



Final report

L.PDS.1803- Enhanced Producer Demonstration Sites – MLA and Agriculture Victoria co-funded PDS program

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Abstract

Producer Demonstration Sites (PDS) are a recognised method for accelerating adoption of research outcomes and technology on farms. Delivered in a group setting, PDS support producers to observe, measure, and evaluate practices and consider how best to incorporate changes on their own properties. The Enhanced Producer Demonstration Site (EPDS) concept was developed in 2014 as a partnership between Meat & Livestock Australia (MLA) and Agriculture Victoria. The partnership brings the benefits of integrating with Agriculture Victoria's BestWool/BestLamb and BetterBeef network of producers and groups receive assistance from Agriculture Victoria extension staff throughout the demonstrations including monitoring, evaluation, reporting and communication.

This project comprised of two parts. Firstly, the completion of a suite of eight (Phase 1) demonstrations that commenced in 2014, and secondly, a further seven (Phase 2) demonstrations, established through an expression of interest (EOI) process that commenced in 2018 / 19.

Phase 1 demonstrations involved 47 host producer sites and 276 group members. Sixty-six group events were held with 1,665 producers and 128 service providers attending. An evaluation was conducted three years after these demonstrations concluded and found that 84% of producers interviewed had made or were in the process of making practice changes to their farm business (many of them significant changes). Producers rated the demonstrations 8.7/10 for helping them to understand the management practice or technology.

Phase 2 demonstrations involved 41 host producer sites and 254 group members. Sixty-two group activities and presentations were conducted with 1,042 producers and 163 service providers attending. Seventy-nine media articles and events promoted these demonstrations and their outcomes. Producer knowledge and skills increased across all demonstrations. High levels of adoption or intention to adopt practices was measured for all demonstrations except *Adopting accelerated beef finishing systems using grazed fodder beet* and *Drones for monitoring sheep welfare*. These projects identified issues and risks that prevented adoption.

Executive summary

Background

This project was undertaken to increase producer adoption of research outcomes and technologies through Enhanced Producer Demonstration Sites (EPDS). EPDS are 2-3 year on-farm demonstrations delivered in partnership between Meat & Livestock Australia and Agriculture Victoria with producer groups.

Demonstrations provide producers with an opportunity to test a practice and observe, monitor and evaluate it in a group learning environment. Results are extended amongst the group and to the wider livestock industry through presentations and media.

Objectives

The aim of the project was to improve business profitability and productivity by optimising adoption rates and decreasing the time between technological innovation and producer adoption.

The objectives were to:

1. Manage existing Phase 1 demonstration projects until their progressive conclusion over the period up until December 2018
2. Extend key learnings and messages from the existing eight EPDS projects through industry development activities to maximise broader industry adoption and benefits (including webinars, presentations to groups and key industry conferences, communication products, fact sheets and case studies)
3. Directly engage 100 beef and sheep producers through seven new EPDS projects that are aligned with key profit drivers, MLA and SALRC priorities, through a new EOI process, supported by regional SALRC committees
4. Evaluate each concluded demonstration at enterprise and broader industry level to demonstrate productivity and financial impact at farm business and industry levels
5. Monitor and evaluate adoption rates and impacts of the total EPDS investment, over both phases (re-evaluating participants from Phase 1 sites and closely monitoring Phase 2 sites throughout their life).

The objectives were achieved, except for Objective 4, which was partially achieved. Completed demonstrations were evaluated for knowledge, attitude, skills, aspirations and adoption (KASAA) outcomes and impact on enterprises, however financial impacts were measured only where results allowed, and were not scaled to an industry level.

Methodology

Phase 1 projects were completed, results extended, and demonstrations evaluated approximately three years after completion. In-depth interviews were used to capture impact and measure levels of adoption. Phase 2 demonstrations were established through two EOI processes (December 2018 and February 2019). Each project addressed SALRC and Agriculture Victoria priorities. The demonstrations ran between 2019 and 2022 and involved setting up sites, monitoring and evaluating sites and extending project outcomes through field days, presentations and media.

Results/key findings

Phase 1 demonstrations: In-depth interviews with 25 producers and 7 group coordinators found that 84% of producers had made or were in the process of making practice changes to their farm business, many of them large changes such as setting up a stock containment area for autumn saving (Appendix II). Producers rated the demonstrations 8.7/10 for helping them to understand the practice or technology demonstrated.

Phase 2 demonstrations were conducted across 41 host producer sites and involved 254 group members. Sixty-two group activities and presentations were conducted with 1,042 producer and 163 service provider attendances. Demonstration outcomes were promoted through seventy-nine media articles and activities.

Producer knowledge and skills increased across all demonstrations. High levels of adoption or intention to adopt practices was measured for all demonstrations except *Adopting accelerated beef finishing systems using grazed fodder beet* and *Drones for monitoring sheep welfare*. These projects identified risks that deterred adoption.

Benefits to industry

The EPDS model provides an effective and complimentary partnership between group coordinators and Agriculture Victoria staff to deliver demonstrations. Additional expertise is also available from supporting teams (including the communications team, farm economists and technical specialists).

The 15 demonstrations conducted throughout Phase 1 and Phase 2 provided producer groups with an opportunity to investigate practices, technologies and research outcomes that addressed priorities for the group and wider industry.

Some projects accelerated adoption of practices proven to increase farm productivity or improve farm management (e.g., *Increasing lamb survival, To wean, Yard Feeding Systems for Growing Lambs*).

Some demonstrations allowed producers to assess new practices (e.g., *Autumn Saving, Pasture Cropping, Dung Beetles*) and increased adoption.

And some demonstrations allowed producers to assess new practices and technologies and actively decide not to adopt (e.g., *Drones, Pedigree MatchMaker for cattle, Fodder Beet*).

Project outcomes were disseminated to the wider industry increasing knowledge and awareness.

Future research and recommendations

It is recommended that EPDS continues to engage producers in on-farm demonstrations addressing SALRC and Agriculture Victoria's priorities. Further opportunities for fine-tuning the program are outlined in this report.

PDS key data summary table

Project Aim:			
<i>To improve productivity and business performance for the livestock industry through increased adoption of innovative technologies and practices.</i>			
	Comments		Unit
Phase 2 demonstrations			
Number of host participants engaged in project		41	
Number of group participants engaged in project		256	
Host group no. ha		45,600	
Observer group no. ha		338,700	
Host group no. sheep		129,020	hd sheep
Observer group no. sheep		338,750	hd sheep
Host group no. cattle		16,632	hd cattle
Observer group no. cattle		48,700	hd cattle
% change in knowledge – core & observer	<i>Drones</i>	259%	
	<i>Dung beetles</i>	100%	
	<i>Lamb survival</i>	35%	
	<i>Annual grass control</i>	35%	
	<i>Soil probes</i>	79%	
	<i>Fodder beet</i>	68%	
	<i>To wean</i>	108%	
% change in skill – core & observer	<i>Drones</i>	418%	
	<i>Dung beetles</i>	60%	
	<i>Lamb survival</i>	28%	
	<i>Annual grass control</i>	24%	
	<i>Soil probes</i>	79%	
	<i>Fodder beet</i>	52%	
	<i>To wean</i>	83%	
% practice change adoption – core & observer	<i>Drones</i>	0%	
	<i>Dung beetles</i>	Monitoring DB 62%	
		Encouraging DB 50%	
		Mob size 75%	
	<i>Lamb survival</i>	Condition score 25%	
		Shelter 50%	
	<i>Annual grass control</i>	Assessing pastures 28%	
		Using over-sowing to control barley grass 20%	
	<i>Soil probes</i>	Accessing soil probe info 55%	
	<i>Fodder beet</i>	0%	
	<i>To wean</i>	Portion of lambs sold as suckers 55%	

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1. Background

The need for greater adoption of known research and development (R&D) outcomes was recognised as a priority of MLA expenditure and by all Victorian SALRC regional committees (Meat & Livestock Australia 2016a; Southern Australian Meat Research Council 2016).

Producer Demonstration Sites are a core activity of MLA's producer adoption program. MLA estimated that investments in their PDS program between 2015-21 provided \$168.8M in total net benefits to participating producers. On average, producers can expect an additional net benefit of \$6/ha annually as a result of their participation ([2020-21 Adoptions Output Report](#)).

The Enhanced Producer Demonstration Site (EPDS) concept was developed in 2014 to build on the success of local on-farm demonstrations for accelerating adoption and practice change by southern Australian beef and sheep producers. EPDS is a partnership between Meat & Livestock Australia (MLA) and Agriculture Victoria, that deliver on-farm demonstrations with producer groups to investigate and adopt research and technologies on-farm over a three-year period.

The EPDS delivery model involves an Agriculture Victoria extension officer working with the group and their coordinator to deliver a demonstration and assist with monitoring, evaluation, reporting and communication. The partnership brings additional benefits by integrating with Agriculture Victoria's BestWool/BestLamb and BetterBeef network of producers. Opportunities to establish demonstrations extend to all Victorian producer groups, however the networks provide a vehicle to share and extend project outcomes via group meetings, conferences, and the Beef & Sheep Newsflash newsletter.

The EPDS concept offers learning opportunities by supporting producer groups to explore practices relevant to their operations. Producers identify the topic and observe, measure, and evaluate the practices and consider how best to incorporate changes on their own properties. At the same time, the group undertakes skill development activities relevant to the practices demonstrated.

Livestock producers are generally enthusiastic participants in these group projects that allow them to learn according to their preferred style; through direct experience and through farmer-to-farmer contact. Producers are often risk averse and require a new technology to be seen as compatible with current practices, simple to adopt and having a short-term return on investment (Nicholson et al 2015).

EPDS Phase 1 involved eight demonstration projects, developed through an EOI, and ran from 2014-2017. Completion of these three-year demonstrations plus an additional seven new demonstrations formed the basis of EPDS Phase 2. The criteria for participation was that all demonstrations directly addressed [SALRC](#) and Agriculture Victoria's priorities.

2. Objectives

This project aimed to achieve *improved livestock industry productivity and business performance arising from increased adoption of innovative technologies and practices.*

To achieve this outcome, the project had the following objectives Key Performance Indicators (KPI's):

Objective 1: Manage existing Phase 1 demonstration projects until their progressive conclusion over the period up until December 2018

Achieved. All eight EPDS Phase I demonstration were completed with final field days and reports and a summary factsheet or case study submitted to and accepted by MLA within agreed time frames.

Objective 2. Extend key learnings and messages from the existing eight EPDS projects through industry development activities to maximise broader industry adoption and benefits (including webinars, presentations to groups and key industry conferences, communication products, fact sheets and case studies).

Achieved. A factsheet or case study was developed as a legacy product for each demonstration and made available on Agriculture Victoria's demonstration webpage.

Extension of messages from EPDS Phase 1 projects continued through industry activities. This included the following conferences, events, and articles:

- 2017 South West BetterBeef conference – Yard weaning demonstration (3 concurrent sessions)
- 2017 East Gippsland conference – Yard weaning demonstration (3 concurrent sessions)
- 2017 Better Beef Network webinar – Yard weaning
- 2017 BWBL conference - Feeding systems for growing lambs (3 concurrent sessions)
- 2017 BWBL conference - Pasture cropping presentation (3 concurrent sessions)
- 2018 BWBL conference - Autumn saving presentation (3 concurrent sessions)
- 2019 Grasslands Conference of Southern Australia – booth sponsorship; display of all demonstrations and information in proceedings
- 2019 Autumn saving presentation at stock containment field day
- 2018 Autumn-SheepNotes newsletter- Pasture cropping
- 2019 Summer-SheepNotes newsletter- Autumn saving
- 2021 Summer-SheepNotes newsletter- Autumn saving.

Objective 3. Directly engage 100 beef and sheep producers through seven new EPDS projects that are aligned with key profit drivers, MLA and SALRC priorities, through a new Expression of Interest (EOI) process, supported by regional SALRC committees.

Achieved. EPDS Phase II and seven further demonstrations commenced in 2018/19 through two EOIs, supported by SALRC, and were completed by September 2022. The demonstrations involved 41 host producers and directly engaged 10 producer groups including 254 producers (Appendix I).

Objective 4. Evaluate each concluded demonstration at enterprise and broader industry level to demonstrate productivity and financial impact at farm business and industry levels.

Partly achieved. Concluding demonstrations were evaluated for productivity and financial impacts at the enterprise level where data and results allowed. This was not achieved for some demonstrations where benefits were observed but not measured (e.g., *To wean, Dung Beetles, Soil Probes*).

Benefits at broader industry level were identified in final reports. Productivity and financial benefits to industry were not estimated due to variability in results across sites and seasons. Upscaling impacts to an industry level was therefore potentially inaccurate or misleading.

Objective 5. Monitor and evaluate adoption rates and impacts of the total investment in EPDS, over both phases (re-evaluating participants from Phase 1 sites and closely monitoring Phase 2 sites throughout their life).

Achieved. Each demonstration was evaluated for changes in producer knowledge, attitude, skills, aspirations and adoption. Financial impact was measured for demonstrations and evaluated where appropriate. Phase 1 projects were re-evaluated through interviews with seven group coordinators (external to Agriculture Victoria) and twenty-five producers.

Table 1 lists the key performance indicators for Phase 2 demonstrations and the outcomes achieved.

Table 1: Phase 2 Key Performance Indicators

KPI	Target	Outcome
Sheep and beef producers directly engaged in demonstrations.	100 producers directly engaged in 7 EPDS sites.	41 host producer sites and 254 group members were directly involved in the 7 EPDS sites.
Wider producer engagement with demonstrations via face-to-face events, field days, project briefings, reports of progress and results in local media	1000 producers in the BWBL and BetterBeef networks engaged	Sixty-two group activities and presentations were conducted with 1,042 producers in attendance. Numbers were impacted by COVID-19 restrictions. Engagement of 3936 producer/service providers was achieved through the Beef Sheep Newsflash and approximately 17,000 through the SheepNotes newsletter. In total, 79 media activities were completed.
Service provider engagement	50	163 service provider attendances were recorded at field days webinars and presentations. 10 service providers were involved in the delivery of demonstrations.
Evidence of EPDS outcomes incorporated into existing or new extension products facilitated through industry development plans formulated for all EPDS outcomes.	At least one extension product produced per demo or demo theme (including updates made to existing products)	A final factsheet was developed for each demonstration. Furthermore, many extension products such as case studies, information sheets, podcasts and media were also developed across the suit of demonstrations.

3. Methodology

3.1 Completion of EPDS Phase 1

Completion of EPDS Phase 1 demonstrations involved finalising site monitoring and undertaking final field days and evaluations for each demonstration. Final reporting was undertaken, and a factsheet or case study also developed for each. These reports and factsheets were all uploaded to the Agriculture Victoria demonstration [webpage](#). Extension and communication of these projects is on-going.

3.2 EPDS Phase 2

3.2.1 Expression of interest

Two expressions of interest (EOI's) were conducted to establish the seven EPDS Phase 2 demonstrations.

Applicants were required to align projects to one of SALRC's and Agriculture Victoria's priorities, which were communicated in the [EOI information](#). The [application form](#) asked for details of the group, issue being addressed, project aim and objectives, method and budget, group contribution and communication and extension activities. Each project had an operating budget of up to \$25,000 per annum.

The EOI information was sent to producer groups (including BestWool/BestLamb (BWBL) and BetterBeef (BBN)) and was publicised through Agriculture Victoria's [Beef and Sheep Newsflash](#) and on the Agriculture Victoria webpage. It was also promoted at the 2018 BBN/BWBL conference and 2019 Coordinators conference.

- The first EOI ran from June 13 - July 11, 2018, and attracted 14 applications, of which five were selected for development as a new EPDS project. (However, the proposal *Maximising Genetic Improvement in Cattle* did not progress after MLA genetics team review and was redirected to the PDS open call after some amendments).
- The second EOI ran from December 14–February 20, 2019, and attracted 16 applications, of which four were initially selected for development as new EPDS projects. (However the merino *Breeding Objectives* demonstration was redirected to the PDS open call, with some advice from the MLA genetics team.)

3.2.2 Project selection

Preliminary applications were assessed by a panel representing each of the Southern Australian Livestock Research Council's (SALRC) Victorian regions (Tim Leeming, Jenny O'Sullivan, Julian Carrol), Meat & Livestock Australia (Alana McEwan) and Agriculture Victoria (Martin Dunstan, Gervaise Gaunt, Bindi Hunter- round 1), (Kate Linden, Gervaise Gaunt, Bindi Hunter- round 2), using a [screening template](#).

Each applicant received a letter informing whether they were successful and providing feedback on their application from the panel.

3.2.3 Project development

Successful projects were assigned an Agriculture Victoria extension officer based on staff locality and appropriate skillset. Staff members assisted the group and group co-ordinator to develop a [full project proposal](#), which further detailed the methodology, budget, communication and extension and evaluation. Each project was also assigned a topic specialist (e.g. Agriculture Victoria Researcher or senior technical expert) to assist with the methodology and provide advice as required. The selected demonstrations, groups and coordinators are detailed in Table 2.

Full project proposals were provided to MLA once developed.

Table 2: EPDS 2 demonstrations, groups and coordinators

Demonstration	Group	Group coordinator	Ag Vic Demo Coordinator
Drones for monitoring sheep welfare	Boort BWBL	Erica Schelfhorst	Erica Schelfhorst
Benefits of dung beetles for prime lamb production	SWPLG BWBL	Kate Joseph	Bindi Hunter
Increasing lamb survival	Western Plains BWBL	Andrew Kennedy	Cathy Mulligan
Annual grass control in perennial pastures	Perennial Pasture Systems	Rob Shea	Tess McDougall
Using soil moisture probes to predict winter/spring Pasture Growth	Baynton GSSA Dartmoor BBN Glenelg BWBL	John McMaster Andrew Speirs Andrew Kennedy	Jane Court

Adopting accelerated beef finishing systems using grazed fodder beet crops	Upper Murray BBN Murmungee BBN	Chris Mirams	Nick Linden
To wean or not to wean	St Arnaud BWBL	Steve Cotton	Rachel Coombes

3.2.4 Project administration

Farm Use Agreements were developed between Agriculture Victoria and producer hosts. Agriculture Victoria demonstration coordinators also completed a Farm Risk Assessment Checklist and Animal Ethics Checklist.

3.3 Demonstration delivery

Demonstrations were delivered in partnership between the group coordinator and the Agriculture Victoria demonstration coordinator. Drones for monitoring sheep welfare was the exception as the Group Coordinator was also an Agriculture Victoria staff member. The split of tasks between the two coordinators varied across demonstrations, however in most cases, Agriculture Victoria coordinators took the lead for reporting, media/ communication and evaluation. Site set up and monitoring was a team effort between coordinators and site hosts. Extension events generally coincided with group meetings.

3.4 Economic analysis

Agriculture Victoria's Farm Economist provided initial feedback on full project proposals and assisted with economic analyses for demonstrations.

Economic analysis was undertaken for demonstrations where possible. However, this was not always appropriate and depended on the project outcomes. For example, it was not possible to value the benefits of dung beetles nor the benefits of soil moisture probes under favourable seasonal conditions.

3.5 Extension and communication

Extension and communication plans were developed for each demonstration within the full project proposal. As a minimum, each year these included:

- social media posts (on Agriculture Victoria's Facebook and/or Twitter, tagging MLA)
- media article based on annual outcomes or case study
- field day or major engagement event open to the public
- group meeting to review the demonstration and discuss how the project is performing, results and levels of adoption by the group, any modifications for next year's methodology.

At the completion of the demonstration:

- presentation (face-to-face, phone seminar or webinar)
- case study and or factsheet (print or video)
- final report.

A roster was established across EPDS Phase 2 demonstrations, for (approximately) monthly media or social media updates. Additionally, demonstrations and the EPDS project as a whole were promoted opportunistically at conferences, field days and through SALRC and Agriculture Victoria's Beef and Sheep Networks.

3.5.1 Webpage

Agriculture Victoria developed a new webpage for demonstrations to publicise the EPDS Phase 2 EOI in June 2018. Final reports and factsheets for EPDS Phase 1 were later added.

New Phase 2 demonstrations were included in a concertina to store and promote media around each project.

3.6 Monitoring and evaluation

3.6.1 Phase 2

Monitoring and evaluation were built into each new demonstration plan. This included:

- All group activities (including field days and group meetings) were evaluated using a standardised evaluation form
- Surveys to benchmark KASA (knowledge, attitude, skills and aspirations) and adoption, undertaken by the group prior to commencing the demonstration and at its completion
- Annual group reviews of demonstrations to discuss how each project was performing, results, levels of adoption and required changes to the project plan
- Estimates of costs and benefits of the practice demonstrated to enable cost: benefit analysis in the context of the farming system
- Engagement of producers and service providers.

The MLA Monitoring Evaluation and Reporting (MER) template was also completed for each demonstration.

Project monitoring also included monthly team meetings with Agriculture Victoria coordinators. This provided an opportunity to 'check in' and share any experiences in delivering demonstrations and address any concerns through team discussions. The Agriculture Victoria team and some group coordinators took part in feedback sessions mid-way and at the conclusion of demonstrations to identify potential improvements.

3.6.2 Phase 1

Objective 5 required re-evaluation of Phase 1 sites which occurred through a series of interviews with group coordinators (external to Agriculture Victoria) and a sample of site hosts and observer producers.

Group co-ordinators nominated approximately four producers they felt would be happy to be interviewed and were best placed to provide open and honest feedback. Twenty-five producer and seven co-ordinator phone interviews were conducted by Agriculture Victoria extension staff, across seven demonstrations. The low number of interviewees (2-5 producers per demonstration depending on availability) is a limitation of this evaluation. The interviews took approximately 15-20 minutes and interviewers were not assigned to demonstrations they were involved in.

The *Grazing Management for Improved Reproductive Performance & Reduced Turn off Times* demonstration was not re-evaluated in this process, having undergone an external evaluation with Kristy Howard (Inspiring Excellence) in 2018, which was reported in the final report. It was felt that further interviews with this group would not add value. A sample interview is included in Appendix IV.

4 Results

4.1 COVID-19 impacts on demonstrations

COVID-19 impacted all EPDS Phase 2 demonstrations. Victorian restrictions meant groups could not meet face-to-face for 17 months (April 2020 - March 2021 and July 2021 - December 2021). In many cases, group membership waned over this period.

Coordinators could not undertake field work to assist with site set up and monitoring for large periods and where possible, relied on producer hosts to do this alone. This affected some demonstrations more than others and, in some cases, sites could not be established or were delayed (*Fodder Beet, To Wean, Dung beetles, Lamb survival*) and data collection was incomplete or not possible at some sites (*Soil Moisture Probes, Drones, To Wean*). Additionally, each demonstration had planned skill development sessions that were cancelled due to restrictions.

Face-to-face extension activities were replaced with webinars where possible. This had mixed success as seeing practices virtually and the interaction around it was reduced compared to seeing and discussing it face-to-face, which is the beauty of demonstrations.

Groups were able to meet and attend final demonstration sessions in early 2022 however, these were not open to the public.

4.2 Demonstration findings

4.2.1 Drones for monitoring sheep welfare

The Boort BWBL group investigated the practical uses of a drone to check ewe welfare at lambing and for other tasks throughout the year.

More than 150 videos were recorded from three different drones across three lambing periods (2019, 2020, 2021) and two summer periods (2019, 2020). Sheep stayed calm when the drone was traveling slowly or hovering above 30m. Flight response was triggered when the drone was lower or was travelling at speed at any height, which the farmers believed was due to the sound of the drone. Ewes and lambs were observed to stay calm with the drone at lower heights (10 - 15m) if approached slowly.

The trial identified factors to consider when purchasing a drone and how best to fly it around sheep, information that was previously not available. The investment in these drones for the purpose of monitoring welfare over lambing did not pay due to ag tech limitations. However, the drones were found to undertake some tasks on-farm quickly and effectively, such as water trough checks, and they could be used to check ewe and lamb welfare at lambing if approached slowly.

This project gained enormous interest from producers and media, including international news and development of podcasts.

4.2.2 Benefits of dung beetles for prime lamb production

The South West Prime Lamb Group (SWPLG) demonstrated the benefits of dung beetles to sheep systems. Trapping was performed for twelve months across eight properties (four per year for two years) to investigate existing populations of dung beetles and their seasonal abundance. Twelve species were found, including eight introduced and four native species. A noticeable gap in the abundance of introduced dung beetles was observed from late autumn, through winter, into early spring.

The project also demonstrated the impact of deep tunnelling *Bubas bison* on soil fertility. Trials showed that dung beetles were mobilising nutrients and increasing soil fertility to depths of 10-30 and 30-60cm. Plant roots and earthworms were observed to be travelling down dung filled tunnels.

Figure 1. Drone monitoring sheep



Figure 2. Dung beetles



The project highlighted the benefits of dung beetles for prime lamb systems and opportunities to value add to these benefits by filling seasonal gaps in abundance.

4.2.3 Increasing lamb survival

The Western Plains BWBL group tested the influence of mob size, shelter and ewe condition as strategies to increase lamb survival in twin-bearing ewes.

Mob-size trials conducted over three years demonstrated that smaller mobs, averaging 45 ewes had greater lamb survival (86 -90 %) than larger mobs averaging 113 (82- 83 %). In the final year of the project, a second property measured a 7 % higher lamb survival in the smaller mob of 64 ewes (77 % lamb survival) compared to the larger mob of 100 ewes (70 % survival).

The shelter trial achieved 12 % higher lamb survival in a more sheltered paddock, with rushes and additional shelterbelts, than the less sheltered paddock (82% compared to 70%).

Ewe condition trials demonstrated that ewes in higher condition score (3.5) prior to lambing produced more lambs than ewes at lower condition scores (2.8). Increases in lamb survival ranged from 6% to 29% for the higher condition score mobs.

Group members gained skills and experience through group condition scoring activities, paddock walks assessing feed on offer, a temporary electric fencing demonstration to divide up paddocks for smaller lambing mobs and a lamb autopsy workshop.

4.2.4 Annual grass control in perennial pastures

The Perennial Pasture Systems group trialled methods of controlling barley grass to reduce the reliance on chemical control. Thirteen site hosts trialled a range of strategies including mechanical removal, increasing competition and grazing management.

Success was demonstrated on sites where over sowing and (chemical) weed control methods were used in combination, and where silage was made. The demonstration provided useful information on the management of barley grass within the pasture system.

4.2.5 Using soil moisture probes to predict winter/spring Pasture Growth

The Glenelg BWBL, Dartmoor BBN and Baynton GSSA groups took part in a demonstration to better understand the value of soil moisture probes in grazing systems. Research indicates that soil moisture at the beginning of spring can have a considerable impact on pasture production, and early prediction of spring growth has the potential to help farmers make some early management decisions, particularly in the event of a poor spring.

Pasture cages were installed on four trial sites and cuts were taken over the late winter/spring period to estimate monthly pasture growth rates. Predictions for the spring period were produced using actual soil

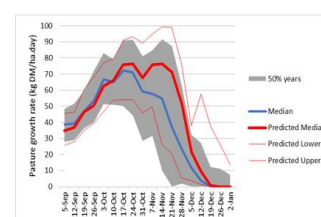
Figure 3. Ewe with twins



Figure 4. Barley grass in pasture



Figure 5. Example of pasture growth prediction data based on soil water content and seasonal forecast



Pasture growth prediction from 1 September 2021 based on soil water content and seasonal forecast for 75% chance of above median spring rainfall at Baynton.

moisture levels at each site from 2019 to 2021. Regional climate forecasts were included in the predictions in 2020 and 2021. Actual growth rates were compared to the predictions to assess accuracy.

Trial sites experienced three good spring seasons, commencing with full soil moisture profiles in August/September, so all pasture predictions were for average or greater than average spring pasture production. Despite limited opportunity for farmer engagement, most farmers involved felt predictions were realistic and that they could make some early decisions in spring regarding stock sales; stocking rates, feed budgeting and pasture sowing decisions.

Benefits to industry include an increase in understanding and use of the soil probe data; an increase in confidence in pasture predictions; interest by the wider advisory and service industry in the technology and hence the opportunity for this group to promote in the future.

4.2.6 Adopting accelerated beef finishing systems using grazed fodder beet crops

Members of the Mudgegonga and Upper Murray BetterBeef groups had seen fodder beet being used to fill the autumn/winter feed gap while on a farm tour to Tasmania. This project assessed the suitability of fodder beet for use on local farms, through demonstration crops planted on three properties. Crop performance was monitored from germination through to grazing, with plant weight and numbers used to estimate crop biomass (t DM/ha). Total DM production was then used to calculate cost of production. All three sites had low plant establishment rates (averaging 48,000 - well below the anticipated 85,000 plants per ha). Low plant densities coupled with low plant weights at two sites resulted in unprofitably low DM/ha. One site performed better with greater plant weights driving higher yields. High establishment costs made two of the three crops unprofitable. A 12.2 t DM/ha fodder beet crop was required to break even with a 6 t DM/ha millet crop. Under the tested conditions, it is unlikely that fodder beet will play a meaningful role in filling the autumn/winter feed gap in the North East/Upper Murray regions of Victoria.

Figure 6. Fodder beet



4.2.7 To wean or not to wean

The St Arnaud BestWool/BestLamb (BWBL) group investigated whether weaning their autumn drop prime lambs at 12 weeks of age would lead to production benefits or cause any adverse effects to lamb weight gain. The demonstration compared weights of weaned and unweaned lambs across three farms in both 2019 and 2020. At weaning, ewes and lambs were split into three mobs: weaned lambs, unweaned ewes and lambs + weaned lambs and unweaned ewes and lambs + weaned ewes. Lamb weights were measured at the time of weaning and at sixteen weeks of age. Measurements were also taken at 22 weeks of age in Year 1 and 21 weeks in Year 2.

Figure 7. Sheep in yards



The demonstration found little or no significant differences in the average weights of weaned and unweaned lambs by the time they were sold at around 22 weeks of age. Additionally, abattoir data from one host property showed no significant difference in hot carcass weights and the lean meat yield between weaned and unweaned lambs. Participants found there were additional benefits to weaning lambs such as managing spring pastures effectively, allowing ewes to regain condition before summer and greater flexibility in their lamb marketing strategy. This information can be used to inform other producers across the region (and potentially other regions) that there are no penalties for weaning lambs.

4.3 Economic analysis

Economic analyses was planned for all projects, however this was only possible where demonstration results and outcomes allowed. In some cases, there was a negative return on investment (*Drones and Fodder Beet*), and in other cases the benefits were not financially measurable (*Dung Beetles, To Wean and Soil Probes*). Table 3 summarises the economic analysis for each demonstration.

Table 3: Economic outputs from Phase 2 demonstrations

Project	Economic outcome
1. Drones for monitoring sheep welfare	There was no reduction in labour and subsequent cost savings. A savings of 15 minutes would result in Net Present Value at 5% discount rate of -\$1,191
2. Benefits of dung beetles for prime lamb production	Unable to value the benefits of dung beetles. Soil increases in phosphorus and potassium at 10-30cm depth through dung beetle action was valued at \$200-\$470/ha (potash equivalent) and \$650/ha (single super equivalent), however no direct benefit was measured
3. Increasing lamb survival	Extra lamb survival per 100 ewes was measured for the mob size, ewe condition and shelter demonstrations (extra lambs valued at \$146*) <ul style="list-style-type: none"> • Mob size \$876-\$2,044 • Ewe condition \$1,752-\$8,486 • Shelter \$2,760
4. Annual grass control in perennial pastures	Cost:benefit analysis on one of the barely grass control trials involved three-treatments: Full Treatment: Over sowing, weed control and Nitrogen Partial Treatment 1: Over sowing and Nitrogen (no weed control) Partial Treatment 2: Weed control and Nitrogen (no over sowing) Analysis showed a clear benefit for the Full Treatment and a reduced benefit when over sowing was completed without weed control. Marginal profit for Full Treatment was \$979/ha above partial treatment 2 (extra 2,657 kg DM/ha)
5. Using soil moisture probes to predict winter/spring Pasture Growth	Unable to value the benefits of soil moisture probes for making on-farm decisions. The project ran over three good springs during which soil moisture was not limiting.
6. Adopting accelerated beef finishing systems using grazed fodder beet crops	Fodder beet crops in northeast Victoria required high input costs (\$3165/ha) and produced low/variable yields (averaging 2.5t DM/ha) equating to a reduction in stocking rate from 24 to 9.3 dse/ha.
7. To wean or not to wean	Unable to value weaning. There was no significant difference in weight, lean meat yield and hot carcass weight measured between weaned and unweaned lambs at the point of sale.

*Value of extra lambs (Young 2014) based on \$8/kg Cwt for a twin maternal lamb

4.4 Extension and communication

4.4.1 Phase 2 demonstrations

Sixty-two group activities and presentations were conducted across the seven demonstrations including group meetings, webinars, field days and conference displays (Table 4). These involved 1042 producer and 163 service provider attendances.

Demonstrations were also promoted through seventy-nine media activities (Table 4). These included news articles, social media posts, podcasts and radio interviews. Articles were frequently posted in the Beef Sheep Newsflash (circulation >3,500), Sheep Notes newsletter (circulation approx. 17,000 Victorian producers) and the SALRC Newsflash. Production of news articles was ramped up throughout COVID-19 restrictions to keep producers engaged in demonstrations as much as possible. Social media on the *Drones* demonstration included footage and proved extremely popular and leading to many follow up articles, radio interviews and a podcast.

Appendix III includes a full list of extension activities and hyperlinks to media.

Table 4: Extension and communication activities- Phase 2

Project	Group	Extension activities			
		Group activities & presentations	Producer attendance (total)	Service providers (total)	Media articles/events
1. Drones for monitoring sheep welfare	Boort BWBL	16	176	58	29
2. Benefits of dung beetles for prime lamb production	SWPLG BWBL	8	128	9	10
3. Increasing lamb survival	Western Plains BWBL	7	75	7	7
4. Annual grass control in perennial pastures	Perennial Pasture Systems	7	242	49	11
5. Using soil moisture probes to predict winter/spring Pasture Growth	Soil Moisture Probe Network: Baynton GSSA Dartmoor BBN Glenelg BWBL	7	202	25	8
6. Adopting accelerated beef finishing systems using grazed fodder beet crops	Upper Murray & Mudgegonga BetterBeef	4	101	4	4
7. To wean or not to wean	St Arnaud BWBL	7	118	11	6
EPDS whole project		6	*	*	4
	Totals	62	1042	163	79

*Numbers not included in final engagement totals

4.4.2 Whole of project promotion

Agriculture Victoria, through the demonstration project sponsored an exhibition booth at the Grasslands Society of Southern Australia annual conference in 2019, engaging delegates around both Phase I and Phase II EPDS and promoting the project in the conference proceedings. The project also featured at

Agriculture Victoria's stand the 2019 and 2022 SheepVention field days, and updates were provided at the 2018 and 2022 BWBL/BBN coordinators conference. Two (written) EPDS Phase 2 updates were also provided to the Victorian SALRC committees.

Agriculture Victoria's website will be updated with final factsheets and links to final reports at the completion of Phase 2.

4.4.3 Webpage

The Agriculture Victoria [demonstration webpage](#) showed increasing traffic throughout the EPDS Phase 2 project. The webpage had 656 visits from July - December 2020, 2,888 visits from January - December 2021 and 1,156 visits from January - August 2022. (The webpage was upgraded in July 2020 and prior statistics are not available).

4.5 Monitoring and evaluation

4.5.1 EPDS Phase 2 Evaluation

Each demonstration achieved a large increase in knowledge and skills for the practices demonstrated (Table 5). Initial knowledge and skills were low for many demonstrations (*Drones, Dung Beetles, Soil Probes, Fodder Beet* and *To Wean*), however groups involved in the *Lamb Survival* and *Barley Grass* demonstrations had reasonable levels of knowledge and skills prior to beginning and were looking to fine tune their management.

'Attitude' and 'aspirations to adopt' increased markedly for five of the seven demonstrations, leading to high levels of adoption or intention to adopt. These included:

- **Benefits of dung beetles for prime lamb systems** increased monitoring (62%) (observing evidence of dung beetle presence or digging for beetles) and encouraging dung beetles through either releasing colonies or managing drenching practices (50%)
- **Increasing lamb survival** led to adoption of condition score (25%) and feed on offer (50%) management, use of shelter (50%) and reduction mob size through temporary electric fencing (75%)
- **Annual grass control in perennial pastures** led to an increase in participants assessing pastures for barley grass (28%) and use of over-sowing to control barely grass (20%)
- **Using soil moisture probes to predict winter/spring Pasture growth** led to a 55% increase in people accessing soil probe data
- **To wean or not to wean** led to a 55% reduction in the proportion of lambs sold as unweaned suckers

However, 'attitude' and 'aspirations to adopt' declined throughout the **Drones for monitoring sheep welfare** and **Adopting accelerated beef finishing systems using grazed fodder beet** demonstrations coinciding with no adoption amongst group members. Both projects highlighted potential pitfalls from adoption, which allowed producers to make informed decisions against the innovation. In the case of *Drones*, the battery life and lack of camera zoom reduced the benefit of the technology and producers found they didn't save time using a drone to check sheep welfare. In the case of *Fodder Beet*, high establishment costs, lengthy paddock lock-up periods, specific and expensive weed control options and variable performance meant that producers were better off using other options to fill the winter feed gap.

Table 5: Phase 2 Knowledge attitude skills aspiration adoption (KASAA) data

Project and specific practice change objectives	Survey timing	Average scores across all objectives for the demonstration (Self-assessed score/10)				
		Knowledge	Attitude	Skills	Aspirations	Adoption
Drones for monitoring sheep welfare Technical skills and knowledge flying a drone, time taken to check sheep during lambing (normal practice v's drone), level of disturbance to lambing ewes, use the drone at other times of the year	Pre	2.2	5.8	1.6	7.4	0
	Post	8.3	4.9	7.8	5.0	0
	Change	295%	-39%	418%	-74%	0
Benefits of dung beetles for prime lamb systems Understanding benefits of dung beetles, how to encourage/ manage populations, species and seasonal abundance, skills in identifying beetles	Pre	3.7	5.3	4.2	6.1	Monitoring DB 38% Encouraging DB 38%
	Post	7.3	8.3	6.7	8.6	Monitoring DB 100% Encouraging DB 88%
	Change	100%	58%	60%	40%	Monitoring DB 62% Encouraging DB 50% (100% had adopted a new practice)
Increasing lamb survival Mob size, ewe condition, Feed On Offer, shelter, disturbance	Pre	6.3	6.7	6.6	7.1	Mob size 25% Condition score 38% Feed on offer 50% Shelter 25% Disturbance 25%
	Post	8.5	8.6	8.4	8.8	Mob size 100% Condition score 63% Feed on offer 100% Shelter 75% Disturbance 63%
	Change	35%	29%	28%	24%	Mob size 75% Condition score 25% Shelter 50% Feed on offer 50% Disturbance 38% (100% had adopted a new practice)
Annual grass control in perennial pastures Understanding the impact of barley grass on total dry matter production and pasture composition, barley grass control strategies	Pre	5.6	7.8	6.0	7.8	Assessing pastures for barley grass 48% Using over-sowing to control barley grass 24%
	Post	7.5	8.8	7.5	9.0	Assessing pastures for barley grass 76% Using over-sowing to control barley grass 44%
	Change	35%	12%	24%	16%	Assessing pastures for barley grass 28% Using over-sowing to control barley grass 20%
Using soil moisture probes to predict winter/spring Pasture growth understanding data from soil moisture probes and how it helps make decisions, assessing pasture availability & growth rates	Pre	4.3	6.1	4.1	5.8	Accessing soil probe info 20%
	Post	7.4	8.5	7.0	8.3	Accessing soil probe info 75%
	Change	79%	43%	79%	47%	Accessing soil probe info 55%
Adopting accelerated beef finishing systems using grazed fodder beet Understanding risks associated with growing fodder beet, production potential from fodder beet, benefits of fodder beet	Pre	4.0	4.5	4.6	5.2	0
	Post	6.5	2.8	6.9	3.5	0
	Change	68%	-38%	52%	-35%	0

Project and specific practice change objectives	Survey timing	Average scores across all objectives for the demonstration (Self-assessed score/10)				
		Knowledge	Attitude	Skills	Aspirations	Adoption
To wean or not to wean impact of weaning on lamb growth rates, impact on ewe condition	Pre	3.9	4.2	4.0	4.8	Proportion of lambs sold as unweaned suckers 59%
	Post	8.1	9.2	7.3	8.6	Proportion of lambs sold as unweaned suckers 4%
	Change	108%	119%	83%	79%	55%

Event evaluation across Phase 2 demonstration group activities averaged 8.7/10.

4.5.2 EPDS Phase 1 Evaluation

The Phase 1 evaluation was extremely positive and collected valuable feedback from group coordinators and producers. Feedback on individual demonstrations, adopted practices and quotes from producers and coordinators are compiled in an infographic and report (Appendix II).

Demonstrations were rated an average 8.7/10 (by producers) and 8/10 (by group coordinators) for helping understand the practices involved in the innovation/ technology. Sixteen of the 25 producers had made changes (many of them significant changes), five were in the process and four had not made changes (with specific reasons provided).

Interviews with producers and coordinators suggest:

1. Producers value the group atmosphere, skill development and being able to test the practice first-hand. Skill development is an important and valued part of demonstrations.

“Being in a farmer group and a supportive network, we were all in similar positions (looking for extra feed), benchmarking and comparing to others was a big benefit. The demonstration gave people confidence.”
(Autumn Saving)

“Working with like-minded farmers who were keen to crank things up was fantastic. We did lots of activities and picked up information - things like weighing, condition scoring, feed quality and it was great to do it as part of the group. Even small things like feed testing ryegrass at different stages was very beneficial.”
(Advanced Weaning of Cattle)

2. Demonstrations increase adoption of new practices. For some producers (e.g., Autumn Saving) this involved a large financial investment. Most producers (for example Weaning Strategies) said they would not have made changes without being involved first-hand in the demonstration.

“I really thought that dogs stirred cattle up. I wouldn’t have done this without being involved in the demonstration. You could have talked about it until the cows came home but it was going through and doing it that made the difference.” (Advanced Weaning of Cattle)

3. Most producers were unable to provide an estimate of the financial benefits from the changes adopted. However, some producers (Autumn Saving), estimated large financial benefits from the changes made.

“We are now carrying an extra 600 ewes so in rough figures this amounts to \$60,000 extra profit for lambs produced. This would vary from year to year. Labor costs are reduced so further savings there but it’s hard to put a figure on.” (Autumn Saving)

“It’s very hard to put a figure on the benefits. We have 3 staff- how do you value OHS benefits for them from having quieter cattle and dogs that can muster hills?” (Advanced Weaning of Cattle)

4. Producers frequently modified the demonstrated practices to suit their own situations (e.g., Pasture Cropping and Pedigree MatchMaker).

"I'm over-sowing pastures with different pasture species (rather than cropping). I got the idea from watching the pasture cropping trial but acknowledging that it wasn't right for my farm - with no cropping infrastructure or equipment." (Pasture Cropping)

5. External coordinators valued the partnership with Agriculture Victoria and MLA in the delivery of demonstrations.

"It wouldn't have been possible without the help from AgVic. It really puts the accountability on the consultant. There are too many programs that this doesn't happen, and they're just finished up with a final report. The consultancy industry has many independent operators who often have good ideas, but don't have the support and ability to make them happen.

The joint, collaborative efforts of the demonstration have given it a lot of further airtime such as the BWBL conference and SheepNotes articles and this helps improve the return on investment for MLA." Andrew Whale - Livestock Logic

"I think it's a really good way of integrating MLA, levy payers and the Victorian Government with a positive outcome for all." Tim Leeming - Pigeon Ponds

6. The nature of some demonstration topics resulted in lower adoption than others (e.g., Pedigree MatchMaker, Gibberellic Acid), however producers appreciated the opportunity to test the technology as a group and make an informed decision and the feedback was very positive.

"I have saved money by not applying GA unnecessarily and instead focus on nitrogen applications." (Gibberellic Acid)

"I really enjoyed the demonstration and sharing ideas with everyone in the group. I love being part of the group and the stimulation from the interactions." (Pedigree MatchMaker)

5 Conclusion

This project involved the completion of 15 EPDS demonstrations, engaging 47 host producer sites and 276 group members in Phase 1 and 41 host producer sites and 254 group members in Phase 2.

The following strengths and opportunities were identified through facilitated sessions with coordinators and project evaluation.

5.1 Strengths

- **Adoption:** On-farm demonstrations achieve practice change by encouraging producers to 'have a crack' at a new practice in a supported setting and evaluating outcomes. In many cases producers indicated they would not have adopted without having tried the practice first-hand or not having been part of a demonstration. 'Ease of management' was a common benefit and driver of adoption.

The data is giving us information that lambs won't drop back- but it's the ease of management that is making us change our practices. We could be looking at this data but it's having tried it that has made the difference. Our agent always told us to sell as unweaned suckers – for the look and he also thought weaning would set them back. However the agent couldn't pick the difference between our weaned and unweaned lambs. Now he's telling other people to wean! (To wean or not to wean)

In some cases, demonstrations have truly accelerated regional (and beyond) adoption of practices (*Autumn Saving, Advanced Weaning of Cattle*) as revealed when projects were re-evaluated three years

after completion. The wider extension of demonstration outcomes also results in more producers becoming engaged because of their interest in how other farmers solve production issues.

- **Negative results can be useful:** Demonstrations were seen as exposing the ‘true story - warts and all’ for some practices or innovations that didn’t result in adoption. For example, Fodder beet was of keen interest to groups in northeast Victoria, who had observed impressive crops in Tasmania, however they learnt that the high costs and variable yields in their environment made it a questionable investment. *Drones* highlighted that technology advances were required before drones have true value for checking sheep welfare. Both demonstrations potentially saved producers from investing in these innovations- without the full story.

Even demonstrations that achieved high levels of adoption highlighted issues to be aware of. For example, *Autumn Saving* identified that managing ewe condition in containment, after the break in wet conditions was challenging. Many producers constructed options for off-ground feeding.

- **Skills:** Skill development through practical sessions was considered by producers to be a benefit of demonstrations. Unfortunately, COVID-19 restricted the number of these sessions during Phase 2.
- **Putting theory into practice:** *To Wean* and *Increasing Lamb Survival* are examples of testing proven research findings through demonstrations and led to strong adoption.
- **Adding to the available information:** This was seen as a strength of the project - where little data about an innovation was previously available (*Drones for checking sheep welfare, Benefits of dung beetles for sheep systems, Soil Probes in pastures, Pedigree MatchMaker for cattle, Fodder beet in NE Vic*).

Delivering in partnership

- The Agriculture Victoria and MLA collaboration brings additional benefits than can be achieved working alone. The team at Agriculture Victoria appreciate productive and valuable feedback from MLA’s PDS coordinators and positive interactions. The collaboration also increases the pool of investment in on-farm demonstrations that address priorities for livestock producers, SALRC and Agriculture Victoria.
- EPDS integrate Agriculture Victoria’s network of BestWool/BestLamb and BetterBeef producer groups and group co-ordinators (both private and public service providers) to develop and conduct demonstrations and share and extend project outcomes.
- EPDS provide efficiencies of managing an inter-linked network of demonstrations for reporting, evaluation and sharing project outcomes (e.g., via Ag Vic’s demonstration webpage and social media, Beef & Sheep Newsflash, SALRC Newflash, SheepNotes and webinars).
- The relationship between the Agriculture Victoria staff member and group co-ordinators gives the project ‘more legs.’ It adds value to the demonstration through sharing ideas and workloads. Group co-ordinators have also mentored our newer Agriculture Victoria staff through this relationship.

“I like this concept and I prefer having input from Ag Vic. It’s a massive help and takes the pressure off. I work alone and I live 2 hours from the group. It’s great having someone else to share the load and share the reporting. Having the team and resources at AgVic available and the relationships there means I have access to the team and an economist and other resources - I’m not feeling the weight of working solo.”

Steve Cotton- Dynamic Ag.

What makes a good demonstration?

Feedback suggests effective demonstrations have the following qualities:

- **Topic** - identified by the group with majority support. Addressing issues/practices topical to the industry creates interest. Include opportunities for skill development through practical sessions.
- **Core group** - having approximately 10 producers strongly supporting the demonstration and 3-5 producers willing to host demonstration sites.

- Design - clear, simple and comparing to a control. Demonstrations can easily try to do too much or become overly complex.
- Coordinators - having great rapport with the group, clear commitment to the topic, understanding of how demonstrations are conducted and time available to commit to the project.

5.2 Opportunities

Producer steering committees

Development of a small producer steering committee for each demonstration is proposed to influence decision making and increase group ownership of projects.

Co-delivery between group coordinators and Agriculture Victoria staff is a strength of the EPDS model, however demonstrations are impacted when group coordinators become unavailable through prolonged busyness or illness. The steering committee would provide a point of contact to help maintain group engagement in such situations.

Core and observer producers

There is potential for EPDS to align better with PDS definitions of producer involvement. Agriculture Victoria has commonly discerned between host producers and group members rather than core and observer producers. Generally, there are fewer host producers than core group members.

Evaluation

There is an opportunity to review and fine-tune EPDS evaluation processes with consideration to PDS evaluation, including pre and post surveys and presentation of evaluation results.

Looking beyond the group

The team were keen to learn about other relevant projects across Victoria and nationally. The PDS database is now available and will be a useful resource to link with others working on related topics.

Economic outcomes

There is potential to clarify expectations for EPDS economic analysis. Full economic analysis of farm practices is extremely time consuming, expensive and involves specific experimental design from the outset, beyond the scope of the demonstrations undertaken. Indicative economic impact from a practice can be achieved, however results range between farms and seasons. Scaling this to an industry level can be inaccurate and potentially misleading. 'Ease of management' commonly trumped economics as the key driver for adoption during EPDS projects.

Agriculture Victoria's webpage

Agriculture Victoria's Web Team have agreed to establish individual webpages for future demonstrations. This will provide a clearer link to information about particular projects (without scrolling through concertinas) and enable better tracking of webpage visits.

Demonstration budget

With increasing costs, it is proposed that the operational budgets increase from \$25,000 per demonstration to \$30,000.

5.3 Benefits to industry

The 15 demonstrations conducted throughout Phase 1 and Phase 2 gave 20 producer groups an opportunity to investigate practices, technologies and research outcomes that addressed priorities for the group and wider industry. By doing so, the project has fast tracked adoption of proven research such as LifeTime Wool, and emerging practices such as autumn saving. Some practices have proven unviable under

particular circumstances or environments (e.g. fodder beet in northeast Victoria)- which is also a valuable insight and may have saved producers effort and expense. Demonstrations have also helped to answer questions raised by groups that had limited or no available research to draw on.

The partnership between MLA and Agriculture Victoria and team delivery approach has led to this positive outcome.

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7 Appendix

7.1 Appendix I Group engagement

7.1.1 Phase 2 Group engagement:

Project	Group	Demonstration Timeframe		Site host producers				Group members				Service Provider s
				No. hosts	Area of land managed (hosts) (ha)	# Sheep managed	# Cattle managed	Number observer producer s	Area of land managed (ha)	# Sheep managed	# Cattle managed	
		Start	End									
1. Drones for monitoring sheep welfare	Boort BWBL	May 2019	Dec 2021	6	10,753	12,500		7	11,105	11,400	-	0
2. Benefits of dung beetles for prime lamb systems	SWPLG BWBL	Feb 2019	Dec 2021	8	8,100	38,000	400	31	21,000	140,000	2,500	2
3. Increasing lamb survival	Western Plains BWBL	Jul 2019	Dec 2021	5	4,000	10,533	2,053	8	19,600	72,000	1768	1
4. Annual grass control in perennial pastures	Perennial Pasture Systems	May 2019	Dec 2021	13	15,500	62,000	1,400	114	170,000	>600,000	27,000	1
5. Using soil moisture probes to predict winter/spring Pasture Growth	Baynton GSSA Dartmoor BBN Glenelg BWBL	Aug 2019	Feb 2021	4	4000 1500 1500	10000 4000 7000	900 10000 900	10 10 25	12000 13000 40000	8000 5350 100000	1200 6685 3000	4
6. Adopting accelerated beef finishing systems using grazed fodder beet crops	Upper Murray BBN Murmungee BBN	Jul 2019	Dec 2021	3	2,200	1,500	2,000	30	12,000	2,000	6,500	2
7. To wean or not to wean	St Arnaud BWBL	May 2019	Dec 2021	4	3700	6700	0	19	40,000	50,000	50	1
Totals				41	45,603	129,020	16632	254	338705	388750	48703	10

7.1.2 Phase 1 Group engagement:

Project (& Industry)	Group	Demonstration Timeframe		Total sites	Direct Engagement				
		Start	End		Enterprises within group	Service Providers	Extension activities		
							Activities	Producer attendance (total)	Service providers (total)
1. Grazing Management for Increased Reproduction and Reduced Turnoff Time (Sheep)	Rich River BWBL Group	May 2015	July 2017	5	15	1	6	55	3
2. Weaning Strategies for Improved Productivity (Beef)	South Gippsland Producers Group	Feb 2015	Jun 2016	6	10	1	13	463	32
3. Feeding Systems for Growing Lambs (Sheep)	Bullioh BWBL Group	Jul 2015	Jun 2018	2	10	1	8	65	8
4. Shelter Options for Lamb Survival (Sheep)	Casterton, Coleraine and Avoca BWBL Groups	May 2015	Dec 2017	12	50	2	6	85	11
5. Autumn Saving of Pastures	Glen-Dunkeld BWBL Group	Oct 2015	Dec 2018	3	37	1	10	296	14
6. Pasture Cropping to Fill the Winter Feed Gap (Sheep)	Glenelg BWBL Group	Nov 2014	Jun 2017	5	26	1	10	320	44
7. Pedigree Matchmaker for Beef	Colac BBN	Sep 2015	Jul 2018	4	14	1	7	49	7
8. Innovative Use of Gibberellic Acid	Perennial Pasture Systems	Aug 2015	Dec 2018	10	114	1	7	332	9
Totals				47	276	9	66	1665	128

7.2 Appendix II EPDS Phase 1 evaluation infographic and report

Evaluation EPDS Phase 1

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7 Demonstrations

Enhanced Producer Demonstration Site (EPDS) Phase 1 ran from 2014-2018

25 producers were interviewed in 2021 to evaluate the impact of these demonstrations

Value of the demonstrations:

Producers: 8.7/10

Group Coordinator: 8/10

16 producers had made changes
5 were in the process
4 had not made changes

"It's great to get local data to support practice changes and it helps beyond the immediate group"

"Having support from Ag Vic was fantastic. I wouldn't like to be doing it without Ag Vic to support. The timing was perfect to have a focus for the group and it gave us continuity between meetings. The focus was important as groups can sometimes jump between topics and not revisit things."

"I think it's a really good way of integrating MLA and levy payers and the Vic Government with a positive outcome for all."

"I really like the concept of PDS's. I think getting the right topic for the group is such an important part of it - and starting with the problem rather than the solution. People often think 'that won't work for me because...' but the demo can force them to do it and then they make the change."

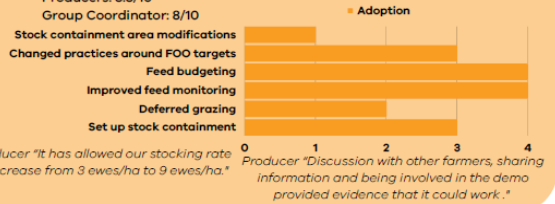
Autumn saving of pastures 4 producers interviewed

Objectives:

- Understand the benefits of autumn savings including the effect of deferred grazing on pasture production
- Understand pasture targets for lambing
- Assist to manage containment feeding
- Increase knowledge of pasture assessment (FOO)

Group Coordinator "There has been adoption both within the group and others in the district including some of my clients. There has been increased uptake of confinement feeding for the first 3-6 weeks after the break."

Value of the demonstration:
Producers: 8.8/10
Group Coordinator: 8/10



Producer "It has allowed our stocking rate to increase from 3 ewes/ha to 9 ewes/ha."

Producer "Discussion with other farmers, sharing information and being involved in the demo provided evidence that it could work."

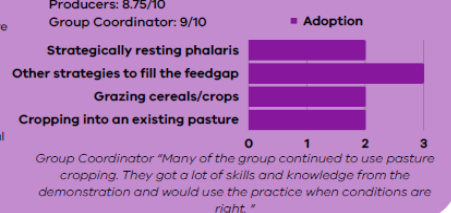
Pasture cropping to fill the feed gap 3 producers interviewed

Objectives:

- Establish, manage and harvest a cereal crop sown into perennial pasture (pasture-crop).
- Using pasture cropping to fill the winter feed gap
- Recognise and monitor growth stages of cereal crop & when to stop grazing
- Understand impact on yield of grazing compared to not grazing pasture/crop
- Understand how and when to use pasture cropping to improve perennial pastures

Producer "I had thought about making changes but needed the demo to take me to the next level and actually implement changes, based on being more confident and seeing others do it."

Value of the demonstration:
Producers: 8.75/10
Group Coordinator: 9/10



Group Coordinator "Many of the group continued to use pasture cropping. They got a lot of skills and knowledge from the demonstration and would use the practice when conditions are right."

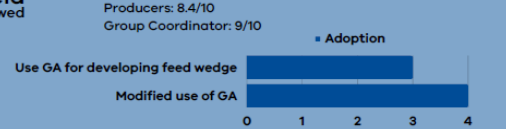
Innovative use of Gibberellic Acid 4 producers interviewed

Objectives:

- Understand impact of GA on winter feed production & quality in perennial pastures
- Understand application rate, timing, frequency & conditions (ie best way to boost winter growth).
- Understand impact of GA on annual grasses

Producer "To have it on your farm means you can evaluate it more closely - sub clover doesn't respond to GA like grasses - so it was good to gather this information on my own farm. The group atmosphere is ideal."

Value of the demonstration:
Producers: 8.4/10
Group Coordinator: 9/10



Group Coordinator "Members are using GA opportunistically rather than regularly, eg some members were using every year and are using it more strategically now - when seasonal conditions are favourable (ie under 15 degrees plus moisture plus 1000 kg/DM). Also using when there is enough phalaris in their paddocks to make it profitable."



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Shelter for lamb survival 3 producers interviewed

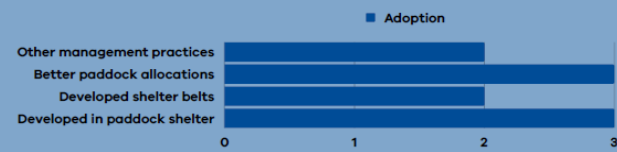
Objectives:

- Measure and monitor reproductive performance
- Understand impact of shelter on reducing lamb mortality - allocating paddocks to lambing ewes
- Establishing more shelter on farms

Producer "At least we are giving the lambs the best chance of survival"

Value of the demonstration:
Producers: 7/10
Group Coordinator: 7/10

Group Coordinator "Around 10 would have made changes. One has established TWG and across the board the group are thinking about where they put their twins using marking results by paddock. More are developing timber shelter belts as well."



Weaning strategies (cattle) for improved productivity 3 producers interviewed

Objectives:

- Equip producers with advanced livestock handling skills
- Improve growth rates of weaners through yard training
- Quieter cattle
- Improved occupational health and safety from improved handling techniques and quieter cattle

Value of the demonstration:
Producers: 8.3/10
Group Coordinator: 9/10



Group Coordinator "Seven of the 10 in the group would be using at least some of the practices - maybe more. There would be more in the district - even some of the agents are using dogs these days."

Producer "We got to see the benefits firsthand from doing it and being part of it - the cattle become quieter and easier to handle"

Pedigree MatchMaker (PMM) for cattle 3 producers interviewed

Objectives:

- Understand productivity benefits from recording pedigree information.
- Understand benefits of using electronic tags for animal ID & management
- Use panel reader to ID, record & manage cattle
- Use PMM system

Group Coordinator "There was definitely increased interest around tracking performance of individual cows and using that information. Members of the group (many of whom are quite elderly) were putting themselves at risk tagging calves in the paddock - and weren't even using the information! There won't be adoption of PMM as it proved challenging but there was interest in some of the concepts."

Producer "We were getting to the stage that we needed to change from tagging calves - this demo made us think about other options. By recording pedigree, we make better decisions about culling and think more about our genetics and which cows are performing well."

Producer "We already collect maternal data by tagging calves at birth and we use this information for making decisions. We were not big enough to invest in PMM equipment and can handle tagging for our 40 breeders"

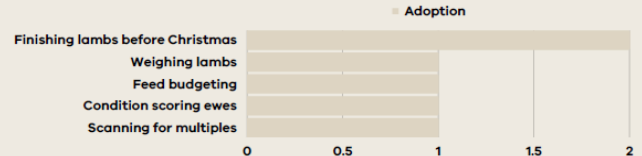
Value of the demonstration:
Producers: 9.7/10
Group Coordinator: 7/10

Feeding systems for growing lambs 4 producers interviewed

Objectives:

- Monitor ewe condition
- Monitor and allocate pasture feed
- Maximise lamb growth rates to turn off more slaughter lambs before end of spring flush
- Join ewes lambs self-replacing flocks

Value of the demonstration:
Producers: 8.5/10
Group Coordinator: 7/10



Group Coordinator "There were five in the group. One started to pregnancy scan for the first time ever, one started scanning for twins/singles instead of just wet/dry. Not many wanted to weigh lambs though a couple may be."

Producer "Networking with other farmers and the ability to see different methods of management being used were highlights."



Background

This evaluation report relates to [L.PDS.1803 Objective 5](#):

Monitor and evaluate adoption rates and impacts of the total investment in EPDS, over both phases (**re-evaluating participants from EPDS Phase 1 sites** and closely monitoring Phase 2 sites throughout their life).

The Enhanced Producer Demonstration Site (EPDS) Phase 1 ran from 2014-2017 with eight demonstration projects aimed at increasing adoption of research, technologies and best practice amongst red meat producers to improve business profitability and productivity. Each demonstration was evaluated with pre and post surveys to identify changes in knowledge, attitude, skills, adoption as the demonstrations concluded and this was reported in the demonstration final reports.

This evaluation is based on semi-structured phone interviews with 25 producers (17 hosts and 8 observer producers) and 7 group co-ordinators (external consultants) who worked with Agriculture Victoria demonstration co-ordinators on the project. The interviews were conducted 3-4 years after the demonstration finished, giving producers time to implement changes and to measure the lasting influence of the demonstration.

The interviews focussed on: practice change and adoption, benefits realised from adoption (including an estimate of financial benefits where possible), reasons for not adopting, value of the demonstration project and potential improvements to the project. Questions from MLA's 'evaluation of practice change and adoption' survey were included.

Each group co-ordinator was asked to suggest around four producers who they felt would be happy to be interviewed. In some instances, these producers may also have had greater involvement in the demonstrations than others in the group, which may have influenced the evaluation outcome. However, they were considered by the coordinators to be best placed to provide open and honest feedback. The low number of interviewees (2-5 producers per demonstration depending on availability) is a limitation of this evaluation.

The Grazing Management for Improved Reproductive Performance and Reduced Turn off Times demonstration was not re-evaluated in this process, having undergone an external evaluation with Kristy Howard (Inspiring Excellence) in 2018, which was reported in the final report. It was felt that further interviews with this group would not add further value.

Summary of results:

Overall, the producers rated the demonstrations on average 8.7/10 and group coordinators 8/10 for helping understand the practices involved in the innovation/ technology. Sixteen of the 25 producers had made changes (many of them significant changes), five were in the process and four had not made changes (for reasons discussed below).

Interviews with producers and coordinators suggest:

- Producers value the group atmosphere, skill development and being able to test the practice first-hand. Skill development is an important and valued part of demonstrations (e.g., feedback from Feeding Systems for Growing Lambs).
- Demonstrations increase adoption of new practices. For some producers (for example Autumn Saving) this involved a large financial investment. The majority of producers (for example Weaning Strategies) said they would not have made changes without being involved first-hand in the demonstration.
- Most producers were unable to provide an estimate of the financial benefits from the changes adopted. However, some producers (Autumn Saving), estimated large financial benefits from the changes made.
- Producers frequently modified the demonstrated practices to suit their own situations (e.g. Pasture Cropping and Pedigree MatchMaker).
- External coordinators value the partnership with Agriculture Victoria and MLA in the delivery of demonstrations.

- The nature of some demonstration topics resulted in lower adoption than others (e.g., Pedigree MatchMaker, Gibberellic Acid), however producers appreciated the opportunity to test the technology as a group and make an informed decision and the feedback was very positive.

General feedback from group coordinators:

Each of the seven group coordinators had used the information from the demonstration with other clients.

What were the benefits of being involved in the demonstration for you as a coordinator?

"The willingness of members to get involved and host sites and provide in-kind services to the project. Quantifying results and providing cost: benefits were valuable. Annual weed reduction demo was useful to allow the group to test observations made by members, where the use of gibberellic acid appeared to have an impact on annual weed infestation, great to test it despite it not working." Rob Shea

"Having support from Ag Vic was fantastic. I wouldn't like to be doing it without Ag Vic to support. The timing was perfect to have a focus for the group and it gave us continuity between meetings. The focus was important as groups can sometimes jump between topics and not revisit things. It was perfect timing for a largely young group who had just returned home to their farms." Tim Leeming

"Being able to ground truth and apply the principles of autumn saving on a number of pastures and see and measure pasture and ewe condition difference. I was surprised how many people turned up to our final field day (>50) and the level of interest we had in the demonstration. Also, how sensitive and dependent profit was on utilising the pasture grown. In one year, the producer added urea to the sites in [addition to autumn saving and exceeding FOO targets] and growing extra grass but not using it had a huge impact on the economics." Andrew Whale

"Testing the different types of shelter has helped to know and promote what works. We found out that Dorycium was palatable, even though it has 7% tannin - and it was good to find that out and know it's not one to promote. We learnt a lot about the establishment of tall wheat grass (TWG) - which some clients are now using." Andrew Speirs

"I got a lot of knowledge and skills about the performance of lambs in the Upper Murray. It's great to get local data to support practice changes and it helps beyond the immediate group. Good professional development for coordinators. There were flow-on activities after the demo as well." Kristy Howard

"I was already onto the program - but getting information in the local area and being able to share the results and say 'this is what we saw and measured' was valuable." Claire Harris

"Coming together as a group with a topic of focus. We also got to visit a number of farms who don't normally host sessions but were happy to be involved in the demo. I think that was valuable for them as well - there were a lot of conversations with farmers who don't normally pay for advice which value adds to the outcome." Nathan Scott

Anything else you'd like to add?

"It's a great opportunity to explore a local, relevant issue is appreciated by the group." Rob Shea

"I think it's a really good way of integrating MLA and levy payers and the Vic Government with a positive outcome for all." Tim Leeming

"It wouldn't have been possible without the help from Ag Vic. It really puts the accountability on the consultant. There are too many programs that this doesn't happen, and they're just finished up with a final report. The consultancy industry has many independent operators who often have good ideas, but don't have the support and ability to make them happen. The joint, collaborative efforts of the demonstration have given it a lot of further airtime such as the BWBL conference and SheepNotes articles and this help improve the return on investment for MLA." Andrew Whale

"I think it's great that demos are happening - whatever the topic. It's great to test practices out on a smaller scale with a group to see whether how useful it might be." Andrew Speirs

"Rather than working on knowledge & skills (the theory of adoption), I think we can get more practice change if we just get the group to adopt and give it a try rather than spending time trying to convince them it's a good thing and

working on KASA. We can then go back and help assess and compare to what they were doing. New adopters make the best advocates.” Kristy Howard (Kristy also noted that it can be difficult to get the balance right when developing a proposal- working with the group for input and writing up an idea. You need their buy-in and interest but there’s never long to write the proposal.)

“I love demos - I'd love to be involved in more. I think group learning is fantastic.” Claire Harris

“I really like the concept of PDS's. I think getting the right topic for the group is such an important part of it - and starting with the problem rather than the solution. People often think 'that won't work for me because...' but the demo can force them to do it and then they make the change.” Nathan Scott

Autumn saving of pastures (n=5)

Objectives:

- Understand the benefits of autumn savings including the effect of deferred grazing on pasture production
- Understand pasture targets for lambing
- Assist to manage containment feeding
- Increase knowledge of pasture assessment (FOO).

Group coordinator comments:

As far as you know, what practices have been adopted by the group?

“There has been adoption both within the group and others in the district including some of my clients. There has been increased uptake of confinement feeding for the first 3-6 weeks after the break. Not all this is in stock containment areas, some are using big mobs in paddocks to allow lambing paddocks to get away. I have also built a stock containment now to autumn save myself- a \$20,000 investment based on the demo results.”

Are there any issues that might prevent people making changes?

“This isn't so relevant to producers running lower stocking rates who are already meeting pasture targets that way. It is a big change to be making. Some perhaps don't embrace change.”

Implemented changes:

Four out of the five producers interviewed had adopted autumn saving practices, listed in Fig.1.

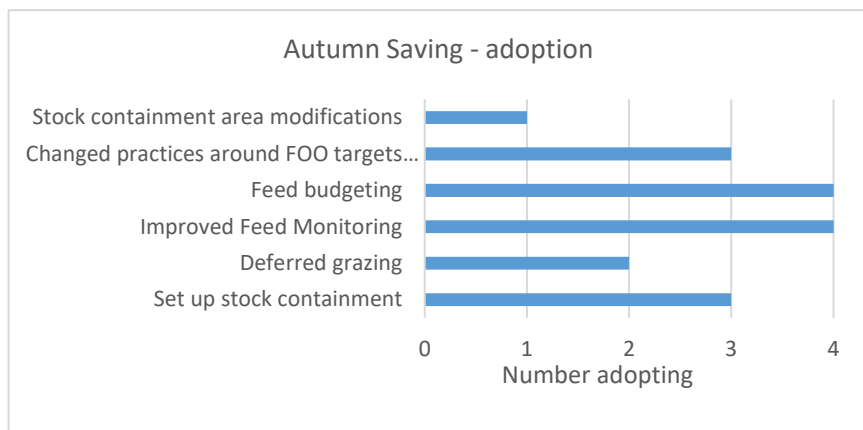


Figure 8: Autumn saving adopted practices

Other changes:

‘We have established a shelter belt near the containment area for protection.’

‘Now making silage and feeding that in containment.’

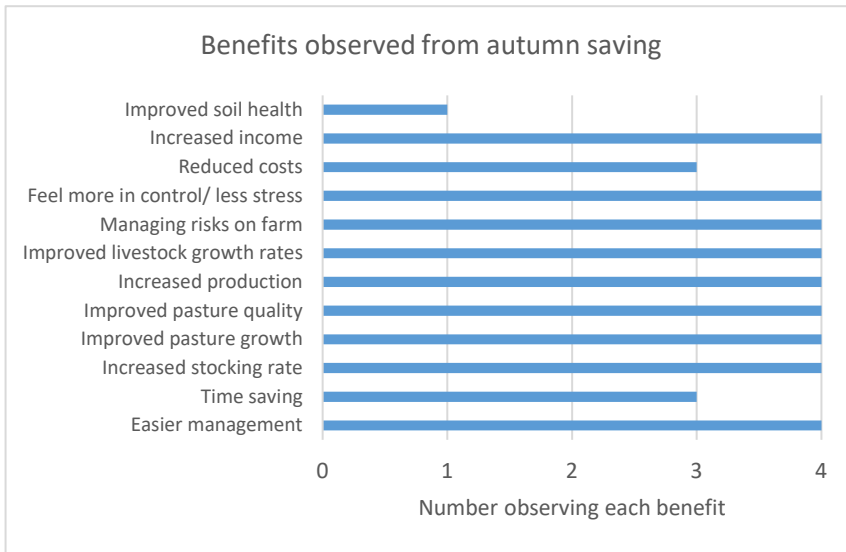
Reason for not adopting:

One out of the five producers interviewed had not adopted autumn savings and containment feeding. However, he had closely followed the demonstration and was weighing up options and considering the demonstration findings.

“Logistically it’s a very difficult thing for us to do at the moment (carrying around 20,000 sheep). I can see benefits, but I’m not convinced it’s the best way to go for us. We may consider it for crossbreds in the future and use sacrifice paddocks rather than purpose-built stock containment. I don’t think it’s well suited to merinos. I have concerns about confining animals– it can get very wet and I’m not sure it’s best for their health. Some animals will lose weight in this situation.”

Benefits from adoption:

Figure 2 indicates the benefits identified by the four producers who adopted autumn saving practices.



Other benefits:

'Growing more grass'
'I now have a feed wedge'
'Lambing ewes are in better condition and lambs are in better condition'

Figure 9: Benefits observed from changes adopted.

The producers provided the following comments about extra annual profit from the changes made:

- "We are now carrying an extra 600 ewes so in rough figures this amounts to \$60,000 extra profit for lambs produced. This would vary from year to year. Labour costs are reduced so further savings there but it's hard to put a figure on."*
- "It has allowed our stocking rate to increase from 3 ewes/ha to 9 ewes/ha. With more lambs this extrapolates out to around \$670/ha (based on 2020 figures)."*
- \$50,000*

Value of the demonstration:

The five producers rated the demonstration an average **8.8/10** for helping them understand autumn saving practices. The group coordinator rated it **8/10**.

- "I would rate this very highly. Deferred grazing is a huge benefit, and I learnt a lot around managing pastures in autumn."*
- "Good to see it and talk to fellow farmers about it."*

Benefits of being involved in the demonstration

- "We were looking at doing something so being involved in the demo gave me confidence to implement autumn saving (containment feeding). The group environment also helped with that. For many this concept can be confronting which is possibly why not everyone does it. It is a big commitment, not just a financial one, but you are committed to feeding those animals once they go in because they're not going to get it [feed] anywhere else (as opposed to being in the paddock). Feeding in containment does need some flexibility, not always great in a very wet year - in those conditions we might use a single sacrifice paddock (as opposed to constructed containment). Learning to better manage pasture in the autumn allows us to achieve a higher stocking rate. It has given us greater confidence in our decision making and the ability to set and achieve FOO targets."*
- "Being in a farmer group and a supportive network, we were all in similar positions (looking for extra feed), benchmarking and comparing yourself to others. The demonstration gave people confidence."*
- "Discussion with other farmers, sharing information and being involved in the demo provided evidence that it could work - validated the demonstration."*
- "The benefits of being involved are mainly around being disciplined to actually measure and assess the feed required for stock and knowing when to let stock out (or not). It's good to put the science behind it and put skills into practice around measuring feed and checking rations. The skills were already there but the demonstration helped put them into practice."*

- *“It was good to be involved to see the benefits such as having a feed wedge and how it’s better for your pastures.”*

Each of the surveyed producers felt the demonstration had led to further interest and/ or adoption in the district.

- *“There are people in the district who are on the fence, observing and asking questions but have not yet implemented their own containment. I think the demonstration gives credibility and that gives others confidence to eventually give it a go.”*
- *“Certainly, lots of people came to the open day, it sparked a lot of interest. There would be more in the district doing this now.”*
- *“Others are definitely doing it in the area, especially many of the younger ones (farmers)”*

Some of the producers involved have planned further changes to improve their systems:

- *Our next step is to spend money on machinery that will help with feeding in the containment areas and help reduce time and labour inputs. We plan to upgrade to a bale feeder so can feed over the fence and plan to build silage pits to reduce plastic waste with wrapped silage.*
- *We plan to refine what we have by modifying the containment pens and moving to mechanised trough feeding. This will result in better feed utilisation and decrease waste through spoilage (sheep urinating and defecating on feed and turning to mush). This will also result in better animal health outcomes. There should be significant feed savings in the first year which will help offset the costs of implementing. We’ll possibly look at doing this next year unless we have another good season going into autumn.*

Overall, the interviewed producers were happy with the demonstration and did not suggest improvements.

- *“Being part of the demo was really worthwhile. I’m glad I now have the confidence to give it a go. Even my father who was not keen initially can really see the benefits. Having the opportunity to ask questions in the group really gives you confidence.”*
- *“The timing of the project was good as we were all in the same predicament (dry season) wondering what to do. (The cost of establishing our containment was \$15,000)”*
- *“It was a good thing to be involved with, very informative and has changed the way I do business.”*

Innovative use of Gibberellic Acid (n=5)

Objectives:

- Understand impact of GA on winter feed production & quality in perennial pastures
- Understand application rate, timing, frequency & conditions (i.e. best way to boost winter growth).
- Understand impact of GA on annual grasses.

Group coordinator comments:

As far as you know, what practices have been adopted by the group?

“Members are using GA opportunistically rather than regularly. e.g. some members were using every year and are using it more strategically now- when seasonal conditions are favorable (i.e. under 15 degrees plus moisture plus 1000 kg/DM). Also using when there is enough phalaris in their paddocks to make it profitable.”

Are there any issues that might prevent people making changes?

“Some people may not be able to rest paddocks (3 weeks) after applying GA- it’s especially difficult when short in feed -which is when you would be looking to use GA.”

Implemented changes

Two of the producers interviewed had made changes based on the demonstration, two were in the process of it and one had not made changes. Fig. 3 indicates the changes underway by the four producers.

Two producers indicated they would not have made changes without demonstration and three said that they would, however possibly later.

- *“We would have made those changes eventually, however being part of the demo gives greater ownership of the results.”*

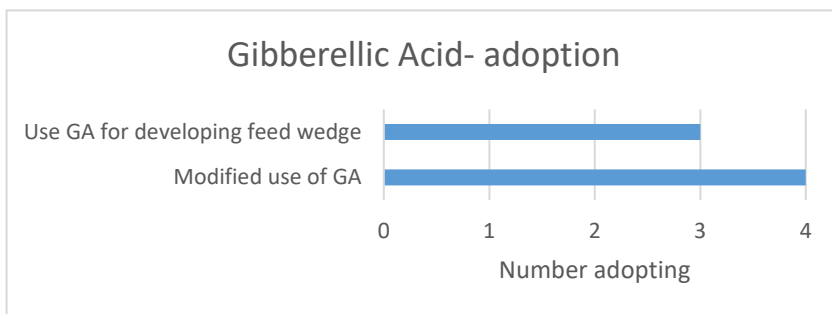


Figure 10: Changes adopted with Gibberellic Acid

Other changes:

“I was using GA previously, but I modified my practices due to the inconclusive results [on phalaris]- I’m actually using it less”

“We’re using GA for lambing and targeting better paddocks to get a good response. It’s seasonally dependent use- I’m finding it

Benefits from adoption:

The benefits identified by the producers through the changes made are listed in Fig. 4.

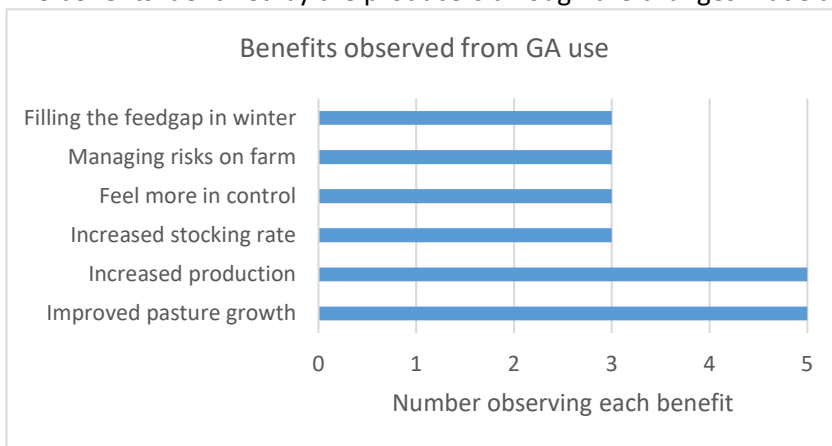


Figure 11: Benefits observed from changes made

Producers were unable to place a financial value on the benefits however comments included:

“I have saved money by not applying GA unnecessarily and instead focus on nitrogen applications.”

“It allows me to meet my pasture targets”

Value of the demonstration:

The five producers rated the demonstration on average **8.4/10** for helping understand the benefits and role of Gibberellic Acid. The group coordinator rated it **9/10**

- *“I got a fair bit out of the demonstration and being a host. I liked seeing the data on my own farm and in the context of the region.”*
- *“Demonstrations give a good indication of practices on-farm and can be done on a paddock scale within the operation. Farmers relate well to peer-to-peer learning. The reporting and the communication were great as was having a good spread of paddocks over a number of different years, regions and seasons.”*
- *“The results were inconclusive about the benefits of GA on phalaris pastures in our environment [varying from season-to-season]- but that was helpful anyway. The PPS structure is great for the demonstration, engaging similarly minded people in a grass roots level of enquiry.”*
- *“To have it on your farm means you can evaluate it more closely- sub clover doesn’t respond to GA like grasses - so it was good to gather this information on my own farm. The group atmosphere is ideal.”*

Final comments and potential improvements.

- *“It surprised me that the final year results were so low after some successes in other years. It has been a great discussion point.”*
- *“The results were inconclusive - this was a surprise, but this still satisfied me. The host role was as expected - simple, seamless.”*
- *“Trial was done efficiently, and I was happy with the level of scientific integrity. It backed up our ideas on GA which was heartening.”*

- *“I think there is a tradeoff between the scientific rigor and on-farm demonstration. It has to work in around general farming practices.”*
- *“I think the PPS structure works exceptionally well for on farm demonstrations - having the project coordinator works really well for the consistent approach and great communication.”*
- *“I think that research with animal measurements are really important to get the whole scope of the project on farm. I think just pasture cuts are only half of the picture. We missed information by not weighing the animals.”*

Weaning strategies (cattle) for improved productivity (n=3)

Objectives:

- Equip producers with advanced livestock handling skills
- Improve growth rates of weaners through yard training
- Quieter cattle
- Improved occupational health and safety from improved handling techniques and quieter cattle.
-

Group coordinator comments:

As far as you know, what practices have been adopted by the group?

“Seven of the 10 in the group would be using at least some of the practices- maybe more. There would be more in the district- even some of the agents are using dogs these days. Some would have their own dogs; others borrow dogs or get contractors in.”

Are there any issues that might prevent people making changes?

“Some are trading cattle rather than breeding and it's not as important in that situation.”

Implemented changes

Each of the three producers interviewed had implemented significant changes (Fig. 5) because of their involvement in the demonstration. The all made the point that without the demonstration, they would not have made these changes.

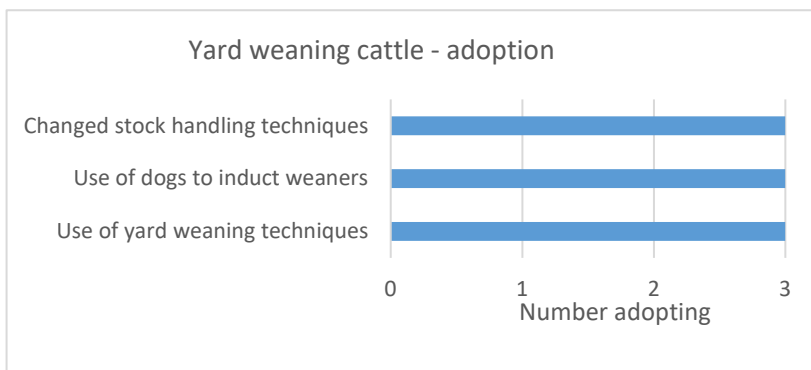


Figure 12: Changes adopted in calf weaning demonstration

Additional comments included:

“All cattle go through the education process. We invest in our dogs and train them. The whole family have now done this training- my wife and boys.”

“We use the dogs to educate our cattle at weaning and use the dogs always when working or moving cattle.”

Benefits from adoption:

The benefits identified by the producers through the changes made are listed in Fig. 6

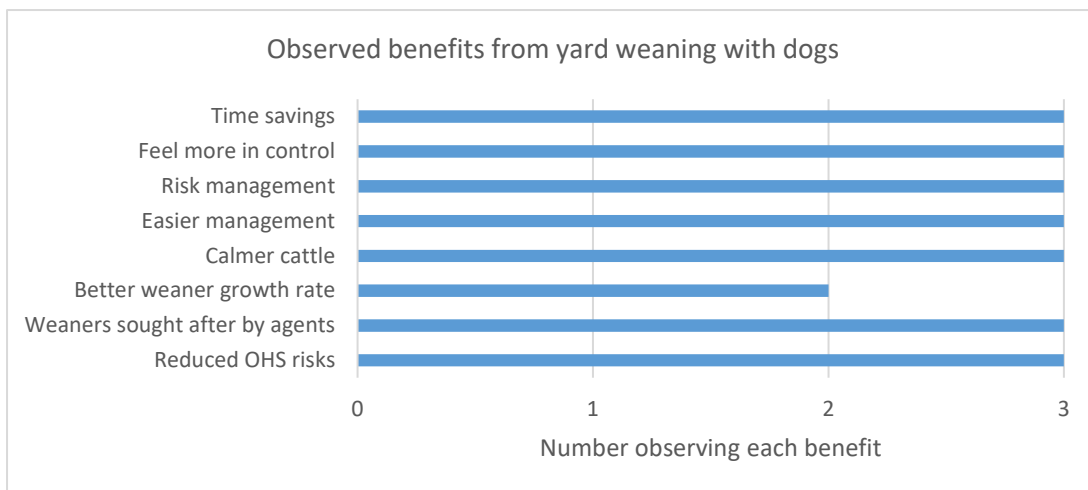


Figure 13: Benefits observed from yard weaning practices

- *“Our cattle are much calmer and have better growth rates. They are much easier to handle which is less stressful for all. It makes farming a lot more fun.”*
- *“It’s very hard to put a figure on the benefits. We have 3 staff- how do you value OHS benefits for them from having quieter cattle and dogs that can muster hills? Maybe an extra \$100/ head for quieter cattle. We sell our bulls very easily.”*

Value of the demonstration:

The three producers rated the demonstration on average **8.3/10** for helping understand the practices of yard weaning. The group coordinator rated it **9/10**. This demonstration was particularly hands-on, which was important for skill development and understanding the process of yard weaning. The demonstration process clearly brought about practice change that would not have occurred otherwise.

- *“I really thought that dogs stirred cattle up. I wouldn’t have done this without being involved. You could have talked about it until the cows came home but it was going through and doing it that made the difference.”*
- *“It was a BIG deal at the time- they (Neil McDonald) trained 150 head and we trained 150 head our way and we watched the difference. We were really thrown into it and got way more out of it that way. Seeing the results and what using the dogs can do was great. We thought we did a great job of weaning already- but when our cattle went into the paddock they did a lap- whereas their cattle now just put their heads down and started eating.”*
- *“We got to see the benefits firsthand from doing it and being part of it- the cattle become quieter and easier to handle”*

Closing comments and recommendations:

- *“We became interested in these techniques after I had a quad bike accident- we have very hilly country. Now we use dogs on the hills, and our cattle are also much quieter. That’s a big safety benefit.”*
- *“I think the benefits are so large. I would like to see MLA encourage these techniques further. It’s so important for making farming less stressful and for making for a better lifestyle.”*
- *“Some of the agents locally are using dogs more and have been following these practices.”*
- *“There are many around us now that are using dogs and these strategies with our cattle- quite a community and people catch up and swap information.”*

Pasture cropping to fill the winter feed gap (n=4)

Objectives:

- Establish, manage and harvest a cereal crop sown into perennial pasture (pasture-crop).
- Using pasture cropping to fill the winter feed gap
- Recognise and monitor growth stages of cereal crop & when to stop grazing
- Understand impact on yield of grazing compared to not grazing pasture/crop

- Understand how and when to use pasture cropping to improve perennial pastures.

Group coordinator comments:

As far as you know, what practices have been adopted by the group?

“Many of the group continued to use pasture cropping. They got a lot of skills and knowledge from the demonstration and would use the practice when conditions are right. It’s especially useful if you have a good perennial pasture that is inundated with weeds such as onion grass. Many of us have now improved most of our paddocks but wouldn’t hesitate to use it again if we bought new land.”

Are there any issues that might prevent people making changes?

“There is less pasture cropping happening at the moment because we’ve now had five great years and people are relying on pasture and not sowing crop, plus lamb prices have also doubled since the demo so cropping isn’t a priority. Many of the group used the technique as they had recently moved back to their farms and were cleaning up pastures and have largely finished this job for now.”

Implemented changes

Each of the four producers interviewed had made changes to their operation after participating in the demonstration (Fig. 7).

Two producers continued with the pasture cropping system for “a couple of years” then stopped for differing reasons:

- *“We now pasture crop if we take on new country. We have renovated our existing paddocks and are not using it at the moment because we have had five years of great seasons and strong lamb prices and are not cropping. We would not hesitate to use the practices again.”*
- *“We used pasture cropping for two years following the demonstration but then decided to stop as the country regularly got too wet and had waterlogging issues and inconsistent yields. It didn’t really suit this country so well and we decided to focus on just grazing given lamb prices were so high.”*

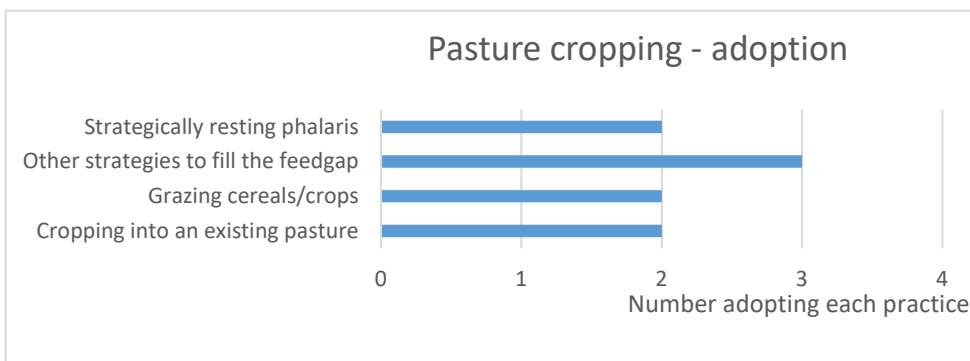


Figure 14: Adopted pasture cropping practices

Two of the producers have modified the demonstration practices to suit their systems.

- *“The trial helped me discover the value of winter feed and I started sowing annual pastures (instead of crops) into perennial pastures to increase feed availability and harvest for silage.”*
- *“I’m oversowing pastures with different pasture species (rather than cropping). I got the idea from watching the pasture cropping trial but acknowledging that it wasn’t right for my farm (with no cropping infrastructure or equipment).”*

Benefits from adoption:

Figure 8 shows the benefits observed from adopting pasture cropping practices.

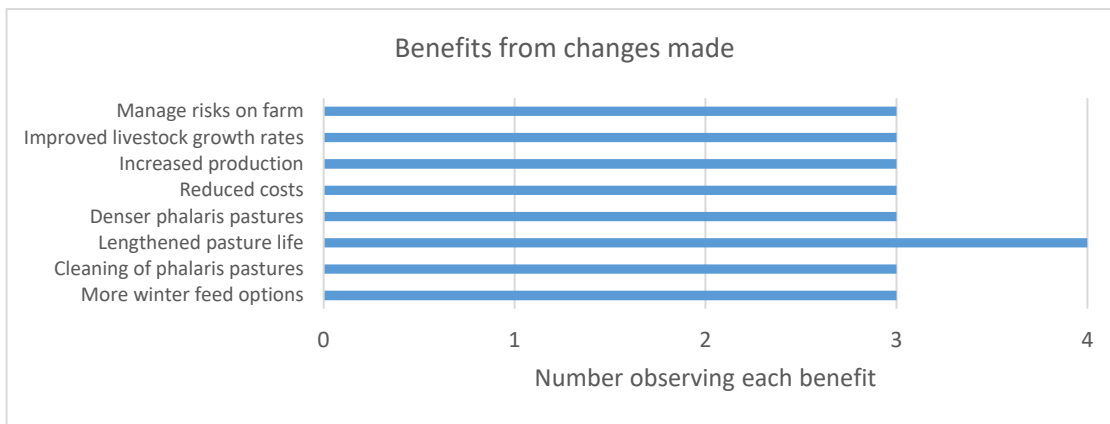


Figure 15: Benefits from adopting pasture cropping practices

Value of the demonstration:

The four producers rated the demonstration on average **8.75/10** for helping understand pasture cropping practices. The group coordinator rated it **9/10**. No suggested improvements to the project were provided.

- *“Understanding the grazing side of pasture cropping was the biggest learning.”*
- *“I had thought about making changes but needed the demo to take me to the next level and actually implement changes, based on being more confident and seeing others do it.”*
- *“Being able to test out the idea and see it in other farms meant that I could really understand what impacts it might have on farm.”*
- *“It was valuable to see livestock growth rates from grazing crops- they were huge.”*
- *“It was great to see understand the value of winter feed to our business (it’s a big deal).”*
- *“The demo worked really well and got good attendance at field days”*

Feeding systems for growing lambs (n=4)

Objectives:

- Monitor ewe condition
- Monitor and allocate pasture feed
- Maximise lamb growth rates to turn off more slaughter lambs before end of spring flush
- Join ewes lambs self-replacing flocks.

This demonstration was undertaken by a small group of sheep producers – five members of the Upper Murray Bestwool/Bestlamb group. Three members were contacted; however, one was no longer sheep farming owing to illness. His reflections of the demonstration were positive though he did not undertake the interview questions.

These producers were badly affected in the 2020 Upper Murray bushfires and indicated that as they were still recovering, some planned changes had not progressed.

Group coordinator comments:

As far as you know, what practices have been adopted by the group?

“There were five in the group. One started to pregnancy scan for the first time ever, one started scanning for twins/singles instead of just wet/dry. Not many wanted to weigh lambs though a couple may be.”

Are there any issues that might prevent people making changes?

“Three were burnt out in the 2020 fires, one has battled illness and another had personal issues. Succession issues were inhibitive for one family making changes. Scale was also an issue as they’re not large producers to be purchasing EID equipment/handlers/scales.”

Implemented changes

Figure 9 indicates the changes adopted by the two producers interviewed. One producer mentioned he was already undertaking some of the practices identified.

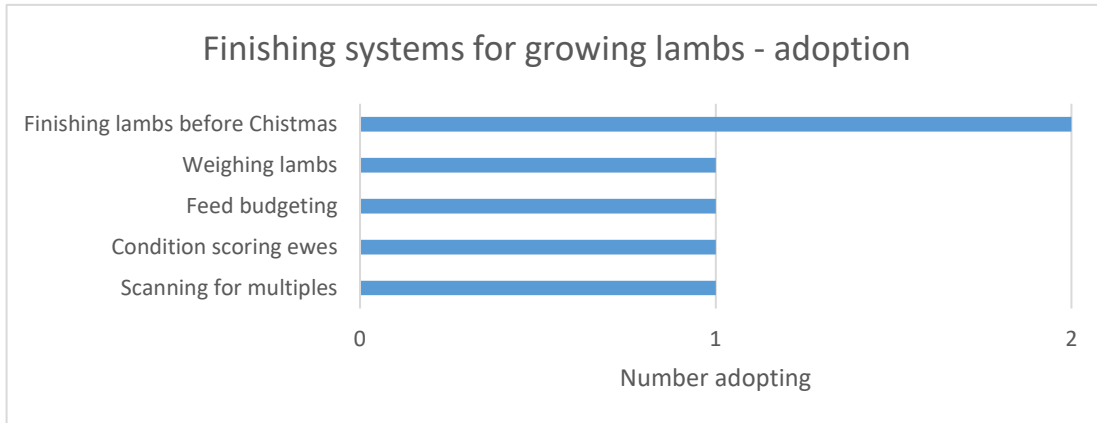


Figure 16: Changes adopted by producers in the demonstration

Benefits from adoption:

Figure 10 shows the benefits from adopting practices that can reduce lamb turn-off time.

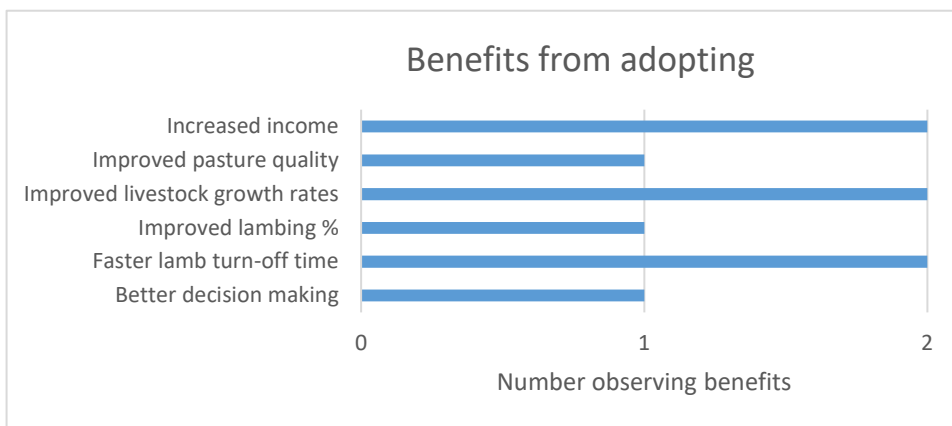


Figure 17: The benefits identified from adopting new practices

- *“The fires had such a big impact on the operation that it’s hard to say.”*
- *“We’ve possibly achieved a 10% increase in the value of lambs sold”*

Value of the demonstration:

The two producers rated the demonstration an average **8.5/10** for helping understand practices that can reduce lamb turn-off time. The group coordinator rated it **7/10**.

- *“Working with like-minded farmers who were keen to crank things up was fantastic. We did lots of activities and picked up information - things like weighing, condition scoring, feed quality and it was great to do it as part of the group. Even small things like feed testing ryegrass at different stages was very beneficial.”*
- *“Networking with other farmers and the ability to see different methods of management being used were highlights.”*
- *“The learning out of it was huge. It would have been great to move into a LifeTime Ewe group, though fires and reduced numbers of sheep farmers in the Upper Murray prevented that.”*

Shelter for lamb survival (n=3)

- Measure and monitor reproductive performance
- Understand impact of shelter on reducing lamb mortality- allocating paddocks to lambing ewes
- Establishing more shelter on farms

One of the three producers interviewed was directly involved in the demonstration as a host and the other two were outside the group and worked with the consultant involved in the demonstration, following the practices and results indirectly.

Group coordinator comments:

As far as you know, what practices have been adopted by the group?

“Yes- around 10 would have made changes. One has established TWG and across the board the group are thinking about where they put their twins using marking results by paddock. More are developing timber shelter belts as well.”

Are there any issues that might prevent people making changes?

“TWG is slow to establish and there is still a perception from some that it is a weed and can get out of control. It is also surprisingly difficult to establish. Some have tried using phalaris for the same job- but it takes a while and good rainfall to get the phalaris established and it tends to lose the clover content.”

Implemented changes

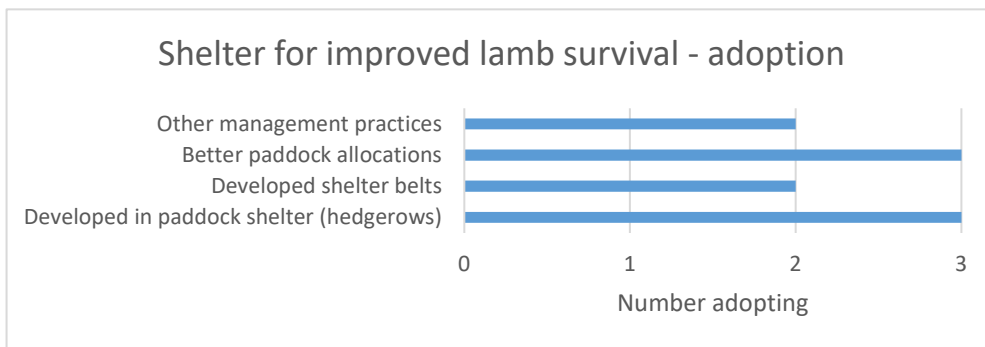


Figure 18: Adoption of practices for increased lamb survival

Benefits from adoption:

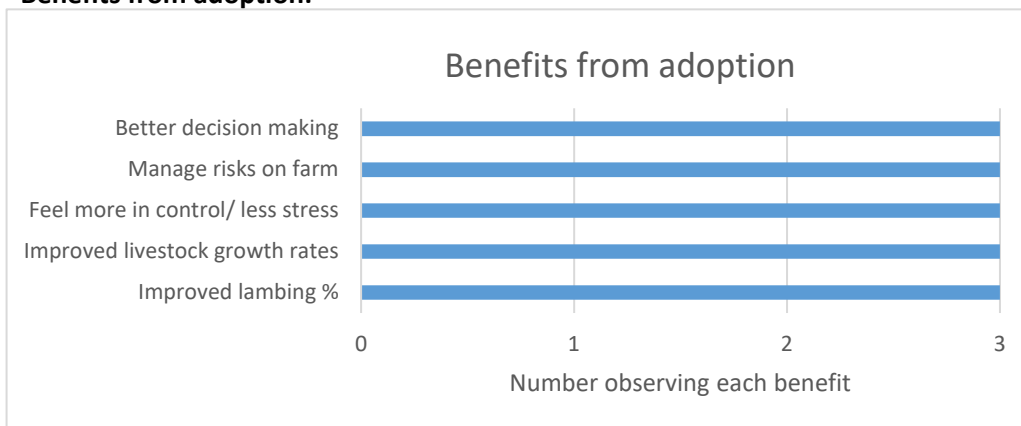


Figure 19: Benefits observed from making changes

- *“At least we are giving the lambs the best chance of survival”*
- *“My goal is to mark an extra 20% of the triplets- we had 142 set of triplets, so that be an extra 28 lambs.”*
- *“Three years ago lambing coincided with 5 days of really cold, windy, wet weather, we lost 10% of the total lambs”.*
- *“This is the first year we will be lambing into Tall Wheat Grass, if it works we will certainly do more.”*

Value of the demonstration:

The host producer valued the demonstration as **7/10** for helping understand various types of shelter and their benefits. The group coordinator rated it **7/10**.

- *“It was really helpful to talk through the pros and cons of various ideas. I also valued the help with taking the wind chill measurements and encouragement to record and collate the stock data.”*

Potential improvements:

- *“The demonstration could have been improved by leaving corrugated iron and hay bale treatments out. It is known that sheep don't like the noise and bales seem to be a magnet for dead lambs.”*

Pedigree MatchMaker (PMM) for cattle (n=3)

- Understand productivity benefits from recording pedigree information.
- Understand benefits of using electronic tags for animal ID & management
- Use panel reader to ID, record & manage cattle
- Use PMM system.

Group coordinator comments:

As far as you know, what practices have been adopted by the group?

“There was definitely increased interest around tracking performance of individual cows and using that information. Members of the group (many of whom are quite elderly) were putting themselves at risk tagging calves in the paddock- and weren't even using the information! There won't be adoption of PMM as it proved challenging but there was interest in some of the concepts.”

Are there any issues that might prevent people making changes?

“There was a buzz around the topic at the start- however partly this was the idea of new technology- there's not much about for cattle. In reality the technology solution wasn't easy. There were benefits for being involved but the technology didn't stack up as well as we'd hoped.”

Implemented changes

Three producers were interviewed about this demonstration, of which one had changed practices following the project. One producer continued to catch and tag calves at birth and one was not recording pedigree.

- *“We used to catch and tag calves at birth - which is a bit risky as we get older. We looked into purchasing solar panels/scanner/ battery/portable yards to set up PMM but it was expensive and very difficult to justify the cost. Instead, we are now putting the calves in the yards for a while and watching/ marking them as they come out and find their mothers. It's a low-tech solution.”*

Reasons for not adopting:

- *“Cost of purchasing PMM gear was hard to justify.”*
- *“We already collect maternal data by tagging calves at birth and we use this information for making decisions. We were not big enough to invest in PMM equipment and can handle tagging for our 40 breeders”*
- *“We record the data for our dairy though it is too time consuming for beef. In the past we did catch and tag calves but not these days (Gina is elderly). Our heavy dark soils are not suitable for PMM set up as the area gets boggy.”*

Benefits from adoption:

- *“We were getting to the stage that we needed to change from tagging calves- this demo made us think about other options. By recording pedigree, we make better decisions about culling and think more about our genetics and which cows are performing well. It's great for our Blonde Aquitaines.”*

Value of the demonstration:

Despite the lack of adoption of Pedigree MatchMaker, the three producers rated the demonstration an average of 9.7/10 for helping to understand the technology and its potential use. The group coordinator rated it 7/10.

- *“The demonstration was fantastic and PMM is a great idea for larger operations. I've seen it in MLA magazines in Nth Australia so it obviously had merit and would work well on stations as cows come in for water. It was great to be involved in the demo and see the setup and work out how to make it work.”*

- *“The demo gave us good information. You can set up the system fairly easily and don't need big yards. It was great to have a go at something quite new and made me realise that nothing is insurmountable- although it was financially hard to justify the system. It also gave us an opportunity to talk to Nathan and Chris which was great- the group interaction was fantastic.”*
- *“I really enjoyed the demonstration and sharing ideas with everyone in the group. I love being part of the group and the stimulation from the interactions. I'm feeling very isolated with COVID.”*

7.3 Appendix III Phase 2 Extension and communication activities

7.3.1 Annual grass control in perennial pastures

Extension	Date	Event description	No. producers	No. service providers
Newsletter	Dec 2019	Presentation at field day Stuart Mill and publication of article in PPS newsletter (200+ members) and Beef sheep Networks Newsflash (audience approx. 3500)	20	2
Website/ update	March 2020	2019 results report sent to members & posted on PPS website	200+	30
Case study	March 2020	Update & case study on barley grass control methods included as appendix to PPS newsletter	193	332
Newsletter	June 2020	Report on chemical resistance delivered to the members via the PPS Newsletter in June.	193	332
Webinar	June 2020	Silage webinar, guest speaker Michele Jolliffe. Topic: making quality silage in our region. Link to recording	16	8
Conference Paper Article	July 2020	Grassland Society of Southern Australia's 60 th Annual Conference; guest Speaker Tess McDougall. Topic Project overview and results from year 1 and year 2. This event composed of three distinct extension products. <ol style="list-style-type: none"> 1. Development of a paper for publication within the conference proceedings, 2. Presentation to 140 live participants of the conference, link to recording 3. The development of an article for the Grasslands Newsletter which was distributed in September 2020 Link (Page 14 & 15) Delivery of project overview to PPS AGM 14/10/2020.	140 25 14	N/A 4 N/A
Newsletter	Dec 2020	Results from 2019 silage treatment included in PPS newsletter and Beef Sheep Newsflash	193 >3500 subscribers	332 N/A
Newsletter	March 2021	Report on sites PPS Newsletter	193	340
Media	June 2021	Cost: benefit analysis included in PPS newsletter and Beef Sheep Networks Newsflash	193 >3500	332 N/A
Newsletter	September 2021	Reports from Plant Science Consulting results shared in PPS Newsletter	193	332
Presentation	March 2022	Results presentation & KASA survey collection	27	3
Presentation	March 2022	Results presentation to BestWool/BestLamb and BetterBeef Coordinators conference	0	32

Media	March 2021	SheepNotes update of over sowing and weed control cost: benefit case study (page 14)	~17,000	
	Aug 2022	Final report produced & approved		
Factsheet	Aug 2022	Factsheet developed and shared with PPS		

7.3.2 Benefits of dung beetles for prime lamb systems

Extension	Date	Activity	Number of producers	No. service providers
AgVic website		Project summary document developed for AgVic website		
Conference visit	Oct 2019	<i>Aust/ New Zealand Biochar conference visit</i> Project presentation, site visit and discussion with delegates	90*	
Field day display	Feb 2020	Dung beetle project display at the Sungold Field days, Allansford	75*	
Host training	Apr 2020	Group paddock walk and dung beetle ID and trapping training with host producers	7	2
Webinar	May 2020	Project webinar including guest speaker (in lieu of cancelled field day)	15	2
Media	May 2020	Beef and Sheep Newsflash	>3500 subscribers	
Video	Oct 2020	'How to find dung beetles' video developed and shared with group		
Media	Dec 2020	Newsflash profile	>3500 subscribers	
Field day	Mar 2021	SWPLG field day with guest speaker and paddock walk	10	2
Presentation	Oct 2021	Cashmore-Oakley ram sale	72	
Media	Nov 2021	Newsflash article		
Factsheets Webpage	Nov 2021	Development of 11 factsheets for dung beetles found throughout the demonstration Aphodius fimetarius – Introduced Bubas bison – Introduced Euoniticellus fulvus – Introduced Euoniticellus pallipes – Introduced Geotrupes spiniger – Introduced Onitis aygulus – Introduced Onthophagus australis – Native Onthophagus binodis – Introduced Onthophagus mnischechi – Native Onthophagus posticus – Native Onthophagus taurus – Introduced	Page views (18/8/22) 139 61 24 27 63 39 28 28 69 32 55	
Media	Dec 2021	SALRC Newsflash		
Social Media	Dec 2021	AgVic Facebook and Twitter post		
Field day	Mar 2022	Final presentation and interpretation of results	24	3

<i>Display</i>	Aug 2022	Project display at SheepVention Hamilton		
<i>Media/case study</i>	Aug 2022	SALRC Newsflash (Case study)		
<i>Media/case study</i>	Aug 2022	Sheep & Beef Newsflash article (Case study)		>3500 subscribers
<i>Factsheet</i>	Aug 2022	Project Factsheet		

*Not included in totals attendances

7.3.3 Increasing lamb survival

Date	Activity	Details
Jun 2019	Condition score and feed budget group activity	11 attendees
Jul 2019	Temporary electric fencing session	9 attendees
Nov 2019	Factsheet on lamb survival demonstration- uploaded to AgVic demo webpage	Circulated to 3,500 subscribers
Jan 2020	Presentation to group - Year 1 results	8 attendees
Feb 2020	' Newsflash ' newsletter article - Lamb survival the focus of on-farm demonstration	Circulated to 3,500 subscribers
Feb 2021	Infographic on project results - 2020 update shared with group	
Feb 2021	' Newsflash ' newsletter article - Year two demonstration trial results confirm survival management strategies	Circulated to 3,500 subscribers
Mar 2021	Presentation to group - Year 2 results	25 attendees
Apr 2021	Social Media - Facebook post and Tweet - Increasing lamb survival	
Apr 2021	SALRC Newsflash Increasing Lamb Survival Enhanced Producer Demonstration Site	
June 2021	One-on-one lambing review sessions aimed to help members explore and identify areas that may improve lamb survival. (Undertaken when groups were unable to meet, though 1:1 sessions were a possibility)	6 members used this opportunity
Sep 2021	Lamb autopsy workshop on-line	8 attendees Score: 8.8/10
Feb 2022	Presentation to group - Year 3 results	8 attendees
Mar 2022	' Newsflash ' newsletter article - Final year of producer demonstration site shows management can influence lamb survival	Circulated to 3,500 subscribers

7.3.4 Adopting accelerated beef finishing systems using grazed fodder beet crops

	Date	Activity	Producer attendances	Service providers
Website	Nov 2019	Factsheet on AgVic demo webpage		
Group session	Jun 2019	Initial group briefings with Mudgegonga based group members	10	1
Group session	Jul 2019	Initial group meetings with Upper Murray based group members (with Pasture Genetics representative)	7	1
Group field work	Nov 2019	Collection of trial seeder and sowing of Murrumbidgee site	2	2
Group update	Jan 2020	Summary results distributed to group - Year 1 results	34	1
Paddock walk	Apr 2021	Paddock walk/site inspection at Murrumbidgee. CV19 travel restriction made it impossible to access Shepparton site	8	1
Media	Apr 2021	Fodder beet article Beef Sheep Newsflash article	Circulated to 3,500 subscribers	
Media	May 2021	SALRC Newsflash		
Social media	June 2021	Social Media - Facebook post and Tweet – Use of fodder beet		
Group field work	Oct 2021	Collection of seeder and sowing of Towong site (attended by local agronomist)	3	2
Debrief	Jun 2022	Debrief with host farmer and local agronomist	2	1
Factsheet	Sept 2022	Final summary distributed to all group members	35	2

7.3.5 To wean or not to wean

Date	Activity	Producers	Service providers
Jul-19	Condition score and FOO assessing workshop	7	1
Feb-20	Presentation to group - Year 1 results	8	1
Jun-20	Online presentations to Boort, Campaspe Lamb, Maryborough and Timmering BestWool/BestLamb groups	30	1
Apr-21	Presentation to group - Year 2 results	11	1
May-21	‘Newsflash’ newsletter article - Year two demonstration trial results confirm survival management strategies		
Jun-21	Social Media – Twitter and Facebook post -To wean or not to wean webinar promotion		
Jun-21	To wean or not to wean results webinar	60	3
Jun-21	Radio interview to promote results		
Sep-21	Social Media - Facebook post -To wean or not to wean		
Apr-22	Presentation to group - Final results	3	1




7.3.6 Using soil moisture probes to predict winter/spring Pasture Growth

Date	Format	Producer attendances	Service Providers
Oct 2019	Presentation (Central GSSA)	20	5
Aug 2019	Paddock walk (Central GSSA)	12	1
Oct 2019	Article		
Apr 2020	Presentation (Hamilton)	40	7
Apr 2020	Article		
May 2021	Presentation		
Jul 2021	Webinar – Soil moisture pasture forecasting	67	
Aug 2021	Article – spring whoosh		
Aug 2021	Webpage – Feeding Livestock webpage article		
Sep 2021	GSSA Newsletter article		
Dec 2021	GSSA Newsletter article		
Dec 2021	Article		
	Presentation and discussion (Pigeon Ponds)	6	3
Feb 2022	Presentation and discussion (Drik Drik)	7	3
May 2022	Presentation- GSSA group (Western Vic)		
May 2022	Webinar – Probing soil decisions	41	3
Jul 2022	Webinar – Probing soil decisions (Baynton)	9	3

7.3.7 Drones for monitoring sheep welfare

	Date	Details	Producer attendances	Service Providers
Group meeting	Sep 2018	Group meeting with drone update-planning	8	1
Group meeting	Mar 2019	Group meeting with drone update	8	1
Group meeting	Apr 2019	Group meeting with drone update- drone training day	8	1
Group meeting	Jul 2019	Group meeting with drone update	5	0
Group meeting	Apr 2020	Group meeting with drone update	6	0

Group meeting	Apr 2020	Group meeting with drone update	8	0
Group meeting	May 2020	Group meeting with drone update- first year results	11	2
Group meeting	Jun 2020	Group meeting with drone update- drone video footage	8	0
Group meeting	Dec 2020	Group meeting with drone update- farmer update	2	0
Group meeting	Mar 2021	Group meeting with drone update- summer use update	6	0
Group meeting	Feb 2022	Group meeting with drone update	7	0
Field day	Apr 2022	Drones and Ag Tech field day - Boort	20	3
Field day	Jun-22	Drones and Ag Tech field day - Boort	30	3
Update	Jun-22	Service providers update	0	8
Presentation	May-21	AgTech and farm safety session	49	14
Presentation	Apr-22	BWBL coordinators conference- drones demo presentation		25
Social media	July 2020	FACEBOOK POST https://www.facebook.com/search/top/?q=Agriculture%20Victoria%20drones&epa=SEARCH_BOX TWEET If using drones to enhance your sheep welfare is something you'd like to explore, then we'd love to hear from you. Learn more by contacting erica.schelfhorst@agriculture.vic.gov.au		
Media	Aug 2020	Beef Sheep Newsflash https://dbiweb.createsend.com/campaigns/reports/viewCampaign.aspx?d=r&c=773D828888450023&ID=4E0B692F9AF1E13C2540EF23F30FEDED		
Social media	Aug 2020	The Victorian Connection and social channels The Victorian Connection: https://connection.vic.gov.au/farmers-add-drone-pilot-to-skill-set Twitter: https://twitter.com/VicGovDJPR/status/1295246516521705472?s=20 LinkedIn: https://www.linkedin.com/feed/update/urn:li:activity:6701012208719159297		
Spin off articles (9)	Aug 2020	Loddon Mallee News Countrynews.com Aug 23 https://www.countrynews.com.au/news/2020/08/23/1530448/boort-farmers-test-whether-using-drones-to-monitor-stock-saves-time-and-money Stock & Land Aug 24 https://www.stockandland.com.au/story/6891844/can-drones-replace-the-attentive-eye-of-a-farmer/		

		<p>Stock journal Aug 24 https://www.stockjournal.com.au/story/6891844/can-drones-replace-the-attentive-eye-of-a-farmer/?cs=4861#!</p> <p>Farmonline 24 Aug https://www.farmonline.com.au/story/6891844/can-drones-replace-the-attentive-eye-of-a-farmer/</p> <p>WarrackHerald.com Aug 25 https://www.glonabot.net/related-articles/pilot-program-uses-drones-to-monitor-sheep-warracknabeal-herald?page=0</p> <p>wimmeramalleenews.com Aug 25 https://www.wimmeramalleenews.com.au/rural/pilot-program-uses-drones-to-monitor-sheep</p> <p>North Queensland Register Aug 24 https://www.northqueenslandregister.com.au/story/6891844/can-drones-replace-the-attentive-eye-of-a-farmer/?cs=4770</p> <p>World Air News – Africa – Sep https://www.airnews.co.za/EMagazine/2020/September/World%20Airnews%20September%202020%20Edition.pdf</p>		
Radio	Sep 2020	 <p>LibbyPrice_radio 07092020.mp3 Libby Price - Country Today/Ace Radio</p>		
Radio	Sep 2020	 <p>WarwickLong_radio 00092020.mp3 Victorian country hour - Warick Long</p>		
Media	Sep 2020	<p>AgriLand – Ireland 3 September https://www.agriland.ie/farming-news/could-drones-play-a-part-in-sheep-management-australian-trial-underway/</p>		
Media	Oct 2020	<p>https://www.fginsight.com/news/australian-project-trails-drones-as-a-shepherding-aid-113175</p>  <p>UK farmers guardian article 202</p>		
Internal	Nov 2021	<p>30 sec Youtube https://youtu.be/mUrfBrv_8rU</p> <p>60 sec Youtube (not used in the end) https://www.youtube.com/watch?v=2ZX2Wgr7-Mg</p>		
Media (3)	April 2022	<p>Melody Labinsky National machinery & agtech writer ACM</p> <ul style="list-style-type: none"> • Stock and land 		

		<ul style="list-style-type: none"> • Theland.com.au • Farmonline.com.au 		
Media	Apr 2022	Beef Sheep Newsflash https://agriculture.vic.gov.au/_data/assets/pdf_file/0007/857347/GroupProfile-BWBL-Boort-April-2022.pdf		
Radio	June 2022	https://www.abc.net.au/radio/programs/vic-country-hour/victorian-country-hour/13906530 ABC interview broadcast on Vic country hour		
Ag Vic Website video	June 2022	Tips on how to use or not use a drone video Article on same topic		
Podcast	Jun 2022	Completed – not yet published		

7.4 Appendix IV Sample Phase 1 review interview questions

Interviewers Name _____ Interview Date _____

For Section 1 – Please complete as much as possible before the interview.

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 xxx demonstration, funded by Meat and Livestock Australia & Agriculture Victoria.

This is one of 8 demonstrations aimed at giving producer groups an opportunity to test a practice or technology on-farm to see first-hand whether it had application for their own properties.

Your information will be confidential and you will not be identified as an individual in our results. Do you consent to having this information recorded?

Yes No

Section 1 – activity and client details

* Activity Name

* Facilitator/Presenter (*Name of facilitator/presenter of the workshop/activity*)

* Client Name and Role (*Farm Owner or Manager*)

* Involvement

Demo host

Group participant

* Property Size (*Ha*)

* Livestock on Farm (*Type and Number*)

Section 2 – about the demonstration (recap)

The purpose of the demonstration was to provide an opportunity for the group to test (demo name) and see firsthand whether it could be used by individuals within the group.

Demo	Objectives
Autumn saving	<ul style="list-style-type: none"> Understand the benefits of autumn savings including the effect of deferred grazing on pasture production Understand pasture targets for lambing Assist to manage containment feeding Increase knowledge of pasture assessment (FOO)
Innovative use of Gibberellic Acid	<ul style="list-style-type: none"> Understand impact of GA on winter feed production & quality in perennial pastures

	<ul style="list-style-type: none"> • Understand application rate, timing, frequency & conditions (ie best way to boost winter growth). • Understand impact of GA on annual grasses
Pedigree MatchMaker	<ul style="list-style-type: none"> • Understand productivity benefits from recording pedigree information. • Understand benefits of using electronic tags for animal ID & management • Use panel reader to ID, record & manage cattle • Use PMM system
Shelter options for increasing lamb survival	<ul style="list-style-type: none"> • Measure and monitor reproductive performance • Understand impact of shelter on reducing lamb mortality- allocating paddocks to lambing ewes • Establishing more shelter on farms (hedgerows TWG? Or trees)
Feeding systems for growing lambs	<ul style="list-style-type: none"> • Monitor ewe condition • Monitor and allocate pasture feed • Maximise lamb growth rates to turn off more slaughter lambs before end of spring flush • Join ewes lambs self-replacing flocks
Pasture cropping to fill the winter feed gap	<ul style="list-style-type: none"> • Establish, manage and harvest a cereal crop sown into perennial pasture (pasture-crop). • Using pasture cropping to fill the winter feed gap • Recognise and monitor growth stages of cereal crop & when to stop grazing • Impact on yield of grazing compared to not grazing pasture/crop • Use pasture cropping to improve perennial pastures
Weaning strategies (cattle) for improved productivity	<ul style="list-style-type: none"> • Equip producers with advanced livestock handling skills • Improve growth rates of weaners through yard training • Quieter cattle • Improved Occupational Health and Safety from improved handling techniques and quieter cattle

2.1 What was your involvement in the demonstration?

(Please detail) eg host producer, group participant, attended field days (how many)

Section 3 – changes

*3.1 What changes have you made to your farming business or practices as a result of participating in the demonstration?

Yes

In the process

No (go to 3.3)

(Please outline) see examples below...

Autumn Saving – developed a containment area? Started containment feeding? Started autumn saving? Altered existing set up? Altered management of containment area? Altered pasture/ grazing management or monitoring?

How often are you autumn saving?

Innovative use of GA – Use GA (how often, what type of pasture?). Other changes to pasture management or monitoring?

Pedigree MatchMaker – Recording pedigree information? Purchased a panel reader or EID equipment? Using ID to record & manage cattle? Use PMM system?

Shelter options – established shelter belts of hedgerows? Allocating sheltered paddocks to twinners/ lambing ewes? Started monitoring pregnancy status?

Feeding systems for growing lambs – Monitoring/ managing ewe condition? Scanning? Better allocating pasture feed? Use of EID to track lamb growth rates? Join ewes lambs? Turn lambs off earlier?

Pasture cropping to fill the winter feed gap – Sowing crop into pasture? (how often/ what circumstances/ what area?) Graze the crop/ pasture? Harvest the crop? Other cropping strategies? Other strategies to fill winter feed gap? Similar strategies to improve perennial pasture?

Weaning strategies (cattle) for improved productivity – Use of any advanced livestock handling skills? Yard weaning? Other strategies/ changes adopted after the demo & training?

(Please ask for details e.g. scale, are they complete? When?- are they doing anything differently?)

***3.2 Are there other changes planned? When do expect to make them? Go to 4.1**

(Further details)

***3.3a Is there a reason why you have not made any changes as a result of the demonstration?**

Workshop/event reinforced the practices I already undertake
not relevant to my situation/ why?
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
Big change to undertake
Idea didn't stack up on further reflection
Other priorities ie other changes more important
Unfavourable seasons
Other
if no - why not? (if not already clear from previous answer)

3.3b Reasons for no change (go to 5.1)

Please add details for answers

Section 4 – benefits from changes

***4.1 What benefits are you seeing from these changes? Or do you expect to see?**

(Please outline?)

(please ask for details of productivity benefits and quantify if possible e.g. save 'x' hours a week in time, increase lambing % by 'x', increase lamb turnoff weights by 'x' kg etc)

- None
- Easier management
- Reduced costs
- Increased production
- Improved lambing %
- Improved livestock growth rates
- Improved pasture quality
- Improved pasture growth
- Faster lamb turn-off time
- Increased income
- Decreased expenses
- Time saved/more time for other things
- Feel more in control/Less stress
- Manage risks on farm
- Better decision making
- More timely operations on farm
- Safer work place
- Other

Comments:

***4.2 What is your best estimate of the additional annual profit this change will generate for your business? (\$**

value and include range if applicable)

(Please outline?)

***4.3 Would you still have made this change/ be making this change if you had not participated in this demonstration?**

Yes

Yes, but later

Not sure

No

(Please outline?)

Section 5 – other feedback

***5.1a How would you rate the value of the demonstration for helping you understand the practice/ technology**

	Not valuable					Extremely valuable				
Circle a number:	1	2	3	4	5	6	7	8	9	10

(comment?)

5.2b Was there other information resources or activities that assisted you to implement changes?

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

5.3 What were the benefits of being involved in the demonstration? (what worked well?) What did you learn?

(Please outline?)

5.4 Were there benefits for the BWBL/ BBN group?

Yes

No

(Please outline?)

5.5 What surprised you about the demonstration?

(Please outline?)

5.6 What aspects of the demonstration could be improved? (Anything you'd like to see more of? Less of?)

(Please outline?)

5.7 Anything else you would like to add about the demonstration?

(Please outline?)

Thank you for considering these questions and agreeing to a follow-up interview