerparticipants as a consequence of their involvement in the Majority Market Programs (results found in Phone Survey Results section of this report)

2. Report detailed practice changes farmers have made to the farm business resulting from participation, quantifying the impact of the changes identified in terms of outcome for the farm business. Social and environmental farm measures will also be described and quantified where possible (results found in Case Study Results of this report)

The results and outcomes from this project will be used in a subsequent economic evaluation of the Majority Market Programs investment.

# 5 Methodology

The Majority Markets Evaluation project was developed in two parts:

1. **Phone Survey**

   Participants were contacted via phone survey in November 2012, July and November 2013, with a target survey completion rate of 25% of Category C event participants (**375** Beef and **175** sheep farmers= **550**). The purpose of the phone interviews was to confirm farmers' intent to adopt new practices, identify actual practice change and elicit farmer assessment of the impacts of these changes. The phone survey was also designed to obtain quantitative and qualitative impacts (as assessed by the farmers) of changes adopted on their farm as well as business risk, social and environmental parameters.

2. **Case Studies**

   Physical and financial data was collected from case study farm participants to provide the baseline counterfactual key performance indicators, with follow up discussions with each farmer to identify the costs and benefits associated with implementing a change on farm. These case studies sought to quantify economic and productivity parameters associated with management changes, in addition to identifying any environmental, animal welfare and management implications associated with the change.

   The target was to complete case studies for**75** beef farmerparticipants and **69** sheep farmerparticipants in Category C activities (**144**).

The methodology for each part is described in detail in the relevant results section.

# 6 Phone Survey Results

## 6.1 The phone survey methodology

The phone surveys were based on the following key assumptions:

- **25**% of Category C participants to be surveyed **based on 1500** beef farmers and**690** sheep farmers **(equating to 375 beef and 173 sheepfarmers = 548 and was rounded up to 550 farmers overall).**

- Farmers to be surveyed in **two groups of 275 farmers,** first group in **2012** and the second group in**2013.**

- MLA to provide a**database of farmers who had attended the events** to select the participants from. This database needed to provide farmer **name** and **contact details** and details of their **intended practice change post activity, and Majority Market program they attended.**

The following people conducted the Year 1 phone surveys:

- Dr Kristy Howard – management and coordination of all steps including stratification of the database, management of all data, design of survey – including survey monkey, training of survey team and reporting.
- My Beechworth Secretary – draft letter/email and contact all farmers to schedule the interviews, maintenance of survey schedule.
- Survey team – Dr Kristy Howard, Cheryl Graham, Tim Ekberg and Lee Beattie – conduct all surveys, enter data and report on process (including identifying any issues with survey questions, template and format).

The MLA MMfS and MBfP databases were stratified according to the following steps to allow the farmers to be randomly selected for the phone interviews.

1. Determine state numbers for selection based on MLA target of 550 overall (used a figure of approximately 4% of participants from each state from each program).
2. Select only those farmers who have granted permission to MLA to allow follow-up evaluations.
3. Select only those farmers who said 'yes' to 'intend to make a change'.
4. Select only those farmers who provided details of practice change.
5. Select only those farmers with either address or email, mobile or landline numbers.
6. Randomly select double the number of farmers required from a variety of events and locations and property sizes (>500 sheep or >50 cattle on >100 ha).

The phone survey process followed the following steps:

1. Development and piloting of the phone survey in conjunction with MLA, the project team (Dr Kristy Howard, Cheryl Graham and Lee Beattie) and DEPI's Social Researcher, Carole Hollier.This survey was designed to take no longer than 20 mins[1] via phone interview and collected both qualitative and quantitative data. Each phone interviewer used an online survey analysis tool that collates and themes data as it goes, thus

[1] 20 mins is considered to be a compromise between efficiency of interviewing and the time needed to elucidate detailed information. This assumption was validated in the pilot stage and interviews kept to this time as much as possible.

reducing the time required to analyse the data. Twenty farmers were interviewed for the pilot (August-October 2012) to test the process. The results of the pilot were used to refine and adjust the phone survey.

The phone interview questionnaire can be found in Appendix 1 (next page) Phone survey

2. Year 1 phone interviews – conducted between 22 October and 7 December 2012. The sequence of events was:
    - Send letter (Appendix 2: Letter send to prospective phone survey interviewees) to farmers selected from the databases advising them of the process and inviting them to participate.
    - Make follow-up phone calls to arrange time and date for survey.
    - Schedule survey times and distribute to the interviewers.
    - Update the schedule as needed.
    - Letters/emails were sent in weekly batches to manage the process.

3. Year 1 phone interviews analysed and report submitted to MLA January 2013

4. Year 2 phone interviews – conducted in two batches[2] July 2013 (WA and NSW) and 14 October to 1 November 2013 (Vic, Tas, QLD and SA) following the same process as in Year 1 with minor adjustments to the questions.

5. Both years analysis and report was submitted to MLA June 2014.

## 6.2 A note on interpretation of these results

The results from the phone interviews were analysed as a combined data set, by program i.e. MMfS and MBfP and when relevant, by state, year of survey and event category. Results are not presented on a state-by-state basis; this data can be obtained as a separate analysis upon request.

Intended practice changes have been analysed separately from additional and unintended changes (which have been grouped and analysed together).

## 6.3 Who was surveyed?

One thousand one hundred and thirty eight (1,138) participants were selected from the Making More from Sheep (MMfS) and More Beef from Pastures (MBfP) national databases according to the following criteria:

- They answered 'Yes' to follow-up
- They answered 'Yes' to 'intend to make a change'
- MLA database contained details of intended change
- Represented the range of events delivered
- Spanned a range of flock and property sizes
- Contained adequate contact details.

Each of the 1,138farmers was sent an invitation to participate either by email or letter. Each farmer was then phoned to arrange an interview time and date. In some cases no one

[2]The second year of phone surveys were undertaken in two batches to help recruit more case study survey participants for NSW and WA – see the case studies final report for more details.

couldbe contacted or their email or letter was returned. Very few farmers actually declined to be interviewed with most citing valid reasons for not participating i.e. illness, off-farm work, seasonal tasks i.e. shearing, harvest, holidays etc.

Of the 1,138farmers selected, 270 were interviewed in Year 1 (2012) (including the 20 from the pilot) and 284 in Year 2(2013) making a total of 554farmers.

## 6.4 Demographics of the farmers interviewed

Of the 554farmers interviewed, 179 had participated in MMfS events and 375 from MBfPevents (Table 1). During the course of development of this project, it was decided to interview farmers from category A and B events if they had stated an intention to change as a result of attending the workshop. This was under advice from MLA and the MBfP and MMfS national coordinators to enable practice change from these events to be analysed, and varied from the original plan of 25% of Category C participants. Table 1 shows the number of participants from each workshop category that were interviewed.

The 554 farmers interviewed had attended 323 separate events (193 MBfP and 130 MMfS events). These events were run between 19/10/2010 and 05/07/13. The farmers interviewed managed a range of herd and flocks sizesvarying from 0 to 18,000 head of sheep (Figure 1) and 0 to 15,000 head of cattle (Figure 2)[3]. The farmers managed between 0ha to 240,000 ha (Figure 3)[4].

***Table 1: Number of survey participants interviewed by state, program and category of event***

| | State | | | | | | |
|---|---|---|---|---|---|---|---|
| | **NSW** | **QLD** | **SA** | **TAS** | **VIC** | **WA** | **Total interviewed** |
| **More Beef from Pastures** | **136** | | **26** | **22** | **159** | **32** | **375** |
| **A** | 46 | | 9 | 9 | 104 | 17 | 185 |
| **B** | 53 | | 16 | 3 | 45 | 12 | 129 |
| **C** | 37 | | 1 | 10 | 10 | 3 | 61 |
| **Making More from Sheep** | **54** | **15** | **38** | **22** | **38** | **12** | **179** |
| **A** | 12 | 4 | 9 | 1 | 5 | | 31 |
| **B** | 31 | 11 | 22 | 20 | 26 | 10 | 120 |
| **C** | 11 | | 7 | 1 | 7 | 2 | 28 |
| Total | **190** | **15** | **64** | **44** | **197** | **44** | **554** |

[3]Some participants recorded 0 flock or herd sizes as they were either looking to purchase stock in a start up operation or had attended a MBfP event but had sheep rather than cattle and vice versa.
[4]Some farmers had 0 ha as they had either just sold land or were looking to buy into land.

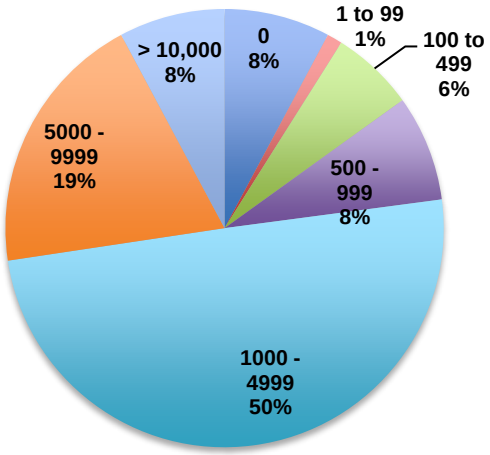



***Figure 1: Spread of flock size (head) in survey participants - MMfS***

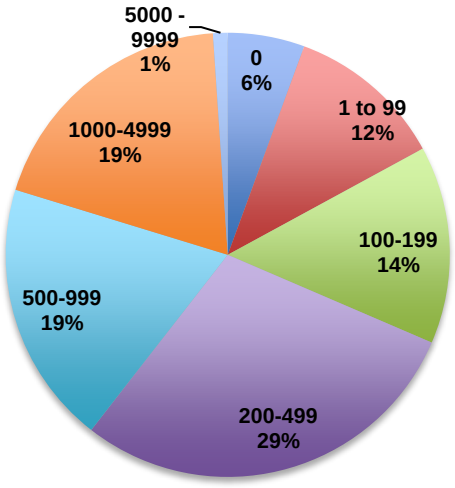
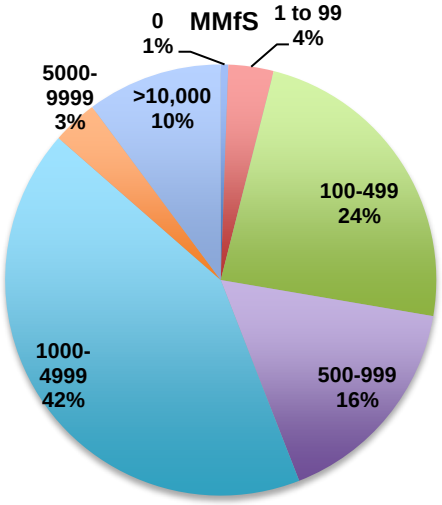



***Figure 2: Spread of herd size (head) in survey participants - MBfP***



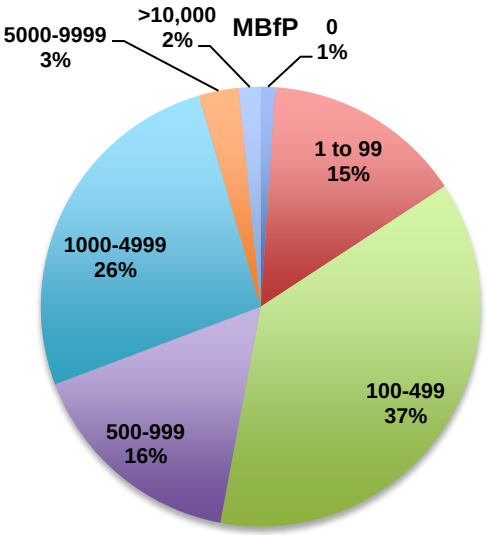




***Figure 3: Spread of property size (ha) for MMfS and MBfP survey participants interviewed***

Half (189) of the MBfP survey participantsand 45%(81) of MMfS survey participants interviewedwere members of on-going farmer discussion groups (

Table 2)**.**

***Table 2: Percentage of farmersinterviewed that are members of on-going groups by state and program***

| State | MBfP | MMfS |
|---|---|---|
| **NSW** | 48% | 20% |
| **QLD** | | 27% |
| **SA** | 54% | 63% |
| **TAS** | 73% | 36% |
| **VIC** | 47% | 82% |
| **WA** | 59% | 25% |
| **Total** | **50%** | **45%** |

The events attended were aligned with relevant MBfP and MMfS modules (Figure 4 and Figure 5).

## 6.5 Shortened interviews

There were 15 interviews that were shortened for a number of reasons Table 3).

***Table 3: Reasons interviews were shortened.***

| Reason for shortening the interview | Frequency |
|---|---|
| Interviewee could not recall having specified the intention on the feedback sheet or recall the event | **7** |
| Workshop reinforced change already made/currently being implemented | **4** |
| Didn't do this workshop (mistake in database) | **2** |
| Workshop was not relevant to their business | **1** |
| Interviewee not suitable for interview | **1** |
| **Total** | **15** |

Thirteen of these interviews occurred in the first survey year and necessitated the addition of another question to ensure the survey participantsin year 2 who had their current practice reinforced could comment on other aspects of the workshop. In the second year of the survey, effort was made to use more recent events to enable survey participants to recall the workshop.

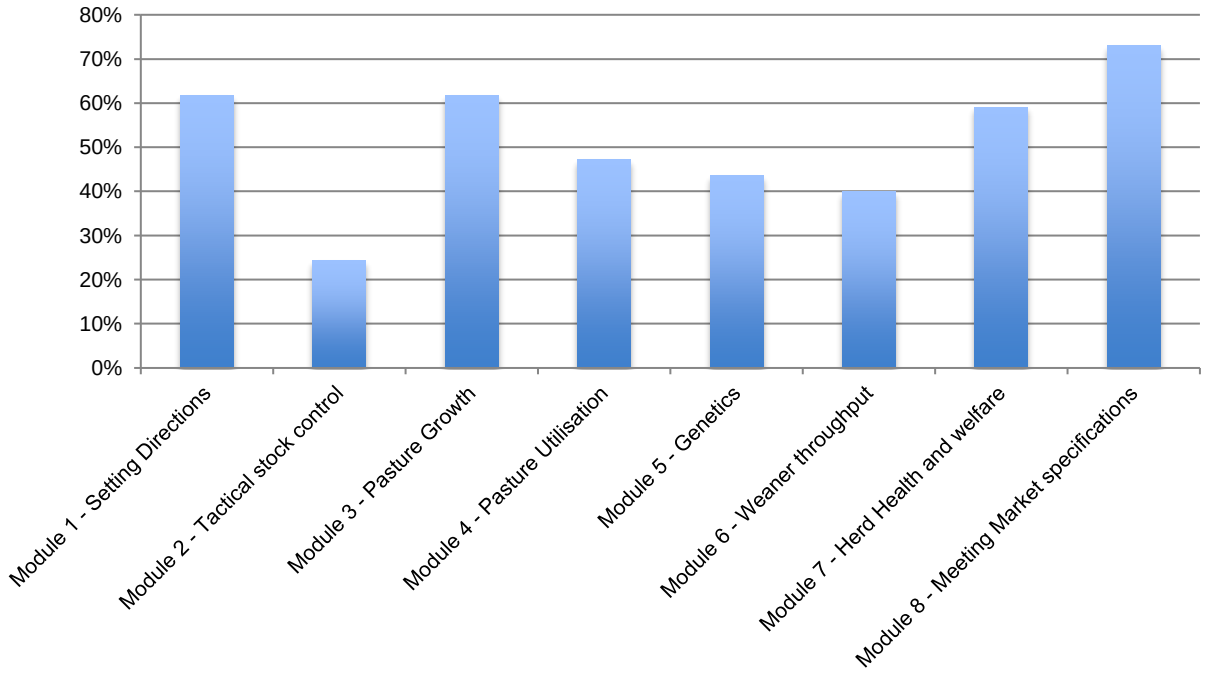



***Figure 4:Percentage of eventsfarmers interviewed had attended aligned to each MBfP module.***

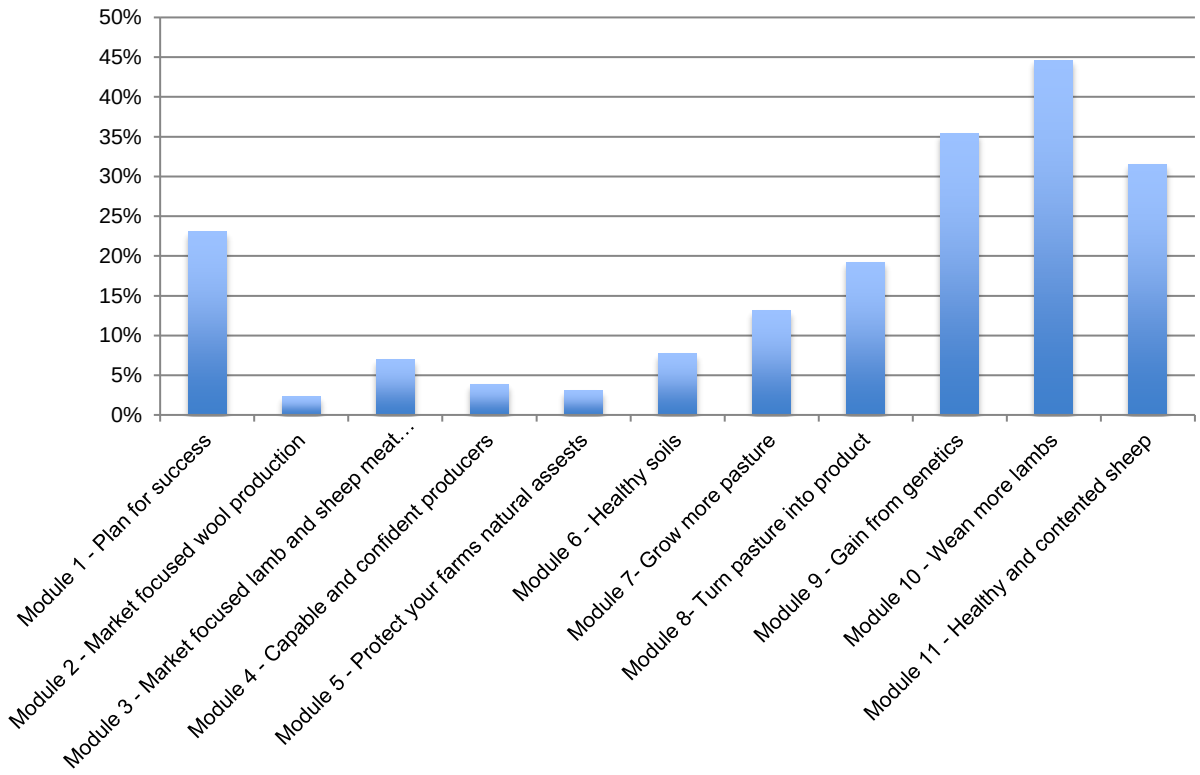



***Figure 5: Percentage of events aligned to each MMfS modules.***

## 6.6 Summary of results against KPIs

| KPI | MBfP | MMfS | Total |
|---|---|---|---|
| **Number of farmers interviewed** | 375 | 179 | 554 farmers |
| **Total Adoption rate** | 276/375 (74%) | 136/179 (76%) | 412/554 (74%) |
| **Intended adoption rate** | 243/375 (65%) | 115/179 (64%) | 358/554 (64%) |
| **Unintended adoption rate** | 33/375 (9%) | 21/179 (12%) | 54/554 (10%) |
| **Additional change adoption rate** | 121/375 (32%) | 65/179 (36%) | 186/554 (34%) |
| **Incomplete adoption** | 132/375 (35%) did not make intended change<br>33/375 (9%) made a different change to the one specified<br>Total non-adoption: 99/375 (26%) did not make any change at all<br><br>77/243 (32%) of farmers partially adopted their intended change.<br><br>Most common reasons for not making the change:<br>1. "I was doing this practice before the workshop – workshops reinforced the change"(22%)<br>2. Time required to implement (21%)<br>3. Not the right season or time of the year (17%) | 64/179 (36%) did not make intended change<br>21/179 (12%) made a different change to the one specified<br>Total non-adoption: 43/179 (24%) did not make any change at all<br><br>30/115 (26%) of farmers partially adopted their intended change.<br><br>Most common reasons for not making the change:<br>1. Not the right season or time of the year (43%)<br>2. "I was doing this practice before the workshop – workshops reinforced the change"(24%)<br>3. Other priorities other changes more important (8%) | 196/554 (36%) did not make intended change<br>54/554 (10%) made a different change to the one specified<br>Total non-adoption: 142/554 (26%)did not make any change at all<br><br>107/358 (30%) of farmers partially adopted their intended change.<br><br>Most common reasons for not making the change:<br>1. Not the right season or time of the year (25%)<br>2. "I was doing this practice before the workshop – workshops reinforced the change" (23%)<br>3. Time required to implement (15%) |
| **Types of adoption** | | **See table in results** | |
| **Scale of change** | 193/243 (79%) of intended change was whole farm or whole enterprise | 100/115 (87%) of intended change was whole farm or whole enterprise<br>58/65 (89%) of additional or | 293/358 (82%) of intended change was whole farm or whole enterprise<br>161/186 (87%) of additional or |

| KPI | MBfP | MMfS | Total |
|---|---|---|---|
| | 103/121 (85%) of additional or unintended changes were whole farm or whole enterprise | unintended changes were whole farm or whole enterprise | unintended changes were whole farm or whole enterprise |
| **Impact of change (Both intended, unintended and additional changes)** | 137/243 (56%) farmers stated their intended change had immediate benefits<br>72/121 (62%) of farmers who had made additional or unintended changes stated the change had immediate benefits.<br>A further 48/243 (45%) and 24/121 (52%) of farmers expected benefits within the next 12 months. | 76/115 (66%) farmers stated their intended change had immediate benefits<br>44/65 (68%) of farmers who had made additional or unintended changes stated the change had immediate benefits.<br>A further 17/115 (44%) and 14/65 (67%) of farmers expected benefits within the next 12 months. | 213/358 (59%) farmers stated their intended change had immediate benefits<br>119/186 (64%) of farmers who had made additional or unintended changes stated the change had immediate benefits.<br>A further 65/358 (45%) and 38/186 (57%) of farmers expected benefits within the next 12 months. |
| **Benefits of change** | #1 - Increased production (62%)<br>#2 – Felt more in control or less stress (58%)<br>#3 – Increased income (38%) | #1 - Increased production (76%)<br>#2 – Felt more in control or less stress (69%)<br>#3 – Decreased losses (56%) | #1 - Increased production (66%)<br>#2 – Felt more in control or less stress (62%)<br>#3 – Increased income (42%) |
| **Additional Benefits of change** | #1 – thought more about planning for the future (75%)<br>#2– felt more confident about the future (73%)<br>#3 – wider professional network (60%)<br>#4 – attended additional events/events to increase knowledge and skill (53%) | #1 – thought more about planning for the future (87%)<br>#2– felt more confident about the future (78%)<br>#3 – wider professional network (57%)<br>#4 – attended additional events/events to increase knowledge and skill (50%) | #1 – thought more about planning for the future (79%)<br>#2– felt more confident about the future (75%)<br>#3 – wider professional network (59%)<br>#4 – attended additional events/events to increase knowledge and skill (52%) |
| **Natural resource benefits** | 29% improved pasture management<br>24% improved soil management<br>8% improved water quality<br>7% improved native vegetation management | 30% improved pasture management<br>18% improved soil management<br>6% improved water quality<br>7% improved native vegetation management | 30% improved pasture management<br>22% improved soil management<br>8% improved water quality<br>7% improved native vegetation management |
| **Other support processes or resources that assisted** | • 50% of farmers are members of on-going groups and 32% said | • 45% of farmers are members of on-going groups and 31% said | • 49% of farmers are members of on-going groups and 32% said |

| KPI | MBfP | MMfS | Total |
|---|---|---|---|
| **in implementing the change** *(Intended, additional and unintended change figures combined)* | that being in a group supported the decision they made to make a change.<br>• 32% of farmers said discussions with other professionals helped them make the change and 35% said discussions with other farmers helped.<br>• 23% said attendance at other field days and events helped.<br>• 65% said attending the workshop or event was the <u>most important</u> of information and support to make the change while 14% said it was being part of a group that was their <u>most important</u> source and support | that being in a group supported the decision they made to make a change.<br>• 36% of farmers said discussions with other professionals helped them make the change and 29% said discussions with other farmers helped.<br>• 31% said attendance at other field days and events helped.<br>• 48% said attending the workshop or event was the <u>most important</u> of information and support to make the change while 16% said it was being part of a group that was their <u>most important</u> source and support | that being in a group supported the decision they made to make a change.<br>• 33% of farmers said discussions with other professionals helped them make the change and 35% said discussions with other farmers helped.<br>• 26% said attendance at other field days and events helped.<br>• 59% said attending the workshop or event was the <u>most important</u> of information and support to make the change while 15% said it was being part of a group that was their <u>most important</u> source and support |
| **Additional information or skills required** | • 66% said the workshop provided the necessary information and skills required to make the change and 27% said it partly provided the information and support. | • 72% said the workshop provided the necessary information and skills required to make the change and 19% said it partly provided the information and support. | • 69% said the workshop provided the necessary information and skills required to make the change and 23% said it partly provided the information and support. |

## 6.7 Intent to change versus actual change made

**412/554 (75%) of famers indicated that they had made a changeas a result of attending an MMfS or MBfP workshop or activity**. This could have been the change they specified on their feedback sheet (intended) or a different (unintended) change (Figure 6).

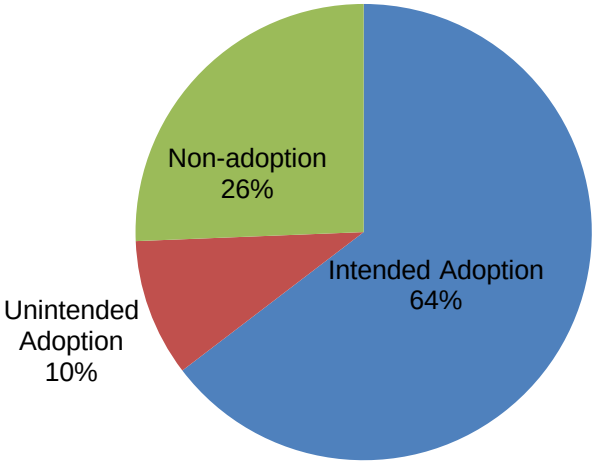
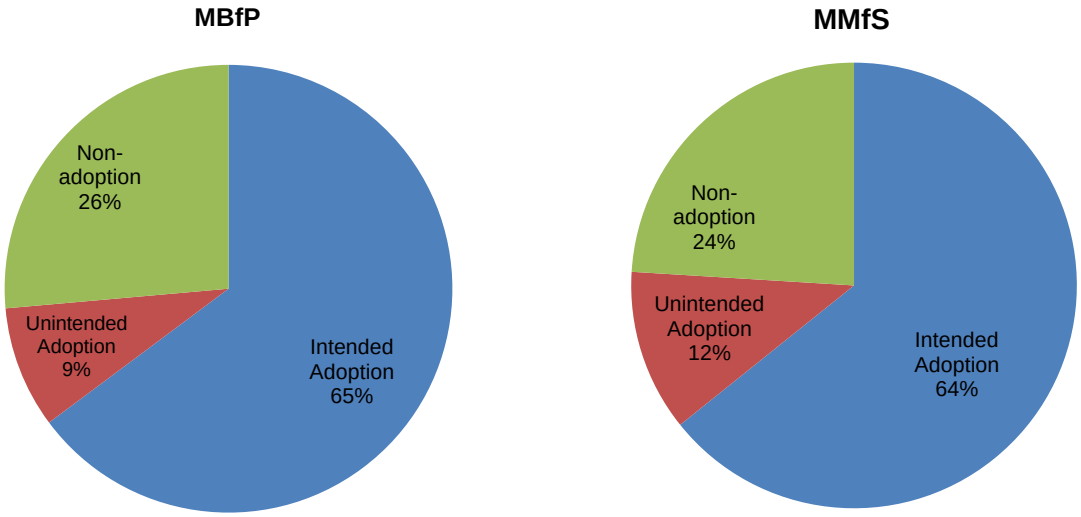



***Figure 6: Adoption rates (intended, unintended and non-adoption).***

There was no discernable difference between adoption rates in survey participants who attended MMfS or MBfP events (Figure 7) showing that both programs achieved similar rates of adoption.




- 54/554 (10%) of farmers made a different change**(unintended change)** to the one specified on their feedback form. This figure was similar for the two programs i.e.9% of MBfP and 12% of MMfS survey participants made different changes from the one specified on their feedback forms.

- 132/554 (24%) of survey participants also made one or more **additional change(s**) to their management practices to the one specified on their feedback form. This figure was the same for both MBfP and MMfS survey participants.

### 6.7.1 Did workshop category influence amount of change?

The results were analysed according to the category of the workshop (i.e. A, B or C). The results (Table 4) show that MMfS Category C survey participants made more intended change and more additional changes than A and Bsurvey participants. Category B MBfP survey participants made less additional changes than the average of the three categories.

When all change is considered (total column Table 4), the category C survey participants made more intended, unintended and additional changes than A or B.[5]

***Table 4: Proportion of intended, unintended and additional change made by survey participants in each workshop category and across programs.***

| | MBfP | | | MMfS | | | Average | | |
|---|---|---|---|---|---|---|---|---|---|
| | Intended change | Unintended change | Additional change | Intended change | Unintended change | Additional change | Intended change | Unintended change | Additional changes |
| **A** | 66% | 9% | 28% | 61% | 16% | 23% | **65%** | **10%** | **27%** |
| **B** | 64% | 7% | 16% | 60% | 12% | 23% | **62%** | **9%** | **19%** |
| **C** | 64% | 13% | 26% | 86% | 7% | 36% | **71%** | **11%** | **29%** |
| **Total (across all categories)** | 65% | 9% | 23% | 64% | 12% | 25% | **65%** | **10%** | **24%** |

### 6.7.2 State effects

In general, survey participants from different states achieved similar rates of intended, unintended and additional change across both programs (Table 5). The exception to this trend was MBfP survey participants in SA who had lower than average rates of change in all categories but a higher than average intended change in the MMfS program. The most common reason given for non-adoption was it was 'not the right season or time of year to implement'for both programs. There was no obvious reason for the SA anomaly.

***Table 5: Proportion of intended, unintended and additional change made by survey participants in each state and across programs.***

| | MBfP | | | MMfS | | |
|---|---|---|---|---|---|---|
| | Intended change | Unintended change | Additional change | Intended change | Unintended change | Additional change |
| **NSW** | 65% | 10% | 23% | 56% | 11% | 30% |
| **QLD** | | | | 60% | 7% | 20% |
| **SA** | 46% | 4% | 15% | 74% | 11% | 16% |
| **TAS** | 68% | 5% | 32% | 73% | 14% | 27% |
| **VIC** | 65% | 9% | 25% | 66% | 16% | 29% |
| **WA** | 72% | 9% | 22% | 58% | 8% | 17% |
| **Average** | **65%** | **9%** | **23%** | **64%** | **12%** | **25%** |

In NSW in the MMfS program, fewer intended changeswere made but they made above average additional changes. For many of the MMfS survey participants who did not make their intended change, it was because it was 'not the right season or time of year to implement'.

[5]This data has not been statistically analysed.

In the TAS MMfS program, there was above the average intended change and over half of the changes were to do with uptake of safe injecting techniques for OJD vaccination as well as use of OJD vaccination. These are considered rather simple changes compared to more complex changes and could account for the higher than average intended change figures.

### 6.7.3 Year of survey affects

There was a noticeable effect on rates of change from Year 1 to Year 2 of the survey (Table 6) with more change being identified in Year 1 (2012) compared to Year 2 (2013) in all areas except unintentional change.

The reason for this has been attributed to the following factors:

- Year 1-survey participants had attended events up to 2 years prior to the phone interview whereas Year 2 survey participants had all completed their events within the last 12 months. This gave Year 2 survey participants less time to implement change and the categories of “not the right season or time of year”, “other priorities/changes more important” and “reinforced a change I am already making” were more frequently cited in Year 2 compared to Year 1.
- Severe seasonal conditions in NSW, QLD and WA affected survey participants ability to implement change and was cited in the ‘other’ category.

***Table 6: Proportion of intended, unintended and additional change in the two years of surveying across programs***

| | MBfP | | | MMfS | | |
|---|---|---|---|---|---|---|
| | **Intended change** | **Unintended** | **Additional** | **Intended** | **Unintended** | **Additional** |
| **Year 1** | 72% | 9% | 31% | 85% | 8% | 35% |
| **Year 2** | 58% | 8% | 16% | 46% | 15% | 15% |
| **Total response** | 65% | 9% | 23% | 64% | 12% | 25% |

## 6.8 Reasons for non-adoption

**There were 196/554 (35%) farmers who did not make the change they stated on their feedback form.** Of these farmers:

- 48/196 (25%)were committed to making the change at a later date when the time was right or the season was favourable (21 or 17% of MBfP and 27 or 43% of MMfS non-adopters).
- 43/196 (23%) indicated the workshop they had attended reinforced the change they had previously made or were currently implementing. This figure was similar for MBfP and MMfS survey participants.
- 54/554 (10%) had made one or more different (unintended) changes. Each of these changes was explored and included in section 6.14 of this report. Including the ‘unintended change’ in the adoption figures raises the total adoption figure from 65% of interviewees to 75% of interviewees.

Of the farmers that did not make any change, 190/196 recorded a reason for not adopting their intended changes from the workshop. These are detailed inTable 7 below.

***Table 7: What prevented you making this change?***

| Reason given for not making the intended change* | MBfP % | MMfS % | Total % |
|---|---|---|---|
| Not the right season/time of year to implement | 17% | 43% | 25% |
| Workshop/event reinforced the practices I already undertake | 22% | 24% | 23% |
| Time required to implement | 21% | 3% | 15% |
| Idea didn't stack up on further reflection | 14% | 5% | 11% |
| Cost | 11% | 3% | 8% |
| Other priorities i.e. other changes more important | 8% | 8% | 8% |
| Time required to seek more information and evaluate options | 6% | 0% | 4% |
| Need more skills | 4% | 2% | 3% |
| Other business/family members opposed | 2% | 0% | 2% |
| Information was not relevant to my situation | 1% | 0% | 1% |
| I am not in a position to make any changes | 1% | 0% | 1% |
| Other | 39% | 27% | 35% |

* Multiple responses per participant

The other category included reasons such as:

- Forgot to do it
- Couldn’t remember the intended practice change
- Not an issue on their farm/in their animals
- Need more training/attend another course or follow-up
- Making other changes that must come first
- Haven’t got around to it yet
- Too complicated or hard at the moment
- Been ill
- Sold or bought a new farm
- Have to convince other family members
- Need more advice or help
- In the midst of a severe drought
- Skill not needed yet
- Let down by a contractor who was going to do the work
- Staffing issues
- In the midst of a farming restructure
- Happy with current supplier of genetics – no reason to change even though they don’t use ASBVs/EBVs
- Too risky
- Been too wet
- Lost local DPI person who was helping them to implement
- Couldn’t attend second day of workshop toreceive follow up support
- Considering retiring so put it off

## 6.9 Types of intended change made

The types of intended change survey participants made were classifiedaccording to the MBfP or MMfS module the change aligned to (Figure 8 and Figure 9)[6].The Pasture Growth, Herd Health and Welfare and Meeting Market Specificationmodules had the greatest number of practice changes associated with them from MBfP events while for MMfS, the Wean more

[6]The types of unintended and additional change are reported in a separate section – see 6.14 page 29

Lambs module had the most practice changes aligned to it. A more detailed breakdown of intended changes can be found in Table 8 and Table 9.

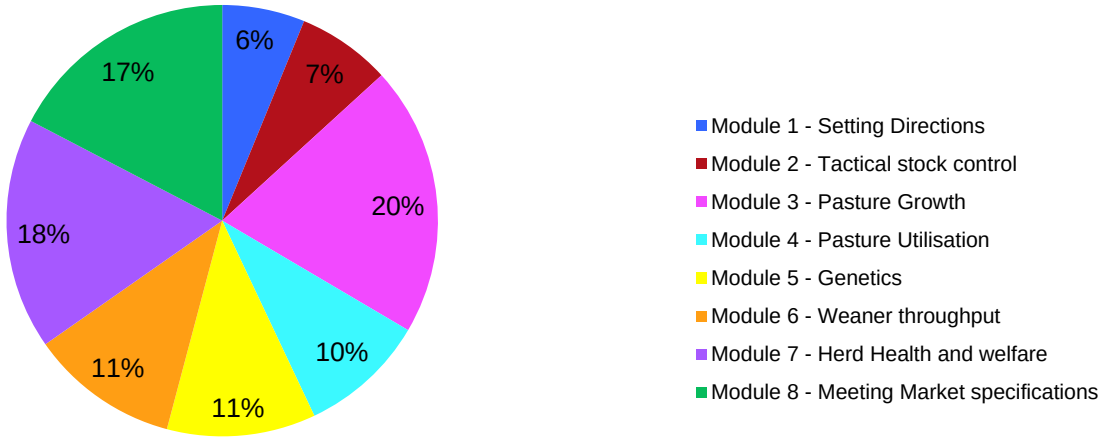



***Figure 8: Modules survey participants' intended changes were aligned to (MBfP)***

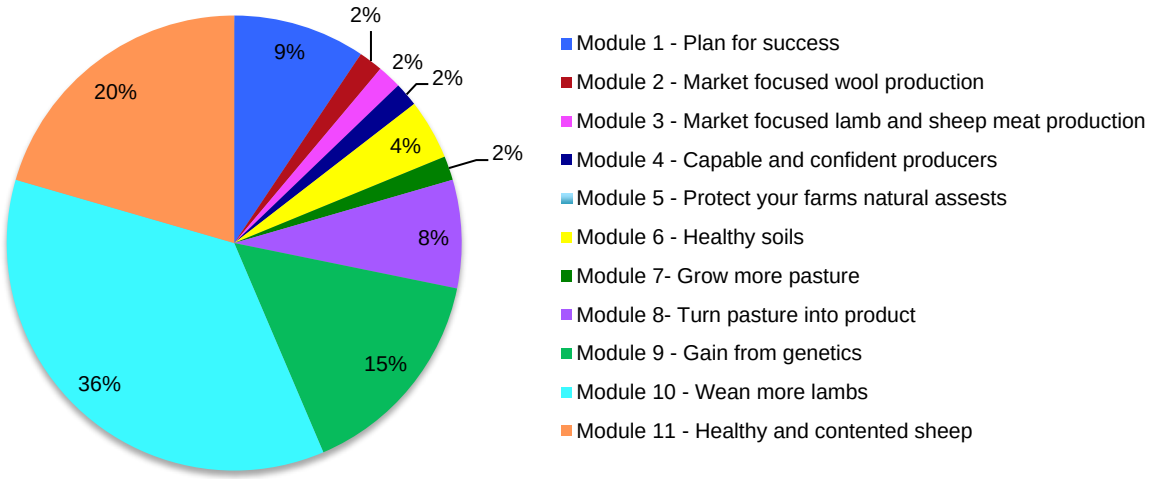



***Figure 9: Modules survey participants' intended changes were aligned to (MMfS)***

### 6.9.1 Common MBfP practice changes

The most common practice changes reported in the Pasture Growth category, were changes to the way survey participantsmanaged their pastures and the use of soil testing and resulting changes to fertiliser levels and types (Table 8).

The most common practice change reported in the Meeting Market Specificationscategory was to obtain EU accreditation or EU/MSA accreditation (Table 8). As this was a relatively simple change to make, it was something that could be easily measured and worked towards. The practice change's benefits were easily realised in 12 months as once EU accreditation was achieved, premium prices could be expected.

***Table 8: Types of practice changes made by farmers attending MBfP events***

| Module & Practice change | No |
|---|---|
| **Module 1 - Setting Directions** | **15** |
| Benchmarking | 3 |
| Cattle handling | 2 |
| Cost of production | 5 |
| Paddock Mapping | 1 |
| Record keeping | 1 |
| Using EID | 1 |
| Using computer tools | 2 |
| **Module 2 - Tactical stock control** | **17** |
| Cattle handling | 7 |
| Increased stocking rate | 1 |
| Stock Handling | 1 |
| Yard design | 8 |
| **Module 3 - Pasture Growth** | **49** |
| Decision making | 1 |
| Feed testing | 1 |
| Fodder conservation | 2 |
| Fodder crops | 1 |
| Grazing management | 1 |
| Pasture management | 14 |
| Pasture species | 8 |
| Soil testing & fertiliser | 19 |
| Weed control | 2 |
| **Module 4 - Pasture Utilisation** | **23** |
| Feed quality | 1 |
| Feed Utilisation | 6 |
| Fodder conservation | 2 |
| Grazing management | 3 |
| Paddock size | 2 |
| Pasture management | 1 |
| Rotational Grazing | 5 |
| Stocking Rate | 2 |
| Supplementary feeding | 1 |

| Module & Practice change | No |
|---|---|
| **Module 5 - Genetics** | **27** |
| Breed | 3 |
| Breeding stock selection | 6 |
| Breeding strategies | 3 |
| Bull Management | 1 |
| Genetics | 1 |
| Reviewing sale catalogues | 1 |
| Selection criteria | 1 |
| Structure | 4 |
| Using EBVs to buy bulls | 7 |
| **Module 6 - Weaner throughput** | **27** |
| Calving period/time | 9 |
| Cow condition | 2 |
| Heifer management | 8 |
| Herd Management | 1 |
| Weaner management | 5 |
| Yard weaning | 2 |
| **Module 7 - Herd Health and welfare** | **42** |
| Not defined | 1 |
| Health management plan | 6 |
| Health treatment | 1 |
| Supplements | 3 |
| Theleriosis | 1 |
| Vaccination | 6 |
| Worm control | 24 |
| **Module 9 - Meeting Market specifications** | **42** |
| Beef specs tool | 1 |
| EU accreditation | 20 |
| EU/MSA | 2 |
| Record keeping | 2 |
| Targeting markets | 5 |
| Update NLIS database | 9 |
| Use NLIS for management | 2 |
| Using EID | 1 |

The most common practice change reported in the Animal Health category was improved worm control measures in weaners and adult cattle (Table 8). Again this is a benefit that can be easily measured and made within 12 months.

### 6.9.2 Common MMfS practice changes

The most common practice changes made in the Wean More Lambs category were adoption of condition scoring as a monitoring tool in sheep, changes to the way ewe nutrition was managed during the reproductive cycle and the way ewes were managed i.e. separating singles and twin bearing ewes and managing them differently (Table 9). All of these practice

changes have the ultimate outcome of higher weaning percentage and many farmers did cite this as a major benefit (see Appendix 4: Benefits of making change).

The second most common practicechange made in the Healthy and Contented Sheepcategory wasmanagement of worms in sheep flocks, including using Faecal Egg Counts (FEC) and changing drench types (Table 9).

***Table 9: Types of practice changes made by farmers attending MMfS events.***

| Module & Practice change | No |
|---|---|
| **Module 1 - Plan for success** | **11** |
| Action plan | 2 |
| Business analysis | 4 |
| Enterprise mix | 1 |
| Re negotiate | 3 |
| Record keeping | 1 |
| **Module 2 - Market focused wool production** | **2** |
| Use wool testing information | 1 |
| Wool price monitoring | 1 |
| **Module 3 - Market focused lamb and sheep meat production** | **2** |
| Get market data | 2 |
| **Module 4 - Capable and confident farmers** | **1** |
| Labour saving | 1 |
| **Module 6 - Healthy soils** | **5** |
| Soil testing & fertiliser | 5 |
| **Module 7- Grow more pasture** | **2** |
| Grazing management | 1 |
| Pasture species | 1 |
| Feed testing | 1 |
| Feed Utilisation | 1 |
| Grazing management | 3 |
| Pasture management | 1 |
| Rotational Grazing | 2 |
| **Module 9 - Gain from genetics** | **18** |
| Breed | 1 |
| Selecting Rams | 1 |
| Use ASBVs | 16 |
| **Module 10 - Wean more lambs** | **42** |
| Condition scoring | 14 |
| Ewe management | 15 |
| Ewe nutrition | 11 |
| Lamb survival | 1 |
| Weaner nutrition | 1 |
| **Module 11 - Healthy and contented sheep** | **24** |
| Fly control | 2 |
| Health management plan | 3 |
| Seek second opinions | 1 |
| Vaccination | 8 |
| Worm control | 10 |

| Module & Practice change | No |
|---|---|
| **Module 8- Turn pasture into product** | **8** |

### 6.9.3 Full versus partial implementation

Of the 358/554(65%) farmers who made their intended change as recorded on their feedback forms, 251/358 (70%) had fully implemented the change and 107/358 (30%) had partially implemented thechange. For many that were in the midst of making a change, the change was one that took time to implement (possibly years) or was seasonal. There was no difference in these figures between the MBfP and MMfS programs.

### 6.9.4 Extent of implementation

Of the 358/554farmers that had made their intended change, 293 (82%) had implemented the change across their whole farm or enterprise. MMfS (87%) survey participants implemented slightly more change across their whole farm or enterprise compared to MBfP (79%) survey participants.

Of the 65farmers who had implemented the change as a trial or on a small scale, 26 (40%) were going to extend the change to the rest of their farm or enterprise and 20 (31%) would like to evaluate the outcome first before planning to increase the scale of the change. The differences in intention to upscale were quite different between MMfS and MBfP survey participants (Table 10).

***Table 10: Intention to upscale the adoption to the whole farm/enterprise.***

| | MBfP | MBfP % | MMfS | MMfS% | Total | % |
|---|---|---|---|---|---|---|
| Maybe - need to evaluate the outcome first | 19 | 38% | 1 | 7% | **20** | **31%** |
| No | 13 | 26% | 6 | 40% | **19** | **29%** |
| Yes | 18 | 36% | 8 | 53% | **26** | **40%** |
| **Total** | 50 | | 15 | | **65** | |

Of the 19farmers from both MBfP and MMfS who had no plans to increase the scale of their change, all presented reasons for their decision. There was no common theme to these reasons and they varied from needing to discuss the change with other family members, seasonal influences, cost, seeing no result, land not being suitable and needing to see more benefits before fully implementing the change (seeAppendix 3: Reasons for not up scaling the change).

Most (17/26 or 65%) of the 26farmers who planned to increase the scale of their change across the rest of the farm or relevant enterprise were planning to do so within the next 12 months (Table 11).

***Table 11: When are you considering increasing the scale of this change?***

| | MBfP | % | MMfS | % | Total | % |
|---|---|---|---|---|---|---|
| Within the next 12 months | 12 | 67% | 5 | 63% | **17** | **65 %** |
| 1-2 years | 4 | 22% | | | **4** | **15 %** |
| >2 years | 1 | 6% | 2 | 25% | **3** | **12 %** |
| When I get the money | 1 | 6% | 1 | 13% | **2** | **8 %** |
| Total responses | **18** | | **8** | | **26** | |

## 6.10 Benefits of implemented change

Of the 358farmers that had implemented the change, 213 (59%) said they had already benefited from the change, and most stated increased production as a benefit (Figure 10). It is interesting to observe that more survey participants in MMfS events identified 'decreased losses' as a benefit compared to those in MBfP events reflecting the difference in types of change adopted (as shown in Table 8 and Table 9).

When farmers were asked to quantify the benefits, some were able to provide figures to illustrate the benefit (see Appendix 4: Benefits of making change). However for most farmers, this question could not be answered with specific figures in the interview. We observed during the course of the phone surveys and case studies that farmers do not generally measure the benefits of change in ways that can be quantified and reported.

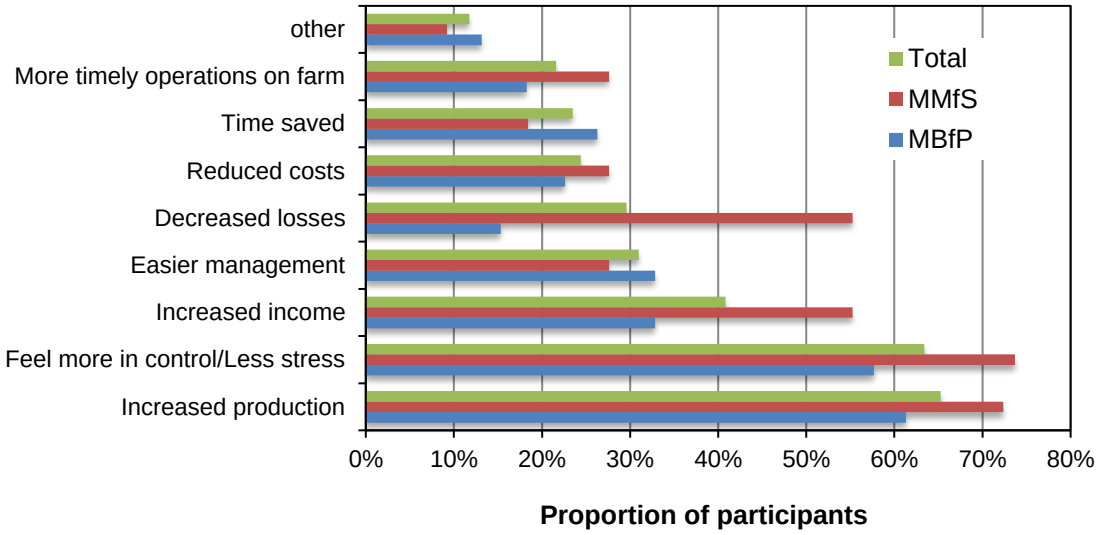



***Figure 10: Immediate benefits of making the intended change.***

## 6.11 Influences that assisted the implementation of the intended change

Farmers were asked to nominate what other resources or activities assisted them to implement the practice change aside from attending the MMfS/MBfP event. The results(Figure11)showed that discussions with other farmers (37%), being a member of an on-going group (32%) and/or discussions with other professionals (35%) were the most frequently cited resources or activities that assisted to implement the change.

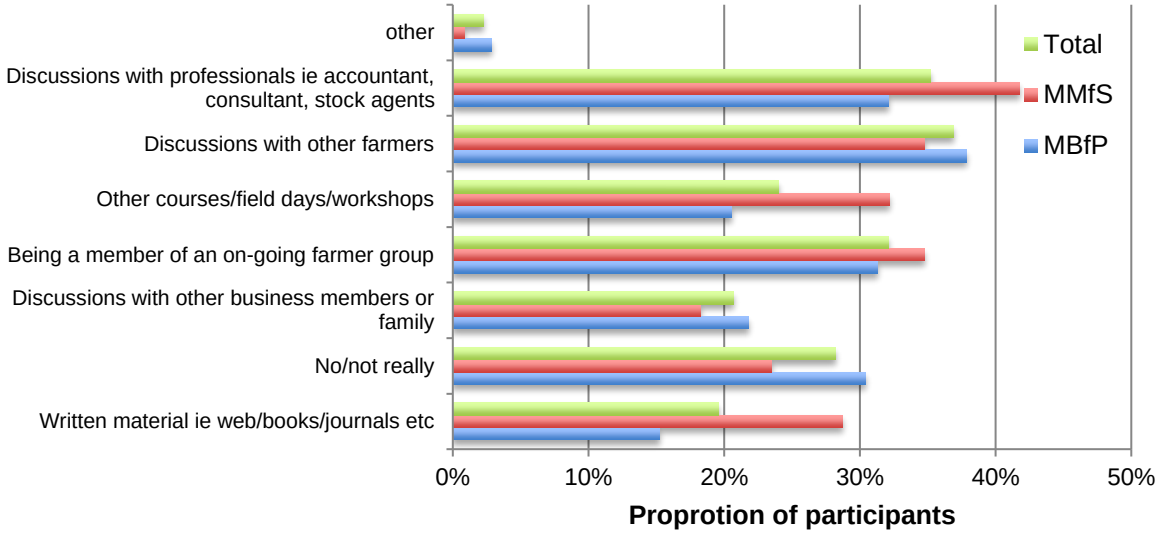



***Figure11: Other resources or activities that assisted farmers to implement change on farm.***

*Multiple responses per interviewee

Attending the event was cited by 68% of farmers (Figure 12) as the most important source of information, resource or activity that assisted to implement the change, with the second most important being a member of an on-going group (11%). There was a difference in the percentage of MMfS (57%) survey participants citing attending the event as the most important step compared to MBfP (72%). There is no easy answer to explain the difference between the two programs as the results are reflected across the spectrum of changes that were made by MMfS and MBfP survey participants. It is interesting to observe that MBfP and MMfS survey participants that had made changes tosheep/beef health and/orgenetics generally cited the event as the most important source of information compared with changes associated with pastures and marketing. However it was hard to draw assumptions from this analysis, as the sample sizes for other change categories were too small for effective comparisons and for this reason the data has not been presented in this report.

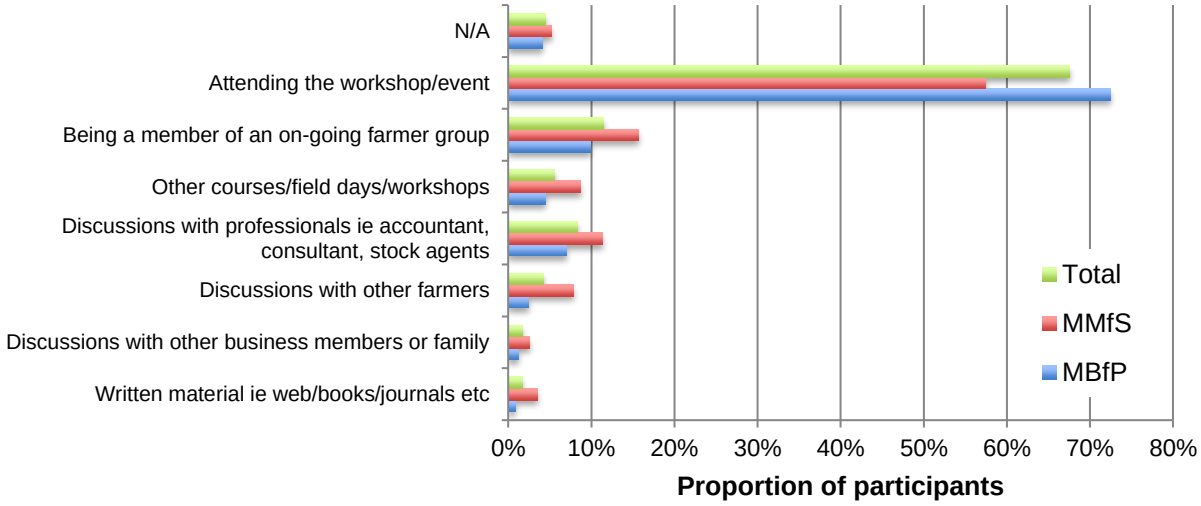



***Figure 12: Most important source of information or activity that helped to implement the intended change on farm***

The comments received highlight the importance of peer support when making changes (see Appendix 5 section 10.5). The following comments showed a sample of peoplewho farmers consult before making a change:

> *"Talking to vet and farmers that have been scanning for years as well as shearers and crutchers - ask them what other farmers are doing. The workshop motivated me to make the change."*
>
> *"I am in a BeefCheque group and find that really helpful. Also discussed the idea with my wife and worker and other farmers which was really important and helpful for effective implementation."*

### 6.11.1 Was the event enough to trigger implementation alone?

Farmers were asked if the event provided enough information/skills to implement the management practices recommended. The majority (68%) of farmers who answered this question said the event was enough, 26% said 'partly' and 6% said 'no'.These figures were similar for MMfS and MBfP survey participants.

For many survey participants the day provided motivation, inspiration and reinforced views that the change was necessary or provided them with the reassurance they were on the right track.

Farmers commented on what could have helped or did help them to implement change:

> *"Attending other events (e.g. LTEM) and discussing the changes with group members."*
> *"Would have liked more notes or take home information from the workshop or a follow-up activity some time later to review what people have done and to share or monitor results."*

*“Repetition – to practise skills – with a follow up to check it is being done properly.”*
*“More local examples of how it is done or results of local trials.”*
*“Ability to follow up with presenter afterwards or other experts.”*
*“More information on specific areas.”*
*“More time on the day for practice.”*
*“Workshop a good prompt but still needed to see in action and expert to help with implementation.”*
*“Too much content/too fast paced.”*
*“It gave usa place to start but then needed to do own work/research afterwards.”*

Often the events were the “catalyst”, “motivation” or "inspiration” to implement a change that the farmer had been planning to make for some time but hadn’t got around to it. Below is a selection of comments received:

*"It inspired me and gave me the enthusiasm - but need more information and skills to be able to implement."*

*"Workshop was a catalyst to do things better – still need to do the work."*

*"Day provided the motivation and DPI provided the follow-up advice."*

*"Had to talk to the presenter afterward to get follow-up help."*

*"Workshop was the inspiration for the change but had to do more work to get the information I needed to make the change."*

*"Workshop gave me some skills and motivation - needed to do more research afterwards."*

*"Workshop was the prompt to think about what to do and networking was great but needed to go to other professionals to work out how to implement."*

*"Workshop provided the starting point and then we had to adapt it to our system."*

*"This workshop helped us to come home and analyse the business and act on the changes."*

*"It gave us a start."*

*"It provided enough information to know where to go as a first step and how and where to get further help if needed. That's about all you can expect from a workshop given the limited amount of time - you can't expect all the answers from it but as long as they tell you where to get the answers."*

## 6.12 Other benefits from attending the activity

Farmers were asked what other benefits they experienced from attending the MMfS/MBfP activity. The results are shown in Figure 14 and Figure 15 (combined, MBfP and MMfS only). The main benefit for most survey participants was the opportunity to think more about planning for the future (79% of all survey participants) and the increase in confidence to face future

challenges (75% of all survey participants, Figure 13). For MBfP survey participants, increased in confidence was higher than the opportunity to think more about the business (75% to 73%) (Figure 15) while thinking more about the business was a benefit rated by 89% of MMfS survey participants (***Figure 14***).

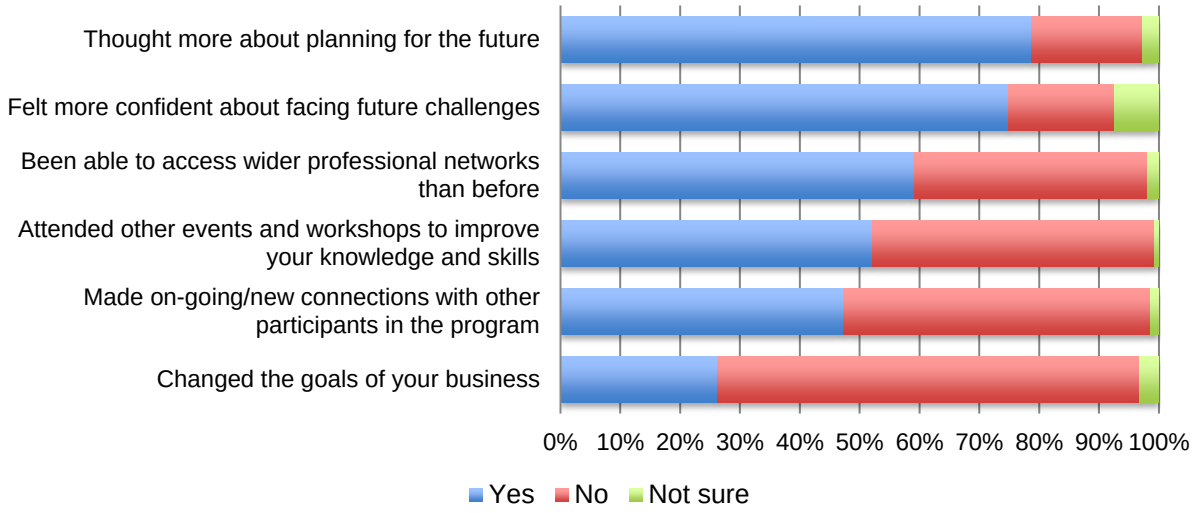



***Figure 13 Additional benefits to farmers from attending the MMfS or MBfP activity (all data combined)***

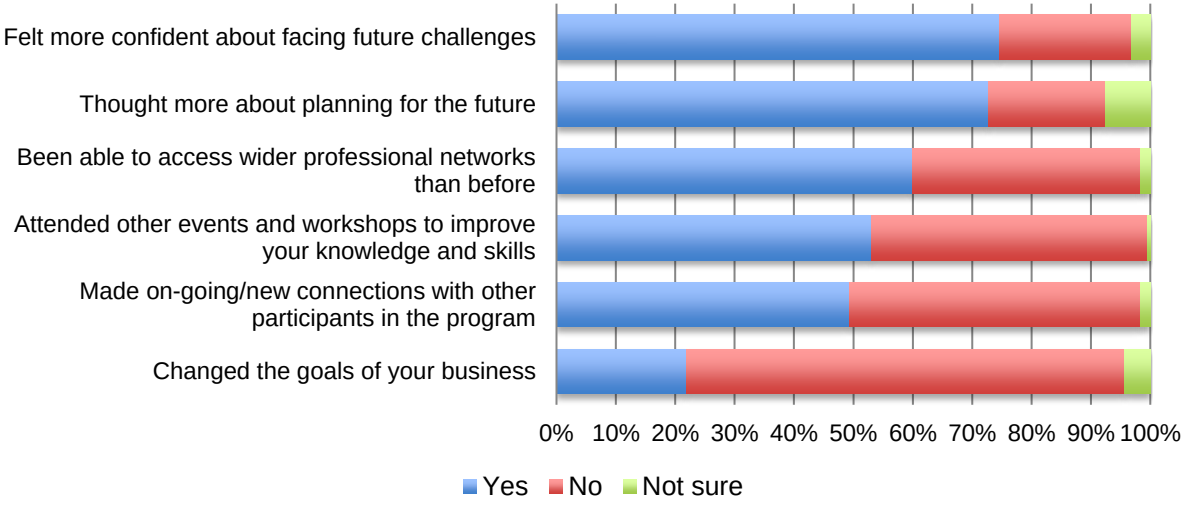



***Figure 14: Additional benefits to farmers from attending MBfP activity.***

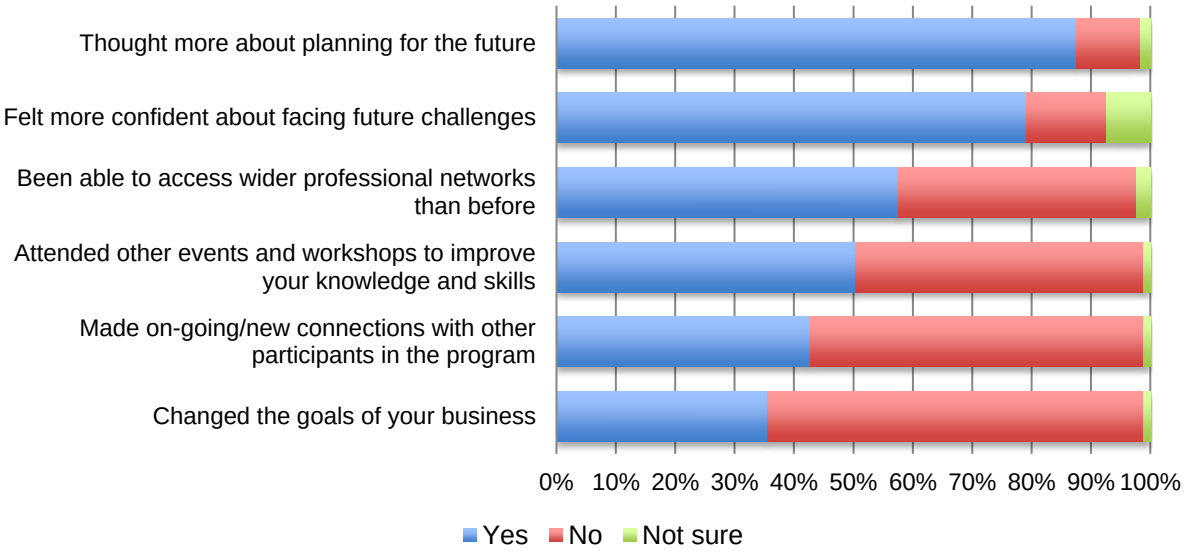



***Figure 15: Additional benefits to farmers from attending the MMfS activity***

It is important to note the following from this question:

- Farmers that said they had not made any on-going connections with other survey participants or been able to access a wider professional network and said this is because:

  "*We already knew the farmers in the workshop from other events and groups.*"

  *"Already knew the professionals involved in the workshop."*

  *"Don't really need to go to these events to be able to access wider professional networks because with modern technology it's pretty easy to track people."*

However others commented that:

"*Got to know the vet better - more willing to give her a call now."*

*"Reconnected with others that I knew."*

*"Really pleased to have built a relationship with the presenter as I was the host farm. Presenter has invited me to his farm to look at his cattle yards and help me design my own yards– big benefit."*

*"Getting emailed info from Sheep Connect - finding that useful."*

- Many farmers commented that attending the workshop was a source of motivation and assisted to put things into perspective as well as stimulating them to go to other events.

  *"I may go to the web a bit more than I used to. If I'm not happy about how something is working on the farm then I will go looking for answers."*

  *"Enrolled in BetterBeef Network since. Made an informed decision not to become EU accredited, the workshop helped."*

*"(It) was great to catch up with others on the day and re-connect with like-minded people."*

*"Always get something out of these kinds of events even if its just reinforcement of ideas or motivation to get going and do something I have been thinking about."*

*"(I) Enjoy liaising with other proactive farmers post workshop. Gave us a few new ideas."*

*"Workshop got me thinking and gave me a bit of boost."*

*"Motivating and inspirational."*

*"Being a member of the group has kept me going."*

*"(I) Often go to events just to get away from the farm for a day…there is value in that by itself but I always pick up something from the events as well."*

*"Big benefit was just talking to other farmers and realising I am not the only one going through tough times, and that in fact some people were doing it tougher than me- helps to put your own situation into perspective."*

- Some farmers made comments about the value of the events beyond making a change as a direct result of the workshop.

  *"Going to these courses is about gradually building knowledge and confidence to make change. The first time you hear about a new management strategy or idea you might take in about 20% of the info then the next time you hear about it you take in a bit more and so on until you have enough info and confidence to make the change - it doesn't just happen instantaneously, unless it's something really simple. Some ideas/knowledge sit in the back of your mind until something else happens then you suddenly remember that info and it helps you to solve a problem."*

  *"The benefit of doing these courses is that it makes you stop and think about whether you could be doing things a different and better way. If I didn't go to any courses I probably would never make any changes – I would just keep doing the same thing so think they are extremely valuable for farmers."*

  *"These courses are great but there is a big gap between learning the information presented at courses and implementing change - it's usually not a simple task to implement what is presented at these events."*

- Farmers in areas affected by cuts to DPI staff also commented that there was not the support post event or even other events to attend even though they wanted to go to more or needed more help.

  *"(I) Would like to attend other events but haven't heard of any being held in my area since that one."*

  *"(I) Would attend other events if they were on!"*

  *"There haven't been other events locally."*

*"Workshop was more about how to do things better rather than changing goals. Workshop gave me confidence that I was going to get help then it didn't manifest. Very disappointed."*

*"Not very happy. Felt - only got half the information. Didn't receive any notice of 2nd workshop day."*

*"DPI didn't seem to promote the opportunity to keep in touch with the participants."*

*"There were 3 excellent DPI people delivering the course - all gone now."*

*"(I) Would like to see more events run in my area and the only reason I haven't been to any since this one is that as far as I know there haven't been any."*

## 6.13 Changes to natural resource management

Farmers were asked 'as a result of the changes they had made on farm, had they improved their natural resource management?' Most of the changes had very little impact on water or native vegetation management but had had some effect on the management of pasture and soils (Figure 16).

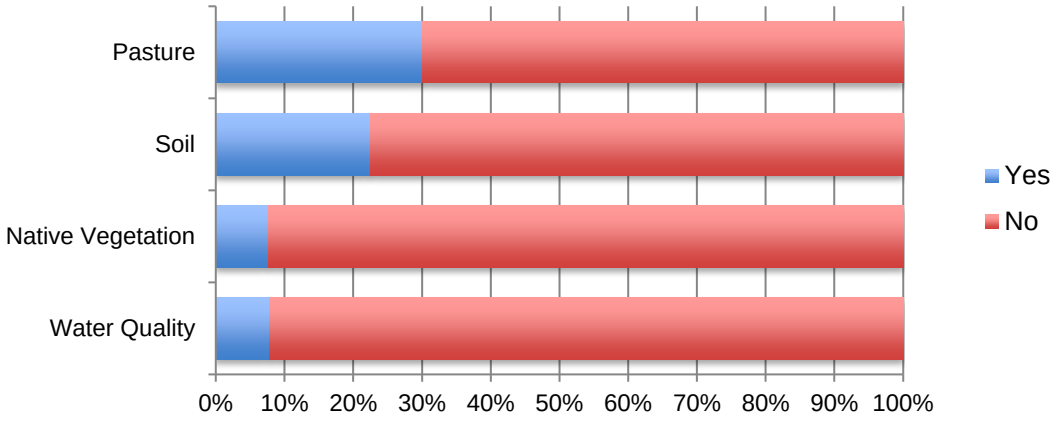



***Figure 16: Response to the question, "Have you improved your management of natural resources on farm as a result of the changes you have made on farm?"***

The comments section for this question revealed that it was only if the farmers had made a change related to the pasture system or soils that there was any affect on their natural resource management. As more than 70% of changes were in areas other than pasture and soil management or grazing management, this is not surprising.

There was little difference in response to this question between MBfP and MMfS survey participants in the areas of pasture, water quality or native vegetation resources. However more MBfP survey participants had made improvements to their soil resource (25% compared to 18% of MMfS survey participants). This is linked to more MBfP changes relating to soil management (Figure 4 and Figure 5).

Very few farmers had direct evidence of measureable improvements to their natural resources, it was more that they thought they had improved it because they had changed the way they managed it.

Many farmers also commented that they had been to other courses or events that resulted in changes to their management of their natural resources, such as being a member of Landcare or specific soils events.

## 6.14 Unintended and Additional changes on farm since completing activity

This section reports the unintended and additional changes that survey participants in the phone interviews discussed. For ease of analysis, these results have been reported separately from the main or intended changes reported earlier in this document.

**132/554 (24%) of farmers had made additional changes to the ones they had listed on their feedback forms and 54/554 (10%) made unintended (different) changes to the ones they nominated on their feedback forms 186/554 farmers total (34%)(**Figure 17). Some of these changes were extensions of the original change and some were different types of changes.

- 33/375 (9%) of MBfP survey participants and 21/179 (12%) of MMfS survey participantsmade unintended changes from the ones they listed on their feedback forms.
- 88/375 (24%) of MBfP survey participants and 44/179 (25%) of MMfS survey participants made additional changes to the ones they had listed on their feedback forms.
- The additional and unintended changes are reported in Figure 17 as combined figures. There were slightly more farmers implementing changes in the areas of grazing management and supplementary feeding as additional or unintended compared with intentional change.

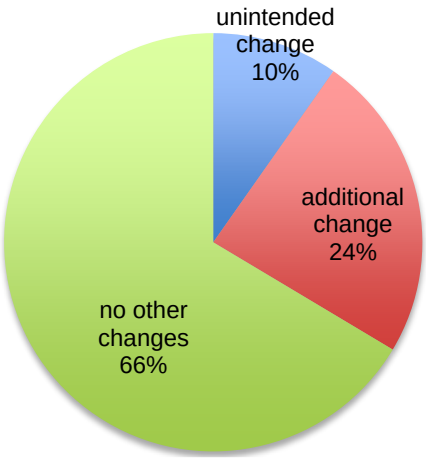



***Figure 17: Proportion of farmers making additional or unintended changes***

**Triggers to make additional or unintended change** were attending the workshop in question (44%), attendance at subsequent events (38%) and information and discussions gained from being a member of an on-going discussion group (33%) (Table 12).

***Table 12: What triggered your decision to make this additional or unintended change?***

| Reason for additional or unintended change* | MBfP | | MMfS | | Total% | |
|---|---|---|---|---|---|---|
| Information gained from attending THIS workshop/event | 80 | 61% | 21 | 33% | 101 | 52% |
| Attendance at subsequent events/field days | 28 | 21% | 30 | 47% | 58 | 30% |
| Information and discussions gained from being a member of an on-going farmer group | 33 | 25% | 16 | 25% | 49 | 25% |
| Discussion with other farmers | 31 | 23% | 17 | 27% | 48 | 24% |
| Discussion with professional advisors i.e. accountant, consultant, stock agent, etc. | 24 | 18% | 16 | 25% | 40 | 20% |
| Discussions with business partners and family | 14 | 11% | 9 | 14% | 23 | 12% |
| Information gained from internet/books/journals/specialist publications i.e. Feedback | 9 | 7% | 4 | 6% | 13 | 7% |
| Information gained from media i.e. rural newspaper/radio/TV | 3 | 2% | 1 | 2% | 4 | 2% |
| **Number of respondents** | **132** | | **64** | | **196** | |

* Multiple responses per respondent

**Scale of additional and unintended changes:** Of the farmers who made additional or unintended change, 160/196 (87%) made whole farm or enterprise changes, the rest (26/196) made paddock/trial or flock scale changes. 12/26 (46%) of these farmers had the intention of increasing the scale of the change with 17/26 (67%) intending to upscale within 12 months. There was no difference in response rates in scale of change between MBfP and MMfS survey participants. Five farmers had no intention of increasing the scale for the following reasons:

*"The fencing is all done in the wetland area."*

*"The change was really just a once off thing and not something I would do regularly."*

*"Don't need any more than one paddock for silage."*

*"It had no benefits and cost about $100/T more so wasn't worth it*."

*"I just use Angus bulls on heifers."*

**Benefits of additional and unintended changes:** 119/196 (64%) farmers said they had already benefited from the change with 69% stating increased production as a main benefit. Other benefits are shown in Figure 18. These figures are similar to those for the intended change (see Figure 10).

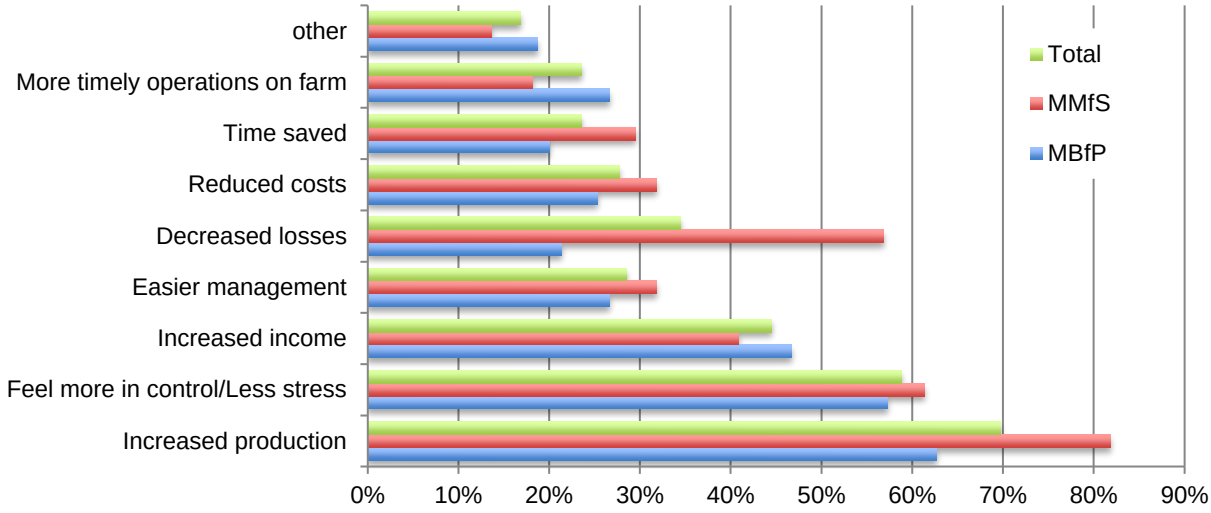



***Figure 18: Benefits of making additional/unintended changes on farm***

Of the 67/186 farmers yet to see the benefits, over half (57%) expected to see the benefits within 12 months (Figure 19). Again, increased production was cited as the main benefit expected to be experienced by all, with increased income and feeling in control/less stress the other major areas of benefit cited (results not presented).

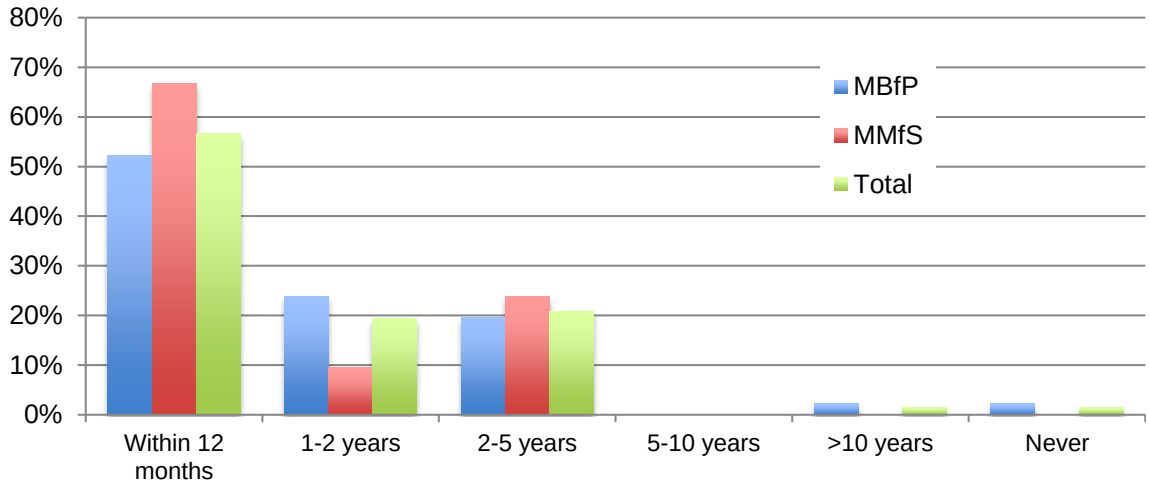



***Figure 19: Benefits of making change time frame for survey participants***

**Information or activities that assisted the change:** Again, being a member of an on-going group and discussions with other professionals assisted in implementing the change (Figure 20).

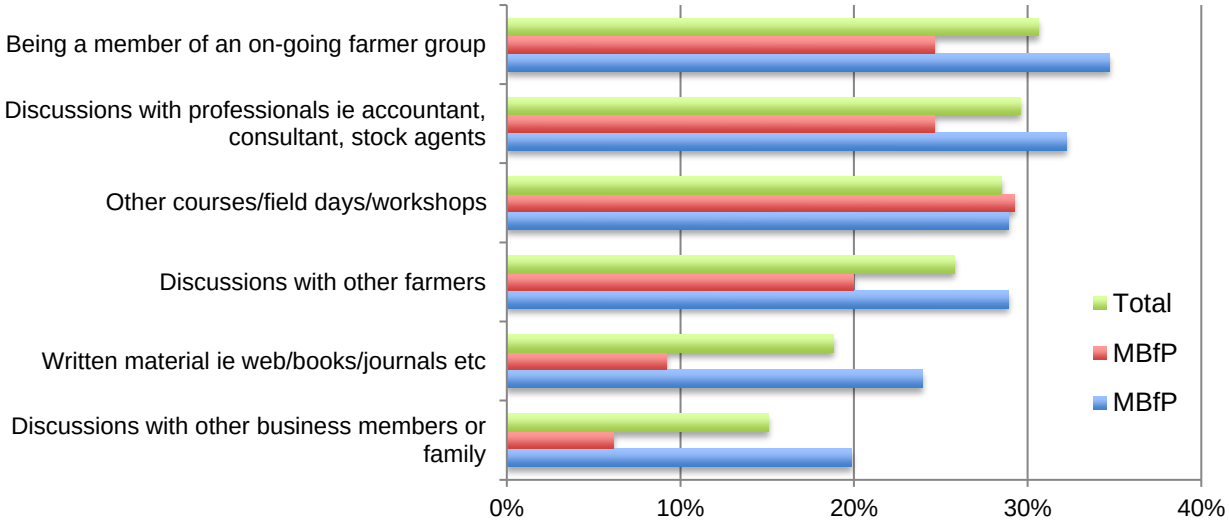



***Figure 20: Information or activities that assisted in implementing additional or unintentional changes.***

When askedwhat the most important source of additional information or activity was, 44% of farmers said it was attending the workshop or event and 20% stated it was being a member of a group (Figure 21). These results were slightly different from those observed with making the intentional change changes stated on the survey participants feedback form(see Figure 12) where up to 68% of the survey participants indicated attending the workshop or event as the most important source of information and support.

Comments received for this question highlighted that when it came to additional changes, farmers did more of their own research and follow-up with other farmers and professionals.

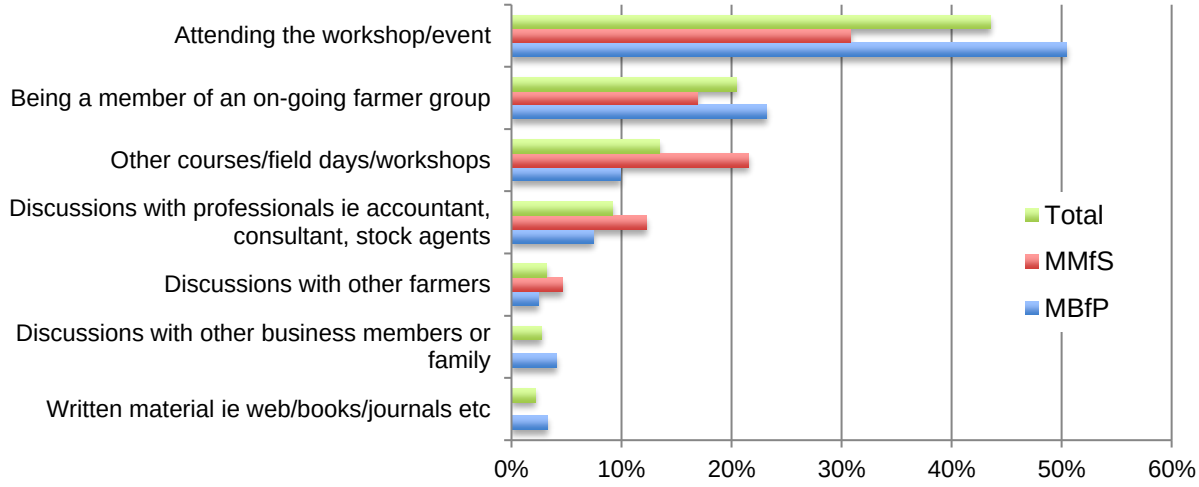



***Figure 21: The <u>most important</u> source of information or activities that assisted in implementing additional or unintentional changes.***

**Was the event enough to trigger implementation?** 71% of farmers said 'Yes', the remaining said 'No' or 'Partly'. This figure was slightly higher for MMfS survey participants (83%) compared MBfP survey participants (64%). The comments from this question revealed the following:

- That farmers need to do their own follow-up either with presenters or others to answer specific questions.
- That a follow-up session would be good in some cases to allow the opportunity to review the information and progress with changes.

## 6.15 Discussion of phone survey results

### 6.15.1 Who was surveyed in this program and how it impacts on these results

The MBfP and MMfS databases used in this project covered events held between March 2011 and June 30th 2013comprising a total of 467 MBfP events and 341 MMfS events. From these events 9,069 MBfP and 5,193 MMfSsurvey participantshad their details recorded in the databases.

The number of participants in either program surveyed represents 375/9,069 (4.1%) of the MBfP database and 179/5,193 (3.4%) of the MMfS database. The reason for the uneven percentages of participants surveyed between programs is reflective of the initial targets set by MLA (375 MBfP and 175 MMfS survey participants) which were estimates based on surveying 25% of Category C participants in each program. As the project progressed, it was evident that only surveying Category C participants was going to be problematic as not enough events had been completed in both MBfP and MMfS prior to the commencement of this project. Instead it was agreed to survey the same absolute numbers of participants from each program but to instead survey any participant that had recorded an intention to change in the database regardless of event category.

This survey only selected participants that had recorded an '**intention to change'**[7]. Therefore this data needs to be interpreted with the knowledge that only50% of the MBfP and 59% of the MMfS survey participantsindicated they intended to make a change. Of the other participants, 41% of MBfP and 31% of MMfS participants did not record an intent to change (i.e. blanks in the database) while the rest recorded that they did not intend to make a change.

There may also be some participants who said they were not sure about whether they were going to make a change or were not going to make a change, who may have done so at a later date when their circumstances have changed. There were also participants who recorded in the database that they had already made change as a result of attending an MBfP

[7]Intention to change was used to shortlist farmers as it was decided that the information obtained from the farmers would be more accurately attributed to the workshop they had attended that day rather than a rely on farmers memory of whether a change they had previously made was at an MLA funded event or some other event.

or MMfS activity. Analysis of this portion of the databases showed that 5% of MBfP and 4% of MMfS participants indicated that they had already made change as a result of previous events, while 7% of MBfP and 15% of MMfS had both made change and intended to make more change (Table 13 and Table 14). This figure is higher for participants in Category C events compared to B and A. This information is used in the next section to estimate overall adoption from MBfP and MMfS.

***Table 13: Analysis of the entire MBFP database showing participants intention to make change***

| Category | Blank (no data) | Intend to make a change | Have made a change | Have made a change & intend to make changes | No intention to make change |
|---|---|---|---|---|---|
| **A** | 45% | 45% | 1% | 1% | 9% |
| **B** | 28% | 46% | 4% | 13% | 9% |
| **C** | 16% | 31% | 23% | 21% | 9% |
| **Total** | **37%** | **43%** | **5%** | **7%** | **9%** |

***Table 14: Analysis of the entire MMfS database showing participants intention to make change.***

| Category | Blank (no data) | Intend to make a change | Have made a change | Have made a change & intend to make changes | No intention to make change |
|---|---|---|---|---|---|
| **A** | 41% | 47% | 1% | 1% | 10% |
| **B** | 22% | 45% | 5% | 18% | 10% |
| **C** | 19% | 33% | 6% | 36% | 6% |
| **Total** | **28%** | **44%** | **4%** | **15%** | **9%** |

For the purposes of this evaluation we used the whole database at the time of sampling for the last set of interviews (databases that included data up to the end of June 2013) for extrapolating the results.

### 6.15.2 How much adoption occurs on farm after an MBfP or MMfS event?

***Sixty-five per cent of the farmers surveyed made the changes they stated they intended to make at the completion of the MBfP or MMfS event they attended. A further 10% made different changes and 34% of farmers surveyed made additional changes to the one they had stated on their feedback form.***These figures when analysed for the different programs showed similar results (see 6.6Summary of results against KPIs).

Further analysis of the databases shows that 50% of MBfP and 59% of MMfS participants recorded a positive intention to change. Forty-five per cent of MBfP and 53% of MMfS participants included detail of the change they were considering making.

Extrapolating the result from the phone survey across both the databases means 33% of MBfP and 40%of MMfS participants can be assumed to have implemented some sort of change related to the event they attended. If we include the farmerparticipants that had already

implemented a change, this figure increases to ***50% of MBfP participants and 59% of MMfS participants can be assumed to have made changes as a result of attending events.***

It is not known if the participants who did not cite a change or said they weren't going to make a change did actually make any change. Similarly we do not know if the participants that had a blank record in the database against intention made any change.

The key point to note is that ***'citing an intention to change with detail is likely to lead to implementation of that intended changefor roughly 75% of participants'***. Thiscan be interpreted in a number of ways:

1. ***Publically acknowledging intention to change on a feedback form is a form of 'commitment to action' that in itself leads to the participant taking action and implementing their intended change***.

   This is a common strategy used to gain commitment to action and is supported by the work of McKenzie-Mohr and Smith[8]who give examples of using commitment strategies to alter behaviour of people in a number of environments in their book *'Fostering Sustainable Behaviour'*. Gaining commitment to action is also an underlying theory in coaching where coaches take coachees through a process of planning and committing to action verbally and then in writing with specified time frames for completion[9]

2. ***Farmers come to events of all types (Category A, B or C) with the intention to learn more about a course of action they want to take.*** When this search for information or skills is satisfied, they know what action they need to take (and can articulate it) and they then take action.

A third of participants made other changes related to the event or discussion had on the day (described here as 'additional changes'). These changes were generally more complete i.e. had fully implemented the change. For most participants, the motivation to make additional changes came from ideas discussed at the event with the other farmers, the presenter or even from other events but highlighted at this event. This shows that another proportion of participantsat events will make more change or different change from what was intended and that the event provided the motivation or inspiration to make the change.

**The recommendation therefore is to ensure that all events allow time for participants to have the discussion about:**

[8]McKenzie-Mohr, D and Smith, W (1999) Fostering Sustainable Behavior: Chapter 3 Commitment – From Good Intention to Action. ISBN:0-86571-406-1

[9] Howard, K. A. (2013), Project Report – Overcoming Barriers to Adoption. Report to MLA

- **What information/skills were useful from the event**
- **What they intend to do with the information and skills gained i.e. changes on farm they intend to make.**

The difficulty with implementing this strategy is that event organisers do not necessarily:

1. Allow enough time to factor in the discussion into their already full event agendas.
2. Have the skills to facilitate the discussion (and a means to record the results).

The decision needs to be made to value this as a vital step in the process of facilitating practice change and to cut content from the program to ensure that it happens, in addition to up skilling event organisers to ensure they have the skills to facilitate and capture the discussion. At present the feedback forms used for MBfP and MMfS events do allow this information to be recorded, the challenge is getting the event organisers *to better utilise* it and the participants to *fill it in*.

### 6.15.3 What influences adoption?

Adoption in this study was shown to be influenced by positive and negative factors[10]. The positive influences analysed in this study include:

1. The event
2. Support from others
3. Being a member of a farmer group
4. Event category

#### 6.15.3.1 The event

The event was identified by the majority of farmers (Figure 12) as the most important influence on implementing change on farm. The participants interviewed identified that the event provided valuable information and skills and motivation to make the change as well as giving them confidence that they were on the right track. Without the events, some farmers commented that they would not have had access to the information they needed to make the change, while others commented that they would have been able to source the information on the internet and by asking around, but that it would take longer to do.

However it was the motivation and support that was gained from the workshop that appeared to be the reason many farmers attended the events. This is explored further below.

[10] There are numerous other interactions that could be assessed to see what drives adoption. The ones presented in this report at the ones considered to be relevant to this study only, not adoption per say.

#### 6.15.3.2 Support from others

Farmers identified that in addition to attending the workshop, other farmers, professionals and being a member of a farmer discussion group supported them in implementing change (Figure11 and Figure 20). These factors were shown to support the decisions of the survey participants and provide additional information or experiences to help implement the change. This shows that while the event itself provided motivation and some knowledge and skill development, the support of others was a critical factor in the final implementation of the change. This comment made by one of the farmers, sums up the support he receives from others.

> *"Talking to the group co-ordinator, Brian, is very valuable as he sees a lot of farmers and has a lot of information about what other people have done that is extremely useful. Talking to other farmers is really useful to get their experiences and opinions in relation to management changes I want to make."*

#### 6.15.3.3 Being a member of a group

Being a member of a group was cited by 32% of farmers interviewed as being an important factor in assisting them to make the change. This supports the long held belief that farmer discussion groups aid in the adoption of change and approximately 50% of farmers interviewed were members of some sort of discussion group (formal or informal).

When this figure was cross-referenced to non-adoption i.e. did members of groups experience more adoption than others, it was shown that 54% of survey participants that adopted their intended change were members of on-going groups while only 38% of non-adopters were members of groups. When the additional change figure was cross referenced to being a member of a group – 61% of farmers that made additional or unintended changes were members of discussion groups compared to 42% of survey participants that did not make additional or unintended change.

> *"Being a member of the Bairnsdale BeefCheque group for 10 years has been the thing that has had the most impact. I would not have tripled my stocking rate without that knowledge and support."*

#### 6.15.3.4 Event category

Attending a Category C event has been postulated as more likely to assist adoption of changes on farm. Analysis of the amount of change adopted by the farmers interviewed showed that this was only the case for MMfS events (Table 4) when the 'intention to change' was considered.

However when the whole MBfP and MMfS databases were interrogated and the ‘already made a change’ was taken into account, more Category C participants had already made a change and/or were intending to make a change than Category B and Category C participants (Table 13 and Table 14). This was the case for both MMfS and MBfP with both programs recording 75% of Category C participants either intending to make a change or already have made a change.

#### 6.15.3.5 Negative influences on adoption

The negative influences on adoption identified in this study were linked with the following factors:

1. Season and seasonal conditions
2. State and program
3. Time since the event
4. Other factors

#### 6.15.3.6 Season and seasonal influences

The most common reason for not adopting the intended practice change was ‘not the right season/time of year to implement’ (25% of respondents). This covered a multitude of things such as season being too wet or too dry to make the change, or it being the wrong time of year (in the case of ram buying or scanning pregnant ewes) with the intent to implement the change at the right time of year. In these cases, it was evident from the discussion with the farmer that they were committed to making the change in the future. For MMfS, this figure was higher (43% of survey participants not implementing their intended change cited this reason) and for many it was due to not having the opportunity to attend a ram sale yet (in order to buy rams using ASBVs) or scan ewes/monitor ewes (needed more time to implement).

In some states, (QLD, WA and NSW in particular), many farmers reported that the season was particularly challenging to them and this was a factor in why they may have not implemented the change (although they may have cited cost, time and other priorities as their main factors rather than seasonal conditions).

#### 6.15.3.7 State and program

It was observed that for the SA MBfP survey participants, the rate of adoption was lower (46% of intended compared with the average of 65%). This was partly due to the small number interviewed in this state and program (only 26 farmers interviewed) and partly due to the nature of the events they had attended that reinforced changes they were already making. Interestingly, the events the ‘non-adopters’ attended were pasture walks, bus trips and genetics workshops and all either Category A or B workshops.

For all other states and programs, the rates of adoption were within +/- 10 percentage points of the mean.

6.15.3.8 Time since the event

It was observed that more change was recorded in the Year 1 interviews compared to the Year 2 interviews (Table 6). In particular, more change was observed Year 1 in MMfS interviews (86%) compared to Year 2 (46%). As stated earlier, Year 1 interview survey participants were selected from all events that had occurred up to June 2012. Some events had been attended over 18 months previously. This provided participants with enough time to implement their intended change.

Year 2 survey participants were selected from those that had attended events between July 2012 and June 2013. For some interview participants, the event had only occurred in the last 6 months and if their intended change was based on doing something in a particular season, then the opportunity may not have arisen yet. For others, if the change was complex, there were other things that needed to be done or thought through before it could be implemented. Also as previously noted, a larger proportion of survey participants cited 'the event reinforced the changes I am already making' than in the previous year.

There was also the observation that QLD, WA and NSW were also experiencing challenging seasonal conditions and in these states in particular, adoption figures were lower in Year 2 compared to Year 1.

6.15.3.9 Other factors

As presented inTable 7, there were many other reasons why a farmer may not have implemented their intended change. Many of the comments show an astute analysis of the reasons why, while others highlight that although the event provided them with good information, other things had priority.

This is not surprising and highlights that events have payoffs to the business that include things other than adoption of some sort of change. Reinforcing a change that is already underway helps to keep the farmer motivated and on track while making a decision not to adopt can save the farmer money on something that was not suitable to his farm or situation.Farmers also attended events for social reasons, to see what was happening and to catch up with other participants.

### 6.15.4 What do farmers adopt when attending at MBfP or MMfS event?

The majority of the changes implemented related to the following modules;Pasture Growth, Herd Health and Welfare and Meeting Market Specifications (MBfP) and Wean More Lambs (MMfS). This is a direct reflection of theevents run i.e. no MBfP or MMfS module contributed to more practice change than any other.For instance the MBfP events were mainly aligned to

the modules ‘Meeting Market Specifications’, ‘Herd Health and Welfare’ and ‘Pasture Growth’ and so were the majority of practice changes (compare Figure 4 andFigure 8). The same occurred for MMfS with the events targeted at the ‘Wean More Lambs’, ‘Gain from Genetics’ and ‘Healthy and Contented Sheep’ contributing to change in these areas (compare Figure 5 and Figure 9).

This pattern of adoption highlights that if MLA has priorities for adoption, running events focused on these priorities is guaranteed to influence practice change in a broad sense. That is,farmers will elect to adopt changes aligned to the event but not specifically the exact practices recommended or all the practices recommended.

However if a specific practice is to be altered i.e. If it is a priority to change behaviour relating to the use of OJD vaccination, then workshops explaining its use, how to use it safely and who should use it will directly influence adoption of a number of specific practices i.e.safe injecting techniques, use of Gudair and the decision to vaccinate or not.

It is much easier to measure change directly attributed to attending an event when the event is specifically designed to lead to a particular course of action i.e.Safe injecting workshops lead to the use of safe injecting techniques, EU/MSA accreditation workshops lead to survey participants becoming accredited, Ram Select workshops lead to buying rams using ASBVs, and managing scanned ewes workshops lead to scanning ewes.

However where the desired outcome is complex and requires many steps for implementation such as increasing weaning percentage, there are many practice changes that can be made to achieve this outcome and one event will not be enough to achieve this outcome alone. This understanding is not new however there are lessons in this for design of future MMfS events.

When the desired change is complex, a complex event or series of events is necessary. This has been addressed in part by categorising the events as A, B or C. However closer examination of the event log for MMfS and MBfP shows that the same workshop in different states is given a different category, and some Category C events are one day i.e.Herd Health,while others are multiple days i.e.BeefCheque is 6 days over a year.

Lifetime Ewe Management (LTEM) workshops have tackled the complex issue of increasing weaning percentage in askills based way. One of the most reported comments made by MMfS farmers interviewed is the benefit they had received from attending LTEM.

> “*The (MMfS) event provided some basic information. But it has been LTEM that has given me the skill to make the changes.”*

Thirty-two (17%) of the 189 farmers attending MMfS events commented on the value LTEM provided or their intention to join a LTEM group. There was no equivalent mentioned by farmers attending MBfP events. This example highlights that if complex change is required, events must be designed to support and reinforce skill development. On-going groups also

support this concept (thelink between being a group member and implementing change has been reported earlier in this section). The recommendation is therefore to support the development of events that create the opportunity for participants to review what they have learnt previously and build upon these skills and knowledge.

Interrogation of the MLA databases shows that there are many farmers that go to multiple events. This may in itself create more opportunities for farmers to implement change, however the way the databases have been designed means there is no simple way to determine what events an individual has attended. Re-configuring this aspect of the database would allow coordinators of events to determine who has been to what (and what changes they are making on farm) and what event topics could be delivered in which geographical areas to fill gaps or meet needs identified by the farmers.

#### 6.15.4.1 Benefits of making change

The main benefit of making change was increased production on farm. However one of the other more surprising benefits was ‘reduced stress/feeling more in control’ highlighting that this was something farmers value highly as a benefit but is not necessarily promoted by the event as something they will take home. Production and profitability benefits (rational and logical benefits) are often promoted to farmers as ‘triggers’ to change however many farmers said during the interview that feeling less stressed or worried or being more in control was an important benefit of the change. This has implications for the way practice change is promoted to farmers i.e. benefits are not just economic but improve your *quality of life*.

Many farmers struggled to provide figures to back their statements of benefits indicating that their criteria for measuring success is different from the scientific view of benefits. Comments like “the stock look better” or “there was more grass” were frequently cited. In addition, many benefits of change are hard to measure and separate from the benefits of other changes so ‘gut feel’ for benefits is all that can be obtained. Farmers also do not keep the kind of records that allow them to measure the benefits of their changes unless they were part of an event that had them record before and after figures. Again this makes it difficult to prove the benefit of a change if the farmer never actually measures benefits in those terms.

The case studies have allowed us to dig deeper into the change but again, collecting data to substantiate change after the fact is difficult and many estimations need to be made based on experimental and trial data to give the benefit scenarios. One of the things MLA could do is explore in the events, the steps to tracking the effects of changes to help farmers determine whether the changes were beneficial and how much benefit they actually derive.

# 7 Case Study Results

## 7.1 Methodology

One of the objectives of the evaluation of the Majority Markets Program was to measure the impact of farmer attendance at MMfS and MBfP events in terms of improvements in farm productivity and profitability resulting from practice change adoption, and also to identify any social/human resource and environmental impacts associated withthese changes.

The purpose of collection of case study farm data was to answer the following key questions:

1. What is the baseline level (before practice change adoption) farm productivity and profitability for case study farms?
2. What practice changes have case study farmers either made, or intend to make, as a result of attendance at an MMfS or MBfP event?
3. What do farmers see as the actual or likely costs and benefits arising as a result of making one or more practice changes?
4. What were the farm productivity and profitabilityimpacts from the practice change relative to baseline year data?
5. What dofarmers perceive the actual or expected impacts of making one or more practice changes to be on farm management/human resources?
6. What do farmers perceive the actual or expected impacts of making one or more practice changes to be on the farm environmental resources?

This report presents a summary of the findings from the case study farm evaluations for each of the areas described above.

This section provides a summary of the methodology used for selection of case study participants, determining what Key Performance Indicators (KPIs) to measure, method of data collection and KPI calculations, and key assumptions used for practice change evaluations.

### 7.1.1 Selection of Case Study Farms

#### 7.1.1.1 Initial Approach

The initial approach to selecting case study farms was to target Category C participants that had made or were making change, had good farm records and were representative of all the events, locations and types of practice changes recorded in the MMfS and MBfP databases.

Criteria for selection therefore began with selecting participants who had:

1. Participated in a Category C event and said ‘yes’ to further contact.
2. Were in the right geographic locations – see Table 1 for MLA’s desired numbers.

3. Were representative of the variety of intended practice changes recorded in the MLA databases.
4. Had sufficient enterprisescale i.e. > 100 head of cattle or > 500 sheep.
5. Had been recommended by a state coordinator or delivery staff or identifiedvia a phone survey.
6. Had reasonable farm records.

Willing participants from the phone survey were the first farmers to be contacted to be case study farms – preferably those from Category C activities. To make up the shortfall in numbers, it was proposed that at least one participant from each Category C event recorded in the database be selected, and to make up the additional numbers from new Category C events or ones not yet reported.

***Table 15:MLA case study targets by state and potential case study participants identified from phone surveys (Year 1).***

| State | Climatic zone | Target no. MMfS | MMfS potential from phone surveys | Target no. MBfP | MBfP potential from phone surveys |
|---|---|---|---|---|---|
| NSW | Cold / cool temperate | 6 | 13 | 8 | 24 |
| | Mild / warm temperate | 15 | | 25 | |
| | Rangelands / pastoral | 2 | 1 | 1 | 0 |
| | **Totals** | **23** | **14** | **34** | **24** |
| VIC | Cold / cool temperate | 12 | 9 | 22 | 28 |
| | Mediterranean | 3 | 2 | 2 | 0 |
| | **Totals** | **15** | **11** | **24** | **28** |
| WA | Mediterranean | 15 | 2 | 7 | 9 |
| | Rangelands / pastoral | 1 | 0 | 1 | 0 |
| | **Totals** | **16** | **2** | **8** | **9** |
| SA | Mediterranean | 8 | 8 | 6 | 5 |
| | Rangelands / pastoral | 1 | 0 | 0 | 0 |
| | **Totals** | **9** | **8** | **6** | **5** |
| TAS | Cold / cool temperate | **2** | **7** | **3** | **3** |
| QLD | Rangelands / pastoral | 1 | 2 | | |
| | Mild / warm temperate | 3 | 1 | **NA** | **NA** |
| | **Totals** | **4** | **3** | | |
| **Total** | | **69** | **37** | **75** | **64** |

7.1.1.2 The Reality

Overall, the time required to recruit farmers to participate in the case studies was greatly underestimated. The phone survey process proved to be the best source of potential case study farms, with Year 1 interviews providing **40** case study farmsout of a potential 101 farms identified during the interview process (Table 15). The phone survey approach allowed the consultants to establish rapport with the farmer as well as establish if the farm was suitable.

This type of engagement was crucial to establishing the trust needed to allow the consultants to collect financial records and other sensitive data from farmers.

Finding farms to fill the shortfall was tackled using the following means:

1. Contacting the state coordinators with a shortlist of Category C participants with practice changes from the database to enable them to have their local coordinators identify and recommend farms suitable for case studies. This approach was successful in Victoria, SA, and Tasmania and to some extent in QLD and WA. However it did not work well in NSW as the DPI was at the time offering redundancies to many staff and the state coordinator role had been passed to a number of new staff, all of whom were not sufficiently familiar with individual farmers to be able to make sound recommendations.

2. Where additional names were provided by the states, letters were sent to invite farmers to participate and data collectors made follow-up phone calls to determine farmer willingness and suitability to participate and to schedule data collection visits. This process resulted in another **54** case studies and had mixed success depending on the state, weather and other factors. Farmer reasons for not participating fell into the following categories:

    a. Inadequate records so felt it would be too much work to participate. This was especially relevant in the cropping zones where sheep are not a major part of the farming enterprise so many farmers did not really see any benefit in participating compared with the effort required to gather the figures.
    b. Circumstances had prevented them making a practice change that was measurable.
    c. Hard times – especially in some parts of NSW, QLD and WA the season was particularly harsh and many had destocked or taken other actions that meant they did not want to participate.
    d. Time poor – somefarmers were busy with off-farm work or other seasonal activities i.e. preparing for bull sales, sowing, harvest, cattle/lambing selling, shearing etc. and could not spare the time.
    e. Ill health – there were a number of farmers whowere going through ahealth crisis, or someone in their family was, and so they were unable to participate.
    f. Uncomfortable sharing their financial records with others.

3. In the case of NSW and WA where the short fall in case study numbers was largest, the second year of phone surveys was brought forward to try to recruit additional famers. This yielded more potential farms resulting in 10 additional case studies. In the second year of phone surveys, fewer farmers had made their intended changes or their change was one that would be hard to quantify so there were fewer potential farms to select from compared to in Year 1 of the phone surveys. Also, many farmers

had only attended the workshop within the last year so had not started to make their changes yet.

4. Remote data collection was used to collect case study data from the farmers in QLD. This worked well, but was slightly hampered by the severe drought being experienced by many in the main sheep zones.

5. The final strategy was to contact ex-DPI staff in NSW to have them collect data from farmers they had delivered workshops to when in DPI's employ. This strategy was good in theory however many of the consultants found the process of recruiting the farmers more difficult than first anticipated, and only one consultant managed to collect more than one case study (a total of 14 case studies resulted from using these consultants, however 7 of these farms had already been identified by the year 2 phone surveys).

A factor which assisted in encouraging farmers to be involved in the project was the opportunity to benchmark their baseline data against other project participants. All but two of the case study farms requested a benchmarking analysis. Farmers were provided with a hardcopy report which presented a series of tables and graphs showing their farm performance for each enterprise and over the whole farm compared to averages and top 20% averages for their state, for the whole group, and for the Victorian Livestock Industry Farm Monitor Project.

The provision of the opportunity for case study farms to benchmark baseline data provided several benefits for the project:

1. It served as a 'carrot' to encourage farmers to be involved in the project.
2. It provided a second opportunity for farmers to check their data for accuracy.
3. It provided farmers with useful information on the relative performance of their business and therefore added value to their involvement in the project.

Several farmers commented on the value of the benchmarking analysis, withexample quotes provided below:

*"I must thank you so much for the report - it was confronting to see our lot compared to others however we have room to improve."*

*"I really enjoyed the opportunity to be involved in the farm comparison. It confirmed what I thought for a while were inefficiencies in my system. It was good to be able to have that confirmed and quantified with your data."*

*"Comparing myself to other farms was a real eye opener in terms of seeing how much is possible for improvement in key areas. It was really informative."*

*"Thank you for the comprehensive and very readable way the data was compiled. It is very interesting and unfortunately a bit depressing in my circumstance. But as farmers we are always optimists and on those figures the only way is up!"*

*"The information is very valuable and I am very grateful for the time and effort you have taken in putting it all together."*

*"Very interesting and valuable reading. We really appreciate your input and will maintain contact with you."*

*"Really glad we had the opportunity to benchmark as part of this project. It has been very valuable for us."*

***Table 16: Completed baseline data collection relative to targets by state.***

| | | Completed* | Targets | Gap |
|---|---|---|---|---|
| **VIC** | MMfS | 15 | 15 | |
| | MBfP | 24 | 24 | |
| **SA** | MMfS | 9 | 9 | |
| | MBfP | 6 | 6 | |
| **TAS** | MMfS | 2 | 2 | |
| | MBfP | 3 | 3 | |
| **QLD** | MMfS | 3 | 4 | 1 |
| **NSW** | MMfS | 11 | 23 | 12 |
| | MBfP | 23 | 34 | 11 |
| **WA** | MMfS | 7 | 16 | 9 |
| | MBfP | 8 | 8 | |
| **Total** | MMfS | **47** | **69** | **22** |
| | MBfP | **64** | **75** | **11** |
| | | **111** | **144** | **33** |

* A total of 894 MBfP participants and 533 MMfS participants were contacted for either phone interviews or case studies. This represents 22% of the MBfP and 15% of the MMfS databases.

Table 16above shows the final case study numbers for each state, and figure 2 below presents the locations of these farms.


***Figure 22: Location of MBfP (blue) and MMfS (red) case study farms.***

### 7.1.2 What to Measure

The decision was made to evaluate the impact of practice change adoption at the whole farm level rather than just at the enterprise level. This approach resulted in the need for more data to be collected, analysed and managed. However, it was considered to be essential in terms of allowing us to capture the impacts of management changes where more than one enterprise was impacted upon, and to calculate productivity and profitability benefits over all resources utilised to manage the business.

The process of identifying what KPIs to measure for case study farms at both an enterprise and whole farm level was based on the flow of impacts of key drivers of productivity and profitability on whole farm profit.

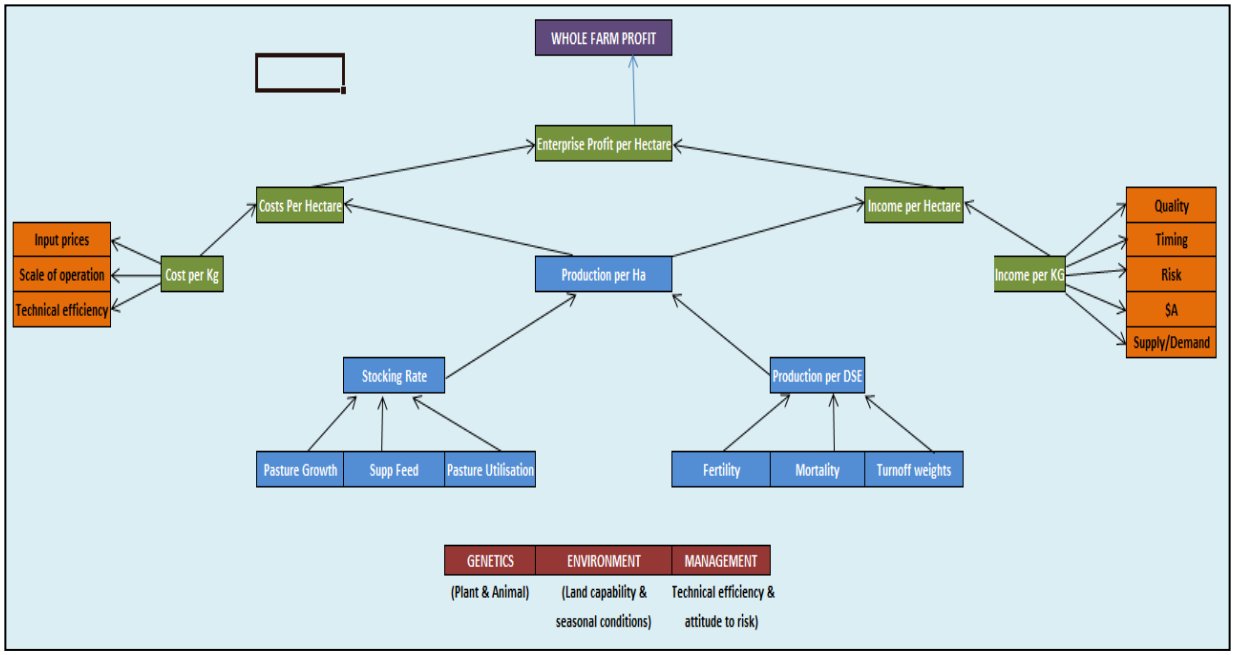



***Figure 23: Summary of livestock enterprise profitability and productivity indicators.***

The diagram in Figure 23was developed as a guide to identify KPIs which could be used to measure the impact of on farm practice changes as they impacted on each of the key profit drivers in the diagram. Not all key profit drivers could be measured, as farmers didnot record appropriate data for doing so. For example, there were no KPIs for directly measuring pasture growth or pasture utilisation, thus stocking rate and production per hectare were used as indirect indicators for measuring changes in these underpinning profit drivers. In addition to the range of partial productivity KPI's generated, total factor productivity indexes were also calculated for each farm.

A summary of the baseline data (before practice change adoption) for the main KPIs at both the enterprise and whole farm levels is provided in the results section of this report.

### 7.1.3 How to Measure KPIs

It was determined that the most effective method for collecting the quantity of data required for the evaluation with the greatest degree of accuracy and least imposition onfarmerparticipants was via on-farm visits. This method worked well and in most cases the bulk of data required was collected during thevisit, with only a small amount of information being subsequently provided or checked via email and phone. All farms were provided with either a hardcopy or electronic copy of both their raw data and their calculated KPIs and were asked to check data for accuracy. Data collected for most case study farms was for the 2011-2012 financial year, however some of the more recent data collected was for the 2012-2013 year (12 farms).

The method used to calculate both enterprise and whole farm KPIs was consistent with that used for the Victorian Department of Environment and Primary Industries' Livestock Farm Monitor Project.

The key assumptions made when calculating baseline case study farm KPIs are described and presented in turn below. Note that all of these assumptions and standard values used are consistent with those used for the Victorian Livestock Industry Farm Monitor Project.

***Owner/operator and Family Labour Allowance***

The owner/operator is categorised as the primary decision maker(s) associated with the business, and family labour represents additional family members who provide unpaid labour for the business. The latter is typically represented by a female partner, a semi-retired father or father-in-law and/or children.

The standard wage used for unpaid family labour is represented by the Pastoral Industry Award wage for a Level 8 Farm and Livestock Hand. The standard wage used for owner/operator labour is 1.5 times the family labour allowance. These standard wages are allocated pro-rata for actual time worked in each farm enterprise.

***Value of Fodder and Grain Produced***

Where there was a change in grain or fodder inventory and/or where home grown fodder or grain was fed to livestock, the value was calculated based on the same price per tonne for any that was either purchased or sold by the enterprise, or where no sales or purchases occurred, on a standard value per tonne.

Standard values for a range of fodder and grain types were sourced from the Australian Fodder Industry Association and were provided via the Victorian Department of Environment and Primary Industries for the 2011-2012 year, and from Rural Finance for the 2012-2013 year.

***Value of Livestock Inventory***

Livestock inventory was valued using a range of standard values for various livestock classes provided by Meat & Livestock Australia. These values are based on averages for sales of each livestock type in each state during the relevant financial year.

For breeding stock, a breeding value of $50 per head was added to the MLA standard value for ewes and $200 per head for rams, and an additional value of $5 per head was added to Merino sheep for every micron below 20 to account for the higher value of these sheep. For cattle, a breeding value of $130 per head was added to the average MLA prices for cows, and $525 breeding value was added to the MLA bull values.

Standard values allocated are based on sheep and cattle live weights and micron for Merino sheep. These values are intended to be representative of averages for a flock or herd, as some stock will be valued well above the standard values while the poorer and older animals

within a flock or herd will be valued much lower. In the case of cattle and sheep studs, farmers were asked to provide their own estimates of values for each class of livestock.

### 7.1.4 Calculating Impacts of Practice Change Adoption

#### 7.1.4.1 Data Collection Process

Case study farmers were asked during the farm visit in 2013, to identify the actual or expected costs and benefits associated with implementation of their practice change. They were also asked to identify any impacts on animal welfare, management/human resources and the environment. A draft economic evaluation of each practice change was completed based on actual farm data or where impacts had yet to be seen, expected data. Where relevant, research data was also used to identify likely production impacts of management changes.

Case study farmers were re-contacted between February and April 2014to collect any additional information they had observed or recorded since the initial farm visit. Where required, changes were made to the original practice change assumptions where expectations or actual results had differed from the initial expectations. A final economic evaluation of practice change impacts was then provided to farmers for validation and approval as being an accurate representation of practice change outcomes.

Some case study farms had implemented, or were planning to implement, more than one practice change. Where possible these changes were evaluated separately to isolate the impacts of each change, then the benefits and costs of each were aggregated at the whole farm level. For the 47 MMfS case study farms, a total of 56 separate practice changes were evaluated. For the 64 MBfP case study farms, a total of 70 separate practice changes were evaluated.

#### 7.1.4.2 Long Term Average Impacts of Practice Change Adoption

Farmers were asked to identify long term average production impacts of their practice changes forthree scenarios:

1. The most likely scenario.
2. The best-case scenario.
3. The worst-case scenario.

For the most likely scenario, five year average key input and output prices were utilised, with these values generally being varied by +/- 20% for best and worst-case scenarios unless otherwise specified by the farmer.

In evaluating the long term average impacts of practice change adoption, capital costs were accounted for, as was the impact of time in terms of the incremental flow of costs and benefits accruing as a result of adoption of changes where the full benefits and costs occurred over

more than one year. Discounted cash flow analysis was employed to evaluate the costs and benefits of these longer-term management changes using a discount rate of seven per cent.

The final results of the long term average impacts of practice change adoption on case study farms are presented as equivalent annuities of additional annual costs, gross income, and net income per farm and per hectare for each of the three scenarios.

#### 7.1.4.3 Impacts of Practice Change Adoption Relative to Baseline Year Data

In addition to generating long-term average expected costs and benefits resulting from practice change adoption, a comparison was also made between KPIs for the baseline year (before adoption) farm data and the steady state, post adoption situation. This involved using the production impacts of practice change adoption identified for the ***most likely long term average scenario*** in terms of changes to average input and output quantities resulting from practice change adoption.Baseline year input and output prices were used for both before and after practice change adoption unless they were different due to the practice change adopted.

This analysis allowed for a direct comparison of KPI's in the baseline year (before adoption) and 'steady state' after adoption scenario. A comparison of before and 'steady state' after practice change adoption also allowed for calculation of changes in total factor productivity (TFP) for each farm due to practice change adoption.TFP growth has been calculated as a ratio of the TFP index of the before practice change adoption baseline scenario compared to the scenario where the practice change has been fully implemented. Indexes were calculated using the Fisher procedure where the Fisher index is defined as the geometric mean of the ratio of the Laspeyres and Paasche input and output quantity indices according to the methodology described by ABARES (2011) and summarised below:

A Fisher quantity index ($Q_{0t}^{F}$) calculated for *N* inputs (or outputs) between the base period (period *0*) and the current period (period *t*), is calculated as the geometric mean of the Laspeyres ($Q_{0t}^{L}$) and Paasche ($Q_{0t}^{P}$) indexes:

$$Q_{0t}^{F} = \sqrt{Q_{0t}^{L}\, Q_{0t}^{P}}$$

The Laspeyres quantity index, calculated for *N* inputs (or outputs) between the base period (period *0*) and the current period (period *t*), is given by:

$$Q_{ot}^{L} = \frac{\sum_{i=1}^{N} p_{io} q_{it}}{\sum_{i=1}^{N} p_{io} q_{io}} = \sum_{i=1}^{N} W_{io} \frac{q_{it}}{q_{io}}$$

Where$q_{i0}$and$p_{i0}$ are the quantity and price of input (or output) *i* in the base period, $q_{it}$and $p_{it}$are the quantity and price of input (or output) *i* in the current period, and

$$W_{io} = \frac{p_{io} q_{io}}{\sum_{i=1}^{N} p_{io} q_{io}}$$

is the share of the *i*th item in the total value of inputs (or outputs) in the *base* period.

The Paasche quantity index, calculated for *N* inputs (or outputs) between the base period and current period, is given by:

$$Q_{ot}^{P} = \frac{\sum_{i=1}^{N} p_{it} q_{it}}{\sum_{i=1}^{N} p_{it} q_{io}} = \{\sum_{i=1}^{N} W_{it} \left(\frac{q_{io}}{qit}\right)\}^{-1}$$

Where

$$W_{it} = \frac{p_{it} q_{it}}{\sum_{i=1}^{N} p_{it} q_{it}}$$

is the share of the *i*th item in the total value of inputs (or outputs) in the *current* period and all other variables are as stated above.

In calculating the change in TFP growth between years for case study farms, all inputs and outputs not relating to the adoption of the practice change were held constant in order to isolate the impact of the practice change adoption. TFP growth was calculated both as total growth regardless of number of years required to fully implement the change and reach steady state production levels, and also as an average annual growth where the total figure has been divided by the number of years taken to reach full implementation of the practice change for each farm.

## 7.2 Results

The results of the case study farm evaluations are presented in the following sections below:

1. **Baseline (before adoption) farm case study KPIs.**

   This section presents the average, median and group range for farm productivity and profitability KPIs for case study farms in the baseline (before adoption) year. In addition to KPI data, information on farm enterprise mix, grazing management strategies, and farmer age profile is also presented. Data is provided separately for MBfP and MMFS case study farms.

2. **Impact of practice change adoption on farm KPI's relative to the baseline year.**

   This section provides information regarding the type and relative frequency of practice changes implemented by case study farms. It also presents a summary of the types of

event category attended by case study farms, and the frequency of MBfP and MMfS modules delivered at these events.

This information is followed by the changes in farm productivity and profitability KPIs relative to the baseline data as a result of practice change adoption. The analysis holds all baseline year farm input and output data that was not impacted by implementation of the practice changeconstant.It uses baseline year input and output prices for any changes in quantities of inputs and outputs resulting from practice change adoption, unless prices were different as a direct result of practice change adoption. This analysis provides a comparison of what the farm productivity and profitability would have been in the baseline year in a steady state post adoption scenario. This comparison also allowed for the calculation of total factor productivity (TFP) growth due to practice change adoption.

3. **Long term average impacts of practice change adoption on farm profitability.**

While section 2 above presents the impacts of the steady state, fully adopted practice change scenario relative to the before adoption scenario, this section considers the impact of practice change adoption using long term average input and output prices as opposed to baseline year input and output prices. Long term cost and benefit impacts of practice change adoption are presented as three scenarios, a most likely, a best case and a worst-case scenario. In general, the most likely scenario input and output prices are varied by +/- 20% for the best and worst case scenarios unless otherwise specified by the farmer. The variation in input and output quantities for the best and worst case scenarios are based on a combination offarmer expectations, consultants experience and knowledge in consultation with farmers, and research data.

### 7.2.1 Baseline Case Study Data

Baseline data is presented below separately for MBfP and MMfS case study farms.

#### 7.2.1.1 MBfP Case Study Farms

The following tables and figures present a summary of the baseline data collected for the 64 MBfP case study participants.

***Table 17: MBfP case study farm general parameters.***

| Parameter | Average | Median | Range |
|---|---|---|---|
| Farm size (effective hectares) | 1,034 | 548 | 66 – 5,707 |
| % Improved pastures | 76 | 99 | 0 - 100 |
| Cattle numbers* | 704 | 515 | 0 – 1,943 |
| Sheep numbers | 1,116 | 0 | 0 – 12,034 |
| Area cropped (Ha) | 21 | 0 | 0 - 327 |
| Av. annual rainfall (mm) | 833 | 800 | 528 – 1,317 |

* One farm had no cattle as attended a BWBL event funded by MBfP.

The range in values for general farm parameters presented in Table 17is large and reflects the broad range of types of businesses included in the case study group in terms of size, enterprise mix and rainfall. Note that one MBfP case study farm had no cattle as the event attended was a BESTWOOL/BESTLAMBgroupevent in Victoria but was funded by MBfP.

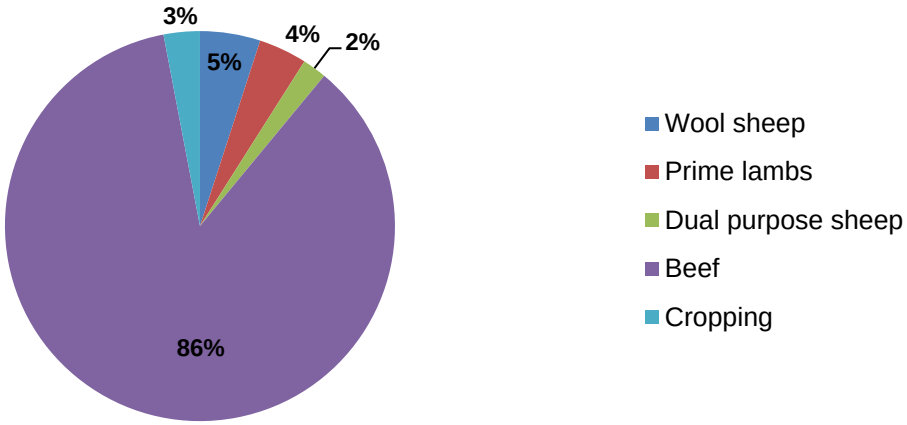



***Figure 24:MBfP case study farms average enterprise mix.***

Figure 24presents the average enterprise mix based on percentage area utilised for MBfP case study farms, and reveals only a relatively small proportion of sheep and cropping enterprises. Approximately 60% of case study farms were beef only businesses, 18% had a cropping enterprise, and 28% had at least one sheep enterprise. The beef enterprise was the largest by area of the farm utilised on all but eightper cent of case study farms.

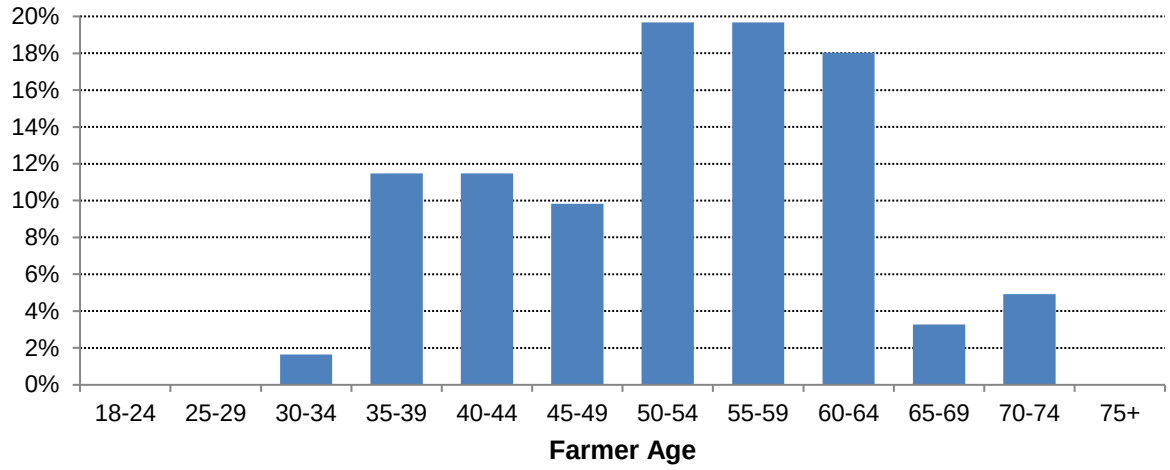



***Figure 25: Percentage of MBfP case study participants in each age range.***

Figure 25above presents the age range distribution for MBfP case study farms. One third of participants were between the ages of 35 and 49, and 57% were aged between 50 and 65. There were no farm managers or owner-operators under the age of 30 or over the age of 74.

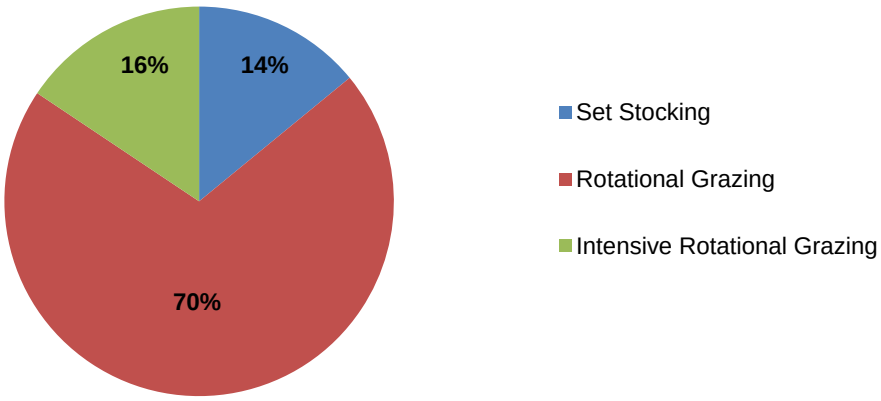



***Figure 26: Percentage of MBfP case study participants utilising each grazing management strategy.***

Participants were asked to identify the main type of grazing management strategy utilised onthe farm.

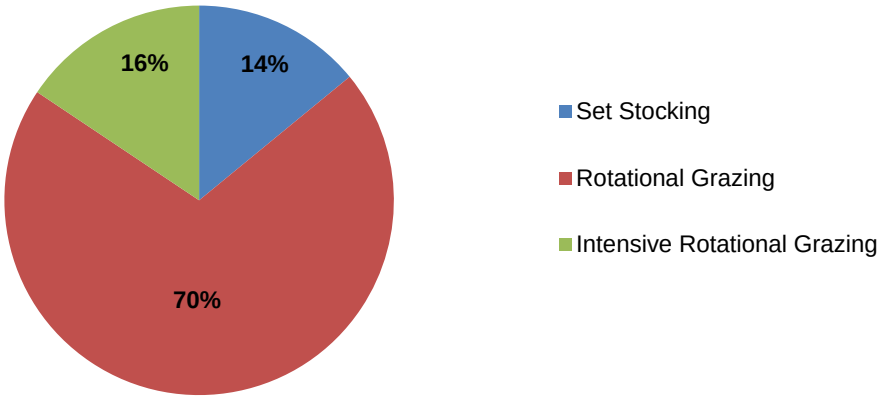



Figure 26reveals that the vast majority indicated use of rotational grazing as opposed to set stocking or intensive rotational grazing systems. Seventyper cent of all intensive rotational grazing systems were on Victorian farms.

Beef enterprises included in the case study sample ranged from intensively managed cow/calf operations selling weaners or growing young stock out to various ages and weights, beef trading systems, low intensity breeding operations and high value stud enterprises. These businesses weremarketing their product in a variety of ways including via the traditional saleyard system, direct to feedlots/abattoirs or direct to the consumer.
Given the large geographical spread in farm locations and environmental conditions, and the variety of management and types of systems operated, there is a large spread in the range of KPIs for both production and economic parameters recorded in the baseline data. This range, along with group average and median KPI data, is provided in Table 18 and Table 19.

***Table 18: Beef enterprise production KPIs.***

| KPI | Average | Median | Range |
|---|---|---|---|
| Kg beef produced (LW / Ha) | 225 | 194 | 18 - 625 |
| Kg beef produced (LW/Ha/100 mm rain) | 28 | 25 | 2 - 93 |
| Kg beef produced (LW / DSE) | 18 | 17 | 8 - 36 |
| Kg hay/grain fed per DSE | 25 | 10 | 0 - 152 |
| Calf marking % | 88 | 90 | 66 - 112 |
| Av. sale weight (LW/Hd) | 433 | 427 | 242 - 622 |
| Stocking rate (DSE/Ha) | 12.6 | 11.9 | 1.8 - 31.8 |
| Stocking rate (DSE/Ha/100 mm rain) | 1.6 | 1.5 | 0.2 - 3.3 |
| Labour efficiency (DSE/labour unit) | 4,705 | 4,483 | 863 - 10,361 |
| Labour efficiency (Ha/labour unit) | 549 | 373 | 44 - 3,653 |

Table 20reveals the wide range in stocking rate intensity and beef production for case study farms. Stocking rate was generally aligned with land capability however in some cases properties were understocked due to recent land purchases or drought conditions. Labour efficiency on some of the smaller farms was very poor.These were typically older farm managers and family members who had made a lifestyle choice to run a small property full time.

***Table 19: Beef enterprise profitability KPIs.***

| KPI | Average | Median | Range |
|---|---|---|---|
| Trading income per Ha | $410 | $332 | $54 - $1,465 |
| Enterprise costs per Ha | $180 | $111 | $7- $944 |
| Gross margin per Ha | $230 | $192 | -$45 - $961 |
| Trading income per DSE | $31.97 | $29.79 | $9.32 - $70.68 |
| Enterprise costs per DSE | $12.78 | $11.52 | $1.31 - $38.64 |
| Gross margin per DSE | $19.19 | $20.54 | -$7.09 - $43.90 |
| Trading income per Kg LW produced | $1.84 | $1.71 | $0.52 - $4.86 |
| Cost of production per kg LW | $2.43 | $2.30 | $0.72 - $5.45 |
| Profit per kg LW produced | -$0.59 | -$0.45 | -$3.30 - $1.59 |

Table 19 reveals that average gross margin per hectare was $230, with gross margin per DSE at just over $19 per DSE. These figures are very similar to the 43-year average South West Victorian Farm Monitor Project beef enterprise gross margin figures of $240 per hectare and $18 per DSE. Whereas enterprise gross margin only accounts for enterprise costs, the cost of production figure also includes the beef enterprise share of overhead and owner/operator allowance costs. On average, cost of production per kg of beef produced was $2.43, which was 59 cents higher than average trading income per kilogram of $1.84, thus resulting in an average loss per kilogram of beef produced. Profit per kilogram ranged from -$3.30 up to $1.59, withonly 38% of case study farms returning a positive operating profit for their beef enterprise in the baseline year. The farms with high cost of production data were typically smaller farms with high labour and overhead costs and/or farms that fed very high amounts of supplementary feed during the season measured.

***Table 20: MBfP whole farm KPIs.***

| KPI | Average | Median | Range |
|---|---|---|---|
| Gross income per Ha | $509 | $395 | $67 - $1,892 |
| Enterprise costs per Ha | $217 | $155 | $7 - $949 |
| Overhead costs per Ha | $211 | $142 | $23 – $888 |
| Owner/operator allowance per Ha | $190 | $103 | $0 – $846 |
| Operating profit per Ha | -$110 | -$35 | -$1,044 - $469 |
| Return on assets (%) | -0.5% | -0.6% | -10.0% - 8.9% |
| Cost structure (%)* | 85% | 81% | 32% - 225% |

*Enterprise and overhead costs as a % of gross income.

Whole farm operating profit ranged from about negative $1,000 per hectare up to $469 per hectare but was negative on average. Fortyper cent of farms recorded a positive whole farm operating profit per hectare during the period measured. Owner/operator allowance was zero for farms where all labour were employed.

Return on assets ranged from minus 10.0% up to 8.9%, with negative average and median figures. Only sixteen per cent of case study farms recorded a return on assets above the 43-yearSouth West Victorian Farm Monitor Project average of 4.1%.

#### 7.2.1.2 MMfS Case Study Farms

The following tables and figures present a summary of the baseline data collected fromthe 47 MMfS case study participants.

***Table 21: MMfS case study farm general parameters.***

| Parameter | Average | Median | Range |
|---|---|---|---|
| Farm size (effective hectares) | 2,384 | 1445 | 100–16,330 |
| % Improved pastures | 60% | 66% | 0%-100% |
| Cattle numbers | 179 | 0 | 0 – 1,266 |
| Sheep numbers | 5919 | 3555 | 404 – 44,497 |
| Area cropped (Ha) | 559 | 91 | 0 – 4,738 |
| Av. annual rainfall (mm) | 539 | 538 | 300 – 920 |

As with the beef case study farms, the range in values for general farm parameters presented in table 21is large and reflects the broad range of types of businesses included in the case study group in terms of size, enterprise mix and rainfall.

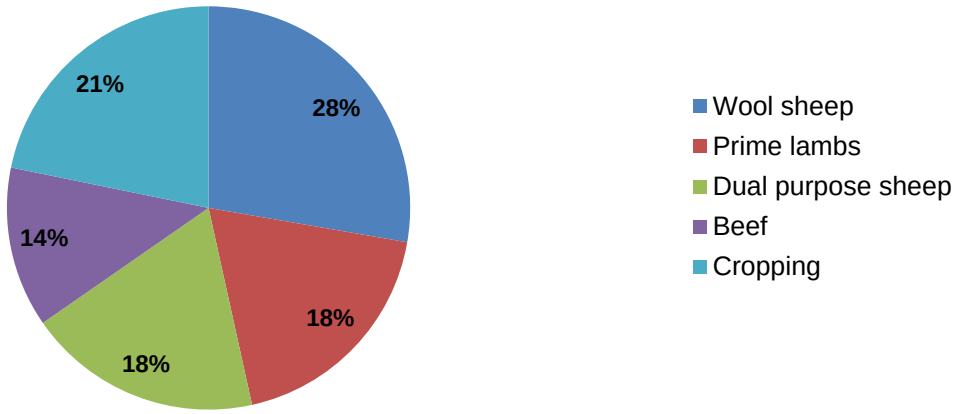



***Figure 27: MMfS case study farms average enterprise mix.***

Figure 27presents the average enterprise mix based on percentage area utilised for MMfS case study farms and reveals the mixed enterprise structure of the case study farms involved. Only 17% of case study farms were sheep only businesses, 60% had a cropping enterprise, and 43% had a beef enterprise. Fifteen per cent of farms had a cropping, a beef and at least one sheep enterprise, and nine per cent of farms had more than one sheep enterprise. For two-thirds of case study participants the sheep enterprises were the largest by area of the farm utilised.

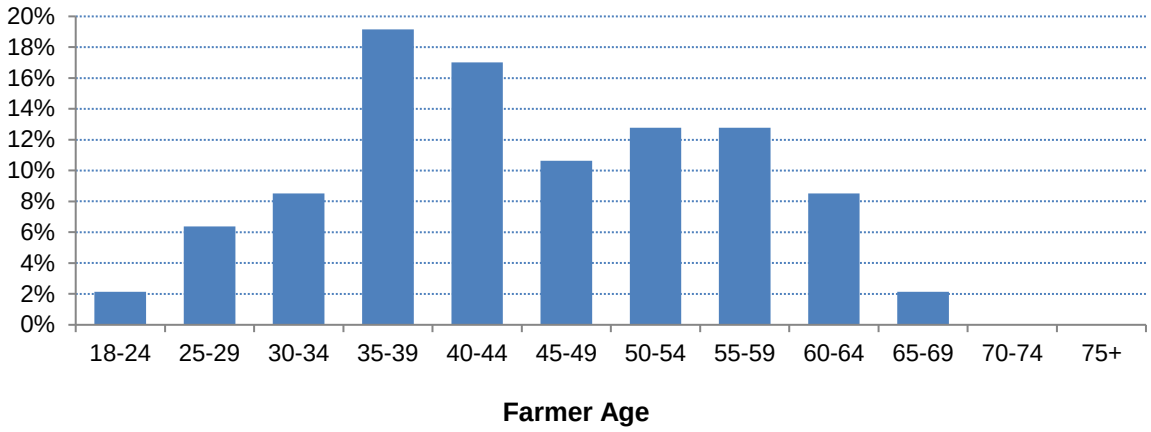



***Figure 28: Percentage of MMfS case study participants in each age range.***

Figure 28presents the age range distribution for MMfS case study farms. The age distribution for these farms was much younger than for the beef case study farms.Just over a third of participants were between the ages of 35 and 44, and 17% were aged below 35. There were no farm managers or owner-operators over the age of 69, however there were older family members working on many farms with a younger family member being the main decision maker.

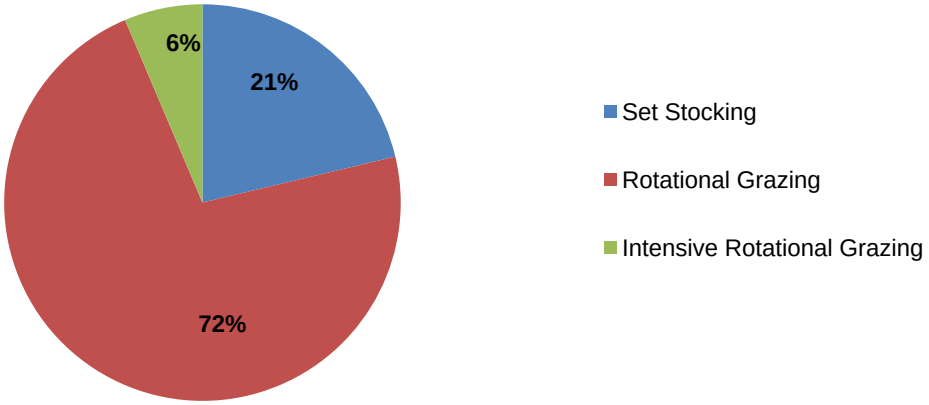



***Figure 29: Percentage of MMfS case study participants utilising each grazing management strategy.***

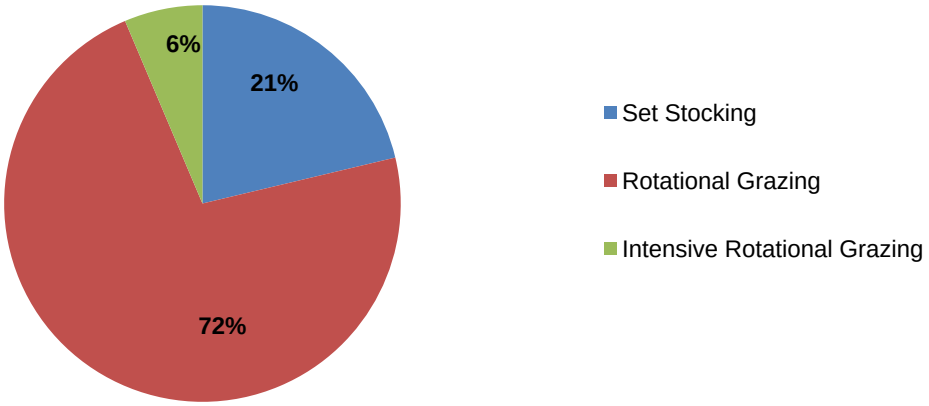



Figure 29reveals that the vast majority of MMfS case study farms utilised rotational grazing as opposed to set stocking or intensive rotational grazing systems.

***Table 22: Sheep enterprise production KPIs.***

| KPI | Average | Median | Range |
|---|---|---|---|
| Wool Sheep Enterprises | | | |
| Wool produced (Kg Cl. / Ha) | 18 | 14 | 2 - 51 |
| Wool produced (Kg Cl./Ha/100 mm rain) | 3.4 | 2.4 | 0.4 - 14.2 |
| Wool produced (Kg Cl. / DSE) | 2.8 | 2.7 | 1.3 - 5.6 |
| Kg hay/grain fed per DSE | 21 | 5 | 0 - 144 |
| Lambing % | 86% | 90% | 44% -102% |
| Prime Lamb Enterprises | | | |
| Lamb produced (Kg CW / Ha) | 82 | 78 | 23 - 163 |
| Lamb produced (Kg CW/Ha/100 mm rain) | 13.2 | 11.8 | 2.9 - 32.0 |
| Lamb produced (Kg CW / DSE) | 7.4 | 7.0 | 3.3 - 12.4 |
| Kg hay/grain fed per DSE | 15 | 10 | 0 - 49 |
| Lambing % | 115% | 120% | 86% - 150% |
| Dual Purpose Enterprises | | | |
| Lamb produced (Kg CW / Ha) | 49 | 43 | 6 - 135 |
| Lamb produced (Kg CW/Ha/100 mm rain) | 10.2 | 8.8 | 1.8 - 22.5 |
| Lamb produced (Kg CW / DSE) | 6.6 | 6.3 | 4.3 - 10.8 |

| | | | |
|---|---|---|---|
| Wool produced (Kg Cl. / Ha) | 15 | 13 | 4 - 50 |
| Wool produced (Kg Cl./Ha/100 mm rain) | 3.0 | 2.5 | 1.1 - 6.6 |
| Wool produced (Kg Cl. / DSE) | 2.1 | 1.9 | 1.2 - 3.9 |
| Kg hay/grain fed per DSE | 26 | 15 | 3 - 106 |
| Lambing % | 101% | 107% | 71% - 124% |
| All Sheep Enterprises | | | |
| Stocking rate (DSE/Ha) | 8.1 | 8.1 | 1.0 - 23.1 |
| Stocking rate (DSE/Ha/100mm rain) | 1.5 | 1.4 | 0.2 - 5.3 |
| Labour efficiency (DSE/labour unit) | 4,832 | 4,387 | 977 - 14,308 |
| Labour efficiency (Ha/labour unit) | 875 | 608 | 132 - 5,607 |

Wool sheep enterprises included in the case study sample were all Merino breeding operations, some of which also ran and traded wethers. Average micron ranged from 15.4 up to 21.0. Prime lamb systems were typically a terminal ram, usually a Poll Dorset or White Suffolk, over a cross-bred ewe. Dual-purpose enterprises were typically a terminal sire over a Merino ewe.

The large geographical spread in farm locations and environmental conditions, and the variety of management and types of systems operated, resulted in a broad range of KPIs for both production and economic parameters recorded for these sheep enterprises. This range, along with group average and median KPI data, is provided in Tables 22 and 23.

Some very low stocking rates were recorded for properties in SA and Queensland, with most of the higher stocking rates recorded for farms in Victoria. Some properties recorded quite low lambing percentages due to a combination of poor seasonal conditions and high losses from predation.

***Table 23: Sheep enterprise profitability KPIs.***

| KPI | Average | Median | Range |
|---|---|---|---|
| Wool Sheep Enterprises | | | |
| Gross income per Ha | $345 | $282 | $20- $848 |
| Enterprise costs per Ha | $125 | $118 | $10 - $321 |
| Gross margin per Ha | $219 | $209 | $2 - $596 |
| Gross income per DSE | $54.96 | $54.69 | $15.38 - $102.19 |
| Enterprise costs per DSE | $20.81 | $17.68 | $8.56 - $58.17 |
| Gross margin per DSE | $34.15 | $34.10 | $1.31- $69.41 |
| Gross income per kg cl. wool | $20.17 | $18.83 | $10.94 - $40.49 |
| Cost of production per kg cl. wool | $18.62 | $18.00 | $9.98 - $38.08 |
| Profit per kg clean wool | $1.55 | $3.16 | -$15.12 - $16.00 |
| Prime Lamb Enterprises | | | |
| Gross income per Ha | $488 | $444 | $121 - $1025 |
| Enterprise costs per Ha | $209 | $116 | $34 - $595 |
| Gross margin per Ha | $278 | $247 | $52 - $640 |
| Gross income per DSE | $44.02 | $40.04 | $28.63 - $76.58 |
| Enterprise costs per DSE | $17.06 | $15.88 | $4.22 - $40.72 |
| Gross margin per DSE | $26.95 | $29.32 | $4.42 - $57.37 |
| Gross income per kg CW lamb | $6.10 | $5.82 | $3.98 - $9.02 |
| Cost of production per kg CW | $5.84 | $5.90 | $2.24 - $9.35 |
| Profit per kg CW lamb | $0.26 | $0.45 | -$3.39 - $4.46 |
| Dual Purpose Enterprises | | | |
| Gross income per Ha | $424 | $370 | $67- $1,386 |
| Enterprise costs per Ha | $130 | $95 | $21- $270 |
| Gross margin per Ha | $294 | $244 | $46 - $1,245 |
| Gross income per DSE | $55.50 | $52.72 | $33.19 - $89.35 |
| Enterprise costs per DSE | $18.92 | $16.73 | $6.06 - $35.85 |
| Gross margin per DSE | $36.58 | $33.10 | $11.88 - $62.52 |
| Gross income per kg CW lamb* | $8.92 | $8.41 | $4.88- $15.88 |
| Cost of production per kg CW* | $8.66 | $8.09 | $3.29 - $17.77 |
| Profit per kg CW lamb* | $0.25 | $0.10 | -$8.51 - $7.67 |
| Gross income per kg cl.wool* | $28.00 | $26.83 | $17.43 - $40.26 |
| Cost of production per kg cl.wool* | $27.18 | $27.53 | $11.75 - $50.30 |
| Profit per kg cl. wool* | $0.81 | $0.43 | -$26.51 - $25.39 |

* Total enterprise costs and income divided by either total kgs of clean wool produced or total kgs CW of lamb produced.

Table 23reveals that on average, all three sheep enterprise types on case study farms were profitable during the baseline year. Average wool gross margins of $219 per hectare and $34 per DSE compare to 43year average wool enterprise gross margins of $314 per hectare and $27 per DSE for the South West Victorian Farm Monitor Project. Two-thirds of wool sheep enterprises recorded a positive operating profit in the baseline year.

On average, prime lamb and dual purpose enterprises recorded higher gross margins per hectare than wool enterprises. The historical Farm Monitor Project does not provide gross margin figures for prime lamb and dual purpose enterprises separately, but the combined 43 year average prime lamb gross margins per hectare and per DSE are $403 and $30 respectively. Fifty-fourper cent of prime lamb enterprises recorded a positive operating profit in the baseline year and 58% of dual-purpose sheep enterprises recorded a positive operating

profit. As with beef enterprises, the farms with high cost of production data were typically smaller farms with high labour and overhead costs and/or farms, which fed very high amounts of supplementary feed during the baseline year.

***Table 24: MMfS whole farm KPIs.***

| KPI | Average | Median | Range |
|---|---|---|---|
| Gross income per Ha | $477 | $442 | $24 - $1,223 |
| Enterprise costs per Ha | $189 | $166 | $8 - $578 |
| Overhead costs per Ha | $146 | $121 | $9 – $582 |
| Owner/operator allowance per Ha | $88 | $65 | $0 – $497 |
| Operating profit per Ha | $54 | $84 | -$756 - $356 |
| Return on assets (%) | 2.3% | 3.0% | -8.1% - 13.7% |
| Cost structure* (%) | 72% | 64% | 23% - 189% |

*Enterprise and overhead costs as a % of gross income.

Whole farm operating profit ranged from a loss of $756 per hectare up to a profit of $356 per hectare and was positive on average. Seventyper cent of MMfS case study farms recorded a positive whole farm operating profit per hectare during the period measured.

Return on assets ranged from minus 8.1% up to 13.7%, with positive average and median figures. Thirty-twoper cent of MMfS case study farms recorded a return on assets above the 43-year Farm Monitor Project average of 4.1% for farms in southwest Victoria.

### 7.2.2 Impact of practice change adoption relative to baseline year data

This section firstly describes the types of practice changes implemented by case study farms, the types of events attended and frequency of module delivery at these events. This is followed by a summary of the impact of adoption of these practice changes on productivity and profitability KPIs relative to baseline year data.

#### 7.2.2.1 Types of practice changes and events attended

A range of different practice change types were adopted by case study farms as a result of attendance at various MBfP and MMfS events. The following series of graphs presents the types and frequency of these practice changes and the event category and modules delivered at events attended for MBfP and MMfS case study farms respectively.

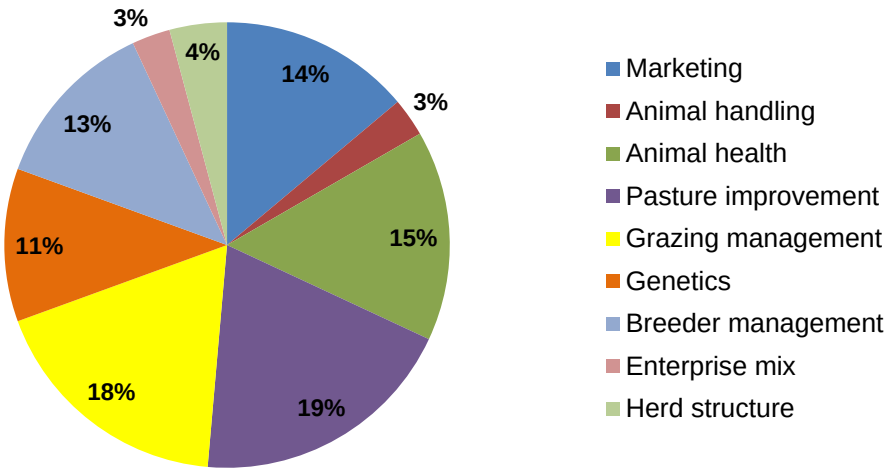



***Figure 30: Range and frequency of practice changes on MBfP case study farms.***

Figure 30presents the range of types of practice changes for MBfP case study farms and reveals the most common types of changes involved pasture management in terms of both pasture growthand pasture utilisation via grazing management, animal health, livestock marketing, breeder management and genetics.

Animal health practice changes included mainly changes to drench programs and disease management, livestock marketing related to EU accreditation and use of direct marketing strategies and breeder management typically involved nutrition for breeders to increase calves born and heifer management/age at joining. Practice change relating to genetics typically involved changes to type or breed of bulls selected, use of ABVs and criteria for cow and heifer selection.

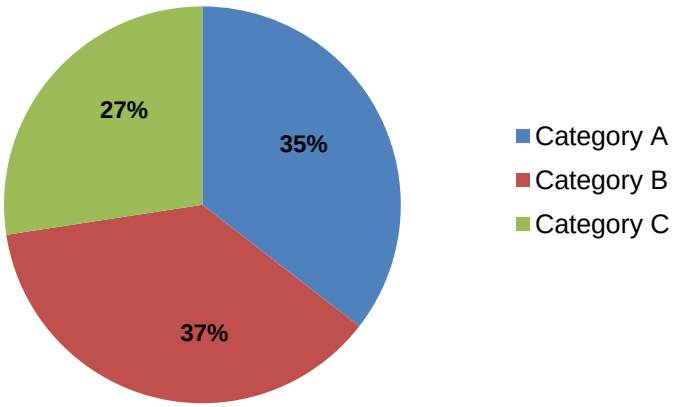



***Figure 31: Category of event attended by MBfP case study participants.***

Figure 31shows a fairly even distribution of MBfP event categories for participating case study farms that led to practice change adoption.

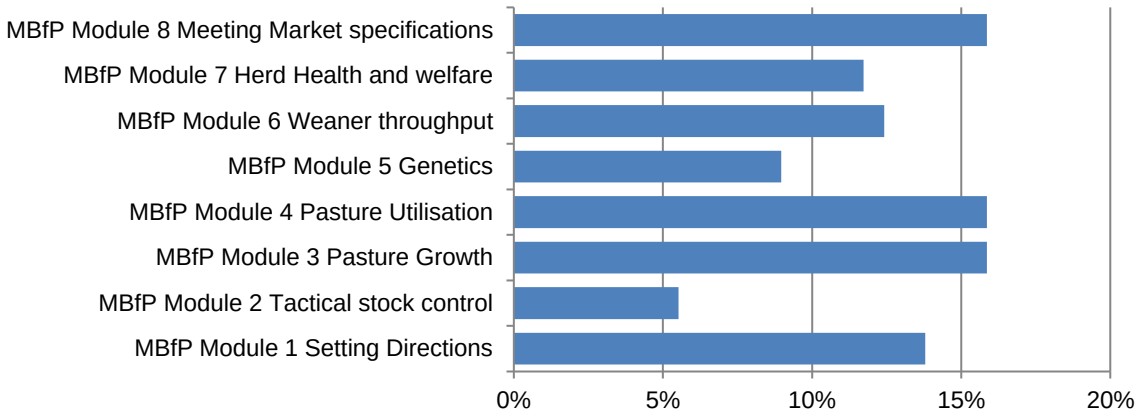



***Figure 32: Percentage of modules aligned to MBfP events attended by case study participants.***

Figure 32reveals that events attended by MBfP case study farms aligned most frequently with Modules 3, 4 and 8 which related to pasture growth and utilisation and meeting market specifications.

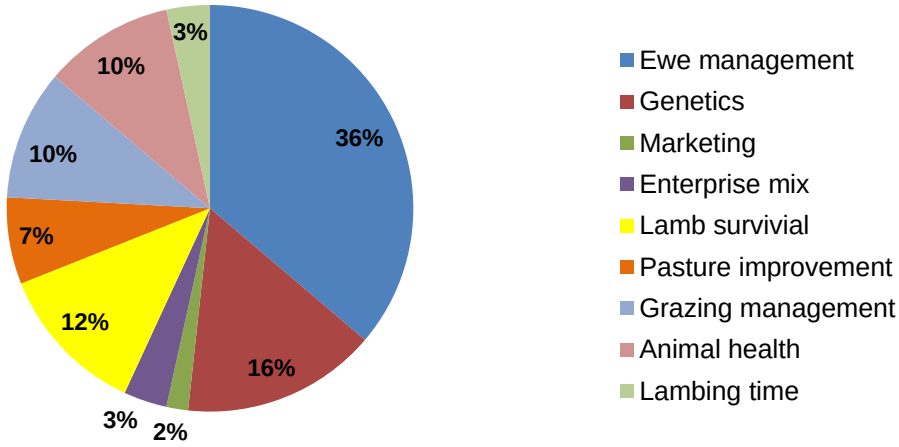



***Figure 33: Range and frequency of practice changes on MMfS case study farms.***

Figure 33presents the range of types of practice changes for MMfS case study farms and reveals that overathird of practice changes related to ewe management. Changesrelating to genetics were the next most common type of practice change, followed by strategies for increasing lamb survival.

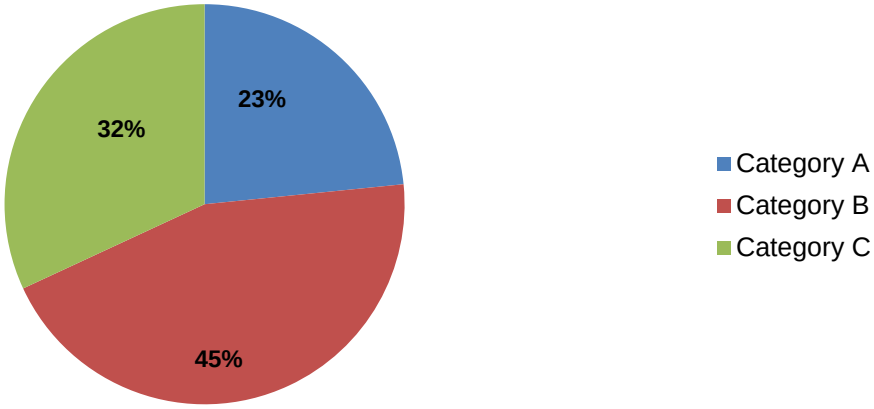



***Figure 34: Category of event attended by MMfS case study participants.***

Figure 34shows that case study participants were most commonly representing Category B events, with approximately a third attending a Category C event that lead to practice change.

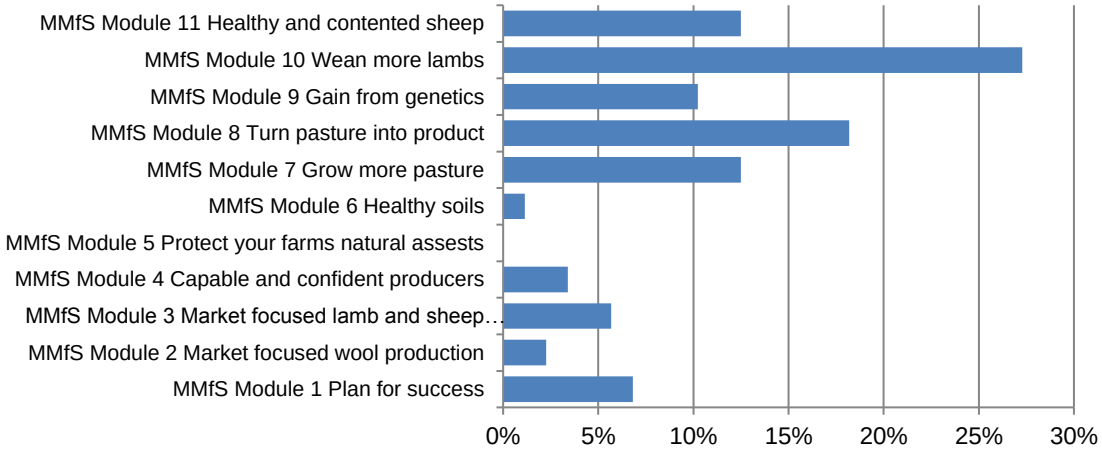



***Figure 35: Percentage of modules aligned to MMfS events attended by case study participants.***

Figure 35reveals that events attended by case study farms aligned most frequently with Module 10 – Wean more lambs, followed by the two pasture based Modules, 7 and 8, and Module 11 – Healthy and contented sheep.

### 7.2.3 Changes in KPIs relative to baseline year data due to practice change adoption

The following section presents a summary of the key factors influencing the ability of individual farmers to increase profitability via productivity growth and improving terms of trade, and provides a summary of the impact of practice change adoption on key farm productivity and profitability KPIs relative to the baseline year (before adoption) data.

Farm profitability is a function of both productivity and terms of trade. Productivity relates to the quantity of input use relative to the quantity of outputs generated, while terms of trade relates to the prices paid for inputs relative to the prices received for outputs. This section presents a summary of how case study farmers have adopted practice changes with the aim of achieving productivity growth and/or improving terms of trade, and how these improvements have affected farm profits. The impact of practice change adoption is presented as changes in KPIs relative to baseline (before adoption) data for the steady state after adoption scenario when the practice change has been fully implemented.

#### 7.2.3.1 Terms of Trade

The terms of trade faced by Australian farmers has been gradually declining over the past 40 years (ABARES Agricultural commodity statistics, 2013) (Figure 36). The rate of decline has averaged 1.7% over this period, although over the past 10 years the rate has slowed,averaging just 0.4% since 2003-04.

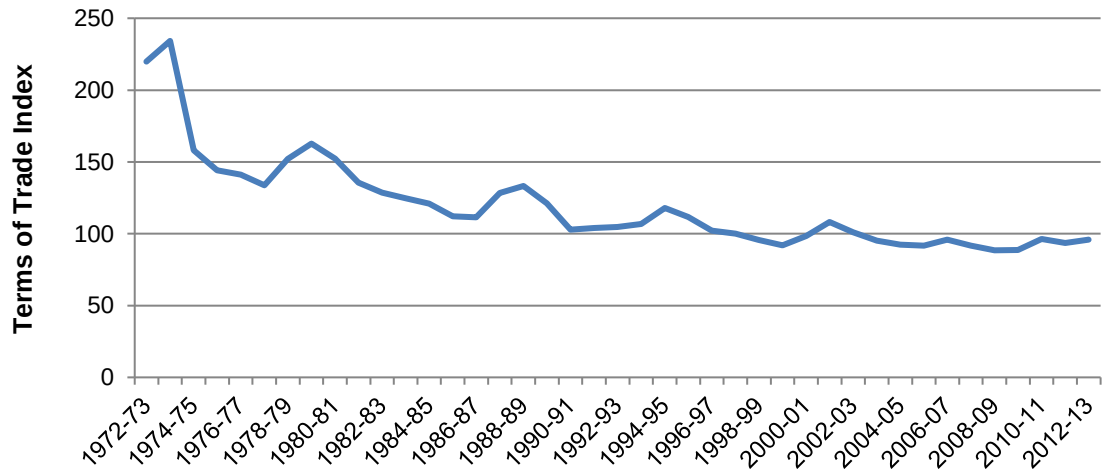



***Figure 36: Terms of Trade for Australian Farmers (Source: ABARES, 2013a)***

While it is clear that any improvement in farmer terms of trade is likely to generate significant increases in farm profitability for any given level of productivity, it is also widely acknowledged that Australian farmers are generally price-takers in that prices are determined largely on global markets. However there are opportunities for individual farmers to improve their terms of trade by improving product quality and/or branding, changing timing of sale, increasing the proportion of outputs meeting particular market specifications or by gaining accreditation to access higher value markets, such as EU/MSA. On the input price side there is arguably less opportunity for individual farmers to improve their terms of trade, however opportunities do exist to lock-in lower input prices at certain times of the yearand to reduce average unit prices paid by purchasing product in bulk.

Several case study farms improved their terms of trade on the output price side of the ratio by gaining access to higher value markets such as EU and MSA, increasing the proportion of

their output meeting specific higher value grades or by direct product marketing and improved branding.

#### 7.2.3.2 Productivity

For more than 50 years productivity growth has been the main driver of agricultural output in Australia, contributing around two-thirds of the gross value of agricultural production (Sheng et. al., 2010). Continued productivity growth is essential for maintaining the competitiveness of Australia's agricultural exports on world markets and to counter the declining agricultural terms of trade previously discussed.

Productivity is a measure of input use relative to output quantity. It can be measured as either a partial productivity indicator, where only changes in one input relative to one output is considered, or as a total productivity indicator, where changes in all inputs used relative to all outputs is considered.

Table 25presents the changes in key partial productivity indicators for the MBfP case study farms due to practice change adoption in the steady state post adoption scenario (regardless of number of years required to reach full benefits on individual farms), relative to baseline (before adoption) year data.All farm inputs and outputs not impacted by practice change adoption remained at baseline year values. Baseline year farm input and output prices were used to value any changes in input and output quantities as a result of practice change adoption. Results are presented as actual change value, % change relative to the before adoption value, and the range in changes achieved by individual farmers within the group.

***Table 25: Impact of practice change adoption on partial productivity indicators for MBfP case study farms relative to baseline data.***

| KPI - Partial Productivity Indicator | Change | % Change | Change Range |
|---|---|---|---|
| Kg beef produced (LW / Ha) | +15.4 | +6.9% | -33 - 145 |
| Kg beef produced (LW/Ha/100 mm rain) | +1.8 | +6.7% | -3.5 - 14.7 |
| Kg beef produced (LW / DSE) | +0.5 | +2.8% | -0.6 - 4.4 |
| Kg hay/grain fed per DSE | -0.1 | -0.5% | -24 - 44 |
| Calf marking % | +1% | +0.8% | 0 - 10% |
| Av. sale weight (LW/Hd) | +7 | +1.5% | 0 - 63 |
| Stocking rate (DSE/Ha) | +0.6 | +4.7% | -2.3 - 4.4 |
| Stocking rate (DSE/Ha/100 mm rain) | +0.1 | +4.7% | -0.2 - 0.7 |
| Labour efficiency (DSE/labour unit) | +227 | +4.8% | -600 - 4,101 |
| Labour efficiency (Ha/labour unit) | -4 | -0.7% | -120 - 25 |

The table above reveals increases in average stocking rate, labour efficiency (DSE per labour unit) and beef production per hectare, and a decrease in average quantity of supplements fed per DSE. Labour efficiency per hectare shows a negative change as average farm area remained unchanged and average quantity of labour increased, however average DSE's per hectare also increased such that average DSEs managed per labour unit rose.

Table 25presents the changes in key partial productivity indicators for the MMfS case study farms due to practice change adoption in the steady state post adoption scenario (regardless of number of years required to reach full benefits on individual farms), relative to baseline (before adoption) year data.

***Table 26: Impact of practice change adoption on partial productivity indicators for MMfS case study farms relative to baseline data.***

| KPI - Partial Productivity Indicator | Change | % Change | Change Range |
|---|---|---|---|
| Wool Sheep Enterprises | | | |
| Wool produced (Kg Cl. / Ha) | +0.2 | 1.0% | -3 - 5.3 |
| Wool produced (Kg Cl./Ha/100 mm rain) | +0.0 | 0.9% | -0.8 - 1.1 |
| Wool produced (Kg Cl. / DSE) | 0.0 | 0% | -0.2 - 0.1 |
| Kg hay/grain fed per DSE | +2.3 | 11% | -3.6 - 17.6 |
| Lambing % | +8% | 9.7% | 0% -18% |
| Prime Lamb Enterprises | | | |
| Lamb produced (Kg CW / Ha) | +6.5 | 8.0% | 0 - 13.5 |
| Lamb produced (Kg CW/Ha/100 mm rain) | +1.1 | 8.3% | 0 - 2.9 |
| Lamb produced (Kg CW / DSE) | +0.4 | 5.0% | 0 - 0.9 |
| Kg hay/grain fed per DSE | +1.1 | 7.4% | -3.3 - 4.9 |
| Lambing % | +8% | 7.2% | 0% - 30% |
| Dual Purpose Enterprises | | | |
| Lamb produced (Kg CW / Ha) | +3.2 | 6.5% | 0 - 11.4 |
| Lamb produced (Kg CW/Ha/100 mm rain) | +0.7 | 6.9% | 0 - 3.1 |
| Lamb produced (Kg CW / DSE) | +0.4 | 5.9% | 0 - 1.2 |
| Wool produced (Kg Cl. / Ha) | +0.2 | 1.4% | 0 - 1.6 |
| Wool produced (Kg Cl./Ha/100 mm rain) | +0.1 | 1.3% | 0 - 0.3 |
| Wool produced (Kg Cl. / DSE) | +0.0 | 0.9% | 0 - 3.9 |
| Kg hay/grain fed per DSE | +0.8 | 3.3% | -9.6 - 17.8 |
| Lambing % | +6% | 5.8% | 0% - 16% |
| All Sheep Enterprises | | | |
| Stocking rate (DSE/Ha) | +0.2 | 2.2% | 0 - 1.8 |
| Stocking rate (DSE/Ha/100mm rain) | +0.0 | 2.1% | 0 - 0.4 |
| Labour efficiency (DSE/labour unit) | +73 | 1.5% | -640 - 1,143 |
| Labour efficiency (Ha/labour unit) | -19 | -2.2% | -704 - 53 |

Table 26reveals an overall increase in average stocking rate and labour efficiency per DSE for MMfS farms. All sheep enterprises recorded increases in average production per hectare and lambing percentage, and increases in supplements fed per DSE.

While these partial productivity measures are useful, they can be misleading, as by definition they only represent part of the total productivity changes. Any effects of input substitution, technological improvements and efficiency changes related to use of other inputs can be incorrectly attributed to improvements in another input to output ratio (ABARES, 2011).

**Total farm productivity** measures capture the influence of changes in all production-related inputs and outputs and are therefore more accurate and thus more useful measures of farm level productivity changes (ABARES, 2011). Total factor productivity (TFP) is the most commonly used measure of productivity in agriculture. It represents the ratio of total output

(crop/fodder and livestock products) to total production inputs (land, labour, capital, and materials). An increase in TFP indicates that more output is being produced relative to inputs used. This can be achieved by decreasing input use, increasing output with the same inputs, or by increasing input use but increasing output by a greater degree.

Table 27presents the average annual growth in TFP for Australian beef farms by region between 1977-78 and 2011-2012.

***Table 27: Average annual beef output, input and productivity growth by region between 1997-78 and 2011-12.***

| Industry | TFP Growth (%) | Output Growth (%) | Input Growth (%) |
|---|---|---|---|
| All beef | 0.8 | 0.5 | -0.3 |
| Northern beef | 0.9 | 0.5 | -0.5 |
| Southern beef | 0.1 | 0.7 | 0.5 |

Source: ABARES, 2014

The ABARES data reveals that average productivity growth in the southern beef industry has been slower than in the northern industry. According to ABARES (2013b) output growth has been highly variable, largely because of climatic factors. Southern beef farms are typically smaller, more intensive operations that rely on improved pastures (reflected by higher average stocking rates), and are more diversified than northern farms (Nossal et. al., 2008). As a result, productivity growth in the southern region is more sensitive to seasonal conditions that drive use of supplementary feed, and influence annual fluctuations in stock trading and stocking rate. It has also been suggested that the lower productivity growth rate in the south may be partly because of the better rates already achieved by southern beef farmers in previous years, and the smaller scale of farms in southern regions limiting further productivity growth (ABARES, 2013b: ABARES, 2014).

Table 28below presents the average annual growth in TFP for Australian sheep industry farms by region between 1977-78 and 2011-2012.

***Table 28: Average annual sheep industry output, input and productivity growth by region between 1997-78 and 2011-12.***

| Industry | TFP Growth (%) | Output Growth (%) | Input Growth (%) |
|---|---|---|---|
| All sheep | 0.1 | -2.6 | -2.6 |
| Pastoral zone | 0.4 | -2.2 | -2.6 |
| Wheat-sheep zone | 0.8 | -1.4 | -2.2 |
| High rainfall zone | -0.1 | -3.6 | -3.4 |

Source: ABARES, 2014

According to ABARES, the long term average productivity growth figure for the sheep industry obscures strong growth after several years of acute adjustment in the early 1990's following the collapse of the Wool Reserve Price Scheme in 1991. After the collapse of the scheme many farmers exited the wool industry, while others moved into cropping and slaughter lamb production (ABARES, 2014). These changes in composition of the sheep flock and land

management practices following the collapse of the scheme, in addition to advances in animal breeding and genetics and improved flock, disease and fodder management, have resulted in significant productivity growth for the industry since 1991 (ABARES, 2014).

One of the key drivers of long-term productivity growth is investment in the development of new production technologies and new knowledge, however the benefits of such investment do not lead to productivity growth until they are adopted on farm. Most of the case study farms increased productivity by adopting practice changes that required increasing both input use and output quantities, however some farms increased technical efficiency by reducing overall input use without decreasing output.

Table 29presents average change in input and output use and overall TFP growth for case study farms as a result of the impacts of practice change adoption. Average annual growth figures represent total growth, which is the difference between the TFP index in the baseline year and the TFP for the steady state fully adopted scenario, divided by the number of years required to reach the steady state. In reality the annual farm growth in productivity to reach steady state for many farms would not be linear, however this variation in annual farm productivity growth has not been captured in the analysis.

***Table 29: Annual and total TFP growth for MBfP and MMfScase study farms relative to baseline data.***

| | TFP Growth (%) | Output Growth (%) | Input Growth (%) |
|---|---|---|---|
| MBfP case study farms (av. annual growth) | 2.2 | 2.7 | 0.5 |
| MBfP case study farms (total growth) | 5.4 | 7.1 | 1.6 |
| MMfS case study farms (av. annual growth) | 2.3 | 2.5 | 0.2 |
| MMfS case study farms (total growth) | 3.9 | 4.4 | 0.4 |
| All case study farms (av. annual growth) | 2.3 | 2.6 | 0.3 |
| All case study farms (total growth) | 4.8 | 6.0 | 1.1 |

The percentage annual input growth on MBfP case study farms due to practice change adoption, holding all other inputs and outputs constant, was similar to the long term average for the southern Australian beef industry,however the growth in outputs was almost four times greater. It is suggested that the major reason for this higher output growth value relative to the input growth is the adoption of improved grazing management strategies on a large percentage of farms where the change in input use was relatively small compared to the benefits generated in quantity of outputs. This represents an increase in the overall efficiency with which existing resources are utilised. This type of practice change is less risky than pasture renovation where a relatively large increase in input use is required to generate increased outputs.

For MMfS case study farms, percentage input growth was positive compared to long term average negative input growth figures for all sheep industry regions presented inTable 29**.**A large percentage of MMfS case study farms implemented practice changes relating to ewe management and lamb survival, thus the positive input growth largely reflected increases in

supplementary feed usage and associated labour required for feeding/scanning/condition scoring, and increased inputs required to manage greater lamb numbers on these farms.

Output growth was again positive for MMfS case study farms compared to negative long term average growth figures in Table 16. Many farmers made large gains in number of lambs weaned as a result of improved ewe nutrition pre-joining, and during pregnancy and lactation. As noted above, this often involved increased expenditure on supplements, but in many cases it involved using scanning to identify singles and multiples and/or condition scoring ewes and utilising that information to improve allocation of available feed with little or no extra supplementation required.

Some case study farms will achieve full benefits of the adoption of practice changes within one year after adoption, while others will take much longer to reach full steady state production. **TFP growth for MBfP case study farms due to adoption of practice changes regardless of time required to reach steady state production levels was 5.4%, with growth in outputs at 7.1% and input growth at 1.6%.**

**For MMfS case study farms, steady state TFP growth regardless of time required to achieve steady state was 3.9%, with output growth of 4.4% and input growth of 0.4%.** The higher total steady state growth figures for beef relative to sheep farms was mainly due to a greater proportion of farms implementing pasture based practice changes which resulted in higher stocking rates, and a greater percentage increase in production growth on beef farms relative to the baseline year compared to overall growth in wool and meat production for sheep farms relative to the baseline year. For all case study farms, TFP growth regardless of time to reach steady state was 4.8%, with output growth of 6.0% and input growth of 1.1%.

#### 7.2.3.3 Profitability

The future viability of the southern Australian beef and sheep industriesis more dependent upon long term growth in annual farm profitability than annual productivity growth in terms of farmers' ability to cover input costs and service debt. Improvements in farm profitability allows for the opportunity to invest in practices, technologies and inputs to achieve future productivity growth, and to provide sufficient cash for the required standard of living for farmers and their families.

Improvements in annual productivity may or may not translate into improved farm profits depending on the nature of the productivity gain and the relative change in terms of trade. Some case study farms implemented changes where they were able to reduce the quantityof inputs used without impacting on production, thus representing a technical efficiency gain and an increase in profitability.

Examples of these types of practice changes included:

- Reduced use of supplements due to changes in calving/lambing time or improved grazing management.
- Reduced fertiliser usage as a result of utilising soil tests.
- Reduced drench usage as a result of utilising worm egg counts.
- Reduced labour inputs due to more efficient livestock handling techniques.

None of the case study farms changed the size of the farm; however there were some that changed the scale of the enterprise via changes to enterprise mix. Most changes in enterprise mix were changes to the type of beef or sheep enterprise, rather than changes between beef and sheep, however several farms increased the area cropped or changed the area cut for hay/silage while maintaining existing stock numbers, thus altering stocking rate.

In order to calculate the change in farm profitability on case study farms as a result of both productivity growth and changes in terms of trade, underlying terms of trade was kept constant between years. This allows for a comparison between the before adoption base scenario farm level profitability with the steady state after adoption farm level profitability assuming constant input and output prices (except where farms have changed their terms of trade as previously discussed).

Table 30presents the impact of practice change adoption on the profitability of MBfP case study farms.

***Table 30: Changes in beef enterprise profitability KPIs due to practice change adoption relative to baseline data.***

| KPI | Change | % Change | Change Range |
|---|---|---|---|
| Trading income per Ha | +$29 | +7.1% | -$70 - $243 |
| Enterprise costs per Ha | +$18 | +9.8% | -$69- $188 |
| Gross margin per Ha | +$11 | +5.0% | -$79 - $169 |
| Trading income per DSE | +$1.28 | +4.0% | -$3.67 - $26.56 |
| Enterprise costs per DSE | +$1.07 | +8.4% | -$4.52 - $13.39 |
| Gross margin per DSE | +$0.21 | +1.1% | -$13.39 - $26.56 |
| Trading income per Kg LW produced | +$0.01 | +0.7% | -$0.41 - $0.61 |
| Cost of production per kg LW | -$0.11 | -4.4% | -$1.73 - $0.16 |
| Profit per kg LW produced | +$0.12 | N/A | -$0.26 - $1.73 |

N/A is where there was a positive increase on a negative baseline number.

Table 30 reveals that an average increase of $18 per ha in enterprise costs was covered by a $29 increase in trading income per hectare, resulting in an $11 rise in average gross margin per hectare across all MBfP case study farms. Average trading income per kg of beef produced increased only slightly, however an 11 cent per kilogram decrease in average cost of production resulted in an overall increase in profit per kg of beef produced of 12 cents, representing a 20% increase in profit per kg relative to baseline year data. In some cases the gross margin per DSE and/or profit per kilogram decreased as a result of practice change

adoption (due to increased expenditure), however an increase in stocking rate and kilograms produced per hectare resulted in an increase in overall gross margin per hectare.

However Table 31reveals that not all farms increased profitability as a result of the increased productivity achieved due to practice change adoption.This was essentially due to the low profitability of the enterprise in the baseline year. This meant that an increase in production per hectare resulted in a decreased cost of production and an increase in profit per kilogram.However, profit per kg was still negative, therefore a loss was being made over more kilograms per hectare, and the decrease in the size of the loss was insufficient to increase overall enterprise profitability. In several other cases the cost of production increased by more than any increases in trading profit. These cases resulted in a decreased profit per kilogram and the increase in kilograms produced per hectare was insufficient to generate an overall increase in profit per hectare. If the terms of trade improved, these profitability losses could be turned into increases in profitability in subsequent years.

The impact of practice change adoption was assessed over the whole farm, not just the beef enterprise.Some farmers made changes, which impacted on outputs for sheep enterprises and cropping/hay enterprises, and on overall farm input use on items such as fertiliser and labour. Table 31presents the impact of practice change adoption on whole farm profitability for MBfP case study farms relative to the baseline year data.

***Table 31: Changes in MBfP whole farm profitability KPIs due to practice change adoption relative to baseline data.***

| KPI | Change | % Change | Change Range |
|---|---|---|---|
| Gross income per Ha | +$31 | +6.1% | -$63 - $239 |
| Enterprise costs per Ha | +$19 | +9.0% | -$62 - $183 |
| Overhead costs per Ha | +$1 | +0.5% | -$2 – $45 |
| Owner/operator allowance per Ha | +$0 | +0.1% | -$20 – $15 |
| Operating profit per Ha | +$10 | N/A | -$94 - $169 |
| Return on assets (%) | +0.2% | N/A | -2.3% - 4.0% |
| Cost structure (%)* | -2% | -2.7% | -117% - 20% |

*Enterprise and overhead costs as a % of gross income.

N/A is where there was a positive increase on a negative baseline number.

The data reveals that on average, overhead and owner-operator labour costs remained relatively unchanged, although they did vary on some farms. An average increase in gross income per hectare of $31 was sufficient to cover a $19 increase in average enterprise costs and a $1 increase in overhead costs to generate an overall increase in average farm profit of $10 per hectare. Again, as described above for the beef enterprise data, not all farms returned an improvement in profitability as a result of productivity improvements achieved due to practice change adoption.

Table 32presents the impact of practice change adoption on the profitability of MMfS case study farms.

***Table 32: Changes in sheep enterprise profitability KPIs due to practice change adoption relative to baseline data.***

| KPI | Change | % Change | Change Range |
|---|---|---|---|
| Wool Sheep Enterprises | | | |
| Gross income per Ha | +$18 | +5.1% | $0- $115 |
| Enterprise costs per Ha | +$4 | +3.3% | -$26 - $33 |
| Gross margin per Ha | +$13 | +6.1% | -$1 - $90 |
| Gross income per DSE | +$1.84 | +3.3% | $0 - $8.32 |
| Enterprise costs per DSE | +$0.30 | +1.4% | -$12.22 - $6.74 |
| Gross margin per DSE | +$1.54 | +4.5% | -$0.28- $12.22 |
| Gross income per kg cl. wool | +$0.98 | +4.9% | $0 - $5.37 |
| Cost of production per kg cl. wool | +$0.61 | +3.3% | -$0.93 - $5.35 |
| Profit per kg clean wool | +$0.37 | +24.0% | -$0.40 - $1.09 |
| Prime Lamb Enterprises | | | |
| Gross income per Ha | +$22 | +4.6% | -$34 - $67 |
| Enterprise costs per Ha | +$5 | +2.2% | -$77 - $57 |
| Gross margin per Ha | +$18 | +6.4% | -$21 - $51 |
| Gross income per DSE | +$1.17 | +2.7% | -$2.62 - $5.10 |
| Enterprise costs per DSE | +$0.04 | +0.3% | -$5.83 - $3.89 |
| Gross margin per DSE | +$1.12 | +4.2% | -$3.89 - $4.80 |
| Gross income per kg CW lamb | -$0.23 | -3.7% | -$1.04 - $0.21 |
| Cost of production per kg CW | -$0.42 | -7.1% | -$1.49 - $0.00 |
| Profit per kg CW lamb | +$0.19 | +72.7% | -$0.10 - $0.50 |
| Dual Purpose Enterprises | | | |
| Gross income per Ha | +$13 | +3.0% | -$4- $32 |
| Enterprise costs per Ha | +$5 | +3.9% | -$11- $43 |
| Gross margin per Ha | +$8 | +2.6% | -$21 - $31 |
| Gross income per DSE | +$1.12 | +2.0% | -$1.86 - $3.76 |
| Enterprise costs per DSE | +$0.45 | +2.4% | -$1.97 - $4.67 |
| Gross margin per DSE | +$0.67 | +1.8% | -$3.82 - $3.57 |
| Gross income per kg CW lamb* | -$0.37 | -4.2% | -$1.92 - $0.56 |
| Cost of production per kg CW* | -$0.45 | -5.2% | -$2.21 - $0.23 |
| Profit per kg CW lamb* | +$0.09 | +36.1% | -$1.63- $1.22 |
| Gross income per kg cl. wool* | +$0.44 | +1.6% | -$1.53 - $2.31 |
| Cost of production per kg cl. wool* | +$0.02 | +0.1% | -$2.36 - $3.20 |
| Profit per kg cl. wool* | +$0.42 | +52.1% | -$0.89 - $1.14 |

* Total enterprise costs and income divided by either total kgs of clean wool produced or total kgs CW of lamb produced.

Table 32reveals that average gross margin per hectare increased by $13 for wool sheep enterprises, by $18 for prime lamb enterprises and by $8 for dual purpose enterprises. Gross margin per DSE also increased on average for all enterprises, however some farms recorded a decrease in average gross margin per DSE, mainly due to higher costs, however an increase in DSE/Ha was sufficient for most of these farms to increase gross margin per hectare.

An increase of $ 0.98 in average gross income per kg of clean wool was sufficient to cover a $0.61 increase in average cost of production. This resulted in an increase in average profit per kilogram of clean wool of $0.37, representing a 24%increase relative to the baseline data. The opposite scenario occurred for prime lamb enterprises where average gross income per kilogram of lamb fell as a result of practice change adoption. However the cost of production fell by a greater amount, resulting in an increase in average profit per kilogram CW of lamb produced of $0.19 (73% increase relative to baseline data). The decrease in gross income per kilogram CW of lamb was essentially due to extra lambs produced generally being sold in the wool, hence wool income per kilogram of lamb fell, and average non-lamb sheep trading income generally remained unchanged, thus with increased kilograms of lamb produced, non-lamb sheep trading income per kg of lamb was also lower.

The same trends for wool and lamb income and costs per kilogram were observed for the dual purpose enterprise, with an increase in average profit per kilogram CW of lamb of $0.09 (36% increase relative to baseline data), and an increase in average profit per kilogram of wool of $0.42 (52% increase relative to baseline data). Note that for the dual purpose enterprise where cost of production and profit have been calculated for two outputs, all costs and all income has been divided by total kilograms of clean wool to generate the per kg of wool figures, and by total kg of lamb produced to generate the per kg of lamb data, thus the dollar per unit of output figures for wool and lamb are mutually exclusive.

Again, Table 32reveals that not all farms increased profitability as a result of the increased productivity achieved due to practice change adoption, however any losses were generally only small. In several cases the practice change simply wasn't profitable, and two of the farms have since decided to dis-adopt. In several other cases the underlying profitability of the enterprise in the baseline year was relatively low, and as with the MBfP case studies, if the terms of trade improve these profitability losses could be turned into increases in profitability in subsequent years.

Table 33presents the impact of practice change adoption on whole farm profitability for MMfS case study farms relative to the baseline year data.

***Table 33: Changes in MMfS whole farm KPIs due to practice change adoption relative to baseline data.***

| KPI | Change | % Change | Change Range |
|---|---|---|---|
| Gross income per Ha | +$14 | +3.0% | -$35 - $104 |
| Enterprise costs per Ha | +$2 | +1.0% | -$77 - $23 |
| Overhead costs per Ha | +$1 | +0.4% | $0 – $9 |
| Owner/operator allowance per Ha | +$0 | +0.5% | -$27 – $14 |
| Operating profit per Ha | +$11 | +21.0% | -$7 - $72 |
| Return on assets (%) | +0.3% | +13.4% | -0.3% - 1.4% |
| Cost structure* (%) | -1% | -1.9% | -7% - 1% |

*Enterprise and overhead costs as a % of gross income.

The figures above reveal that on average, overhead and owner-operator labour costs remained relatively unchanged, although they did vary on some farms. An average increase in gross income per hectare of $14 was sufficient to cover a $2 increase in average enterprise costs and a $1 increase in overhead costs to generate an overall increase in average farm profit of $11 per hectare. Again, as described above for the MBfP farms, not all farms returned an improvement in profitability as a result of productivity improvements due to practice change adoption.

### 7.2.4 Long term average impact of practice change adoption

As previously noted, the above data regarding actual and percentage changes in farm profits due to adoption of practice changes holds input and output prices constant at the baseline year level to capture the impact of the change in a before and steady state after adoption scenario. In addition to evaluating impacts of practice change adoption on farm profitability relative to the baseline year, an evaluation of profitability impacts using long term average input and output price data for 'most likely', 'best-case' and 'worst-case' scenarios was conducted.

For the best and worst-case scenarios, key input and output prices were generally varied by +/- 20% unless otherwise specified by the farmer, and best and worst-case expectations for long-term average productivity improvements were provided by the farmer, or based on research data.

Table 34bbelow presents the long-term average impact of practice change adoption on MBfP case study farms for each of the three scenarios.

***Table 34: Long term average impact of practice change adoption on farm profitability for MBfP case study farms.***

| KPI | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| Extra Income per Ha | $31 | $47 | $19 |
| Extra Costs per Ha | $22 | $19 | $25 |
| Extra Net Income per Ha | $9 | $28 | -$6 |
| Extra Income per Farm | $17,077 | $27,745 | $9,633 |
| Extra Costs per Farm | $11,072 | $10,019 | $12,010 |
| Extra Net Benefit per Farm | $6,005 | $17,726 | -$2,376 |

When long-term average input and output prices are used average additional whole farm profit for MBfP case study farms was $6,005, ranging from $17,726 for the best-case scenario to minus $2,376 for the worst-case scenario.

The relative differences between the three scenarios varied between farms depending on the financial risk associated with the practice change in terms of prices received/paid, the size of any capital outlays, and the sensitivity of the management change to production risk represented by changes in seasonal conditions. Some practice changes were much more

exposed to these risks than others; hence the gap between most likely and worst-case scenarios was much greater for some farms than for others.

The negative average return for the worst-case scenario reflects the fact that there is risk associated with implementation of many of the practice changes made. A large proportion of beef farms implemented pasture based practice changes where often large capital investments in extra livestock, new infrastructure such as fencing and water infrastructure, and pasture renovation costs were required. These kinds of capital intensive changes carry higher risk relative to changes where extra costs are spent annually and can be altered according to seasonal and market conditions. The latter types of practice changes carry much less downside risk thus the difference between the average and worst-case scenarios was less for these farms.

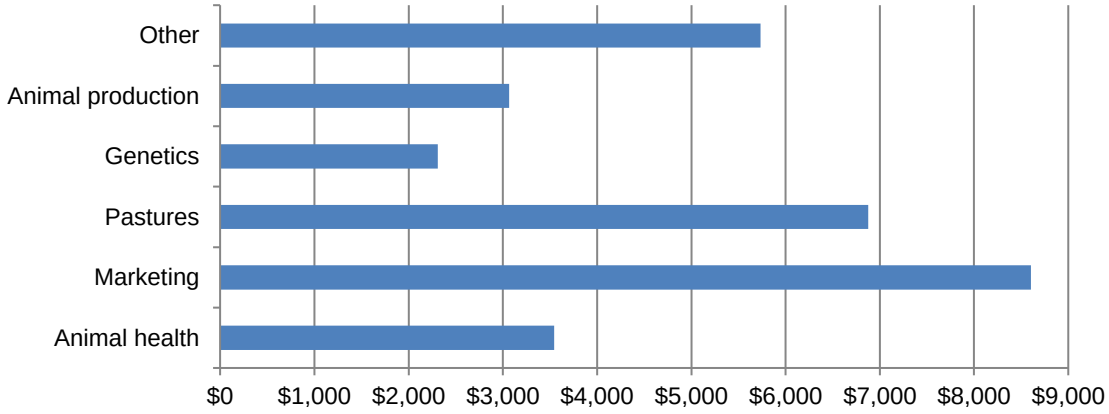



***Figure 37:Average impact of practice change adoption on farm profitability by practice change type for MBfP case study farms.***

Figure 37presents the average increase in profit per farm for each type of practice change category for MBfP case study farms (most likely scenario). However this data should be viewed with caution, as there is a range of results for farms within each category according to the specific types of changes being made at the individual farm level. For example, we are not suggesting, based on these results, that marketing based management changes should be promoted ahead of other types of changes, as the results that can be achieved by any one individual farm for any type of practice change will depend on the base level of performance prior to practice change and the particular areas of improvement required to achieve maximum gain for the business, which will vary from farm to farm.

Of the marketing based practice changes, mixed results were achieved for farmers adopting EU accreditation, with some considering it of only marginal benefit, while others had achieved, or expected to achieve, significant benefits. Other marketing practice changes which had achieved significant net benefits were direct marketing as opposed to selling through the saleyards, product branding and selling to high value restaurant markets.

The animal production practice change category included changes such as calving time, herd structure, breeder nutrition, and heifer age at first calving. The 'other' category included enterprise mix changes, risk management, and animal handling types of changes.

Table 35presents the long-term average impact of practice change adoption on MMfS case study farms for each of the three scenarios.

***Table 35: Long term average impact of practice change adoption on farm profitability for MMfS case study farms.***

| KPI | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| Extra Income per Ha | $25 | $39 | $15 |
| Extra Costs per Ha | $14 | $12 | $17 |
| Extra Net Income per Ha | $10 | $27 | -$2 |
| Extra Income per Farm | $24,415 | $39,548 | $14,480 |
| Extra Costs per Farm | $12,478 | $11,703 | $15,318 |
| Extra Net Benefit per Farm | $11,937 | $27,846 | -$838 |

Average MMfS case study farm profitability improvement for the most likely scenario was $11,937, ranging from $27,846 for the best-case scenario to -$838 for worst-case scenario. On a per hectare basis, average additional farm profitability for the most likely scenario was $10, for the best-case scenario, $27, and for the worst case scenario, -$2. A smaller proportion of MMfS farms implemented practice changes where large amounts of initial capital were required hence the smaller value for the worst-case scenario loss. Many farms implemented changes where there was flexibility in terms of spending, thus reducing the downside risk associated with the management change. The major risk with these kinds of changes was farmers not getting the production benefits required to justify the extra annual expense.

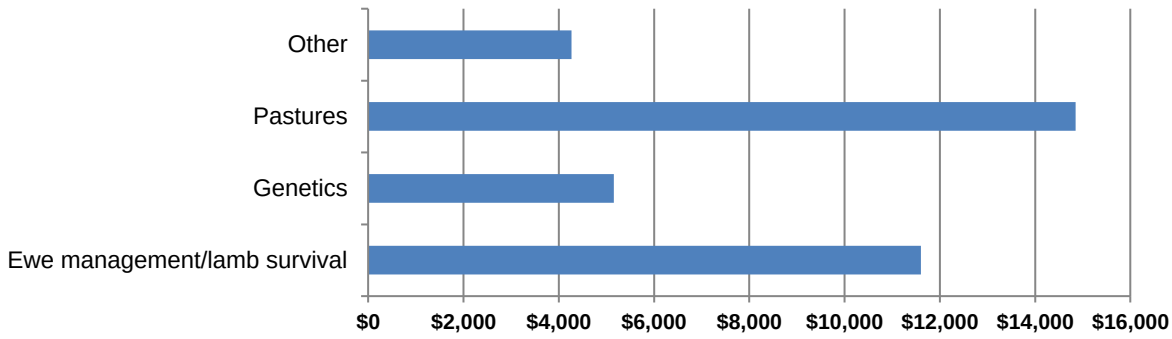



***Figure 38: Average impact of practice change adoption on farm profitability by practice change type for MMfS case study farms.***

Figure 38 presents the average increase in profit per farm for each type of practice change category for MMfS case study farms (most likely scenario). Pasture type management changes included both pasture renovation and fertiliser management as well as grazing management strategies, including crop grazing and weed management, in addition to changes relating to fodder conservation strategies. Ewe management/lamb survival changes essentially

involved improved ewe nutrition prior to joining, during lambing and post lambing. The management changes adopted included scanning, condition scoring, improved feed allocation, strategic use of supplements, ewe and lamb mob size and predation management strategies.

The 'other' practice change category included changes made in the areas of enterprise mix, wool marketing, animal handling and animal health (use of mineral supplements, worm management and disease management).

In general it is suggested that farmers were quite optimistic about the most likely production benefits generated as a result of practice change adoption. Many of the farms who had estimated likely production impacts at the time of data collection, and who had actual production results available when recontacted to review their original data in 2014, **revised down their estimates of long term average impacts as the actual results were lower than anticipated.** None of the farmers revised their initial expectations upwards.

For other farmers, while the actual production data at the time of review reflected lower than anticipated benefits of practice change adoption, they did not want to revise down their long term expectations as they felt they could still reach their targets in future years. For many farms it is still too early in the implementation phase to identify actual production benefits relative to expectations.

It is suggested that it would be a very worthwhile exercise to recontact case study farmers in another 12 months to assess whether farmer expectations of production benefits for the most likely, best-case and worst-case scenarios have changed based on actual results. It is the feeling of the authors that many farmer expectations of long-term average benefits would be revised down.

Elevensample case study evaluations are presented in Appendix 6. These evaluations present the methodology and results for most likely, best-case and worst-case scenarios for a range of practice change types for both MBfP and MMfS case study farms. They also include comments from the farmers regarding any non-dollar benefits and the major risks associated with the practice change.

### 7.2.5 Other benefits of making changes

In addition to expected dollar costs and benefits associated with practice change implementation, case study participants were also asked to identify any environmental, animal welfare and management implications of practice change adoption.

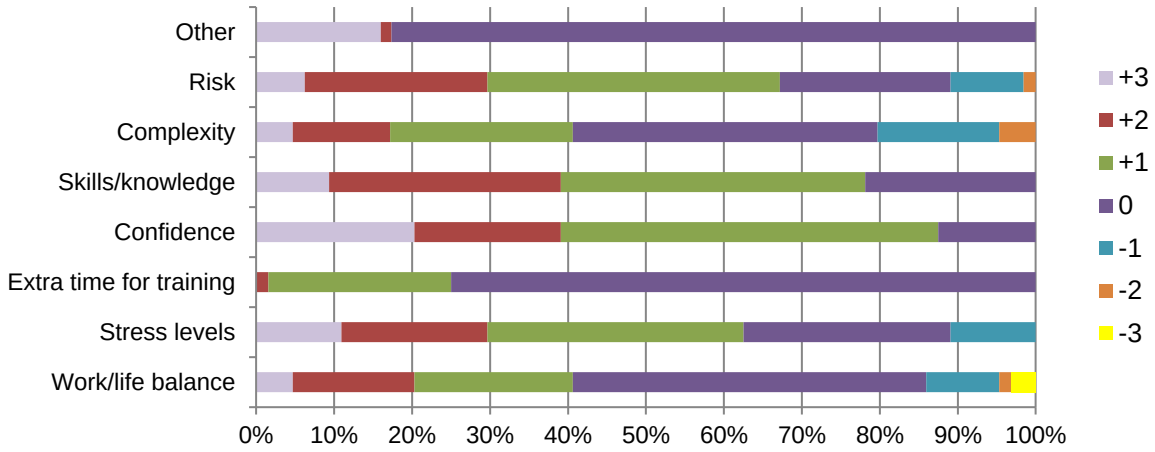



***Figure 39: Scale of actual/expected impact of practice change on key management variables for MBfP farm case studies***

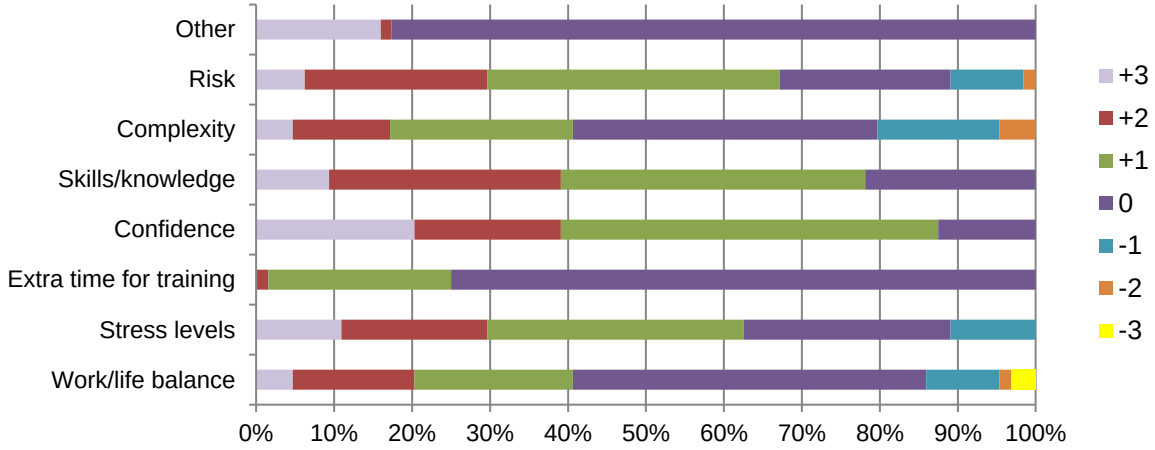



Figure 39presents a summary of the findings from MBfP case study farms where farmers have ranked the degree of impact of their practice change on a range of management variables on a scale from -3 negative impact up to +3 positive impact.

The responses for the 'other' category included improved occupational health and safety of farm workers and improved profile and credibility as providers of high quality stud cattle.

The five factors where some negative impacts were reported as a result of implementation of practice changes were increased complexity of the business, increased risk, increased stress levels, decreased work-life balance and extra time required for further training. Around 11%of case study farmers reported increased stress levels as a result of implementing the practice change. This result was primarily due to the stress associated with initial large capital outlays involved with implementation of the practice change and the unknown impact that the change would have on the business.

Fourteen per cent of MBfP farmers noted an increase in workload as a result of the practice change and therefore a decrease in work-life balance. Twenty per cent of participants stated that the practice change had increased the complexity of the business, which in some cases

had also resulted in increased farmer stress and increased workload (decreased work/life balance). Twenty-five per centof farmers noted extra time required for training in order to implement the change effectively, which is consistent with the phone survey finding that the information provided at the MBfP event(s) on its own was often insufficient for the farmer to implement the change effectively.

Seventy-eight per cent of farmers reported an increase in skills and knowledge and 88% reported an increase in confidence as a result of implementing the intended practice change.

A selection of farmer quotes regarding the impact of practice changes on management variables is presented in Appendix 7.

Figure 40presents a summary of the degree of actual/expected impacts of practice changes on a range of environmental/animal welfare variables, again on a scale from -3 negative impact up to +3 positive impact.

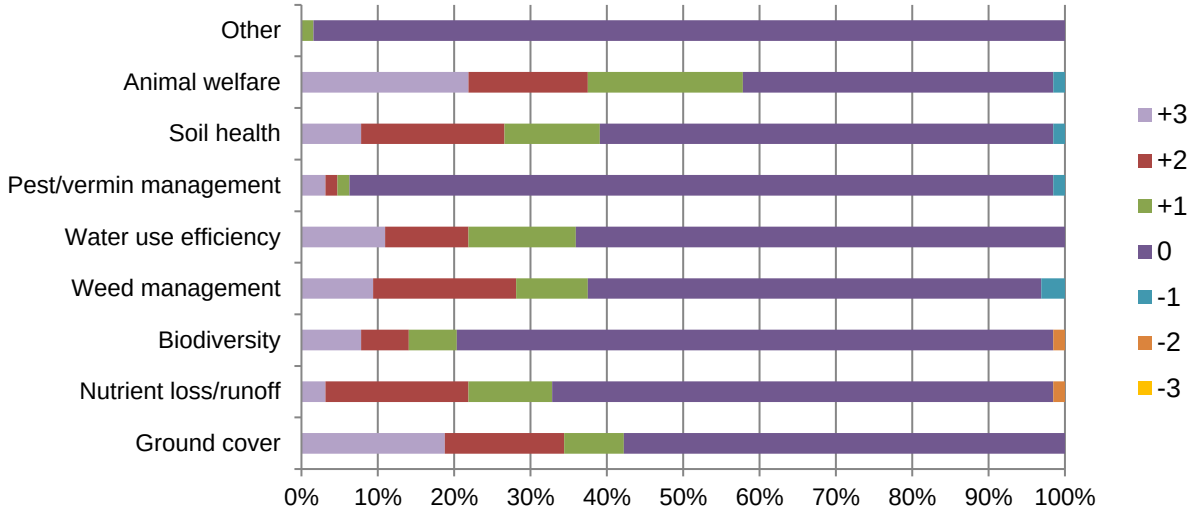



***Figure 40: Scale of actual/expected impact of practice change on key environmental/animal welfare variables for MBfP case study farms.***

The response for the 'other' category was reduced soil compaction on wetter areas during winter.

Eightper cent of MBfP case study farms reported negative environmental impacts due to practice change implementation. Comments made by farmers regarding actual or potential negative impacts included:

> *"May see more weed issues through reduced grazing pressure."*
>
> *"Potential damage from increased pig and kangaroo numbers getting on to crop and new pasture."*

*"May have a negative effect in trying to manage broadleaf weeds in pasture but on the upside may have less weeds because of denser sward of pasture."*

*"Less pasture biodiversity." (Due to renovation of native pastures)*

*"Potentially increased nutrient run-off as a result of increased fertiliser use."*

Forty-eight per cent of farmers reported no impact of their practice change on environmental outcomes, while the most positive impacts were achieved in the areas of improved ground cover/less erosion, better weed management, improved soil health and increased water use efficiency.

In terms of animal welfare outcomes, 58% of farmers reported positive impacts of practice changes on animal welfare, with 22% reporting a very high-expected animal welfare benefit. Only one farmer identified a possible negative impact of practice change adoption on animal welfare and this related to a possible increase in the incidence of grass tetany due to increased green feed availability.

Some examples of farmer comments regarding environmental and animal welfare impacts of practice change adoption are presented in Appendix 8.

Figure 41presents a summary of the findings from MMfS case study farms where farmers have ranked the degree of impact of their practice change on a range of management variables on a scale from -3 negative impact up to +3 positive impact.

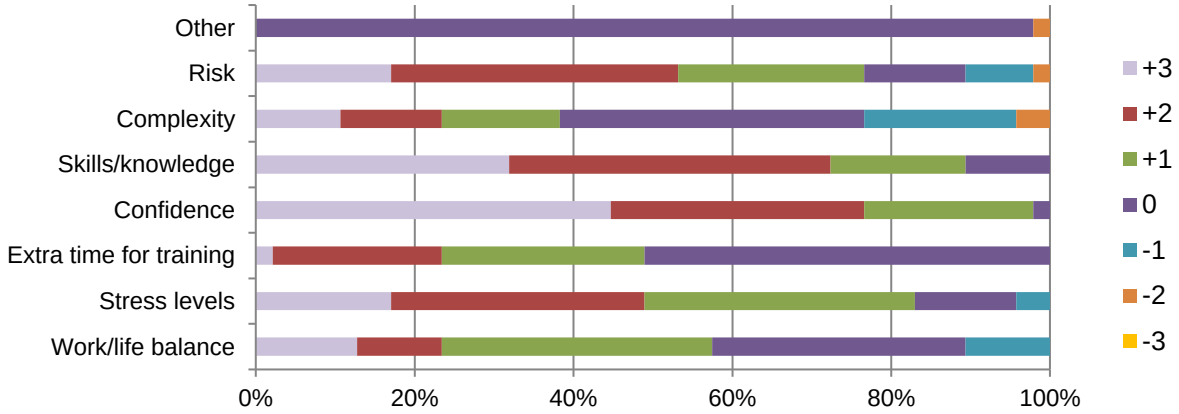



***Figure 41: Scale of actual/expected impact of practice change on key management variables for MMfS farm case studies.***

The response for the 'other' category was: "Increased paperwork and management of data - need more data, collecting more but not always managing it in a timely fashion at the moment."

The four factors where some negative impacts were reported as a result of implementation of practice changes were increased complexity of the business, increased risk, increased stress

levels, and decreased work-life balance. Around four per cent of MMfS case study farms reported increased stress levels as a result of implementing the practice change. This result was lower than for the MBfP case study, possibly due to a lower proportion of farms implementing practice changes where large initial capital outlays were required, and also many farmers reported reduced stress levels due to less lamb and ewe deaths.

Eleven per cent of farmers noted an increase in workload as a result of the practice change and therefore a decrease in work-life balance. Twenty-three per cent of participants stated that the practice change implemented had increased the complexity of the business, which in some cases had also resulted in increased farmer stress and increased workload (decreased work/life balance).
Eighty-nine per cent of farmers reported an increase in skills and knowledge and 98% reported an increase in confidence as a result of implementing the intended practice change.

A selection of farmer quotes regarding the impact of practice changes on management variables is presented in Appendix 7.

Figure 42presents a summary of the degree of actual/expected impacts of practice changes on a range of environmental/animal welfare variables, again on a scale from -3 negative impact up to +3 positive impact.

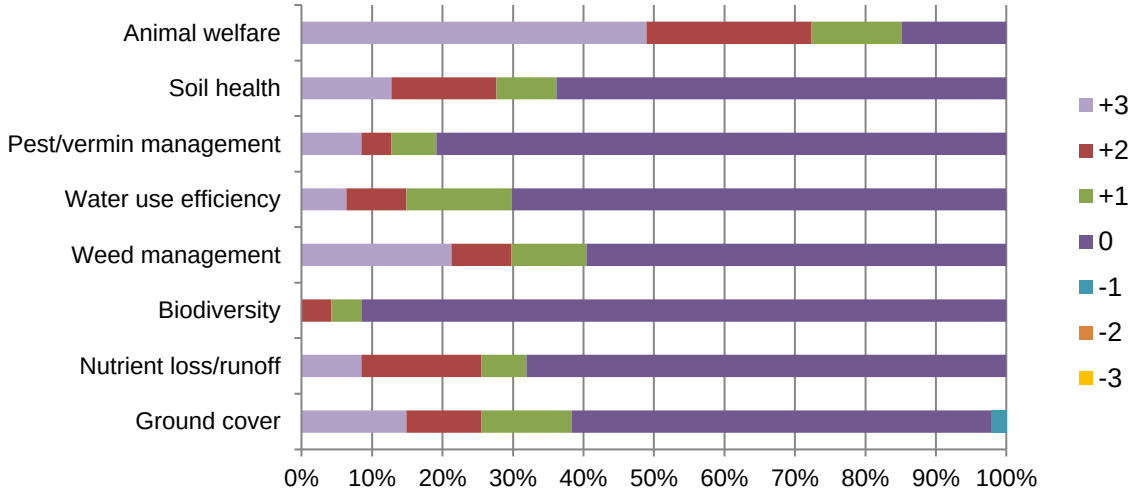



***Figure 42: Scale of actual/expected impact of practice change on key environmental/animal welfare variables for MMfS case study farms.***

In a very positive outcome, only one MMfS case study farm reported a negative environmental impact due to practice change implementation. The farmer commented that due to moving out of stock trading and increasing breeder numbers there was less flexibility to effectively manage groundcover.

Forty per cent of farmers reported no impact of their practice change on environmental outcomes, while the most positive impacts were achieved in the areas of improved ground

cover/less erosion, better weed management, improved soil health and increased water use efficiency.

In terms of animal welfare outcomes, 85% of farmers reported positive impacts of practice changes on animal welfare, with 49% reporting a very high expected animal welfare benefit. This was largely due to large reductions in lamb and ewe deaths on many farms as a result of practice change adoption. No farmers reported potential negative impacts on animal welfare due to practice change adoption.

Some examples of farmer comments regarding environmental and animal welfare impacts of practice change adoption are presented in Appendix 8.

# 8 Recommendations

## 8.1 Recommendation's for how MLA can improve adoption from MMfS and MBfP events

The following recommendations have been made to assist MLA to achieve more adoption from MMfS and MBfP events.

**Recommendation 1: Capture participant'sintention to change or not to change at ALL MBfP and MMfS events.**

This study has shown that recording an intention to change leads to 74% of participants making change.McKenzie-Mohr and Smith[11] demonstrated that getting people to articulate a commitment to making a change increases the likelihood of them actually making the change. The recommendation therefore is to ensure that all events allow time for participants to have the discussion about:

- **What information/skills were useful from the event**
- **What they intend to do with the information and skills gained i.e. changes on farm they intend to make.**
- **What else could assist them to implement change**

***The decision needs to be made by event organisers and deliverers to value this as a vital step in the process of facilitating practice change.***

This will often require cutting some technical content from the program and replacing it with a facilitated process thatallows participants to reflect on their learning and how it might applyto

[11]McKenzie-Mohr, D and Smith, W (1999) Fostering Sustainable Behavior: Chapter 3 Commitment – From Good Intention to Action. ISBN:0-86571-406-1

their situation. This will also require training event organisers to ensure they have the skills to facilitate and capture the discussion. At present the feedback forms used for MBfP and MMfS events allow this information to be recorded. However, the challenge is getting organisers and participants to recognise the benefits of taking a little extra time reflecting on the relevance and application of the information to their situation.

**Recommendation 2: When marketing events, MLA should emphasise the less tangible lifestyle benefits as well as the production and profitability benefits. Feeling 'more in control', 'less stressed' and having a 'better work/life balance' werementioned by farmers as important benefitsfrom making particular changes or not making a change where the impact is negative.**

More than 60% offarmers making their intended change from the phone surveys reported that one of the main benefits was 'feeling more in control or less stressed'. Similarly some of the farmer case studies reported negative benefits in these areas from making changes.

This is one area that is often overlooked when promoting the benefits and costs of making changes on farm. The research and development work highlights the production and profitability benefits but rarely examines the effect making the changes will have on farmers' stress levels, work/life balance and feelings of being more in control, or how it will affect their personal standing in their local community. However farmers are constantly evaluating whether the change will be beneficial to them from a stress/control point of view and **will sometimes make changes that are not necessarily financially beneficial** because it reduces their stress levels, increases their feelings of wellbeing and satisfaction with farming, their perceived standing among their peers or just makes life easier. Similarly **they will sometimes not make changes that can increase their productivity/profitability**because of the perceived affect they think it will have on their stress levels or feelings of satisfaction with farming and life, or their standing in the community.

There is a body of work which shows that what is traditionally thought of as the 'Middle Majority' in the technology of adoption life-cycle, are very driven by their values, that their values are different from the 'Innovators' and 'Early Adopters', and that these values drive adoption decision making in a different way. Howie[12]states in his 'How to use persuasion skills to drive technology adoption' workshop that *"it is not that the mainstream are technology illiterate, it is simply that the technology is not their primary interest, or they have more pressing needs".*

Some examples of how changes have impacted positively on farmers come from the phone surveys. One farmer when asked the main benefit of making a change during the phone interviews said he could 'sleep better' as he was confident in his record keeping for auditing

[12]Howie, B (2012), How to use persuasion skills to drive technology adoption. Workshops notes copyright to C-Qual Agritelligence Pty Ltd

purposes, and another said making the change ‘saved his sanity’. These benefits are ones farmer’s value more highly that the perceived economic and productivity gains and have a powerful effect when used to promote the benefits of certain practices.

**The recommendation here is to identify and promote the non-dollar benefitsand costs of making management changes, and to engage in the discussion of the positive and negative impacts of changes on work/life balance, stress levels, management complexity and any other relevant factors during the event.**

**Recommendation 3:Events be designed, where possible, to have farmers identify and record SIMPLEon farm measures (applicable to the event) to enable them to track and monitor key productivity indicators over time i.e. stocking rate, kg P applied/ha, weaning %, ewe mortality% etc.**

Farmers struggle to measure the change or the benefits of a change in terms that are meaningful to them. It is estimated from the case study part of this project that only 5-10% of farmers had evaluated the likely costs and benefits of adoption of their practice change prior to implementation. After they had made a management change, the majority of farmers hadn’t collected or collated the data that would enable them to evaluate the effectiveness of changes they had made.***They repeatedly commented that they ‘should’ have these records at hand but didn’t.*** They either hadn’t collected the appropriate data or they had the data, but hadn’t collated and analysed it to determine if their change was effective.

In some cases the decision to implement a practice change was not a sound one based on the costs and benefits involved. While some farmers were surprised to find that the net benefits were not as high as expected, or were marginal or even negative, others were not so surprised. One farmer commented prior to the completion of his analysis, **that he expected the results to show a negative return but that was the price he has to pay for being a 'good farmer'**. This comment raises the issue of farmers perhaps feeling that within a group context they feel that they want to be seen to be adopting 'best practice' management strategies regardless of whether it is profitable or not.

**To avoid this type of pressure and subsequent implementation of strategies which are not profitable for individual farms, it is recommended that event facilitators and coordinators:**

1. Make it clear that implementation of any particular 'best practice' management strategy will not necessarily be 'best practice' or profitable for all farms. The optimum production system for individual farms depends on a range of factors including natural resources, availability of capital and labour, quality of genetics and pastures, farm size and management skill, thus the decision to implement a change needs to be evaluated on a case by case basis.

2. Highlight to farmers that there is always an opportunity cost associated with any decision to change. Farmers need to think about management changes in terms of a risk/reward framework. They need to target issues, which will generate greatest reward at lowest risk first and then move up the scale from there. Using this framework the benefits from each prior improvement will enhance the benefits from subsequent improvements. This discussion should form part of the initial group meeting content.

3. Encourage farmers to trial or test particular management strategies first before fully implementing. This gives farmers an opportunity to iron out any management issues on a smaller scale before a full adoption, in addition to identifying the kind of costs and benefits, including non-dollar costs and benefits, and risks that are associated with the change, and whether it is worth expanding adoption over a larger scale. It was evident from the phone surveys that 80% of farmers adopted change with no trialling or testing. From our own experience, farmers do not necessarily understand how to set up a trial on farm to provide the evidence they need and this is something that could be addressed in the Category B and C events when discussing making changes.

4. Any messages delivered which relate to adoption of practice changes where significant capital outlays may be required, such as pasture renovation, should be accompanied by information regarding how to evaluate the likely costs and benefits of such an investment. This may involve a simple partial budget, or showing farmers how to use the pasture budget tool for their own farm figures. Again it is our experience that many farmers do not know how to do this (including many event facilitators) and it is an area MLA could invest in to train extension professionals.

The case study farmers most able to identify the effect of a practice change were participants in programs such as Lifetime Ewe Management. Lifetime Ewe Management workshops allow farmers to compare a number of figures over time i.e. ewe mortality, scanning rates, weaning percentages etc. and this in turn enhances adoption of the practices that contribute to improving these figures. There is merit in exploring extension methodologies that help track of the impact of changes over time in real terms and help to reinforce the benefits of change[13].

**Recommendation 4: MLA utilise the case study results to provide motivation for farmers to invest in practice change adoption and to promote an attitude of continuous improvement in farmerdecision-making.**

The results from the case study evaluations showed that large improvements in annual farm profit can be achieved as a result of practice change adoption. This kind of hard evidence is a

[13] This is different from 'benchmarking' as it is currently used in extension as this is usually a one-off process or at best an annual process that is often too complex for the needs of the farmer for assessing and monitoring the benefits of a practice change. Ultimately the form of monitoring we are recommending is perhaps the first step that may lead to annual benchmarking.

proven motivator for farmers to trigger action in terms of adoption of new management strategies and therefore could be used at MLA events as examples of the types of gains that can be made.

However it is important to use the data with caution and not to recommend particular management practice changes over others based on case study results. What is a suitable management change for one farmer may not be the most suitable for another farmer in the same group. Farmers need to be shown how to identify and evaluate what are likely to be the most beneficial changes for their individual businesses.

**Recommendation 5: MLA runs events designed to provide the technical informationAND the follow-up support required for participants to makethe change on farm.**

This could be as simple as a follow-up day a number of weeks after the initial event or some one-on-one support for farmers who have identified a need. It is important that any follow-up events incorporate ways for farmers to 'see' the change in practice on others' farms and are able to 'talk to other farmers' who have already made the change.

Many farmers mentioned in both the phone interviews and case studies that they would like a follow-up event, to help them build on their learning and be better equipped to make change.

They repeatedly mentioned "talking to other farmers" and "seeing how it works on someone else's farm" gives them the additional information they need and more importantly ***the confidence*** to try something new. When making complex change, the information presented at a one-off event is often not enough to provide farmers with the confidence to make the change.

Members of on-going farmer groups mentioned the importance of the "support" they got from talking to other group members when planning to make change.

It is worth reinforcing to facilitators of on-going groups the need to set aside time to review previous events and identify additional topics/skills/information required by the group to be able to implement change.

The tiered structure of events currently used by MLA (Category A, B and C events) does support this recommendation as a Category A event can be followed up by a B or C event to help develop and extend skills and knowledge and assist with implementation. However at this stage, the events are not seamlessly integrated to allow this to happen. We recommend that MLA consider developing and resourcing follow-up events to support on-going development of the farmers that were initially engaged.

**Recommendation 6: Events continue to be delivered that target MLA priorities for adoption.**

This is a strategy already being implemented by MLA and this report supports that it works. That is the types of practice changes recorded by participantsare proportional to the focus of the events MBfP and MMfS delivered. For example if “Wean more lambs,” continues to be a priority module in MMfS, it makes sense to continue to deliver proportionally more events with this focus.

**Recommendation 7: MLA continues to develop and support the tiered event structure (Category A, B and C events).**

The analysis in this report showed that participants’ responses post-event showed that more Category C and B participants either intended to change and/or had already made change than Category A participants (Table 13 and Table 14). This suggests that investing in the development and delivering of these categories of events is vital if MLA wants to maximise adoption from its investment.

Interrogating the MLA databases would allow participants of previous events (especially Category A events) to be targeted for follow-up events to allow them to become ‘repeat’ customers and build on the skills and knowledge they acquired at the initial event. The issue with this recommendation becomes resourcing this approach as the databases in their current form do not allow for easy interrogation (see Recommendation 9 for further discussion) and the withdrawal of extension services in some areas has diminished the capacity of the extension professionals to re-engage with the farmers from previous events. In addition, this would take time that is currently not allocated to program delivery.

There is also the issue of integrating the events to ensure Category A events flow on to appropriate Category B and C events and that they are appropriately planned to allow participants to participate locally and in an appropriate timeframe. Maintaining on-going groups of farmers that participate in a network type program i.e. BESTWOOL/BESTLAMB or BetterBeef, allows for farmers to be kept engaged while new events are designed and delivered. However this takes additional resources to maintain these group structures and is something that needs to be factored into future MBfP and MMfS program development to ensure farmers don’t become disengaged every time a one-off event is completed. The results from this study showed that 50% of survey participants were members of on-going groups and that this supported practice change.

**Recommendation 8: The key messages in this report be made availableto service providers to enable them to use the recommendations to continuously improve their service delivery.**

There are many recommendations in this report that would enable service providers to enable them to:

- Design or re-design events to increase adoption

- Increase participation in events through better understanding of benefits to farmers and what they are implementing and how and whom is influencing/assisting adoption.
- Better targeting communication and marketing of events through better use of existing database data to understand who is participating and opportunities to offer additionalevents or branch into other geographic areas.

It is suggested the distribution of this report be supported by a session (face to face or virtual) for interested service providers to attend to enable questions and discussion of the recommendations and their application.

## 8.2 Recommendations for how MLA could improve the process of measuring practice change.

Measuring the costs and benefits of practice change within the scope of this project proved challenging. Many farmers didn't keep accurate records and it was time consuming and difficult to access this data.

The farmers interviewed for the phone surveys that went on to have their production and financial figures collected for the case studieswere often found to have overestimated the benefits of their practice change.

The following recommendations relate to how MLA could improve the process of measuring practice change.

**Recommendation 9: Interviews be conducted 12-18 months after the event to allow sufficient time to make changes but not too long that farmers have forgotten what they attended and what they did as a result.**

If MLA is to conduct this type of study again, it is recommended that interviews be conducted within a time frame (12-18 months) to ensure accuracy of information gathered as well as allow time to make change.

**Recommendation 10: The phone interview process be used to identify potential case studies.**

If MLA is to conduct this type of study again, we recommend identifying case study participants following phone interviews as this was the most successful strategy we found for determining the best farms to use for case studies and allowed us to form a relationship with the farmer that lead to the farmer being more open to participating in a more detailed analysis of their business. This means that case study recruitment would occur after the phone surveys.

Alternatively if MLA were to conduct this type of analysis again, it would be useful to identify at least one farm per category C event (if it is run over more than one day) for collection and evaluation of data associated with implementation of one or more practice changes as a result

of event attendance. With the agreement of the farmer, this data could be used by the whole group (it need not include sensitive financial information) as a learning case study, in addition to providing valuable information for MMfS and MBfP in terms of assessing changes in farm productivity and profitability.

**Recommendation 11: MLA databases beredesignedto be participant based rather than event based and structured to allow better interrogation of data.**

One of the issues experienced in this evaluation relates to the way the MLA databaseswere constructed. Currently both the MBfP and MMfS databases arespread sheets and basedupon participation at events rather than recording an individual's participation in the program. As such, there are often multiple conflicting entries for the same participant in terms of contact details and demographics and it is difficult to track whether multiple members of the one business are attending events, or any gender, age or position in the business statistics on which to characterise participation. Some of the inconsistencies are also due to misinterpretation of hand written feedback forms (hand writing quality varies) and that **nobody validates the entries** (i.e. checks them afterwards for obvious errors such as digits missing from phone numbers or blanks in contact information).

While not all of these errors are able to be rectified easily, use of a Customer Relationship Management (CRM) database is recommended to MLA for use for MBfP and MMfS to track participation more effectively to enable follow-up and practice change to be more effectively monitored. It is understood that DEPI Victoria has recently invested in a CRM database (Sugar) and this may help to solve some of the issues we experienced with finding farmers for the case studies and phone interviews, as well as in analysing event participation.

Alternatively QLD DPI has constructed its database for Leading Sheep that allows individual attendance to be recorded against multiple events and multiple business members as well as the percentage of the workshop attendees that recorded intentions to change. It does not include against individuals their intended change, but this is something that could be built into the database. This database is a simple excel spreadsheet.

The benefits of using a CRM database (rather than a spreadsheet) would be the ability to track:

- Participation in particular events and event categories over geographic areas. What are the trends? Are there obvious gaps in delivery?
- An individual's participation in MMfS and MBfP events over time. Are they going to multiple events? Which events? Are there other events they may be interested in that could be directly marketed to them?
- Farm business participation in MMfS and MBfP events over time. Are multiple members from the one business going to the same or different events? Does this provide an opportunity to market other events to the business and to different members of the business?

- Engagement of farmers by geographic location. Do some geographic areas present opportunities to deliver additional events that have been successful in other areas?Does the rate of participation in MMfS and MBfP match the demographics for farmers in that area? For example in an area with a large number of sheep farmers, do they have high farmer engagement in MMfS or could more be involved?
- Where are MMfS and MBfP having their biggest impact geographically i.e. largest participation per farm or greatest number of attendances at multiple events? What opportunities does this present for other areas?
- Other demographics such as participation by women, young farmers, farm workers vsmanagersvs ownersvs service providers, age of participants, indigenous and multicultural landowners. Measurement of these demographics in addition to the ones already collected (farm and enterprise size) can provide information to enable better targeting of events to potential interest and enable better allocation of resources for events.

The MLA databases provide an untapped resource to enable better targeting of events and gathering information about participation. Product retailers are already expert in this area and much could be learnt from them about how to make the most of the databases for future design and marketing of MLA events, not just for MMfS and MBfP.

# 9 Conclusions

This project has presented the results from 554 farmer phone surveys and 111 case study evaluations for farmers across Southern Australia attending MLA funded MBfP and MMfS events. The results from the phone survey evaluations have been utilised to identify and present the proportion of farmers adopting intended and unintended practice changes as a result of event attendance. The data has also provided insight into factors that have supported and hindered practice change adoption, reasons for non-adoption of intended changes, farm level scale of adoption, types of benefits expected, and social benefits gained from event attendance. The farm case study evaluations have quantified the productivity and profitability impacts of practice change adoption, in addition to identifying and rating likely impacts of practice change adoption on a range of environmental, management and animal welfare factors.

The results from this study have revealed that MLA's investment in the MBfP and MMfS programs is having a very positive impact on increasing farmer skills, knowledge and confidence required to adopt new management practices to improve farm productivity and profitability. The study has also generated a series of key learning's that have been presented as recommendations for improvement in practice change adoption by participants at MBfP and MMfS events, and improvements in the process of collection and evaluation of data to measure the impacts of practice change adoption on farm.

# 10 Appendices

## 10.1 Appendix 1 (next page) Phone survey Questionnaire

# MLA Majority Markets Phone Survey<br>

**1. Please record the details of the survey particpant**

Name

Date and time of survey

contact phone number

participant ID number

Interviewer name

**2. What database did the participant come from?**

MMfS

MBfP

**3. Introduction – Hello I am <>, I am calling for <> as per the arrangements made by <>. This interview will take approx <> mins and I am taking notes from our conversation for the purposes of evaluating the Meat and Livestock Making More from Sheep and More Beef from Pastures programs. Do you consent to having this information recorded?**

Yes No

## 2.

***4. Please confirm the participants details in the database are correct and enter their data into the following boxes below:**

Location of participants farm (township name)

Total number of head of stock (beef or sheep or both)

Size of property (ha)

## 3.

**5. Can I please confirm that you attended <> event on <> at <location>?**

Yes No

Event details

## 4.

**6. Please indicate which state the event was held in**

NSW

QLD

SA

TAS

VIC

WA

## 5.

**7. At that event you completed a feedback form stating that you intended to make a change. My records show that you said you would do <>;; is this information correct? (ie is the information correct not have you made the change)**

Yes No

Please detail the change the farmer intended to make

## 6.

**8. Have you made a different change that we could discuss?**

Yes No

## 7.

**9. Is there a reason why you have not made any changes as a result of attending this workshop?**

Workshop/event reinforced the practices I already undertake

Information was not relevant to my situation

I am not in a position to make any changes

Cost

Time required to implement

Time required to seek more information and evaluate options

Need more skills

Idea didn't stack up on further reflection

Other business/family members opposed

Other priorities ie other changes more important

Other

Please add details for answer choices

**8.**

**10. What MMfS or MBfP module (s) does this change align to? (enter detail from database or determine yourself from the interview)**

MBfP Module 1 -- Setting Directions

MBfP Module 2 -- Tactical stock control

MBfP Module 3 -- Pasture Growth

MBfP Module 4 -- Pasture Utilisation

MBfP Module 5 -- Genetics

MBfP Module 6 -- Weaner throughput

MBfP Module 7 -- Herd Health and welfare

MBfP Module 9 -- Meeting Market specifications

MMfS Module 1 -- Plan for success

MMfS Module 2 -- Market focused wool production

MMfS Module 3 -- Market focused lamb and sheep meat production

MMfS Module 4 -- Capable and confident producers

MMfS Module 5 -- Protect your farms natural assests

MMfS Module 6 -- Healthy soils

MMfS Module 7-- Grow more pasture

MMfS Module 8-- Turn pasture into product

MMfS Module 9 -- Gain from genetics

MMfS Module 10 -- Wean more lambs

MMfS Module 11 -- Healthy and contented sheep

**11. Since you completed this workshop, did you make this change/fully implement the change?**

Yes

Partially

No

Yes -- I was doing this practice before the workshop -- workshop reinforced the change

**9.**

**12. What scale was the change made on?**

Paddock scale or flock/herd trial

Whole enterprise or whole farm

**10.**

**13. Do you have any plans to increase the scale of this change?**

Yes

No

Maybe -- need to evaluate the outcome first

Reasons for not up scaling

**11.**

**14. When are you considering increasing the scale of this change?**

within the next 12 months

1--2 years

>2 years

when I get the money

How might you increase the scale?

**15. Have you benefited from this change yet?**

Yes

No

Not yet

**12.**

# MLA Majority Markets Phone Survey<br>

## 16. What prevented you making this change?

Not the right season/time of year to implement

Cost

Time required to implement

Time required to seek more information and evaluate options

Need more skills

Idea didn't stack up on further reflection

Other business/family members opposed

Other priorities ie other changes more important

Other

More details

## 13.

## 17. What have been the benefits?

Easier management

Increased income

Reduced costs

Increased production

Decreased losses

Time saved

Feel more in control/Less stress

More timely operations on farm

other

Other (please quantify benefits if possible)

**18. Was there other information resources or activities that assisted you to implement this change?**

No/not really

Being a member of an on--going farmer group

Other courses/field days/workshops

Written material ie web/books/journals etc

Discussions with professionals ie accountant, consultant, stock agents

Discussions with other farmers

Discussions with other business members or family

other

add detail to answers above

**19. Pick the most important source of information, resource or activity that assisted you to implement change?**

N/A

Attending the workshop/event

Being a member of an on--going farmer group

Other courses/field days/workshops

Written material ie web/books/journals etc

Discussions with professionals ie accountant, consultant, stock agents

Discussions with other farmers

Discussions with other business members or family

**20. Did this event provide you with enough information/skills to implement the management practices recommended?**

Yes

Partly

No

If no or partly, what could have helped?

**21. Have you made any other changes since completing this workshop?**

Yes

No

## 14.

**22. What other changes did you make?**

**23. What triggered your decision to make this additional change?**

Information gained from attending THIS workshop/event

Information and discussions gained from being a member of an on--going farmer group

Attendance at subsequent workshops/field days/events

Information gained from media ie rural newspaper/radio/tv

Information gained from internet/books/journals/specialist publications ie feedback

Discussions with business partners and family

Discussion with other farmers

Discussion with professional advisors ie accountant, consultant, stock agent, etc

please add details

**24. What scale was the change made on?**

Paddock scale or flock/herd trial

Whole enterprise or whole farm

## 15.

### 25. Do you have any plans to increase the scale of this change?

maybe -- need to evaluate outcome first

No

Yes

Reasons for not up scaling

## 16.

### 26. When are you considering increasing the scale of this change?

within the next 12 months

1--2 years

>2 years

when I get the money

How might you increase the scale?

### 27. Have you benefited from this change yet?

Yes

No

Not yet

## 17.

## 18.

### 28. When do you expect to see the benefits?

Within 12 months

1--2 years

2--5 years

5--10 years

>10 years

Never

### 29. What do you think the benefits will be?

NONE

Easier management

Increased income

Reduced costs

Increased production

Decreased losses

Time saved

Feel more in control/Less stress

More timely operations on farm

Other (please specify)

## 19. Copy of page:

### 30. What have been the benefits?

Easier management

Increased income

Reduced costs

Increased production

Decreased losses

Time saved

Feel more in control/Less stress

More timely operations on farm

Other

Other (please quantify benefits if possible)

## 20. Copy of page:

# MLA Majority Markets Phone Survey<br>

## 31. When do you expect to see the benefits?

Within 12 months

1--2 years

2--5 years

5--10 years

>10 years

Never

## 32. What do you think the benefits will be?

Easier management

Increased income

Reduced costs

Increased production

Decreased losses

Time saved

Feel more in control/Less stress

More timely operations on farm

Other (please specify)

## 33. Was there other information resources or activities that assisted you to implement this change?

No/Not really

Being a member of an on--going farmer group

Other courses/field days/workshops

Written material ie web/books/journals etc

Discussions with professionals ie accountant, consultant, stock agents

Discussions with other farmers

Discussions with other business members or family

add detail to answers above

**34. Pick the most important source of information, resource or activity that assisted you to implement change?**

N/A

Attending this workshop/event

Being a member of an on--going farmer group

Other courses/field days/workshops

Written material ie web/books/journals etc

Discussions with professionals ie accountant, consultant, stock agents

Discussions with other farmers

Discussions with other business members or family

**35. Did this event provide you with enough information/skills to implement the management practices recommended?**

Partly

Yes

No

If no or partly, what could have helped?

**21.**

***36. As a result of attending the activity, have you:**

| | Yes | No | Not sure |
|---|---|---|---|
| Made on--going/new connections with other participants in the program | | | |
| Been able to access wider professional networks than before | | | |
| Thought more about planning for the future | | | |
| Felt more confident about facing future challenges | | | |
| Changed the goals of your business | | | |
| Attended other events and workshops to improve your knowledge and skills | | | |

comments?

***37. As a result of all the changes you have made, have you Improved your management of your natural resources such as:**

| | Yes | No |
|---|---|---|
| Soil | | |
| Pasture | | |
| Water quality | | |
| Native vegetation | | |
| Other | | |

Other (please specify)

## 22.

***38. Thank you for taking the time to complete this phone interview. We may like to follow up with you to complete an on--farm assessment of the value of the changes you have made in the future -- would you like to be involved?**

Yes Maybe No/Not relevant

comment on choice

## 23.

***39. Are you a member of an on--going farmer group?**

Yes

No

if yes, what group(s)?

## 24.

# MLA Majority Markets Phone Survey<br>

**40. Please record a comment as to the error in the database or gain further information from the interviewee that may assist to correct this mistake -- thank the participant and close the call.**

**41. Did you attend another MMfS or MBfP event that we could discuss?**

Yes

No

***42. What type of event was it?**

MBfP

MMfS

What was the event you attended?

## 25.

***43. Do you want to exit this survey?**

Yes

No

## 26.

thank the participant for participating in the survey

## 10.2 Appendix 2: Letter send to prospective phone survey interviewees


Email:
Mobile:

Sunday 19th August 2012

«First_Name»«Last_Name»
«Address_1»
«Town»«State2»«Post_Code»

Dear «First_Name»

**Invitation to participate in evaluation of MLA programs – Making More from Sheep and More Beef from Pastures**

In«Month_of_event»you attended the «MMfS_or_MBfP»event *«Title_of_Event»* at «Location_of_event». At the conclusion of this event you completed an evaluation form and indicated that:

- **We could contact you for further follow up**
- **You had made a practice change on your farm as a result of participating in this and other workshops/events - *«If_yes_detail_of_change_implemented_1»***

We would like to arrange to conduct a brief interview with you, between 20th and 31st August, which will take no more than 20 minutes, to learn more about the changes you have made on farm and whether these changes have made a difference to your business, already or into the future.

XXXX from My Beechworth Secretary will telephone you this week to arrange an interview time. Alternatively you may email XXXX at XXXX@gmail.com indicating your willingness to participate in the process.

The information gained from this survey process will be used to assist MLA and its partners (Department of Primary Industries, consultants and other service providers) to assess the value of the program and to guide them in the development of other events, workshops and programs. The purpose of this evaluation is to ensure the program is delivering the maximum amount of benefits to farmers and establish areas for improvement.

Your participation would be greatly valued and appreciated. Your information will be treated as confidential and you will only be identified if permission is granted

If you would like more information relating to the process, please contact XXXXX on mobile 0400 XXX XXX or email XXXX@inspiringexcellence.com.au

Warm Regards

Project Leader
Extension Program Evaluation
On behalf of MLA

Mobile 0400 282 222
Email XXXX@inspiringexcellence.com.au

Meat &Livestock Australia Limited ABN 39 081 678 364
Level 1, 165 Walker Street North Sydney NSW 2060
Postal Address: Locked Bag 991 North Sydney NSW 2059
Ph +61 2 9463 9333.Fax +61 2 9463 9393. www.mla.com.au

## 10.3 Appendix 3: Reasons for not up scaling the change (phone survey)

*"Doing half the farm first and then will look at the rest of farm in a staged project."*

*"Not worth putting it on the one or two paddocks that have a lot of sedge."*

*"We have used 'proper' rotational grazing on one particular block that was already set up for it with fencing etc. and it worked well. On the rest of the property we have always used a mix of rotational grazing and set stocking and will keep doing that. I don't want to go all rotational grazing I can't finish stock that way - they finish much better when set stocked."*

*"Good seasons - been a bit complacent."*

*"Need to see how palatable it is in summer when it goes rank and how well the cattle do on it before considering expanding the amount of paddocks sown to it."*

*"Need to evaluate the effect of not giving the older cows Se on their resulting fertility in August next year."*

*"Had to split the herd into cow herds because can't demonstrate EU accreditation on some of the cows and can't always source cows that meet EU standards for origin. Also have a dairy so running two farms."*

*"Joined heifers later than before. Spring born heifers were joined to calve in the autumn herd and autumn born heifers were joined to calve in the spring herd. This was to increase cow size and reduce calving difficulties."*

*"Would do it again if the pulp was available again."*

*"Trialed a multi-mineral mix and had no response so decided not to worry about zinc and VitA supplements."*

*"Mapped out animal health treatments. Have structured program and now record what is done/ budgeted."*

*"I have observed no benefits from cross mob weaning over my previous strategy so won't be doing it again."*

*"General idea is to get more productive But getting older. Will be selling off some farms soon."*

*"I will be slashing as more of a rotation of paddocks. Slashed at the end of winter and will do a similar amount each year."*

*"Not interested in going down the whole techno grazing path as too labour intensive and it would tie metoo much to the farm. I am happy to just use the electric fencing on an ad hoc paddock basis as needed."*

*"Just a gradual implementation."*

*"We did CS ewes but as a result we ended up feeding the ewes more than we should have and it cost us money. I don't think we will CS sheep again but instead we will try to improve our skills in pasture and feed budgeting and the ewe's condition score will sort itself out!"*

*"Not currently using Guadair - finding it difficult to modify practice of vaccination with confidence. Know that I can vaccinate quickly two handed but do think I need to change to one handed, just difficult finding the time to build my confidence to do it."*

*"Will play it by ear depending on season."*

*"Trialing grazing cereal for the first time - and trialing rotational grazing for the first time - Have to see how it goes."*

*“I will repeat the process next year but don't require any extra feed at this stage because the stock numbers are not high enough to put in any extra crop for grazing.  Also used it as a clean paddock for lessoning worm burdens.”*

*“Can’t at the moment because father makes decisions on the main farm.  I am implementing the changes on a smaller property - 500 acres.”*

## 10.4 Appendix 4: Benefits of making change (phone surveys)

These comments have been sorted according to the main theme of the comment as they relate to the categories in ***Figure 10***.

**Production Benefits**

*"Easier lambing with higher growth rates."*

*"We are fat scoring - ewes - feeding them better more lambs on the ground from feeding twiners better."*

*"More growth and utilisation of pastures."*

*"Controlling barley grass. Less supplementary feeding and seeing more quality in the pasture late in the season."*

*"All the cows are in calf. Used it to manage risk - need to have calves on the ground. Previous year 10% not in calf."*

*"Nitrogen and lime have increased pasture production. Costs have gone up! (Fertiliser costs have gone up). Have seen the benefit in increasing the weight of sale cattle."*

*"Cut more hay of higher quality."*

*"Don't have to drench a tail as have done in the past. So there is more weight in the cattle and didn't need to do a second drench. More stock hitting market specs."*

*"Season seems to be lasting longer as there are less weeds and more pasture. Expect to be able to lift stocking rates in a couple of years."*

*"Some paddocks have really jumped away - especially the grazing pastures (on the wetter country). Have got better hay cuts this year from increased fertiliser and pasture renovation."*

*"Cows are visibly doing much better."*

*"Bull testing revealed two dud bulls that we would otherwise have used."*

*"Went home after the session and drenched the tail end of his calves and found they responded well."*

*"Haven't done as much supplementary feeding this year. Working on building up the soil (nutrition) to help reduce the bent grass and using the multi-disc to break up the root mass and incorporate it back into the soil."*

*"Better herd health."*

*"Cattle getting fatter on that pasture - did produce a few calving difficulties as they got a bit fat. Got a better re-seeding and germination afterwards."*

*"Increased production of saleable meat - 40 to 45 kg lamb, now selling calves as yearling rather than 2 year olds. Feel in more control of the pasture."*

*"Increased stocking rate. Have poor, sandy country. Since taking over from father 30 years ago - have increased stocking rate from 3 to 13dse/ha."*

*"Increased weight gain in heifers and weaners. Heifers up to joining weight earlier andweaners gained approx. 35kg extra over winter with cottonseed supplementation. Now have the confidence to trial different things."*

*"Joining earlier - better mothers, increased kg produced/ha."*

*"Cattle look better since we have been drenching them more frequently."*

*"Slightly increased calving percentage - 2%."*

*"Using electric fences here and there just allows meto increase pasture utilisation on particular areas of mypaddocks that are underutilised."*

*"Stock look better."*

*"Drafted off lighter ewes and put them on better feed but haven't had a close look at them to see exactly what magnitude of impact it has had but they would definitely be in better condition than they otherwise would have been."*

*"Improved quality and composition of pasture. Fewer weeds."*

*"I have increased lamb survival in my own flock - 105% lambing (own) versus 65% lambing (father's) I am able to read pastures better – better feed budgeting."*

*"Higher lambing percentage - average 97% conception at scanning, marking 90% this year - we had 70% weaning in previous year - maybe attributed to a worse season.We have also had a higher wool cut."*

*"Got 100% weaning from ewes joined in merinos last season. But it was a good season - so hard to tell if the changes assisted this. But I think we had higher % due to better ewe nutritional management."*

*"Improved lambing percentage - 450 lambs from 400 ewes - normally best lambing 90% - 80% average across farm (maidens and ewes). Less feeding out time and cost for feeding costs in winter."*

*"Rotational grazing - for better worm control. Haven't drenched as much since. Higher stocking rate. Fewer mobs = more efficient labour."*

*"We have locked up hay paddocks for less time, down from 8 weeks to 4-6 weeks season dependent. We haven't measured quality but judging from cows they are leaving nothing behind we think it is better hay but not sure how much better."*

*"Increase pasture growth and utilisation will be manifested as greater weaner turnoff weights - estimate extra 5-7kg LW per sale animal."*

*"Increased grass available - haven't seen the benefits in the heifers - don't expect to see this for another couple of months."*

*"Better animal health on the farm because able to use less chemicals."*

*"Last year had about 30/40 cattle with pink-eye and this year after trying treatment only had 5/10. It stops it spreading it as much. Means we don't have to hang on to cattle for as long if they don't have pink-eye as can sell them."*

*"Have seen benefits on the over sown pasture - steers and heifers put on over a kg a day - haven't sold the stock yet. Seeing response of better pasture species in the paddocks that have had super. Feel better seeing less weeds in the paddock."*

*"Did a drench resistance test on young ewes and use different products at a more strategic time."*

*"Put young sheep on good pasture plus feedlot ration - put on weight more quickly."*

*"Increased weaning percentage of maiden ewes from 86% to 105% through better feeding of twin ewes."*

*"Run much higher stocking rate on paddock now it is divided into 3 and sown to vetch and grazing wheat."*

*"Fed ewes with lambs on barley and hay in containment area and certainly felt they did a*

*better job with the lambs than they otherwise would have."*

*"Already seeing benefits in less wind erosion and water erosion in newly sown pastures. Had grazings off areas that weren't productive last year. Have hand fed less - still need to get water to these paddocks."*

*"Ewes milking better and in better condition Better lamb and ewe survival. Can't put figures on it as haven't marked yet and haven't got figures from the past."*

*"Increased weight gains - through bovilis vaccine."*

*"Getting the stock to market quicker."*

*"Increase in pasture from organics seems to be short term whereas lime and super appear to have a longer lasting impact. To get same effect as super would have to put on multiple applications a year."*

*"Applied urea and gibberellic acid. Noticed much more growth in Jul/Aug than is usual given seasonal conditions. Benefits will come as either increased turnoff weights of stock, increased conception rates in females and/or less use of supplements."*

*"Less stressful for animals - better weight gain, ease of handling. Hopefully get a higher MSA grading because they are less stressed."*

*"Higher lamb survival from scanning to weaning through better feeding of ewes this year i.e. 69% lambs weaned from lambs scanned in ewes vs 77% this year."*

*"Better able to assess the physical structure of bulls when purchasing replacements and hope this will continue to result in selecting better bulls than otherwise would have."*

*"Increased lambing percentage of maiden ewes from 85 last year to 95% this year with better feeding of maidens prior to lambing."*

*"Better paddock recovery due to improved grazing management techniques."*

*"Now just load groups of cattle into truck pens that have previously run together - no mixing of unfamiliar stock. Less dark cutters - discount for dark cutting is 40c/kg. Stock are easier to load."*

*"Did worm test at weaning - lower worm burdens than at marking, ewes held condition well."*

*"Better conception rates - were put on lucerne at joining Also higher lamb survival - got 103% lambing in maiden ewes. Haven't had a mob of maiden ewes for a while to compare this lambing rate. But we were very happy with it."*

*"Made us aware of how much grass there is. Noticed grass recovering quicker using this grazing strategy. Noticed that the paddocks set stocked never really got away. Side effect is the cattle that were rotationally grazed were quieter and started to mob up and move whenever we went in the paddock. Benefit of feeling more in control of the grazing and are confident that everything is being eaten."*

*"Have green feed in the middle of winter that wasn't there and being able to graze it with young stock. Won't fully realise the benefits until we sell the cattle - aim to go from 20-24 month sale age to 18-14 month sale age (400 kg)."*

*"Because we have been able to lock up a paddock, have been able to get some feed ahead and separate the horses from the cows."*

**Easier management**

*"Not making hay now. Have reduced stock numbers Tightened calving patterns as well."*

*"Easier to manage now."*

*"Now drench strategically in April and August. Drench everything together - not randomly."*

*"Installed new yards and crush. Bought Santa Gertrudis cows. Changed handling of cattle - much easier and better now."*

*"Have got one hand free - to hold the sheep."*

*"Benefits have been related to safely handling sheep during vaccination - have not implemented the OJD vaccination program as didn't think needed to."*

*"Used to lamb in mobs of 250 - 300. Now to 150 ewes per mob Easier to monitor and feed. Didn't have to feed or move from the paddock Ewes had more space. Single and twins in separate paddocks. Lambing percentage is higher by 21% from last year. Single lambs not as big therefore fewer deaths."*

*"Cattle are quieter in the yards."*

*"Now have a nice close calving with the cows. Also have more feed available for the cows and calves."*

*"We record extra info such as when stock go into and out of paddocks and are better able to manage stocking rate and therefore production targets."*

*"Improved safety for myself and the cattle. Now monitor the behaviour of cattle when working with them - know what to look for - so able to manage the cattle to keep them calmer."*

**Increased income**

*"Last year got a 13cents/kg premium This year premium of 5cents/kg. But like to see a more consistent premium. And it is more administration."*

*"Better grazing management. Expect to get increased income when sell cows."*

*"This is from EU accreditation. Received better prices in sale yards not sure if the price increase was also related to yard weaning."*

*"Farm known for breeding pure angus. Now get a top price for cattle because known as a pure line - now have an option to sell direct to buyer rather than going to auction. Increased costs of buying good bulls - buying elite bulls with good breed plan EBVs."*

*"Bigger calves, more calves meeting grading specs so higher average prices. Wasn't sure on quantifying this but will be getting calf feedback in a couple of weeks that will give more data."*

*"There will be an increase in income, reduced cost of fertiliser for singles paddocks, monitoring body weights has minimised difficult births in the singles, decreased losses due to difficult births, pregnancy scanning has saved time with monitoring ewes with singles, more in control of lambing, vitamin B - not sure of the benefit because drenched at same time. No ewes prolapsed this year."*

*"Can cull empty ewes for a higher price."*

*"Bit of extra time to manage the database and had to get whole mob in and wand them as once off. 15-20cents higher price than otherwise would have got for big mob of steers. Saved on agents/yard fees 3-4% and some savings on transport compared to what otherwise would have paid."*

**Decreased losses**

*"Got a fantastic result - For the first time ever - didn't lose any ewes to "lambing sickness" - pregnancy toxaemia. Fed lupins - one month prior to lambing."*

*“All cows and calves had reduced coughing from lung worm after the oral drench.”*

*“Heifers - better calving ease and calves that don't scour as much. Can't prove that it is because of heifer prep but does give me a system to use each year. Less heifer losses observed but not quite sure what to attribute it to.”*

*“Have definitely noticed less deaths but not sure how many less.”*

*"I think I have decreased losses but weather event has confounded this. I think we have confined the stress to managing the twins."*

*“Less grass tetany, less bloat. Better animal health and autumn calving cows are in better condition.”*

*“Changed the way we manage lice and fly treatment program and have found a big decrease in lice and fly incidence.”*

*“Didn't get calving problems this year (think could be partially related to better bull). Calves are only young now but think we would end up with better looking calves for sale.”*

*“Was able to do post mortem and identify pulpy kidney and red gut and vaccinate.”*

*“Allocated feed better to twins and singles so not as many single lambs and ewes were lost.”*

*“Fewer ewe deaths. Better lambing percentage reduced our mob lambing size.”*

*“Very surprised at the greatly reduced rate of deaths and dystocia in singles - due to putting them on worse pasture and giving best pasture to twiners. Will do it again. Also first year we scanned all ewes - split into singles and twins - were planning to do this prior to going to the workshop.”*

*“Learning and knowledge about the market condition of my stock. Decreased losses by not sending stock out of spec to market knowingly.”*

*“Knew when the next front was coming through and wether to start the silage operation. Potentially reduced losses and increased production.”*

**Feel more in control/less stress**

*“Better records - better for LPA - sleep better at night. Also will help with MSA accreditation.”*

*“Passed EU audit without any problems.”*

*“More accurate record keeping.”*

*“I am more confident selecting bulls but probably hasn't resulted in selecting different bulls than I otherwise would have.”*

*“Database now sorted so that if audited I know it is right so I feel less stressed.”*

*“Wife much happier when working in yards.Much less stress. Should have done this years ago.”*

*“Haven't actually bought a ram yet but went to a sale to buy one and wasn’t happy with the figures so didn't buy any, whereas I would have before I attended the workshop. I am going to another sale next month to try to buy some there.”*

*“No one has injected themselves yet! Benefit has been increased safety of staff at marking and vaccination time. One worker injected themselves on another person’s property and it took a very long time to heal.”*

*“Reduced risk of poor autumn break.”*

*“More able to make decisions as more confident in observations about pasture and feed in the paddock. Better feed budgeting.”*

*"More control of the stock. Were able to put the pregnant heifers in a 'maternity ward'. Not wasting feed as using feeders."*

*"Have more control over the accuracy of our NLIS database for EU accreditation."*

*"Makes you think about the business and analyse how the business is going. Reinforced what we are doing."*

*"Biggest benefit - livestock carrier sent employees to LSSH course. We are all doing the same thing. They no longer use electric prodders. We don't get frustrated handling cattle like we used to - it's less stressful."*

*"Use 12 month long range forecasts to plan the years production i.e. when we sell, feed etc. and gives us more feeling of control."*

*"Kept my sanity and had more time because I wasn't stressing about feeding my sheep and saved money."*

*"Stock and people less stressed."*

*"Feeling better about our overall financial situation and better about feeding our stock (supplementary feeding). Have a better understanding of the issues in our sheep enterprise and how to make it more efficient."*

*"Less stressful handling the cattle in the yards now that I have swung the gates the other way."*

*"Safety of the operators in the yards and the cattle, less stress and less movements of the operators to get out of the way of the cattle."*

**More timely operations on farm**

*"Have all the calves weaned straight away - makes them more saleable."*

*"Tighter calving period so 1st draft has more steers for feedlot targets."*

*"Are now moving stock through paddocks more quickly and giving greater time for pasture recovery. Have had greater pasture utilisation as a result."*

**Time saved**

*"Saved time and money on drenching and at this stage no negative effects."*

*"Improved yards have led to better stock handling, time savings, and less stressed cattle and operators. Changed weaning has led to less stressed calves who have settled down to eating much quicker therefore production gains."*

*"Have reduced weaning age by about 3 months. Have aerial seeded several paddocks with clover and animals have spread clover seed in manure."*

*"Less stress on stock and handlers when moving stock and more efficient. Estimate that we can save around 30 mins per handling to the yards (2 times per month)."*

*"Yards are safer because also higher - can't jump over. Cattle now flow through the yards. Changes cost at most $2K for the materials plus labour plus recycling. Estimate it takes one to two less people to get cattle trucked i.e. only use agent, one person and truckie to load."*

**Reduced costs**

*"Have managed a 10-15 % reduction in costs from just knowing and focusing on them - not specific area of cost saving, just overall."*

*"Have been able to use a drench that I haven't used for 25 years which costs $100/drum compared to previous drench which cost $250/drum."*

*"Haven't received the results of the analysis yet but did get benefits out of the process so far in terms of thinking about where they spend money."*

*"The only benefit was to reduce cost - yet to see if it affects production."*

*"Saved money by not drenching stock that didn't need it."*

*"Has certainly helped to better get stock through a difficult winter. Reduced need for as much supplementation and stock have come through in better nick than they otherwise would have. Haven't done the cost/benefit to work out the economics of it though. Cost money to sow pastures and crop income lost - need to compare that with benefits to see if economical."*

*"Grew more winter feed so fed less hay and silage (saved money)."*

*"Reduced interest costs and able to make other investments off-farm."*

*"Saved cost of supplements - couldn't say how much was saved."*

*"Saved $1000's in interest payments and have worked on increasing our turnover. Made us feel good as we could see that we were managing the business well. Identified that we were understocked i.e. turnover down so now increased turnover and thus increased profit. Now carrying more numbers of stock, both breeding and trading stock."*

*"Saved $300 x 2 drenches based on FEC counts. Expect to reduce the resistance and animal health better because don't need drenches Also know what worm types we are drenching for and can save more money byusing a targeted drench."*

*"Reduced interest costs to 5.8 % compared to 8.1% fixed. Downside is have to learn a new banking system and new personnel."*

*"Went from $7 per head for a cow to nearly $4 however it took longer (more labour intensive). Worried that may not get residual protection doing this type of drenching so are going to do FEC to check."*

*"Savings in terms of drench costs. Bit early to tell production impacts."*

**Multiple benefits**

*"Looking at enterprises harder. Better cost control. Better budgeting possibly gets out of the goats and increase sheep. Make cattle more efficient with better feed allocation- give better feed to young stock. Spring calving."*

*"Better management of resistant ryegrass in that paddock that will result in high production and returns from sale of silage. This year will have a return on that paddock (last year no grain harvested from that paddock because of the ryegrass), more in control. Filled a winter feed gap for weaners."*

*"Have seen a visual benefit of less cow pads in the paddock but not sure if we have seen a production benefit as have had less feed this year because of the season so cattle have eaten everything."*

*"Can now manage moving the stock on my own (don't need another person to be there). Haven't had to call the vet as often as can now handle own feet treatment and calf pulling (due to being more confident handling the cattle) and how to vaccinate and drench properly. Better quality meat from steers as have reduced the stress to the animals prior to slaughter at the abattoir as have really concentrated on the process from farm to slaughter."*

*"Noticed a visual improvement in the cattle three weeks after drenching with liver fluke*

*drench. Expect better growth of cattle and therefore higher income but program has resulted in higher drench costs so hopes extra income is more than extra cost."*

*"More kg per ha and easier management for the calving. More control selling over the hooks."*

**Other comments**

*"More stress, especially in moving cows with calves, so more complex management."*

*"Difficult to quantify."*

*"The change has complicated management a bit but worth it."*

*"Lifetime ewe management course has been the main catalyst for all these changes - not the one off workshop. Have seen a reduction in miss-mothering less supplementary feeding - better grazing management 30% increase in first x marking, more longer term financial benefits."*

*"The benefits are in better OH & S - safety in needling sheep. There is an increased cost though as not as confident that the new equipment delivers the vaccine as effectively."*

*"Change has been gradual but the workshop showed I had to be more thorough with feed quality."*

*"Can better track my livestock on the NLIS database."*

*"Been able to effectively lease two more properties."*

*"Safety main benefit. The previous bail was not functional."*

*"Much improved safety of worker and myself when working in yards with cattle. Also safer for the cattle and they are less stressed when being moved/yarded."*

## 10.5 Appendix 5: Comments related to source of information for assist make the change (phone surveys)

*"Discussed with the group and the neighbour about how he does it."*

*"Talked to a few other farmers about it as well. I had the idea in my head before the workshop to do something about calving period but the workshop helped to identify what to do a bit more and provided the motivation I needed to implement a change."*

*"Would like to get some follow-up support with the computer side."*

*"80% came from the day and googled the rest (because always cross reference it)."*

*"Got the basics from the course then spoke to some fertiliser suppliers to assist with soil testing and advice on what I needed to do and where I could buy the fertiliser I wanted. I have also sought advice from DEPI staff who were at the session."*

*"Have discussed this with my wife afterwards."*

*"I have completed Prograze, Landscan and Landscan plus and these have helped as well as a pasture walk and being part of discussions about developing pasture growth curves for local area."*

*"All the information I needed was in the workshop - wife helped with the computer side of things."*

*"Took the information as gospel from the workshop so that gave me a base to start from - reinforced the information by talking to other farmers and father and chemical sellers. Other people pointed out the other times we may also need to drench based on season."*

*"Talked to my neighbours about where to borrow a better bull from."*

*"Member of the Angus society - have talked to some of the breeders about the AI program. XXXX is a member of the sub-committee and has provided us with lots of good information. Also spoke to bull supplier and AI suppliers."*

*"Haven't had to do any follow up – consultant X was amazing!"*

*"Meeting assured I was on the right track with my planning, talked also to consultant Y."*

*"Presenter of the workshop sent some GM template and finance sheet for comparing rates and offers."*

*"Attended a course with the bank."*

*"Recently formed a production group."*

*"Starting a LTEM course, done business management course. Benchmarking for many many years FM500 and now through consultants - best thing we do."*

*"Sheep are secondary focus to cropping. Benchmarking group helps us to focus more on the sheep. Brother joining business - will focus on the sheep side more."*

*"Spoke to the vet also."*

*"Talking to vet and farmers that have been scanning for years as well as shearers and crutchers - ask them what other farmers are doing. The workshop motivated me to make the change."*

*"The field day was on my property - that made me implement changes."*

*"Material on the day was helpful. I went to a workshop a few years earlier and this recent one reinforced what was learnt and added more."*

*"Tend to make changes from hands on exercises and looking at case studies."*

*"It was really just based on what I picked up from the workshop."*

*“Talked to other farmers about my planned change.”*

*“Talked to local beef consultant afterward.”*

*“Talked with other farmers there on the day about what they were doing/had done and that was very helpful.”*

*“Assistance from fertiliser reps to get soil testing done and decide on fertiliser requirements.”*

*“Talking with scanner man and other farmers.”*

*“Workshop gave all the information. Enthusiasm from son has helped with the change.”*

*“Spoke to vet as well as workshop.”*

*“Part of northeast beef group and local demonstration sites.”*

*“Father did LTEM a couple of years ago, I am starting it soon.”*

*“Talked about the change with other breeders.”*

*“Vet gave us advice on the crush as he had one the same and also talked to other farmers who also had one.”*

*“We also did a session with our BWBL group on the P tool. This helped to understand how to better allocate P.”*

*“Contacted the speaker from the course and he helped and also spoke to other farmers who had done it before.”*

*“Were considering doing this when we first bought the farm but wasn't until we started long range forecasting that we had the confidence to carry them through. Long range forecasting was the key to making us feel in control.”*

*“Angus performance program running - discussion with stud breeder.”*

*“The workshop was enough and included the discussion within the workshop.”*

*“Went to another course about EU which helped to provide more detail of what I needed to do. I have also used the NLIS/EU helpline and they have been great. My son has also assisted with the computer side of things as I am not very computer literate.”*

*“Discussed the Seasol with the fertiliser seller.”*

*“I decided to just try it and see if it would have any benefits.”*

*“Private consultant advice. Subscriptions.XXXX. Hear it, study it, will it fit, a fad or a real efficiency gain - trial it if needed - implement. That's the process we use for deciding to implement info gained at events.”*

*“Went back to see the presenter of the workshop for private consultation in Feb/March with 3 years of our data.”*

*“Am a member of a local hoof and hook - really value local DEPI field days and events and extension officer's help.”*

*“Have been involved in the Leading Sheep program and have attended previous events and done lots of reading prior to the workshop - the workshop did not extend my knowledge or skill in this area.”*

*“XXXX - BWBL co-ordinator and farmer - really helpful Craig implements lifetime ewe management principles with his own enterprise and shares this knowledge with us. Use the Making more from sheep folder as a reference.”*

*“BeefCheque Group on property session held after the event in question was really useful.”*

*“Doing the trial.”*

*"Had to come home and convince my husband of the need to change the yards."*

*"Belong to a pasture management group that meets once a month."*

*"In South Gippsland Prime Lamb group - moved from South Australia 7 years ago - very helpful talking to local farmers in group."*

*"BWBL Group."*

*"XXXX was the presenter - very good. Followed up with John after for assistance."*

*"Have had a lot of help from the stud masters of the stud we most recently purchased a bull from. They have been great in advising on genetic improvement."*

*"Also learnt a lot about ewe condition prior to lambing from BWBL group."*

*"I am in a BeefCheque group and find that really helpful. Also discussed idea with my wife and worker and other farmers which was really important and helpful for effective implementation."*

*"Had to spend quite a bit of time working out how to use the tools and being confident with them before using them for decision making."*

*"Agronomist"*

*"Field day prompted the change."*

*"Wool Reps, buyers."*

*"Have read articles in papers and talked to other farmers doing cross breeding."*

*"Gets info from a range of sources - it's not just one thing. Also use sales agronomists."*

*"Bookham trial - phosphorus trial on native pastures DPI events - on nitrogen."*

*"Spoken to other farmers that are EU accredited. DPI person really helpful - came and looked at our database."*

*"Contractors and good farmers, written material."*

*"I am a member of a farmer group that together send off 75 head on a truck a week to Woolworths so we work together to market our cattle."*

*"Phil - DPI - invaluable in assisting with management decisions across region - been influenced by Phil since in year 8 when he ran a Prograze course at our farm."*

*"Vet"*

*"Our buyer was very helpful with implementation and initially suggesting that we look into it by showing us the grid. Also had a discussion with another farmer who has been through it which was helpful."*

*"Have been in touch with an agronomist who has been really helpful."*

*"Worm boss on internet. The land newspaper."*

*"Pfizer rep., DPI vet and animal health officer."*

*"Discussed it prior to the workshop within the business and always going to other field days and seminars. Have been to see XXXX before."*

*"Have been reading websites (lots of searching) and attending other events and talking to fertiliser reps."*

*"Used a consultant to help with planning the program for the new property."*

*"Spoke to a lot farmers about doing rotational grazing. Holistic management course 2 years ago started the ball rolling."*

*"Discussions at workshop were really useful."*

*"Discussions at workshop were really useful."*

*"The workshop confirmed I was on the right path."*

*"Engaged XXXX (Landmark classer and sheep and wool expert at the workshop) to class ewes, define objectives and select the stud and Rams based on ewes needs. Websites - Merino select - very valuable Bred well fed well workshop Making more from sheep."*

*"Read about it in newspaper - what other farmers are doing, talking to beef officer after workshop which helped to make the decision."*

*"Was something we had been discussing with the Zoetis rep."*

*"Had picked up previous information regarding this topic - workshop brought a different aspect to this information and motivated us to make the change."*

*"Talked to a local farmer about using it for predicting hay cutting."*

*"Lifetime Ewe management Nutritionist - fix trace element deficiency."*

*"Went to another workshop to get more specific information. Rang the NLIS help line to with reconciling the database."*

*"Workshop prompted us to take the first steps - had to do lots of research to implement the change and talked to an agribusiness consultancy about what we were doing and got advice from them as to where to go. Most important motivator for change was talking within the business and making the change."*

*"Used a stock agent to do the NLIS reconciliation - cost $500 and was money well spent."*

*"I already had a pretty good understanding of EBVs but this workshop helped to confirm the path I am already on in terms of breeding and added a higher level of understanding in regards to some of the selection indexes."*

*"Spoke to local sales rep about what products to use."*

*"Consulted with two yards manufacturers and had the existing panels modified."*

*"My husband already understood EBVs etc. but went to the workshop so I could also learn about them and have some input to bull selection."*

*"Looked at DEPI website, talked to locals and have done own research and reading about lifecycle of worms."*

*"Other ram breeders - ask the right questions about what their breeding objectives are. Sheep's Back- web based information, APVMA - drench active ingredients. Wool Brokers ASBVs websites. Ram sale websites."*

*"EU people themselves were very helpful. The blokes from Swifts were very helpful. 2 blokes from NSW DPI were great and I followed up with them as well for extra help."*

*"Listening to the experiences of other farmers is essential to new learning."*

*"Heard about it from my neighbours and the workshop made the benefits of continuing to use it clear."*

*"Just got to the stage where it needed to be done - workshop just motivated the change to happen."*

*"Drench reps and DPI rep."*

*"Just starting a group with NSW Ag Dept. - top lamb crop which will be really good."*

*"Sheep connect section in rural papers."*

*"Trialled hay previously -accidentally, and the field day confirmed what we thought - really good to have our thoughts confirmed."*

*""Member of a farmer group which I find very valuable. Also access info on MLA and DPI websites as well as talking to other farmers."*

*"Discussions with customer. Event supported the decision."*

*"Have since employed a consultant who has helped and started a Prograze course which has also been really helpful. Always talking to other farmers about what they're up to."*

*"Local vet has been biggest source of information"*

*"DPI had run a few field days on conditions scoring."*

*"Keep In Touch days with RCS - meet 2 x per year."*

*"Use own agronomist. Have a PIRD on own farm for alternative fertilisers. Field days. Expert speakers. Discussion group very good."*

*"Attended a subsequent workshop with XXXX which helped further with understanding of bull selection. Have further clarified ideas by talking to other farmers and as part of their group activities."*

*"A simple change that didn't require any further info/advice."*

*"Often learn as much from talking to other farmers at these events than you do from listening to speakers. I don't get nearly as much out of attending the teleconference type sessions as I do from face to face events."*

*"Did workshop as a brush-up to sort out a few questions e.g. how to deal with dead animals."*

*"Use the university vets and agronomist for more information and advice."*

*"People in group are serious farmers so group members are a great source of information."*

*"Thought the change was the wrong thing."*

*"Better beef group is very important."*

*"Talking to other farmers in my farmer group."*

*"Assistance from Cattle compensation fund - RFID subsidy a catalyst for change."*

*"Have talked to fertiliser reps and neighbours. Have used a bit of trial and error with the change in fertiliser applications."*

*"Had good discussions on the bus with the farmers on the trip about what they do and are always reading farm journals."*

*"Father sold steers at a 25c premium in past - that was the catalyst for us to change over. Had already decided - workshop helped provide the information. Were already on the way before the workshop."*

*"Belong to farmer group (Better Beef Group)."*

*"Managed to work out the reconciliation process by myself without the help of the workshop."*

*"Went to another field day at Bengworden at Simpson's farm in wool shed. Also very good on pasture production."*

*"Workshop was reminder that sowing pastures is important Bushfire recovery events."*

*"Got information from the local DPI at Geelong to advise on the grants and the fescue."*

*"Discussed on the day with other farmers that were there."*

*"Info from all sources but the workshop had all the information needed to make the change."*

*"Follow-up discussions with consultant XXX and local vet have suggested that this is not necessarily the best action i.e. gave conflicting information."*

*"Confirmed knowledge I already had."*

*"Needed to speak to experts in WA agriculture."*

*"None of the above. Made decision alone."*

*"Reinforced what we were doing anyway."*

*"Wife did a lot of on-line research and phone calls to get the process right. Had good advice from the EU accreditation staff - second person we spoke to was the major source of advice and help."*

*"Read a book by an American Rancher about stockyard design which gave some good ideas for redesigning yards. Also uses MLA videos as a resources - not sure what they are?"*

*"That workshop really inspired me -then went to Elders field day."*

*"I do a lot of research on the net. I would spend an hour 2 or 3 times a week doing farm related research or reading. Use the MLA website and like the MLA newsletter. Often refer to the MLA MBfP CD. Also have several consultants which I run ideas by and talk to other farmers around the traps, at the local pub for example over a beer or at social functions."*

*"Undertook the benchmarking with a neighbour whereby we did the figures together and discussed their impact and value for each other's management."*

*"Spoke to the local vet about product choice."*

*"Seminar is part of the information I get to make decisions"*

*"The seminar was good in that it gave the bigger picture kind of info that you don't typically get at your local group meetings but it is at the local group meetings where you really get to evaluate the detail and practicalities of the changes you want to make so both forums are important. I refer to the MBfP workbook and like using the MLA website as a source of information."*

*"There was a hardcopy document that went with this event which I often refer to and found useful. Also part of an ongoing group which is a valuable source of ideas and as much as anything else, support, when implementing farm changes."*

*"Have a consultant who I talk things over with."*

*"Always thought input costs were high."*

*"Workshop alerted us to what was needed and the follow up day helped with the change."*

*"Discuss with others about what they do."*

*"I was impressed with consultant XXX as a speaker at this event so subsequently enrolled in a 4 day course involving Rod about heifer management through GoTafe at Maffra and this event was also helpful in terms of planning better nutrition for heifers, although haven't implemented anything from this course as yet."*

*"Have sought information to help implement the actions taken."*

*"We have discussed this a lot in our beef group."*

*"It was really just that one of the speakers said that if you lock up hay for too long the quality decreases. I have only been farming for 4 years so learning all the time."*

*"There was a follow-up session in August which assisted with implementation."*

*"Hard to pin these changes to one workshop as it is a combination of experiences that results in the final outcome."*

*"Idea came from looking at the pasture trials over a number of visits."*

*"XXXX benchmarking program - King Island beef discussion group XXXX - comes over to help and helps with tools from the manual."*

*"Have good information coming to the group from outside sources so most important source of information is coming to the group - don't have to seek further information myself."*

*"I often get on the web and print out relevant info from the MLA website. I am the kind of person that likes to have a hardcopy print to read and digest in my own time as well as to have to refer back to if needed. I also highly value the opportunity to listen to and talk to other farmers about their experiences to get ideas from what they've done. These two sources have both assisted with the implementation of the changes I have made subsequent to attending this workshop. As a side issue I like the case study farm reports that I have seen on the MLA website and have actually contacted one of these farmers and found them very helpful in relation to giving some insight into their experiences with fertiliser use."*

*"Talked over what I'd learnt from the day with my father who runs the farm with me."*

*"This event was the last in a series of events and it was really the whole series rather than just one workshop which assisted in implementing the change fully over a period of time. Discussion with other farmers, listening to presentations, and discussions with experts at events/field days as well as outside these events have all contributed."*

*"I find talking to the group co-ordinator, Brian, very valuable as he sees a lot of farmers and has a lot of information about what other people have done that is extremely valuable. I also find talking to other farmers really useful to get their experiences and opinions in relation to management changes I want to make."*

*"In beef group co-ordinated through DAFWA."*

*"I have a soil consultant who does all the soil testing and plant testing and advices on what elements need to go on and also have a vet do some liver testing of cattle. I wouldn't have had the confidence to implement the change without the farm specific advice of these experts."*

*"The workshop was the trigger to go home and weigh weaners - needed to get scales from Uncle to do it as did not have own ones."*

*"Local vet."*

*"MLA newsletters and others. I have an agronomist for advice on species. Colin Trengrove good source of information. Evergraze information is very good."*

*"I get a lot of benefit from just talking to other farmers at field days/events and finding out what they have done and what has worked and what hasn't."*

*"As a result of being a member of a farmer group that meets every 2 months I am making a whole lot of other changes to the business including putting out fertiliser whereas I previously didn't, and fencing so that I can do more rotational grazing. If I wasn't in an ongoing group and had just attended one-off events I wouldn't have made the changes because the messages are continually reinforced at group meetings and I get encouragement and ideas from presenters and other farmers and being part of the group motivates me to take action so that I have a story of change and improvement to tell too."*

*"I did speak one on one with presenters to ask some specific questions at the end of the workshop which was helpful. We do source information from a range of places and it would be difficult to say exactly if we used any of these other sources for this specific practice change."*

*"I spoke to the studmaster from the place where we buy bulls and told him what we wanted and he was very helpful in assisting us to identify suitable bulls."*

*"The local vet attended the workshop as a participant so I had the opportunity to ask him a few questions at the session which assisted to implement change."*

*"Group of 3 farmers share ideas."*

*"XXXX - Ag Consultancy - run events - taught me about rotational grazing - funded by CMA DPI, MLA events DPI - now in an ongoing Beef group around Casino, XXX XXX - facilitator."*

*"Workshop reinforced idea of breeding pure bred cattle and benefits of it. Did need reassurance from stock agents about marketing pure bred cattle compared to crossbreds - gained it before making the change."*

*"There were a few field days at the same place on the same theme, so it was both other events and the one we are talking about."*

*"Southern Shoalhaven Beef Group several workshops with DPI - on breeding."*

*"Prograze was great in understanding pasture production and animal requirements. Completed through DPI 2 years ago. This workshop built on what we learned in Prograze. Now use a range of consultants/agronomists. Knowledge helps us to ask the right questions of our professionals - consultants."*

*"Had previously been to a sheep nutrition course with San Jolly and got the basics there and attending this workshop reinforced what was covered with San and reminded us of other things we had heard here and there and we then decided it was time to act and implement a change, which we did."*

*"I find being a member of an ongoing group to be hugely beneficial as I can talk to a bloke at one session and hear about what he's up to then I can catch up with him again a couple of months later to see what progress he has made with whatever he was doing. Getting that broad ongoing perspective from peers is invaluable."*

*"Spoke to my neighbour who has a very comprehensive worm management program and also to a vet about the results of the worm tests. I liked the fact that the vet was independent as opposed to the drench providers so was more trusting of his advice."*

*"Beef group gives better discussion."*

*"Very active in farmer group and follow up with questions to agronomist and vet brothers."*

*"Would like to do more events - not many run in this area. The most beneficial training I have ever done was more personal development - i.e.. Myers Briggs, leadership, staff management, strategic planning – XXXX and associates."*

*"Tend to use the web quite a bit to seek information for farm."*

*"I did some research/reading regarding lice and fly treatment prior to attending the workshop."*

*"Low stress stock handling course helped a lot, also seeing other farmers yards also helpful."*

*"Mostly own ideas that I have implemented - scaling down farming operation."*

*"Formed on-going farmer discussion group that has helped - group's on-going meetings have helped to provide more detail to help with the changes proposed. Looked up stuff on the internet and talked to DPI beef officer. Discussion with owner (I am manager)."*

*"Low returns from crop was the main reason."*

*"Most important thing - Leadership from DPI - XXXXX. On-going support from DPI - fantastic."*

*"Group very active. Lots of discussion comparing operations."*

*"Use a farm advisor - 2-3 times per year for seasonal and strategic planning purposes. Wife and son involved in business."*

*"Was always going to select rams this way - just needed the information for the workshop."*

*"Local vet, Lifetime ewe management."*

*"Classer, data/info provided by studs."*

*"LTEM"*

*"Talking to leading sheep farmer participants - haven't fully implemented the changes yet."*

*"Member of Sheep Plus group."*

*"Prograze course - excellent - best thing I've ever done. Great to meet with other farmers every couple of months. The most powerful part was the regular contact with a group of farmers. Would like to be a member of an on-going group. Have also done a follow-up half day Prograze day, internet research and used consultant - agronomy and livestock nutrition."*

*"Son did LTEM course which helped."*

*"Member of the ongoing - Wunkar Sheep Plus group - most important factor in helping me to implement changes - facilitated by XXXconsultants. Also use consultant - agronomist."*

*"Doing Prograze course. Spoke to XXXX and XXXX. Benefited from all of it - need to pick the eyes out of what I have learnt."*

*"Spoken to stud masters and agent about buying on figures."*

*"Discussions with other farmers helped to motivate us to make the change."*

*"Haven't got the resources to make the change yet."*

*"Sheep and wool officer at DPI, Grazing for profit and wool for wealth. NSW farmer's local group member. Superfine woolgrowers association. Bred Well Fed Well workshop."*

*"I have already done quite a bit of research into ASBVs before the workshop so had a basic understanding that was enhanced further by doing the workshop."*

*"Grasslands member using new consultants and different ones."*

*"Grazing for profit course and being a member of a group."*

*"Advertising related to safer applicators. Discussed it with father - decided risk of OJD is low for this farm."*

*"Spoke to Landmark nutritionist and he was helpful."*

*"BWBL group."*

*"Agronomist helped with the technical aspects of sowing the crop."*

*"LTEM group and its coordinator - XXXXX."*

*"Joined a LTEM as a result and this has reinforced the lamb survival workshop messages BWBL - Ararat group. Sheep lamb and wool production book- from McKinnon. Discussion with employer."*

*"These changes have been as a result of the LTEM program (currently in 2nd yr). Also have joined -Vic Stud Merino Association - good for discussion with other stud farmers re: Merino Select, ABV's."*

*"LTEM - BEST course ever done - informative, practical, in second year - would like it to continue for another 2 years. Condition scoring great, pasture assessment FOO. Discussion with farmers in group is great. Bred well, fed well - good. Have used a consultant for first time this year - assessing stocking rate, pastures, cropping, and financial data."*

*"BWBL - discussion with other farmers, pasture events, consultant accessed through BWBL - Jim Shovelton as private consultant- spent a day."*

*"South Gippsland prime lamb group - XXXX - has only been going for 12 months. Phillip Island Better Beef group - discussions about fertiliser use, drench testing - sales rep."*

*"Money making mums workshop, LTEM, Apsley BWBL group, Stock agent, seed stock farmers."*

*"Hands on practical demos were so helpful."*

*“Life Time Ewe Management - best course.”*

## 10.6 Appendix 6: Example farm case study practice change evaluations.

This appendix presents a sample of six MBfP and five MMfS farm case study evaluations. While every effort has been made to capture the major impacts of practice change adoption on farm productivity and profitability, not all possible costs and benefits have been valued in all cases due to difficulties in quantifying some variables or the very minor impact expected. Unless otherwise specified, key input and output prices and quantities have been varied by +/- 20% for best and worst-case scenarios.

### 10.6.1 MBfP Example Case Study 1 (Animal health)

10.6.1.1 Practice Change

The farmer has changed his animal health program by giving more vaccinations and trace element injections. He is now giving Pestivirus vaccinations to all cattle on arrival at the farm and a follow up booster. He is also giving B12 and multi-min as an introductoryvaccination plus 7 in 1 if he is going to breed stock, or 5 in 1 for the traded cattle.

10.6.1.2 Costs associated with practice change

- Costs of vaccination program:

  Pestiguard is $8 per animal, 5 in 1 is 20c per shot, 7 in 1 at $1 per shot, $1 per shot for multi-min, and 33c per B12 dose.

- Frequency of dosages:

  Pestiguard - 2 doses per head
  5 in 1 - 2 doses per head for traded stock
  7 in 1 - one dose per head for breeders
  Multi-min - one dose per head at either arrival for traded stock or at weaning.
  B12 - one dose per head at either arrival for traded stock or at weaning.

- On average the farmer trades 800 cattle annually and calves down about 60 breeders.

- The farmer felt that extra labour required to administer additional animal health treatments would not be great as they are administered either at weaning or when cattle arrived on farm at which time all cattle are individually handled and checked anyway. Additional labour required has been estimated at 25-30 hours annually.

10.6.1.3 Benefits associated with practice change

- Prior to administering the Pestivirusvaccination the farmer was noticing that some cattle were having wasting issues - he estimates about 3-5 animals per year that would not recover and were euthanaised. There would be another 10 or so that were infected that never finished properly and were off-loaded at lower weights (on average 20-40 kg lighter)than they should have been due to the impacts of Pestivirus.
- Extra beef produced was valued at MLA 5 year state average yearling price per kg LW with freight at $15 per head, 5.5% commission and $5 per head for levies.
- On average the farmer is now able to turn cattle off 4-6 weeks earlier at the same average weights. This earlier turnoff will result in reduced hay required at different times of year. Estimated DM consumption saved due to earlier turnoff has been valued at average hay price of $150 per tonne at 85% DM. Best case, all traded stock are

turned off earlier, average scenario 50% are turned off earlier and worst case, 25% are turned off earlier.

The tablebelow summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **COSTS** | | | |
| **Extra cost of animal health treatments** | | | |
| Average number of breeders | 60 | 60 | 60 |
| Average number of cattle traded | 800 | 800 | 800 |
| Cost per dose - Pestiguard | $10.00 | $8.00 | $12.00 |
| Total cost of Pestiguard | $16,600 | $13,280 | $19,920 |
| Cost per dose - 5 in 1 | $0.25 | $0.20 | $0.30 |
| Total cost of 5 in 1 | $400 | $320 | $480 |
| Cost per dose - 7 in 1 | $1.25 | $1.00 | $1.50 |
| Total cost of 7 in 1 | $75 | $60 | $90 |
| Cost per dose - Multi-min | $1.25 | $1.00 | $1.50 |
| Total cost of Multi-min | $1,000 | $800 | $1,200 |
| Cost per dose - B12 | $0.41 | $0.33 | $0.50 |
| Total cost per dose - B12 | $330 | $264 | $396 |
| Value of extra labour required @ $30/Hr | $825 | $750 | $900 |
| **TOTAL EXTRA ANNUAL COSTS** | **$19,230** | **$15,474** | **$22,986** |
| **BENEFITS** | | | |
| **Deaths prevented** | | | |
| No. of annual deaths prevented | 4 | 5 | 3 |
| Value per head | $671 | $805 | $537 |
| Commission/levies per head | $42 | $49 | $35 |
| Freight per head | $12 | $10 | $14 |
| **Saved production loss from poor performers** | | | |
| Number of poor performers | 7 | 10 | 4 |
| Lower average sale liveweight per head | 30 | 40 | 20 |
| Value of production loss saved | $365 | $695 | $139 |
| **Supplementary feed costs saved** | | | |
| No. weeks turned-off early | 5 | 6 | 4 |
| % of traded stock turned-off early | 50% | 100% | 25% |
| Tonnes DM supplementary feed saved | 119 | 286 | 48 |
| Value per T DM | $176 | $212 | $141 |
| **TOTAL EXTRA ANNUAL BENEFITS** | **$23,834** | **$64,906** | **$8,323** |
| **NET ANNUAL BENEFIT** | **$4,604** | **$49,432** | **-$14,663** |

10.6.1.4 Non-dollar benefits of practice change

The farmer commented that as a result of the practice change all of the cattle look good when they are sold as he no longer hasthe Pestivirus(poor doers that did not look as good as the rest). This has improved the image of the business as quality beef farmers.

10.6.1.5 Risks associated with implementation of the practice change

The farmer feels that the risk is more associated with not vaccinating and supplementing cattle - he did not feelthat there was any risk in improving the vaccination and supplement program at all.

### 10.6.2 MBfP Example Case Study 2 (Marketing)

10.6.2.1 Practice Change

The farmer is in the process of gaining EU accreditation. He was planning to become accredited by 2013/14 however this didn't happen, as accreditation is not yet finalised. The farmer expects to see benefits from accreditation in the 2014/15 year.

10.6.2.2 Costs associated with practice change

- There were no initial setup costs as the farmer was already keeping good records.
- Estimate on-going costs associated with EU accreditation are for annual account reconciliation of database (2 hours) and scanning (2 hours).

10.6.2.3 Benefits associated with practice change

- On average the farmer expects to sell 250 accredited steers and 100 accredited heifers.
- Average sale weight of steers is 430 kg LW and average sale weight of heifers is 350 kg LW.
- Expected price premiums - 5-15c/kg LW premiums for steers, 10-40c/kg LW premiums for heifers. Commission is 5.5%.

The table on the next page summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **COSTS** | | | |
| **Extra Annual Labour** | | | |
| Hours | 4 | 4 | 4 |
| Value of extra labour @ $30 per Hr | $120 | $120 | $120 |
| **TOTAL EXTRA ANNUAL COSTS** | **$120** | **$120** | **$120** |
| **BENEFITS** | | | |
| **EU Price Premiums** | | | |
| No. accredited steers sold | 240 | 250 | 230 |
| Average sale LW per Hd | 430 | 450 | 420 |
| Average EU price premium per kg LW | $0.10 | $0.15 | $0.05 |
| No. accredited heifers sold | 90 | 100 | 80 |
| Average sale LW per Hd | 350 | 370 | 330 |
| Average EU price premium per kg LW | $0.20 | $0.40 | $0.10 |
| Commission | 5.5% | 5.5% | 5.5% |
| **TOTAL EXTRA ANNUAL BENEFITS** | **$15,706** | **$29,933** | **$7,059** |
| **NET ANNUAL BENEFIT** | **$15,586** | **$29,813** | **$6,939** |

10.6.2.4 Non-dollar benefits of practice change

Farmer comment: "Accreditation opens up new markets e.g. Russian Heifers, Chinese Heifers, with potential for lifting the premium over local sale value for pure Angus Heifers above 20c/kg as often these are out of season sales."

10.6.2.5 Risks associated with implementation of the intended practice change

The farmer feels that there are no risks associated with this practice change: "In this market all options need to be available to the seller to maximise opportunities. Certified Grass Feed etc. all make similar sense going forward."

### 10.6.3 MBfP Example Case Study 3 (Pasture renovation)

10.6.3.1 Practice Change

Sowing 18 ha of annual ryegrass and clover pasture to increase total farm carrying capacity and fill winter-feed gap.

10.6.3.2 Costs associated with practice change

- The cost of seed and chemicals to sow pastures is $130 per hectare. Labour and machinery costs for sowing/spraying are estimated at $75 per hectare.
- Additional annual fertiliser costs for this pasture will be applied in the form of poultry litter and will be applied in 3 out of every 4 years. Annual estimated cost of this fertiliser (including contract costs for application) above what would otherwise have been spent if the area had not been sown is $190 per hectare.

- Capital cost of extra DSE per hectare was $60 based on average value and type of stock managed. The annual opportunity cost of investment in extra livestock is calculated at 7%.

10.6.3.3 Benefits associated with practice change

- The farmer is aiming to increase stocking rate over the whole farm from 95 breeders up to 110 breeders. Using an average breeder DSE rating of 18, increase in stocking rate was estimated at 2.7 DSE per Ha. No extra bulls were required to service the additional 15 cows.
- Average gross margin per DSE for extra DSEs was estimated at the 43 year average Victorian Farm Monitor Project beef gross margin of $18. The baseline (before adoption) farm enterprise gross margin was much lower than this long term average, however the farmer has since changed his production system (not related to information from MLA event), and reported that enterprise gross margin increased considerably in the following 12 months as a result. Based on this result the farmer felt confident that a long term average of around $18 per DSE was realistic.

The table below summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **COSTS** | | | |
| **Pasture improvement costs** | | | |
| Area sown (Ha) | 18 | 18 | 18 |
| Seed/chemical cost per Ha | $130 | $104 | $156 |
| Labour/machinery cost per Ha | $75 | $60 | $90 |
| Capital cost per extra DSE | $60 | $48 | $72 |
| Annual opportunity cost of capital invested in extra DSEs @ 7% | $1,134 | $1,075 | $1,109 |
| Extra annual fertiliser cost spread ($/Ha) | $190 | $152 | $228 |
| **TOTAL EXTRA ANNUAL COSTS** | **$8,244** | **$6,763** | **$9,641** |
| **BENEFITS** | | | |
| **Increased stocking rate** | | | |
| Increase in average stocking rate over The whole farm (DSE/Ha) | 2.7 | 3.2 | 2.2 |
| Gross margin per DSE | $18 | $22 | $14 |
| **TOTAL EXTRA ANNUAL BENEFITS** | **$4,860** | **$6,998** | **$3,110** |
| **NET ANNUAL BENEFIT** | **-$3,384** | **$235** | **-$6,530** |

10.6.3.4 Non-dollar benefits of practice change

The farmer made no comment regarding non-dollar benefits associated with the practice change.

10.6.3.5 Risks associated with implementation of the intended practice change

The farmercommented that: "It seems that anything to do with breeding cattle at the moment is unprofitable, especially planting pastures for winter feed gap. "

### 10.6.4 MBfP Example Case Study 4 (Genetics)

10.6.4.1 Practice Change

The farmer purchased an electronic scanner in 2012 for the purpose of better identification of individual animals, to match NLIS tag to management tag and to better evaluate the performance of individual animals.

10.6.4.2 Costs associated with practice change

- The scanner cost $5,200 and scanner software was $1,500. Expected life of scanner is 10 years.
- Extra annual labour required to scan and weigh calves is estimated at 16 hours -/+ 4 hours for best and worst case scenarios. Extra labour is valued at $30 per hour.

10.6.4.3 Benefits associated with practice change

- Calves will be weighed at weaning to identify and sell poor performing bulls.
- The farmer is aiming to increase average live weight per head from 440 to 450 kg at 15 months through better selection over a 10-year period.
- Benefits have been calculated over the life of the investment as they have increased over the 10 years using a discount rate of 7%.
- Average value per extra kg produced is five-yearstateaverage MLA price of $1.80 per kg LW, with commission of 5.5%.

The table below summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **COSTS** | | | |
| **Scanner Costs** | | | |
| Scanner and software | $6,700 | $6,700 | $6,700 |
| Expected life of scanner (years) | 10 | 10 | 10 |
| Amortised value @ 7% | $954 | $954 | $954 |
| Extra labour required (Hrs) | 16 | 12 | 20 |
| Value of extra labour @ $30/Hr | $480 | $360 | $600 |
| **TOTAL EXTRA ANNUAL COSTS** | **$1,434** | **$1,314** | **$1,554** |
| **BENEFITS** | | | |
| **Extra Kgs Produced** | | | |
| No. Weaners | 780 | 780 | 780 |
| Extra Kgs LW per head after 10 years | 10 | 15 | 5 |
| Value per Kg | $1.80 | $2.16 | $1.44 |
| Commission | 5.5% | 5.5% | 5.5% |
| **TOTAL EXTRA ANNUAL BENEFITS** | **$6,562** | **$11,812** | **$2,625** |
| **NET ANNUAL BENEFIT** | **$5,128** | **$10,498** | **$1,071** |

10.6.4.4 Non-dollar benefits of practice change

Farmer comment: "Loss of NLIS or management tag keeps lifetime traceability when tag is replaced."

10.6.4.5 Risks associated with implementation of the practice change

Farmer comment: "Loss of data from crash of laptop computer."

### 10.6.5 MBfP Example Case Study 5 (Enterprise type)

10.6.5.1 Practice Change

The farmer has changed his enterprise mix to get what he sees as a better balance between breeding and trading cattle with the objective of reducing average cost of production and increasing farm profit.

10.6.5.2 Costs associated with practice change

- The farmer has decreased breeder numbers by 200 and as a result expects to be able to trade an additional 350-400 steers annually.
- Income foregone from breeders has been calculated using the 43 year average gross margin per DSE for beef enterprises from the Victorian Farm Monitor Project of $18 and based on average cow weight, a cow/calf unit DSE rating of 20 has been used.

10.6.5.3 Benefits associated with practice change

- Steers are purchased at an average weight of 250 kg and are expected to produce on average between 180 and 220 kgs per head depending on the season.
- Steer purchase and sale prices are MLA 5 year average state prices for weaners and yearling cattle respectively.
- Steer animal health treatments will vary by season but are expected to range from $25-$35 per head.
- Current freight is $15 per head each way, commission is 5.5% and industry levy $5 per head.
- There is no change expected in the amount of farm labour required, however some labour may be reallocated from the beef enterprise to the sheep enterprise at key times of the year.

The table on the next page summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **COSTS** | | | |
| **Revenue foregone from less breeders** | | | |
| Decreased number of breeders | 200 | 200 | 200 |
| Gross margin per breeder | $360 | $288 | $432 |
| **TOTAL ANNUAL REDUCED INCOME** | **$72,000** | **$57,600** | **$86,400** |
| **BENEFITS** | | | |
| **Income from extra traded steers** | | | |
| Number of steers traded | 375 | 400 | 350 |
| Average purchase weight | 250 | 250 | 250 |
| Average purchase price per kg LW | 2.05 | 1.64 | 2.46 |
| Average sale weight | 450 | 470 | 430 |
| Average sale price per kg LW | $1.87 | $2.24 | $1.50 |
| Selling costs per Hd | $51 | $59 | $38 |
| Freight per Hd | $36 | $30 | $43 |
| Animal health costs per Hd | $30 | $35 | $25 |
| **TOTAL EXTRA ANNUAL BENEFITS** | **$79,394** | **$208,150** | **-$27,241** |
| **NET ANNUAL BENEFIT** | **$7,394** | **$150,550** | **-$113,641** |

10.6.5.4 Non-dollar benefits of practice change

The farmer commented that trading larger numbers of steers has increased his negotiating position with the purchaser of the steers. He also says: "We are now in a better position to be able (season permitting) to target the top end of our target market due to increased numbers of steers. Instead of filling a load at maybe 420kg to 520kg we potentially can fill an order at say 480kg to 520kg thus lifting our average weight and sale price per head".

10.6.5.5 Risks associated with implementation of the practice change

The farmer sees the most significant risk as being at the mercy of the market when they need to buy in.

To try to reduce this risk they plan to:

1. Not be too regimented about when theybuy.
2. Ideally buy in at least some replacement cattle in the same market astheyare selling out the other end.

### 10.6.6 MBfP Example Case Study 6 (Animal handling)

10.6.6.1 Practice Change

The farmer was planning to build a new set of cattle yards prior to attending an MLA event where yard design and animal handling techniques were discussed. As a result of ideas picked up at this event, the farmer improved the design for his new yards to improve animal handling and time required to complete tasks in the yards.

10.6.6.2 Costs associated with practice change

- There was no additional cost associated with the design improvements made.

10.6.6.3 Benefits associated with practice change

- The farmer estimates that the new cattle yards will save approximately 5 labour days per annum due to reduced time required to complete tasks with stock in the yards. He estimates that approximately 20% of this labour saving could be attributed to the design improvements made due to attendance at the MLA event. Labour value is $30 per hour.

The table below summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **BENEFITS** | | | |
| **Labour saved** | | | |
| Days labour saved | 5 | 6 | 4 |
| Value of labour savings | $1,200 | $1,440 | $960 |
| Proportion of benefit attributed to improved yard design | 20% | 25% | 15% |
| **NET ANNUAL BENEFIT** | **$240** | **$360** | **$144** |

10.6.6.4 Non-dollar benefits of practice change

The farmer commented that improved OH & S and reduced stress on operators is difficult to put a dollar value on but will nonetheless be an important benefit of the new yard design.

10.6.6.5 Risks associated with implementation of the practice change

The famer sees no real risks associated with achievingthe labour savings associated with this practice change, and there will certainly be reduced risk to health and safety of workers as a result of the change.

### 10.6.7 MMfS Example Case Study 1 (Grazing Management)

10.6.7.1 Practice Change

Increase stocking rate and profitability through:

- Implementing more rotational grazing and less set stocking
- Implement feed budgeting and monitoring
- Better feed utilisation
- Better weed management
- More cost effective supplementary feeding

10.6.7.2 Costs associated with practice change

- Farmer plans to fence the farm into smaller paddocks. In the next 12 months aims to erect 2 kms of new fencing @ $2,000 per km for materials (this did not happen in 2013 as planned due to time constraints but will happen in 2014). Owner labour required is

4 days per km valued at $30 per hour. He plans to erect approximately 2km of new fence per year for the next 5 years. Expected useful life of fencing is 50 years.
- Water for these extra paddocks will be around $1,000 per year.
- The farmer feels he may need more storage for supplementary grain for risk management – he plans to purchase a new silo for an expected cost of $13,000. Silo will be purchased in 2014. Expected useful life of silo is 50 years.
- Grain to fill the silo will be taken from his own oat crops. He will continue to purchase some lupins occasionally, depending on price and opportunity as they have done in the past - not expecting this to change. Storage capacity of the new silo will be approximately 55 tonne. Long-term average oats price is in the range of $180-$200 per tonne. Farmer says while seasonal prices are generally within this range, in years where prices are a fair bit cheaper he may take the opportunity to purchase higher protein levels. Opportunity cost of extra oats retained for risk management was 7%.
- Spray topping of pastures will increase at a cost of approximately $500 per year (including labour to spray).
- Farmer is now using a feed budget satellite monitoring system and will rotate stock based on this and visual assessment. Cost of access to this system is $500 per annum.
- Extra labour required to manage the new system (more frequent monitoring of livestock and pastures and more frequent moving of livestock) is estimated to average 2 hours per week valued at $30 per hour. It will be more or less depending on the time of year and feed on offer.

10.6.7.3 Benefits associated with practice change

- The farmer is hoping to improve pasture quality and quantity through grazing management. Current stocking rate averages 10 DSE per hectare and he hopes to lift it to 13 DSE per hectare over the next 5 years. He also hopes to increase lamb weaning percentage by 10% over the same timeframe.
- Extra lambs weaned were originally valued at $71 per head based on MLA 5 year state average Merino lamb price, however the farmer felt that due to his location within the state that he generally receivesa lower price than the state average and felt that an average of $65 per head would be more accurate.
- Lamb marking costs for extra lambs weaned was estimated at $1.30 per head.
- Surplus Merino lambs will be sold and lamb selling costs were 5.5% for commission, $2.80 per head for yard fees & levies and $3 per head for freight.
- The increase in stocking rate was valued at the 43-year average wool sheep gross margin from the Farm Monitor Project of $27 per DSE. The farmer was happy with this and commented that although he would like to average a bit higher than $27, he would take that return for a few years if we could guarantee it!
- Capital cost of extra DSE per hectare was $65 based on average value and type of stock managed.

The annual costs and benefits of this practice change were evaluated over a 20-year period as they are incurred/received and an equivalent annuity of costs and benefits was calculated using a 7% discount rate.

The table on the next page summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **COSTS** | | | |
| **Extra Infrastructure** | | | |
| Area (Ha) | 980 | 980 | 980 |
| Fencing cost per year (for next 5 yrs) | $4,000 | $4,000 | $4,000 |
| Fencing labour per year (@ $30 per hour) | $1,920 | $1,920 | $1,920 |
| Water infrastructure per year (for next 5 years) | $1,000 | $1,000 | $1,000 |
| New silo | $13,000 | $13,000 | $13,000 |
| Value of grain to fill silo | $10,450 | $9,900 | $11,000 |
| **Capital cost of extra DSE's** | | | |
| Capital cost per DSE | $65 | $59 | $72 |
| **Additional ongoing annual costs** | | | |
| Extra MCPA | $500 | $500 | $550 |
| Feed satellite monitoring system | $500 | $500 | $550 |
| Extra annual labour | $3,120 | $3,120 | $3,120 |
| **TOTAL EXTRA ANNUAL COSTS** | **$18,570** | **$22,053** | **$14,262** |
| **BENEFITS** | | | |
| **Increased lambs weaned** | | | |
| Increase in weaning % | 7.5% | 10% | 5% |
| Lamb value per Hd | $65 | $72 | $59 |
| Lamb marking costs per Hd | $1.30 | $1.04 | $1.56 |
| Selling costs/freight per Hd | $9.38 | $9.76 | $9.05 |
| **Increased Stocking Rate** | | | |
| Increased stocking rate (DSE/Ha) | 2.0 | 3.0 | 1.0 |
| Average gross margin per DSE | $27.00 | $29.70 | $24.30 |
| **TOTAL EXTRA ANNUAL BENEFITS** | **$60,700** | **$97,218** | **$29,774** |
| **NET ANNUAL BENEFIT** | **$42,130** | **$75,165** | **$15,512** |

10.6.7.4 Non-dollar benefits of practice change

The farmer intends to manage individual paddocks and areas of paddocks to reduce erosion and capeweed effects. When the capeweed dries off it tends to leave bare areas, which can blow dust in summer and are affected by early heavy rains. The runoff can create gutters and dump topsoil in dams and also in the ocean. He used electric fencing for this purpose last winter/spring, with good results and intends to utilise this again and over a larger area of the farm.

10.6.7.5 Risks associated with implementation of the intended practice change

The farmer views the major risk associated with the changes as variability in the weather and seasonal conditions: “Rain in over abundance and lack thereof are pretty obvious and cannot be overlooked. We always get a reasonable amount of rain and haven’t gone a year without rain at all. This does not leave us immune to variable conditions and late breaks followed by extended cold temperatures would create major headaches. If feed doesn’t have a chance to

get away and soil temperature is low feed growth could be stalled. Deferred feeding would be a likely response to these conditions and supplementary feeding would be necessary."

### 10.6.8 MMfS Example Case Study 2 (Ewe management)

10.6.8.1 Practice Change

Improved lamb survival from twin bearing ewes. Increase marking rate from 115% to 135% from twin bearing ewes.This is to be achieved by improved monitoring of ewe condition score during pregnancy, increased supplementation of multiple bearing ewes, and improved pasture monitoring and budgeting.

This farmer commented that the MMfS event attended "opened our eyes to the principles of lifetime ewe management". As a result of this workshop the farmer now aims to have twin bearing ewes in CS 3.5 prior to lambing.

10.6.8.2 Costs associated with practice change

- Extra feed costs - most likely scenario, ewes will be fed oats at 400g/head/day for 8 weeks, worst case scenario they will be fed 500g/head/day for 8 weeks, and best case average scenario they will be fed 200g/head/day for 8 weeks.
- The farmer expects long term average landed price for oats to be $280/T.
- Extra labour required - 3 feeds per week at 3 hours per feeding.
- Value of extra feed requirements for ewes who would otherwise have reared a single lamb but with increased CS at lambing now rear twins at $3.82 per head based on extra energy required during lactation for these ewes. This figure is based on extra energy valued at 2c/MJ.
- Farmer puts current lamb marking costs at $2.50 per head for extra lambs weaned. This figure has been used as the best-caselong-term average cost and increased by 20% for most likely and worst-case scenarios assuming real costs will rise over time.

10.6.8.3 Benefits associated with practice change

- The farmer expects long-term average weaning % from multiple bearing ewes to increase by 20%, ranging from 10% increase for the worst-case scenario to 30% for the best-case scenario. Historical average marking % from twins is 115% and he hopes to get an average of 135%.
- To calculate benefits of increased CS at lambing in terms of lifetime wool production of progeny, the Lifetime Wool finding that for every 0.5 extra CS at lambing, progeny will cut up to an extra 0.1kg of wool at 0.2 micron finer over their life has been used.
- The farmer estimates that improved ewe management should result in an increase in CS at lambing compared to before management changes of between 0.5 and 0.2, average 0.35.
- Extra lambs weaned have been valued at MLA 5 year state average merino lamb price. Value of extra and finer wool has been valued at 5-year average AWI wool prices for relevant micron categories.
- Extra lambs weaned will be shorn then sold, with current freight costs of approximately $3 per head, commission at 5.5% and yard fees, levies etc. at $2.60 per head.
- The farmer expects average number of ewe deaths among multiples to fall by an average of 2% due to improved ewe nutrition.
- Ewes have been valued at MLA 5 year state average Merino ewe price.

The table below summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **COSTS** | | | |
| **Extra feed for multiple bearing ewes** | | | |
| Number of ewes fed | 960 | 960 | 960 |
| Cost of supplements per head | $6.27 | $2.51 | $9.41 |
| Value of extra labour required | $2160 | $2160 | $2160 |
| Value of extra feed required by ewes Now rearing multiples ($/Hd) | $3.82 | $3.06 | $4.58 |
| **TOTAL EXTRA ANNUAL COSTS** | **$8915** | **$5449** | **$11632** |
| **BENEFITS** | | | |
| **Extra lambs weaned** | | | |
| Increase in weaning % | 20% | 30% | 10% |
| Extra lambs weaned | 192 | 288 | 96 |
| Value per Hd of extra lambs weaned | $71 | $78 | $64 |
| Freight to sale ($/Hd) | $3.00 | $2.40 | $3.60 |
| Marking cost per Hd for extra lambs | $3.00 | $2.50 | $3.60 |
| Difference in average ewe CS at lambing | 0.35 | 0.5 | 0.2 |
| Value of increased lifetime wool production from progeny | $3,077 | $4,552 | $1,827 |
| Ewe deaths saved annually | 19 | 23 | 15 |
| Value per ewe | $95 | $114 | $76 |
| **TOTAL EXTRA ANNUAL BENEFITS** | **$16,113** | **$23,647** | **$6,684** |
| **NET ANNUAL BENEFIT** | **$7,198** | **$18,199** | **-$4,948** |

10.6.8.4 Non-dollar benefits of practice change

The farmer notes that it is less stressful for him to run sheep at the correct CS due to improved animal welfare, and having CS targets allows for better, more proactive decision making throughout the year. He also now keeps better records on ewes for enterprise analysis year in year out to aid decision making over time.

10.6.8.5 Risks associated with implementation of the practice change

The farmer noted that the biggest challenge was making sure the return on investment in extra feed is economic:"The business now has greater exposure to changes in grain prices and is more vulnerable in a drought situation." The farmer aims to decrease this risk by improved pasture budgeting to achieve target CS on grass only in years where this is possible.

### 10.6.9 MMfS Example Case Study 3 (Genetics)

10.6.9.1 Practice Change

As a result of attending an MMfS event this farmer's understanding of ASBVs was increased and his intended practice change was to "use ASBV's for better ram selection". He is aiming for a finer clip, heavier fleece weight and lower wrinkle.

10.6.9.2 Costs associated with practice change

- The farmer expects to have to pay a higher average price for rams when using ASBVs for ram selection. His historical average ram cost was $700 per ram, and going forward he expects to have to pay about $1,400 per ram. Cull ram price is expected to remain unchanged.

10.6.9.3 Benefits associated with practice change

- Started changing over rams in 2011, all older rams will be gone by 2014.
- Finer wool. Current average micron is 19 and the farmer is aiming for 18 micron by 2018.
- Heavier fleeces. Farmer wants to increase adult greasy wool cut per head by 1kg best case scenario and at least 0.5 kg for a worst case scenario (average 0.75kg per head increase), and to increase weaner greasy wool cut per head by 0.4kg for a best case scenario and 0.1 kg for a worst case scenario (average 0.25kg per head increase).
- Extra wool production and lower micron have been valued at 5-year average AWI wool prices.
- Lowering wrinkle score is expected to reduce the treatment costs and sheep deaths due to fly strike, and the farmer also hopes to see a reduction in the percentage of coloured wool in the clip. Assumed reduction in percentage of coloured wool in the clip ranges from zero reduction for the worst-case scenario, 2.5% reduction for the most likely scenario and 5% reduction for the best-case scenario. Price discount for coloured wool has been estimated at between 30 and 50 cents per kg clean.
- The farmer estimates that depending on the season, he hopes to achieve savings in treating flystrike (including labour) of between $8,500 and $17,000. Worst-case scenario there will be no savings.
- The farmer hopes to see a reduction in ewe deaths due to flystrike of between 5 and 15 head annually. Ewes are valued at 5-year average state MLA Merino ewe price.
- The farmer expects to see the benefits of improved ram genetics across the majority of the flock by 2018. A discounted cash flow budget using a discount rate of 7% has been used to capture the incremental costs and benefits of this practice change over a 20year time period with results provided as an equivalent annuity of net benefits.

The table on the next page summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **COSTS** | | | |
| **Extra ram cost** | | | |
| Extra average cost per ram | $700 | $560 | $840 |
| Rams purchased per year | 16 | 16 | 16 |
| **TOTAL EXTRA ANNUAL COSTS** | **$11,200** | **$8,960** | **$13,440** |
| **BENEFITS** | | | |
| **Increased Wool Cut and Reduced Micron** | | | |
| Reduction in average micron of clip | 0.75 | 1 | 0.5 |
| Increase in adult greasy cut per Hd | 0.75 | 1 | 0.5 |
| Increase in weaner greasy cut per Hd | 0.25 | 0.40 | 0.10 |
| **Reduced Flystrike** | | | |
| Number of ewe deaths saved annually | 10 | 15 | 5 |
| Ewe value per head | $95 | $114 | $76 |
| Decreased annual spending on fly treatment | $8,500 | $17,000 | $0 |
| **Less coloured wool** | | | |
| % Reduction in coloured wool | 2.5% | 5% | 0% |
| Price discount for coloured wool (c/kg cl.) | $0.30 | $0.50 | - |
| **TOTAL EXTRA ANNUAL BENEFITS** | **$32,666** | **$58,592** | **$12,414** |
| **NET ANNUAL BENEFIT** | **$21,466** | **$49,632** | **-$1,026** |

10.6.9.4 Non-dollar benefits of practice change

The farmercommented "less fly strike would be good for animal welfare and also good for the mental state of those that have to treat the blown sheep or see them dead inthe paddock".

10.6.9.5 Risks associated with implementation of the practice change

The farmer's major concern with this practice change is that if he puts too much emphasis on reducing wrinkle, he could plain the mob up and in doing so decrease his wool cut per head. He comments: "I have to make sure I balance the need for plainer bodied sheep with traits that are profit drivers, such as wool cut and micron."

### 10.6.10 MMfS Example Case Study 4 (Risk Management)

10.6.10.1 Practice Change

The farmer is using the Rainfall to Pasture Growth Outlook Tool to assist in the timing of purchases of trading stock with the aim of reducing the risk associated with balancing feed demand and feed supply from pasture growth. He has used the outlook tool to successfully inform livestock trades a number of times over the last 3 years. This example looks at a trade conducted last year against the Rainfall Pasture Outlook Tool’s recommendations and his own better judgement. Hindsight shows he should have observed and acted on the information provided by the tool.

10.6.10.2 Costs associated with practice change

- The only cost of this management strategy is extra time required to use the tool. The farmer estimates this time to be about 15 minutes per week on average with value of labour at $30 per hour.

10.6.10.3 Benefits associated with practice change

- The farmer sees the key benefit of the tool as being the potential to save him from making an unprofitable decision to trade lambs. He actually did trade lambs last season despite information provided by using the tool at the time which suggested not to. He decided to take the risk and it turned out to be a poor decision. This actual data has been used as the basis for estimating potential savings due to lamb trading losses as a result of using the tool.
- If the lambs had not been purchased, there would have been more pasture available for the 120 steers on the property. The extra beef that would have been produced has been valued at 5-year state average MLA yearling price, and commission was 3.5%.

The table below summarises the main inputs and outputs for the three scenarios for this farm practice change:

| **VARIABLES** | **Most Likely Scenario** | **Best Case Scenario** | **Worst Case Scenario** |
|---|---|---|---|
| **COSTS** | | | |
| **Time to use the tool** | | | |
| Extra hours per week | 0.25 | 0.25 | 0.25 |
| Value of extra time @ $30/Hr | $390 | $390 | $390 |
| **TOTAL EXTRA ANNUAL COSTS** | **$390** | **$390** | **$390** |
| **BENEFITS** | | | |
| **Trading loss on lambs saved** | | | |
| No. Lambs traded | 600 | 600 | 600 |
| Purchase price per Hd (incl. freight) | $70.50 | $84.60 | $56.40 |
| Animal health costs per Hd | $0.41 | $0.33 | $0.49 |
| Shearing costs per head | $5.60 | $4.48 | $6.72 |
| Extra labour cost per head | $1.05 | $0.84 | $1.26 |
| Net wool income per head | $2.50 | $3.00 | $2.00 |
| Lamb sale price per head (net of freight) | $60 | $72 | $48 |
| Commission | 3.5% | 3.5% | 3.5% |
| **TOTAL TRADING LOSS SAVED** | **$10,296** | **$10,661** | **$9,931** |
| **Extra kgs of beef produced** | | | |
| No. Steers | 120 | 120 | 120 |
| Extra kg per head | 12 | 14 | 10 |
| Value per kg | $1.95 | $2.34 | $1.56 |
| Commission | 3.5% | 3.5% | 3.5% |
| **TOTAL NET GAIN FROM STEERS** | **$2,710** | **$3,902** | **$1,734** |
| No. of years in 10 a benefit is likely | 7 | 9 | 5 |
| **NET ANNUAL BENEFIT** | **$8,714** | **$12,717** | **$5,443** |

#### 10.6.10.4 Non-dollar benefits of practice change

The farmer is feeling more confident about the timing of trading stock purchases and the decision of whether to trade or not. He comments that the benefits are difficult to put a dollar value on, but the information from the tool is highly valued when running a highly geared business.

#### 10.6.10.5 Risks associated with implementation of the practice change

The famer notes that there is a risk that the use of the tool results in a wrong decision, however he says that the risk of decision making not using the tool is greater.

### 10.6.11 MMfS Example Case Study 5 (Animal health)

#### 10.6.11.1 Practice Change

The farmer has commenced doing regular worm testing of weaners, and now makes better and more accurate decisions regarding drench requirements.

#### 10.6.11.2 Costs associated with practice change

- It costs about $1,500 per year to do the worm testing plus about 15 hours of labour with labour valued at $30 per hour.
- One of the benefits of improved timing of drenching maidens has been an increase in general health of maiden ewes which the farmer feels has resulted in an increase in conception rate. The value of extra feed requirements for maiden ewes who would otherwise have been dry but now carry and rear either a single or twin lambs was estimated at $13.88 per head based on extra energy consumption during pregnancy and lactation for these ewes, with energy valued at an average of 2c/MJ.

#### 10.6.11.3 Benefits associated with practice change

- The farmer feels that he has reduced the number of drenchings for approximately 2,150 weaners by one dose due to monitoring (eliminating the guessing).
- Current cost per dose is 19 cents and labour required per drenching is about half a day for two people.
- The farmer expects weaner deaths due to worms tofall by between 10 and 20 head per year due to monitoring and improved timing of drenching.
- Weaner deaths saved have been valued at5-year state average MLA price.
- The farmer feels that increased health of maiden ewes is likely to have resulted in an increase in conception rates of 5% as the most likely scenario +/- 2% for best and worst case scenarios.
- Mortality from birth to weaning ranges from 5-15%. Around 650 maidens are joined each year and the farmer typically gets 20% of lambing maidens having twins.
- Current lamb marking costs are estimated at $1.30 per head and extra lambs weaned are sold, with freight at about $3 per head, commission at 5.5% and other selling costs (yard fees, levies etc.) at $2.60 per head.

The table on the next page summarises the main inputs and outputs for the three scenarios for this farm practice change:

| VARIABLES | Most Likely Scenario | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| **COSTS** | | | |
| Annual cost of WEC testing | $1,800 | $1,500 | $2,160 |
| Value of extra labour required @ $30/Hr | $450 | $450 | $450 |
| Value of extra feed required by extra Maiden ewes lambing ($/hd) | $13.88 | $11.10 | $16.66 |
| **TOTAL EXTRA ANNUAL COSTS** | **$2,769** | **$2,443** | **$2910** |
| **BENEFITS** | | | |
| Reduced weaner deaths | 15 | 20 | 5 |
| Value per weaner | $71 | $85 | $57 |
| Value of drench saved annually | $409 | $490 | $327 |
| Value of labour saved due to reduced drenching | $240 | $288 | $192 |
| Increased conception rate in maiden ewes | 5% | 7% | 3% |
| % Maidens having twins | 20% | 20% | 20% |
| Mortality rate from birth to weaning | 10% | 5% | 15% |
| Extra lambs weaned | 35 | 52 | 20 |
| Commission/selling costs per Hd | $6.51 | $7.29 | $5.72 |
| Marking costs per Hd | $1.30 | $1.04 | $1.56 |
| Freight per Hd | $3.00 | $2.40 | $3.60 |
| **TOTAL EXTRA ANNUAL BENEFITS** | **$3,827** | **$6,298** | **$2,048** |
| **NET ANNUAL BENEFIT** | **$1,148** | **$3,855** | **-$862** |

10.6.11.4 Non-dollar benefits of practice change

The farmer identified the improved welfare of the weaners and the improvement in ease of shifting sheep that aren't wormy as non-dollar benefits of the improved worm management program.

10.6.11.5 Risks associated with implementation of the practice change

The farmer feels that this practice change has "decreased our risk as we are not guessing any more about when to drench - we have the information to tell us exactly when we need to drench so there is reduced risk of wasting money".

## 10.7 Appendix 7: Farmer comments regarding actual or expected management impacts of practice change adoption on case study farms.

**MBfP Case Study Farmer Comments:**

*“A lot more confidence in what I should be doing and where I am going.”*

*“More peace of mind due to not seeing skinny cows and sheep.”*

*“Less financial risk but more vulnerable to changes in weather affecting stocking rates because running higher stocking rates.”*

*“It is stressful financially because we are having to spend big money to get where we want to go.”*

*“Personal satisfaction of being able to run a productive, self-sustaining herd. I can’t put a $ value on this but personal satisfaction is important in running a business, or we believe so."*

*“Increased the complexity because of the rotational grazing and carrying more numbers.”*

*“Less price risk as more options for end market so I feel less stressed at sale time.”*

*"Easier system - one mob of steers only."*

*"Overall positive but can be stressful when you have a rain event and the cattle create a mud patch in the paddock where the rotational grazing is happening."*

*"Have had to increase skills and knowledge to make the change happen."*

*"Can increase risk when get into a tough time because of more capital and higher stocking rates which is why we also have more crop and irrigation to try to offset the risk."*

*"Reduced stress as know what we are doing with hay and silage now and not worrying about ill animals anymore."*

*"Now go to more training because I want to know more and rub shoulders with others making change."*

*"Busier as more management of more cattle."*

*"More confidence in managing the feed."*

*"It is a more complex management system."*

*"With extra cattle will see increase in cattle per labour unit but it may be an issue at calving."*

*"Increased confidence in knowing that money invested in fertiliser is more likely to provide a return now."*

*"Better understanding of breeding traits being sought."*

*"Greater certainty of income. Not dealing with rogue buyers."*

*"Improved understanding of the grazing system and management required to run it."*

*"Simpler system now - less things to go wrong!"*

*"No undercutting from buyers. Less immediate risk."*

*"Increased confidence as have seen the system working and improving productivity. Looking toward medium term (5 year) payoff."*

*"Still some risk with changes made especially if stocking rate outstrips feed availability. Increased returns balances this, along with five year implementation timeframe (instead of 12 months)."*

*"Getting more confident in the system. Part of local discussion group which provides ideas and reinforcement."*

*"Regular attendance at group events & activities providing better value than annual field day attendance."*

*"I'm learning from what hasn't worked and making improvements."*

*"May need more understanding of weed management issues (extra training required)."*

*"Will be a simpler system to run once up and going."*

*"Will reduce risk. More summer feed available of higher quality. Increased ability to meet autumn feed gap."*

*"Need new management skills to make it work."*

*"Now have a better understanding of my system."*

*"More flexibility with sales options for heifers."*

*"Less worry now."*

*"More confidence in decision making."*

*"Less stressed at bull sale because now I know what I'm looking for and keeping a closer eye on bulls."*

*"Very informative process as a result of making this practice change."*

*"Will decrease the complexity - less of a tail to manage."*

*"Main risk is paying more for bulls so I need to make sure I get a production improvement to justify that/but less risk because better production."*

*"More work at present - expect it to improve when fencing and water completed in next two years."*

*"Increased risk due to high capital input - expect to improve over time."*

*"More sure about what we have bought - used to hate buying bulls, now it's much easier."*

*"Higher price means less risk."*

*"More work, but hopefully more profit."*

*"Stress levels went down by seeing cattle do well."*

*"Have more confidence now to try different things."*

*"More work with cows on agistment and running more stock but will hopefully it will be more profitable."*

*"Increased peace of mind."*

**MMfS Case Study Farmer Comments:**

*"Less complex because I feel more in control."*

*"Spending more time analysing data at home - because I want to!"*

*"Less worry about why sheep are dying, staff now talking about sheep/lamb survival issues and working towards solutions. "*

*“Gaining more skills and confidence in this area.”*

*“Easier management, more marketing flexibility.”*

*“Committed and enthusiastic about the change - both networking and improved knowledge and skills.”*

*“Less risk to worry about - confidence to increase sheep numbers to 4,000 ewes.”*

*“Increased stress as more thinking about what work needs to be done.”*

*“More training required but hopefully we will learn something to make life easier.”*

*“Know more about the sheep and understanding has increased, feeding the right sheep now.”*

*“Learning more from other farmers and increasing knowledge as a result.”*

*“Management is more complex, more movement of sheep."*

*"Concerned about still having too many deaths so need to reduce deaths to reduce stress."*

*"Business is more complex but hoping benefit is worth it."*

*"Less deaths but there is a financial risk."*

*"More, smaller paddocks increases complexity but is still a positive as we have more feed."*

*"Really improved our skills and knowledge - very enjoyable."*

*"Increased confidence in ram buying and understanding figures used."*

*"More forward planning - improved peace of mind."*

*"Increased knowledge and encouraged further training (now doing LTEM)"*

*"Improved risk management, better able to plan and adjust to seasons."*

*"We have confidence in what we are doing."*

*"Higher risk - but higher income also."*

*"Working harder now to be able to be more productive in the future."*

*"Changes require greater management skill."*

*"Less risk due to higher weaning rates and more lambs born."*

*"More complex but worth it."*

*"Simpler marketing- more uniform mobs."*

*"Using supplementary feeding on a more managed and quantitative basis. Operating in a more controlled environment, less reactive. Also improving worm control and nutrition to operate on a responsive rather than a reactive basis."*

*"Needs high degree of management. Still trying to get balance between controlled routine and managing resistance."*

*"Still have seasonal risk issues but better nutrition and management will increase resilience of stock and ability to deal with adverse weather events."*

*"Improved ability to make decisions early in the season and stick with them."*

*"Easier to make decisions even though the system is more complex. Able to quantify results, makes decisions more clear cut."*

*"Have to do a bit more research now when buying rams compared to before but it will reduce business risk by having better lambs."*

*"New system means I can map out the year and book in holidays."*

*"Clearer picture of what's happening. Focus on where feed inputs are best used."*

*"Still need investment in training - doing Lifetime Ewe; Sheep updates etc."*

*"Higher level of profit. System still manageable. Able to put in more crop and maintain sheep numbers."*

*"Better understanding of capacity of my system."*

*"Still plenty of work to be done in understanding the success factors for establishment and management (pastures) on these soil types and pH."*

*"Confidence in knowing the system once established will provide ongoing benefits."*

*"Major reduction in risk through improved pasture quality and availability."*

*"New lambing time means I will have more time to check ewes and lambs more closely this year."*

*"Making significant changes. Getting advice from Melb. Uni."*

*"Twins bring more risk but can cope better now with any feed shortages in bad years. Later lambing gives flexibility to sell to other locations."*

*"Decreased stress and worry about prices."*

*"More confident that we can manage pastures at higher stocking rate."*

*"Lowered some of the risk - because not so rain dependent when applying fertiliser."*

*"More knowledge and opportunities to improve sheep management."*

*"Less risk as more and better feed now."*

*"More work in some areas (sheep management) but less in others (less drenching)."*

*"Not as stressful - more confident."*

*"Much less stress - less dead lambs."*

*"Spent time making it all work - gained new skills."*

*"Increase in confidence to tackle new things."*

*"A little less worried about lambing supervision and having too many ewe deaths."*

*"Improving management techniques each season."*

*"We are targeting the technology which makes the most impact."*

*"Keeping the practice changes simple - we only adopt changes which are relatively inexpensive to apply to minimise risk."*

*"More mobs at lambing makes it slightly more complex."*

*"More lambs increases income therefore reduces risk."*

*"Simpler system - not buying and selling just selling."*

*"A lot simpler - one mob of rams and one mob of ewes."*

*"Better organised - rather than having a she'll be right approach."*

*"Now know what not to do."*

*"Good to do training and improve management - enrolled in High performance weaner course too."*

## 10.8 Appendix 8: Farmer comments regarding actual or expected environmental and animal welfare impacts of practice change adoption on case study farms.

**MBfP Case Study Farmer Comments:**

*“Better soil health with use of phalaris and regular super.”*

*“Grass tetany has increased because of more green feed available early but we are managing this.”*

*“Not getting as much run-off because more ground cover.”*

*“Noticed a big increase in summer ground cover - much greater ground cover in the phalaris paddocks.”*

*“Less stress to operators from dealing with sick calves and calf deaths.”*

*"Healthier and quieter cattle."*

*"Greater diversity of plants, rotational grazing helps this."*

*"Reduction in applying nitrogen should have a positive effect on nitrogen leaching."*

*"Expecting increased value from fertiliser applied based on comprehensive soil sampling program through DAFWA. Less nutrient export expected."*

*"Improved stocking rates and fertiliser management will assist weed control."*

*"Low stress handling practices will improve animal welfare."*

*"Reduced grazing pressure will increase groundcover."*

*"We are getting into paddocks more often to inspect. Able to pick up pest problems quicker e.g. RLEM. Also means able to spot animal health issues before they become a problem. Have seen mortality rate decrease."*

*"Have improved soil nutrient levels."*

*"Rotational grazing now being used - forcing cattle to graze full area of paddocks which helps to better control weeds."*

*"Improved competition from pasture has reduced weeds and reduced hay feeding means less weed spread."*

*"Reduced fertiliser use will reduce nutrient runoff."*

*"Increased use of deep rooted pasture species to increase water use efficiency."*

*"Increased pasture area & coverage of wetter areas of farm."*

*"Less problems with calving/less calf and heifer/cow deaths."*

*"Better use of irrigation water."*

*"No need to do widespread spraying of thistles anymore."*

*"Now maintain good ground cover all year."*

*"Weeds don't seem to be as strong, daisy's now gone."*

*"Drying of wet areas to reduce foot damage."*

*"Adding nitrogen to the soil to increase soil quality."*

**MMfS Case Study Farmer Comments:**

*"Will continue to focus on fox management as still not sure how much foxes are impacting on lamb survival rate."*

*"Will provide surety, stock in better condition, property has increased ground cover and more visual appeal."*

*"Predict that this focus on ewes will increase ground cover in winter."*

*"As a consequence of looking at ewe nutrition, we will have to look at the soil nutrition as well."*

*"Doing a lot more spraying to get rid of barley grass etc. that have low nutrient value."*

*"Will change the management practices associated with early irrigation of lambing paddocks to get less deaths and better average condition of ewes."*

*"Much better autumn ground cover."*

*"Fewer broadleaf weeds."*

*"Lower worm burdens."*

*"Fewer lamb and ewe deaths."*

*"Managing foxes better."*

*"Slight reduction in stocking rates will help reduce risk of paddocks being bared out."*

*"Improved pasture management will see pasture compete more effectively with weeds."*

*"Improved animal nutrition and condition score expected to provide significant animal welfare benefits."*

*"Increased C from brown manuring. Increased N from more clover dominant pastures."*

*"Major improvement in weeds with no imported feed."*

*"Increased organic matter and organic carbon."*

*"Less stock health issues through better management."*

*"Not baring off pastures by weaning on to fodder crops."*

*"Reduced runoff from early crop establishment & improved ground cover."*

*"Improved ground cover. Resting pastures with stock on fodder and stubble paddocks. Reduced wind erosion. Improved biomass."*

*"Twin lambing ewes have ready access to good feed and water. Small mobs on best feed regime. Ewes healthier, eat well and look after lambs better."*

*"Balancing spraying out of geranium vs improved competitive ability of renovated pastures."*

*"Improved pasture nutrient uptake. Less fertiliser use from increased clover %."*

*"Less geranium, barley grass, brome grass."*

*"Improved animal nutrition. Less VM and seed contamination."*

*"Aiming to increase ground cover early in the season (Jan-Mar)."*

*"Barley grass out of system. Improved nutrition from N fixing species gives better advantage to pasture."*

*"Greater retention of N."*

*"Will help address current summer weed problems through improved competition from active pasture. Will be able to better utilise summer rainfall."*

*"Better N fixation, improved overall soil fertility, ground cover and organic matter."*

*"Less confinement feeding on bare paddocks."*

*"Fodder crops will have a big impact on weeds and reduce spraying costs on pastures. Fodder crops and brown manure crops will act to trap moisture."*

*"Reduced problems from mastitis. Improved ability to supply more nutritive feed."*

*"Improved soil structure."*

*"More ground cover and less erosion."*

*"Better monitoring livestock health."*

*"Much reduced areas of saffron thistle."*

*"Healthier more productive sheep."*

*"These activities are more time consuming but they get results, fox baiting in autumn and spring and pig trapping through the winter."*

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