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# Profitable Grazing Systems - MLA's Extension and Adoption pilot project

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# Executive summary

MLA's flagship extension and adoption programs of the past seven years, Making More from Sheep and More Beef from Pastures are scheduled for completion at the end of 2016. Coinciding with this is a desire from MLA to achieve a measureable impact on red meat business profitability via delivery of extension and adoption programs in a landscape of limited public extension provision. MLA's 2014 situation analyses of the profitability of the northern beef, southern beef and sheep industries identified increased business profitability can be achieved through capability development targeting key profit drivers and financial literacy and management.

The purpose of MLA's Extension and Adoption (E&A) pilot project was to enable an informed and evidenced based redesign of the delivery methodology and platform for MLA's principal extension and adoption program to achieve MLA's objectives of skill development, practice change and adoption, and improved business performance, linked with a measure to manage, whole farm systems approach and linkages with value chain. The vision for a future extension and adoption program is:

*A financially sustainable extension and adoption program aligned to MISP 2020 and MLA 2020 targets that extends MLA R&D outputs and achieves increased producer skills and capability, practice change and whole farm business improvement through increasing producer understanding of:*

***Business profit = management capability + evidence + value chain approach***

There were three key stages to the E&A pilot project:

1. Development of curriculum across five knowledge pillars driving business profit (business, feedbase, reproduction and genetics, value chain and people) segmented across the red meat industry sectors (southern sheep and beef, northern beef and goats);
2. Delivery of a E&A pilot project to trial a supported learning methodology. There were ten pilot groups across the country, covering the different industries and knowledge pillars.
3. Development of a business plan which includes clear Key Performance Indicators (KPIs) for an E&A program to transition from red meat extension delivery today to a financially self-sustaining model able to clearly demonstrate increased capacity of producers (skills and knowledge), practice change and improved business performance.

Data and intelligence from stages 1 and 2 were used to inform stage 3. The E&A pilot project also included the delivery of a service provider survey, widely distributed to industry to gain a better understanding of potential barriers and incentives for service providers in engaging with MLA's proposed adoption program.

In order to contribute to the MISP / MLA 2020 target, the proposed adoption program objectives are:

1. To increase the average profitability of participating red meat producers by 2.5% ROAM by improving their skills and capability by 2022.
2. Adopting a commercial model which involves user pays for the private good component of the extension activity (generally the delivery), with MLA contributing a maximum of 30% of the delivery cost of supported leaning projects.
3. 5,000 producers attend feeder activities by 2022 with 10 -15% of them going on to participate in a supported learning project
4. 2,800 producers participate in supported learning projects to increase their skills and knowledge by 2022:
    a. 75% (of 2,800) increase their skills and knowledge above a skills audit score of 75% (competent);
    b. 50 deliverers have increased capability to a point where they can deliver effective high quality supported learning projects;

c. Increase the average confidence rating of participating producers to use key skill sets or do key tasks to greater than 8/10;
d. At least 70% of participating producers have made practice changes, which are underpinned by a change in skills.

Feedback throughout the E&A pilot project from producers, service providers, peak industry councils and industry stakeholders has been overwhelmingly positive about the vision that MLA has for delivering extension and adoption activities in the future, and their desire to be more commercial in the delivery of extension and adoption activities. The need to produce real and measurable impact on business performance through extension and adoption, and the potential for a massive step-change for the red meat industry is widely recognised.

However, this E&A pilot project has provided clear evidence that there is a broad lack of confidence across industry to transition to a commercial user pays model for extension and adoption services, a lack of deliverer capacity to deliver supported learning projects and a large gap between perception and reality in regards to the value of monitoring and evaluation (M&E). On this basis, the implementation model for the proposed adoption program will take a long term, strategic approach which is phased over a ten year period, enabling strong foundations to be set in the first five years, with a focus on building deliverer capability, transitioning industry to full user pays for extension and adoption services by 2027 (10 year implementation period).

It is recommended that the proposed adoption project be overseen by a small Steering Committee, and delivered via a coordination team of a lead (program) coordinator with state based coordinators (one of whom should also be responsible for M&E). It is essential that the program coordinator be embedded within MLA to ensure the best possible pull through, linkage and consistency with MLA's research and development (R&D), E&A and value chain activities.

Engaging a deliverer leadership group is recommended to support the coordination team and provide mentoring and support to deliverers, to enable them to upskill to use a supported learning approach. While the majority of service providers are highly technically competent, the capability of most to deliver extension programs using a supported learning methodology is limited. To ensure the success of the proposed adoption program there must be a strategic approach to upskilling service providers to be able to perform as supported learning project deliverers.

The key recommendation regarding MLA investment into extension and adoption are based on MLA investing only in the industry good component of activities. Producers should invest in the private good component. A framework for MLA investment into extension and adoption activities (including service provider support, recruitment, support supported learning project delivery, learning package development and monitoring and evaluation) has been developed based on the principles of public / private / industry benefit and information gained during the E&A pilot project, and it is strongly recommended that this framework is implemented across all of MLA's extension and adoption activities, to ensure consistency.

The curriculum packages developed as part of this E&A pilot project, will form the basis of quality assurance for supported learning packages, in addition to providing a valuable resource for deliverers in developing supported learning packages which are tailored to the needs of individual groups.

Effective monitoring and evaluation (M&E) is essential to facilitate the delivery of a high quality E&A program which is meeting KPIs, achieving the vision, has deliverers actively engaged and embracing a continuous improvement ethos in their delivery, and can inform producers of the impact of their investment in learning. Hence, M&E is an integral component of overall E&A program quality

assurance, to enable differentiation of this program from other extension activities, in addition to enabling the impact of the program to be measured. Implementation of a red meat industry Farm Monitor project will be essential to capture the ultimate impact of the program on the business performance of participants.

It is clear from the E&A pilot project that recruitment of producers is a key issue for potential deliverers, and that coordinated and effective assistance from MLA would be highly valued. Ultimately, effective engagement of producers requires selling them a value proposition which resonates with them and which they are prepared to act on (invest in). While developing a value proposition is the responsibility of deliverers, MLA can provide significant support to enable them to do this effectively. It will be valuable for MLA to actively manage producer recruitment, as it will ensure strong linkages and consistency between all of their programs, including R&D.

Transforming the red meat industry approach to investing in extension and adoption is a significant undertaking for MLA, and will challenge the status quo and be somewhat disruptive. The proposed adoption project will deliver major benefits after 5 years, with an upfront investment in deliverer capability, but to achieve the full benefits involves long term commitment, and will be essential to achieving the desired outcomes.

Building on the legacy of previous MLA extension and adoption programs, the E&A pilot project has provided valuable intelligence into the business plan and informed the design of an extension and adoption program to overcome the challenges in the extension and adoption landscape, transition industry to a more commercial culture and deliver the productivity and profitability gains MLA and the red meat industry aspire to.

# Table of contents

## Figures

## Tables

# 1 Introduction

## 1.1 Project background

The Australian extension landscape is rapidly changing and key support services and capacity previously available to the red meat industry is becoming limited. The "*National Blueprint for Future Sheep and Beef Extension Co-investment"* (Hogan, 2013), found that since 2009 there has been a further 25% decline in state agency extension resources and that the private sector is constrained in being able to fill the void. MLA's traditional extension programs have relied heavily on public sector extension services as the primary delivery channel. Declining effectiveness of the public sector as state jurisdictions withdraw from extension has likely impacted the level of practice change and impact achieved by red meat industry uptake of MLA's R&D outputs.

The changing delivery landscape, has led MLA to having greater reliance on the private sector for coordination and delivery of its major extension programs. However, these models were not designed to provide commercial value for private providers or invest in private sector capability to support industry practice change and pull through MLA R&D in sustainable commercial business models.

In addition, MLA's previous role as wholesaler of R&D information and tools did not provide commercial value for producers or private service providers, or support transformational industry change and impact. The wholesaler model was effective in broadly engaging large numbers of producers with information, on the assumption that producers with increased awareness of R&D outcomes would be able to adopt and benefit from R&D outcomes. MLA's focus as a wholesaler of R&D outcomes means that a high level of impact on farm business performance has typically not been the primary driver behind the design of past extension and adoption programs. Consequently, past extension programs have engaged large numbers of producers, but have mostly achieved improvement in producer knowledge, skills and confidence (Howard et al 2014). The wholesaler model thinly spread MLA investment across a broad number of producers, meaning real practice change in those producers willing to change and resultant industry impact were the trade-off.

The role of previous extension models, combined with diminishing key support services and capacity, has potentially impacted the level of practice change and potential gains in producer business profitability and productivity achieved. Additionally, as noted by Howard and Ferrier (2013), in the farming business context gaining skill and knowledge is not enough to ensure practices change on farm. A complex interplay of factors exists in farming businesses that can prevent good ideas and new practices being adopted. Howard et al (2014) also observed that simpler changes were more easily and quickly adopted than more complex changes, and simpler changes were more directly attributed to the workshop the producer participated in, whereas more complex changes were completed over longer periods with more influences contributing to the change. Making More from Sheep (MMfS) and More Beef from Pastures (MBfP) Category C (practice change) events had a higher proportion of farmers either 'intending to make a change' and/or 'already made a change' compared with Category B and A events - it was surmised that this was because the Category C events were usually delivered over a series of days or months and thus allowed participants time to implement changes (Howard et al 2014).

Key studies commissioned by MLA including Howard and Ferrier (2013), Howard et al (2014) and McRoberts (2015) highlighted some weaknesses with MLA's past approaches to extension:

- Investment not designed to achieve transformational change in industry
- Industry's role as a wholesaler doesn't provide a commercial value proposition
- Linear system does not allow for effective integration of extension with research
- Lack of investment and strategy to build the capacity and capability of the service delivery sector

- Cultural issue of a lack of willingness to pay (or perception)
- Lack of consistent and robust monitoring and evaluation to demonstrate industry impact

Despite the weaknesses of previous programs, they have resulted in a number of positives which can be built upon in designing and delivering the proposed new E&A program. These include robust monitoring and evaluation processes and acceptance of these by deliverers, and increased awareness of red meat producers of the key technical areas that drive farm business profit.

MLA's 2014 situation analyses of the profitability of the northern beef, southern beef and sheep industries identified increased business profitability can be achieved through capability development targeting key profit drivers and financial literacy and management. In addition, the Meat Industry Strategic Plan (MISP) 2020 identified that "*the capability and profitability of our industry are intrinsically linked. We must continue to build a performance culture and business skills throughout our industry. This includes providing and packaging information and training to support informed and business-oriented decision-making by all participants, especially in the production sectors*."

With MLA's flagship extension and adoption programs, MMFS and MBFP, in their final year of delivery, MLA wished to take the opportunity to redesign their approach to supporting extension and adoption, to address the changes in the extension landscape and build on past successes. Their key goal was to deliver a program where the core objective was to increase adoption of new practices or skills which would result in improvements in farm business performance. Other considerations in the design of a new program were:

- To build on past successes
- Focus investment on those willing to change
- Stop spreading out investment too thinly
- Invest in transformational change
- Focus on a value chain approach and utilising data
- Invest in delivery, primarily through building deliverer capacity
- Change the culture (and perceptions) around user pays
- Robustly monitor and report on performance

### 1.1.1 Supported learning

Extension and adoption programs have historically focussed on ***what*** the best producers do differently and promoted this to the masses. Over time there has been significant uptake but limited benefit – "more producers doing the right things the wrong way". To radically improve the return from extension and adoption programs focus on a methodology that involves increasing the amount of producers doing the right things the right way is needed – i.e. learning the ***how*** of the best producers. This is very often linked to skill development because unlike many other businesses primary production is complex (people, plants and animals) and is set in a very dynamic and leaky environment (climate, seasonality, weather, soils and the economy). Because of this dynamism primary production and business performance is almost entirely a function of managerial competency or skilfulness. Skill development is the factor that allows producers to capitalise on new technologies and techniques such that the change in practice is associated with improved business performance. Since skill development has been clearly shown as a key profit driver this is the major focus of the MLA's proposed adoption program. Managing the following parameters accounts for around 70-80% of farm business profit (McEachern et al, 2016):

a. The animal-plant interface (pasture and nutrition management)
b. People (labour use efficiency)
c. Cost of production

To successfully manipulate the KPIs linked to these areas to improve business performance red meat producers require skill development (Northern and Southern Beef industry situation analysis and Lamb industry situation analysis). The proposed adoption program is based on skill development using a supported learning approach.

In order to develop skills, both theory and practice are required. In order to practice the right things, the right way, some level of support (generally coaching) is necessary. This provides an opportunity to practice the skills and to implement and refine them in the farming system increasing confidence and capability.

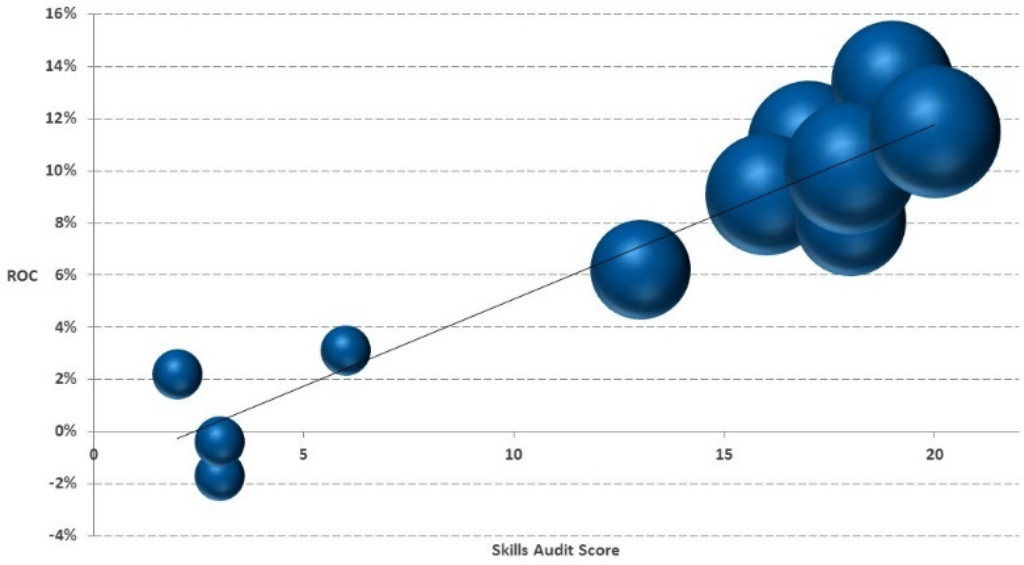


**Figure 1: The link between profit skill and the time spent in supported learning (Doonan, 2012)**

The size of the spheres represents the time spent in supported learning activities. The smallest spheres represent 1 year, the next size up 2-3 years and the largest spheres more than three years. Clearly training and the associated improvement in capability increase business performance.

Supported learning is an expensive delivery model (generally supported learning takes more time to deliver, over more sessions and usually, but not always, works with smaller groups of participants), compared to one off workshops or field days or information sessions. It should therefore only be used where skill development is key to lifting profit.

## 1.2 Industry profitability targets

Both the MLA Strategic Plan (2020) and Meat Industry Strategic Plan (MISP) include goals which MLA's E&A programs must contribute towards achieving, and these have been key considerations in the development of the revised approach to Extension and Adoption.

**Meat Industry Strategic Plan (MISP) - Productivity and Profitability in red meat and livestock enterprises**

**Objective:** Minimum whole-of-sector increases in productivity growth above baseline levels:

- Northern beef production sector: 0.5% by 2020 and 2.5% by 2030
- Southern beef production sector: 1.75% by 2020 and 7% by 2030
- Sheep meat production sector: 1.5% by 2020 and 5% by 2030
- Goat production sector: 0.5% by 2020 and 2.5% by 2030

**MLA Strategic Plan (2020) - Pillar 4 Productivity and Profitability**

**KPI:** Engage ≥ 2,000 producers in decision support programs who will improve business performance by ≥ 5%

By 2020, improvement in total factor productivity of:

- 1.75% (southern beef);
- 0.5% (northern beef);
- 0.5% (sheep meat);
- 0.5% (goat)

MLA determined that a supported learning approach had the greatest probability of success in achieving practice change and adoption, and this would be a preferred delivery model for their E&A programs in the future (Figure 1). The supported learning model would be combined with building the capability of the service provider network, and both would be tightly linked to the MISP and MLA targets, via robust monitoring and evaluation systems (Figure 1). The core pillars for the program were based on the areas of business that had greatest impact on farm business performance, feedbase; business; reproduction and genetics; value chain; people, confirmed in McRoberts (2015). The key to the program is that data (evidence) and management capability combine to influence business efficiency and profitability, along with a value chain and whole of system approach – and that ultimately the business manager must take responsibility for this.

## 1.3 E&A pilot project purpose

The purpose of MLA's Extension and Adoption E&A pilot project was to enable an informed redesign of the delivery methodology and platform for MLA's principal extension and adoption program to achieve MLA's objectives of skill development, practice change and adoption, and improved business performance.

For convenience during the E&A pilot project, the program was named Profitable Grazing Systems (PGS). Throughout this report it is referred to as the E&A pilot project.

## 1.4 E&A pilot project objectives

- Develop and deliver the Business Plan for a 5 year delivery program including objectives, KPIs and measures of success that will deliver on the relevant MISP 2020 and MLA objectives. Plan to include staged implementation plan for delivery to an agreed number of producer participants over the life of the program.
- In consultation with MLA, key service providers and deliverers, develop and tailor the extension program package from the national framework, for northern cattle and southern cattle, sheep and goat systems.
- Identify product, tools and information gaps in the program package and make recommendations to MLA on approaches to address the gap based on a thorough assessment of the resources and how they may need to be adjusted or expanded to be applicable to all species.
- Pilot the capacity building methodology with 10 groups in locations representative of the target production systems (potentially 4 southern, 4 northern and 2 western), including engaging and training/supporting a cohort of coaches over a 6 month period.
- Establish and implement cost efficient and effective models for the identification and recruitment of producers, and the training/support of up to 10 coaches to deliver supported learning projects. Implicit will be identifying the compelling value propositions for

engagement by all stakeholders and detailing a recommended process for coach quality control.
- Establish and implement cost efficient and effective models to support coaches during the pilot phase particularly for rangeland and northern systems and provide recommendations for a process for upskilling coaches inthe package based on the pilot experience.
- Use an iterative process with coaches and producers to refine the training and delivery method, and producer package.
- Consult with E&A pilot project deliverers and producers to establish product price point and producer willingness to pay and make recommendations for the 5 year delivery program.
- Assist MLA to create a network of advocates and champions, including MLA regional consultation committees and the Goat Industry Council of Australia (GICA) to promote and create a "word of mouth" channel for engaging producers.
- Assist MLA to scope and engage program partners and collaborators.
- Conduct robust program monitoring and evaluation, including cost benefit analysis to inform a business case for a 5 year delivery program.

Additionally, the project team were tasked with delivering the following outputs:

1. An evidence based 5 year business plan addressing program objectives, KPIs, communications plan, MER plan and risk analysis. Include a staged implementation plan for delivery to an agreed number of producer participants over the life of the program.
2. Standard curriculum (tentatively based around business profit drivers of business management, feedbase, reproduction and genetics, value chain and people) and package structure, tailored for delivery in northern and southern (includes southern WA) red meat systems and recommendations for package delivery including (mix of compulsory and voluntary content/modules).
3. Delivery of a coaching support package which includes coach quality control.
4. Implementation and delivery of a 6 - 12 month pilot phase.
5. Evaluation of the E&A pilot project performance including baseline measurements, cost benefit analysis and recommendations for improvement and expansion.

## 1.5 Proposed adoption program vision

A financially sustainable extension and adoption program aligned to MISP 2020 and MLA 2020 targets that extends MLA R&D outputs and achieves increased producer skills and capability, practice change and whole farm business improvement through increasing producer understanding of:

**Business profit = management capability + evidence + value chain approach**

### 1.5.1 Proposed adoption program principles

The proposed adoption program will be an extension and adoption program which:

1. Skilled & confident producers adopting practices that deliver whole farm business performance improvements through evidence driven decision will embrace a culture of monitoring, measuring & managing.
2. Driven by market outcomes and encouraging industry to be customer focussed and market driven.
3. Work with producers that are willing to invest in improved business performance and professional development.

4. Support capacity and capability building of the service sector to enable development and delivery of effective, high quality, regionally adapted supported learning projects using sustainable, commercial business models.
5. Built on robust monitoring and evaluation systems to enable skill development, practice change and industry impact to be measured.
6. Complement and value-add to existing programs and services, whether delivered by the private or public sector.
7. Provide commercial value to both producers and deliverers, embedding a culture of producers valuing extension services (user pays).
8. Extension of new and past MLA beef, sheep and goat research and development outputs, and utilise previous extension programs and packages.

# 2 Methodology

There were three key stages to the Extension and Adoption E&A pilot project:

1. Development of curriculum across five knowledge pillars driving business profit (business, feedbase, reproduction and genetics, value chain and people) and across the red meat industry sectors (southern sheep and beef, northern beef and goats).
2. Delivery of a E&A pilot project to trial a supported learning methodology. There were ten pilot groups across the country, covering the different industries and knowledge pillars. Of particular interest were a) addressing the challenges of engaging producers and delivering supported learning in northern Australia where remoteness and technology availability are among the challenges, and b) attracting, resourcing and retaining deliverers, Australia-wide.
3. Development of a business plan which includes clear KPIs for an E&A program to transition from red meat extension delivery today to a self-sustaining model able to clearly demonstrate increased capacity of producers (skills, information and knowledge), practice change and improved business performance. The model will demonstrate a high benefit- cost- return, and be clearly attributable to MLA's investment in activity development and promotion.

Data and intelligence from stages 1 and 2 were used to inform stage 3.

## 2.1 Steering Committee

### 2.1.1 Steering Committee role

A Steering Committee with broad representation was established to provide strategic direction and oversight of the program development to ensure it met MLA Board and stakeholder expectations. The Steering Committee role was as follows:

- provide strategic guidance to the project managers including direction of the program vision and outcomes;
- provide project oversight and review progress to ensure the project meets MLA Board and industry expectations;
- provide high-level technical advice based on knowledge and experience to ensure the project is based on best practice extension methods;
- provide high-level guidance and review of the Business Plan including review of cost benefit assumptions, transition pathway, and governance structure for Business Plan implementation;
- as required, provide robust and sound advice on risk management and mitigation options;
- ensure good corporate governance in relation to the project;
- advocate for the project within their spheres of influence to assist in achieving the industry-level objectives; and

- utilise their cross industry and sector knowledge and experience to challenge and broaden the thinking of the project team.

### 2.1.2 Steering Committee membership

The Steering Committee comprised:

- Two MLA representatives (including the Chair)
- One collaborative RDC representative
- One northern Australia representative
- One southern Australia private sector representative

The Macquarie Franklin project management team and MLA project manager sat on the Steering Committee in an ex-officio role. Three Steering Committee meetings were held during the life of the project.

## 2.2 Monitoring and Evaluation

A peer reviewed Monitoring, Evaluation and Reporting (MER) plan was developed for the E&A pilot project. The key objectives of the MER plan were:

- To collate meaningful baseline data and from these determine program KPIs, funding structures, and budget requirements;
- To inform the cost-benefit analysis for the business plan;
- To generate qualitative data to inform the delivery platform and approach in the Business Plan (e.g. value proposition for MLA, producers and deliverers, barrier to participation, etc.);
- To ensure that the E&A pilot project was tracking to achieve deliverables.

Additionally, the MER processes and templates established as part of the E&A pilot project have been trialled to provide further input into recommendations for the MER component of the Business Plan. Figure 2 outlines how the different project stages relate to each other from an M&E perspective. Stages 1 and 2 are operating at a data collection and evaluation level, whilst stage three (development of the business plan) synthesises the data collected and analysed during stages one and two into recommendations.

<table>
<tr><td colspan="3">Overarching project delivery – project tracking</td></tr>
<tr><td>1 Curriculum development</td><td>2 E&A pilot project delivery</td><td>3 Business Plan</td></tr>
<tr><td colspan="2">data collection and analysis</td><td>data interpretation</td></tr>
</table>

**Figure 2: M&E activity against the project delivery stages**

## 2.3 Curriculum development

The curriculums (project output 2) were intended to provide a framework for E&A pilot project deliverers in the topics, learning outcomes, learning activities and materials and resources which could be used to deliver an effective supported learning project, and to enable quality control of delivery.

In order to achieve a national standard curriculum across the five key pillar areas (business management, feedbase, people, genetics and reproduction and value chain), and across relevant sectors (southern sheep, southern beef, northern beef and goats) a curriculum working group (CWG) was engaged. The pillars are based on key thematic areas that underlie key profit drivers and were informed by McRoberts (2015). Due to the breadth of technical expertise required a total of eleven experts were engaged, across sectors and pillars, as per Table 1.

**Table 1: Composition of the Curriculum Working Group**

| Name | Organisation | Pillar | Sector |
|---|---|---|---|
| Jencie McRobert & Nigel McGuckian | RMCG | People | All |
| John Francis | Holmes Sackett | Business | All |
| Felicity Hamlyn-Hill | Beef Enterprise Advisory Services | Genetics & reproduction | northern beef |
| Desiree Jackson | Livestock Management | Feedbase | northern |
| Jill Alexander | Applied Ag | Feedbase | northern |
| Trudie Atkinson | NSW Department of Primary Industries | Feedbase, genetics & reproduction, value chain | goats, northern |
| Cam Nicholson | Nicon Rural Services | Feedbase | southern |
| Simon Vogt | Rural Directions | Genetics & reproduction | southern beef |
| Andrew Whale | Livestock Logic | Genetics & reproduction | southern sheep |
| Elke Hocking | Elke Hocking Consulting | Value chain | All |
| Andrew Wilkie | Objective Livestock Marketing | Value chain | All |

Each member of the CWG signed a contract with Macquarie Franklin which outlined the Terms of Reference of the CWG, and their individual deliverables. The key role of each of the members of the CWG was to develop the curriculum for the E&A program for their area of expertise consulting with their peer expert networks and provide input into M&E metrics. However, it was intended that the CWG members work together as much as possible to provide peer review and support in the development of the curriculums, and this team approach was initiated by holding a face to face meeting to establish the group and commence the curriculum development. During the course of curriculum development, a number of webinars and phone hook ups were held either with the group as a whole or sub groups (e.g. feedbase team, reproduction and genetics team). Resources to assist in curriculum development were provided, including a curriculum template which was refined with input from the CWG. Once the final draft of curriculums were prepared, these were circulated to the CWG as a whole for a formal internal review process. Concurrently, the curriculums were also circulated within MLA to obtain technical feedback from within the organisation. Following this step, and on finalising a second draft, an external peer review step was conducted with the pilot supported learning project (Section 2.3), and with Dr Jason Trompf, who was engaged to assist the project team in identifying linkages and overarching package design.

## 2.4 Pilot supported learning project

In order to achieve project outputs 3 and 4 a pilot supported learning project was instigated. The key purpose of the project was not to prove supported learning as a methodology but to explore some of the potential issues including deliverer capacity and capability, the most appropriate delivery platform and support structures for deliverers, recruitment, pricing and alternative funding models, and also to better understand some of the potential incentives and barriers for both deliverers and producers in engaging with a supported learning model.

Due to the tight timeframes, deliverers known to the project team, some of whom had previously delivered supported learning projects and who the project team believed would be capable of delivery of supported learning projects within the timeframes while providing geographic and enterprise spread across Australia, were approached directly. Ten supported learning projects were established as per Table 2. Five of the coaches had previously been engaged by MLA for the Farm300 project, and had previous experience of a coaching model with MLA.

**Table 2: Coaches engaged through the supported learning project**

| Name | Organisation | Pillar | Industry |
|---|---|---|---|
| David Brown | Holmes Sackett | Business/feedbase | mixed species |
| James Whale | Meridian Agriculture | Business/feedbase | beef/sheep |
| Kristy Howard | Inspiring Excellence | Business | sheep |
| Ed Riggall | Consulter | Business/feedbase | sheep |
| Garry Armstrong | Armstrong Livestock Solutions | Feedbase/repro | beef/sheep |
| Simon Vogt | Rural Directions | Feedbase | beef/sheep |
| Desiree Jackson | Desiree Jackson Livestock Management | Feedbase | northern beef |
| Jill Alexander | Applied Ag | Feedbase | northern beef |
| Ian McLean & Simone Parker | Bush AgriBusiness | Business | northern beef |
| Trudi Oxley | Department of Primary Industry and Fisheries, NT | Feedbase | northern beef |

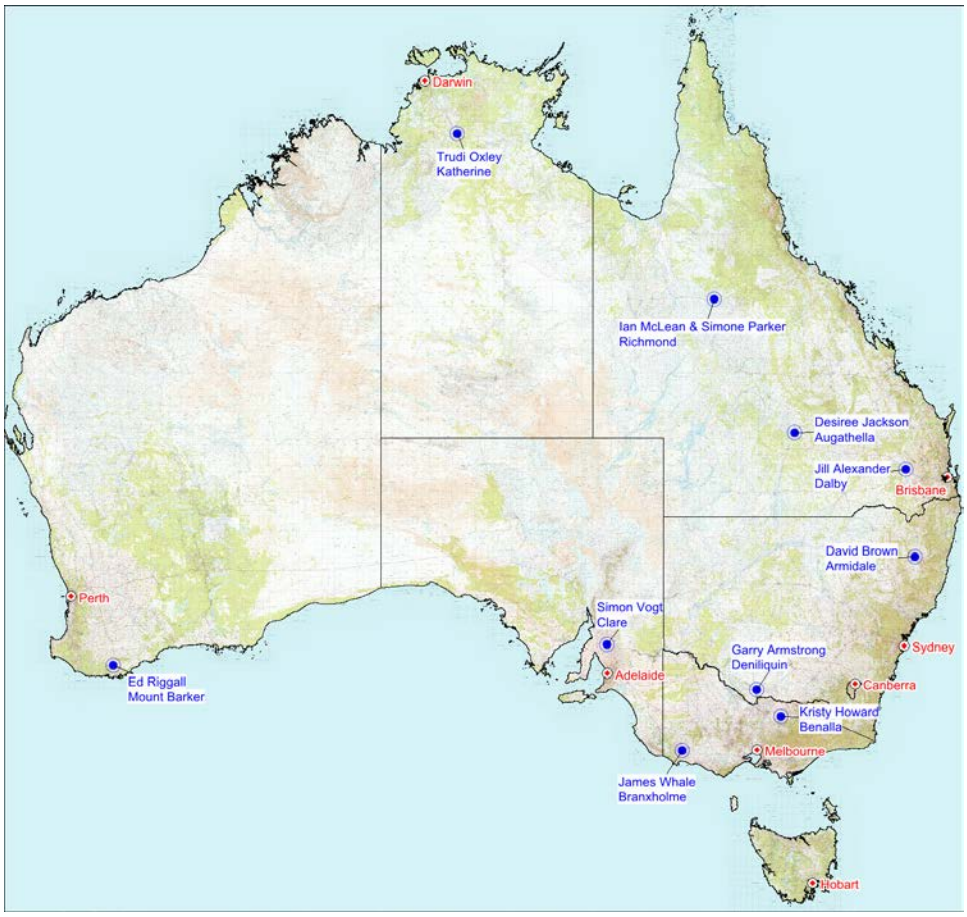


**Figure 3: Location of supported learning project**

The coaches were engaged during March/April 2016, and were provided with a toolkit of resources to assist them in developing their supported learning projects and writing M&E (KASA) questions. An introductory webinar was held for coaches to introduce them to the E&A pilot project, the requirements for coaches and the support available to them. Regular email updates were provided to coaches, and a second coaches' webinar was held in September to provide an opportunity for coaches to share learnings and hear from each other. The support tools and resources provided to coaches are outlined in Table 3– these were additional to a coaches' toolkit which provided an overview of requirements of coaches and guidance on achieving these requirements, and a supported learning project application form – which provided a template for learning project development, and the economic analysis data required from coaches. All coach tools and resources were filed in a Dropbox folder to which all coaches were invited to share. This ensured that all coaches were able to readily access the latest versions of tools and resources.

All coaches developed their own supported learning projects and submitted them to the coordination team for approval. The key criteria which supported learning projects were assessed against were as follows:

- That there was a requirement for a supported learning approach, that is that the project required skill development;
- Repeated content and opportunity to practice skills at different sessions;
- Opportunity for reflection and shared learnings;
- Opportunity for participants to take ownership and commit to change / adoption;
- Linkages between theory, practice, and skill across sessions;
- Participants encouraged to implement learnings in their business;

- Learning activities don't just list the topics which are to be covered at a session, how the theory and skills will be taught is identified;
- Where implementation or practice change takes place there is an opportunity to observe and evaluate outcomes;
- There is opportunity for participants to learn how to undertake marginal cost marginal benefit analysis to support decision making;
- The foundations of the project are based on scientific principles and use an evidence based approach.

All coaches were required to complete pre-project and mid-term skills audits to provide input data to the project business plan. The starting date for the supported learning projects, and therefore the number of sessions that had been delivered between the pre and mid skills audit, was highly variable (ranged between April and early Sept) due to some coaches having groups ready to go whilst others had challenges in recruiting. All the mid-term skills audits were completed in September or the first week of October. The pilot supported learning projects extend beyond the period of data collection for the business plan and will be delivered over a 9 to 12 month period, however the start up timeframes for some projects were tight (or did not align well with the production cycle and/or producer availability). Supported learning projects would normally be delivered over at least an annual cycle, with the session schedule flexing around producer availability (e.g. during busy times such as sowing or harvest, or mustering sessions would not be held). This enables producers to refine their skills, and experience practical application of new skills and knowledge at key times of the production cycle. To give the E&A pilot projects the best chance of success it was believed that they should run over a realistic timeframe as determine by individual coaches. However, all projects were required to conduct a mid-term M&E audit in September to provide data for this report.

**Table 3: Overview of coach tools and templates**

| Tool | Purpose | Use |
|---|---|---|
| ***Project management & project development tools*** | | |
| Economic Model.xls | Used as a proforma to demonstrate a change in profit or productivity. Where coaches have their own tools they may prefer to use these. | Template – optional use |
| Example supported learning project.doc | An example supported learning project, based around a project to upskill producers in pasture and grazing management. | Example – optional use |
| EA Supported learning project template.doc | Part 4 of the coach application form, and also included in the tool kit as a separate document. | Template – compulsory use |
| Learning activities (E&A Coaching).xls | Contains the learning activities developed based on the learning outcomes. Describes the activities that will be undertaken to increase skills and knowledge | Example – optional use |
| Roles and responsibilities (E&A Coaching).doc | A summary of the fundamental responsibilities that the coach must undertake. To be shared with producers. | Template – optional use |

| Tool | Purpose | Use |
|---|---|---|
| Running Sheet (E&A Coaching).doc | Help coaches complete their tasks at each coaching session | Example – optional use |
| E&A intro.ppt | Presentation which outlines the background for the E&A pilot project for coaches to share with participants. Using the presentation is optional, but coaches must provide a context for the project to producers | Template. |
| Curriculum overview.doc | Summary of key curriculum learning topics, learning outcomes and value proposition for participants for each pillar | Draft document for information – feedback or comment welcome |
| E&A glossary_160304.doc | Definitions for learning activities, and other key terms (e.g. productivity, value chain) to ensure consistency in language | Draft document for information – feedback or comment welcome |
| ***M&E tools*** | | |
| EA Skills Audit_precoaching_FINAL_V1.1.doc | A pre supported learning project skills audit populated with set (section A and B) and example (section C) questions | Template & example – compulsory use |
| EA Skills Audit_Midcoaching_FINAL_V1.1.doc | A mid-term supported learning project skills audit populated with example (section A) set section B questions | Template & example – compulsory use |
| EA Skills Audit_postcoaching_FINAL_V1.1.doc | A post supported learning project skills audit populated with example (section A) set section B questions | Template & example – compulsory use |
| Tips for writing skills audit questions | The document gives some advice and suggestions in writing effective skills audit questions. It was developed as part of the MMfS project. | Advice - compulsory use |
| Example skills audit questions | The document gives some example skills audit questions, relating to the different MMfS modules. | Advice - compulsory use |
| Self-assessment (E&A Coaching).doc | Monitoring group and coach performance and to determine if additional support required. For use at all sessions.<br><br>This document was revised in September 2016, to a format to encourage coaches to be more analytical in reviewing their performance | Template – compulsory use |

| Tool | Purpose | Use |
|---|---|---|
| Feedback (E&A Participants).doc | Monitoring coach performance and to determine if additional support required. For use in group sessions | Template – compulsory use |
| E&A M&E data entry template.xls | Excel file which contains worksheets for coaches to record the M&E data they have collected. This is the data that must be submitted to coaches' coordinator to meet milestones. This template should not be modified and data must be entered as per column headings | Template – compulsory use |

The coaches were required to collect M&E data from their participants via pre–supported learning project (completed by producers at the start of the first session) and mid-point (September) knowledge, attitude, skills and aspiration (KASA) audits. These audits were also utilised as an opportunity to obtain further data from producers on incentives and barriers to participation, pricing, and their experience of the coaching model. The skills and knowledge audit questions were populated by coaches, with feedback and review provided by the project coordinator. Additionally, coaches were also asked to collect feedback from producers at every session and to conduct a self-assessment of their own performance following the delivery of each session (this was done using standardised templates). This data was all entered by the coaches into an excel template and submitted to the project coordinator for analysis and feedback.

The coaches were also asked to complete economic modelling on the potential impact of their projects. Given their projects were not expected to affect measurable changes on participant profitability within the timeframe of the E&A pilot project, this was done via coaches' estimating what changes participants could be reasonably expected to make to their businesses as a result of the project, and what impact this would have on production and profit. A baseline scenario (average, typical or example farm business) was then compared with the post-project scenario, to provide the net profit (the improvements accounted for either additional capital expenditure or running costs to achieve them giving a net benefit). The net benefit was then standardised across all projects as increase in Return on Assets Managed. This data was used to assist in calculating the benefit cost analysis for the E&A pilot project (Section 2.6Benefit cost analysis).

The coaches were funded $20,000 each for their participation in the E&A pilot project, including collecting and providing M&E data from producers and themselves. They were also asked to provide detailed information on pricing and income for their supported learning projects to feed into development of the Business Plan. Coaches were not given any formal training in supported learning delivery although they were provided with unlimited support in developing their supported learning projects, M&E materials and economic analysis. The intention of this approach was to enable an assessment of the pre-existing capability within the industry.

## 2.5 Service provider survey

The small sample size of potential deliverers reached by the E&A pilot project and through the CWG, and the fact that deliverers will have a key role in achieving project success and establishing the platform for future commercial service delivery, indicated that further engagement with deliverers was required. A deliverer survey using an online platform was considered the most cost effective and simple way of obtaining feedback from deliverers on their needs and concerns. Further details on the methodology employed for the deliverer survey is provided in Appendix 11: Service provider survey final report.

## 2.6 Benefit cost analysis

Following is the background to the Benefit Cost Analysis conducted as part of the E&A pilot project.

### 2.6.1 Background

There are around 54,000 broadacre farms in Australia most of which carry sheep and or cattle (Table 4). Farm profit in recent years has improved from around $14,100 in 2013-14 to $63,100 in 2015-16.

**Table 4: Financial performance of Australian broadacre farms**

| | 2013-14 | 2014-15 | 2015-16 est. | Average |
|---|---|---|---|---|
| Estimated population | 53,483 | 53,912 | | |
| Sheep (average no.) | 1,246 | 1,242 | | |
| Cattle (average no.) | 401 | 395 | | |
| Cash receipts ($) | 446,195 | 480,080 | 519,100 | 481,790 |
| Cash expenses ($) | 321,674 | 328,270 | 339,900 | 329,950 |
| Cash surplus ($) | 124,521 | 151,820 | 179,200 | 151,845 |
| Farm business profit ($) | 14,113 | 20,900 | 63,100 | 32,700 |
| Profit at full equity* ($) | 55,995 | 59,320 | 101,400 | 72,240 |
| Farm Capital | $3.97m | $4.11m | $4.26m | $4.11m |
| Return on Capital | 1.4% | 1.4% | 2.4% | 1.8% |

* Excluding capital appreciation
(All broadacre industries selected physical and financial estimates by state, Farm Surveys on ABARE website)

More recently ABARES have undertaken a detailed assessment of businesses within the broadacre group that carry more than 100 beef cattle (ABARES, 2016). There were 26,600 "beef farms" or around 50 percent of all broadacre farms. Over the past three years cash surpluses have improved in line with the overall broadacre grouping – mainly on the back of improved beef prices (Table 5).

**Table 5: Financial performance of Australian beef farms**

| | 2013-14 | 2014-15 | 2015-16 |
|---|---|---|---|
| Cash receipts | 343,800 | 391,000 | 441,600 |
| Cash expenses | 264,700 | 269,400 | 279,400 |
| Cash surplus | 79,100 | 121,700 | 162,200 |

From 1977-78 to 2013-14 ABARES has assessed total factor productivity for the Australian beef industry as having improved by 1.3 percent per annum comprising 1.5 percent for the northern sector and 0.6 percent for the southern sector. The underlying objective of the proposed adoption program is to continue to improve productivity in the beef, sheep and goat industries through improvements in grazing management and other farm practices.

This benefit cost analysis (BCA) is an analysis of the likely benefits in improved productivity and profitability for the beef, sheep and goat industries in relation to the costs of program development and delivery.

### 2.6.2 E&A pilot project budget and Key Performance Indicators

The Benefit Cost Analysis is intrinsically linked to both the Key Performance Indicators (KPIs) for the E&A pilot project and the proposed budget for the project. The KPIs and budget have been estimated based on the data from the E&A pilot project (service provider survey, pilot supported learning projects and consultation activities).

## 2.7 Consultation

Key groups and individuals consulted as part of the E&A pilot project delivery are outlined in Table 6 below. This is in addition to a stakeholder workshop of public and private providers, industry collaborators and value chain representatives that MLA conducted in October 2015 in Sydney.

**Table 6: Key organisations and individuals consulted during the delivery of the E&A pilot project**

| Organisation | Contact person | Details |
|---|---|---|
| MLA | Adoption Managers | Why a supported learning model underpinned by a curriculum approach. Outline quality assurance process and reluctance for an accreditation based approach. Two face to face meetings |
| Agriculture Victoria | Kate Lindon, Lyndon Kubeil, Darren Hickey | Role of E&A pilot project and collaboration opportunities with the Best Wool Best Lamb and Better Beef networks. Two face to face meetings. |
| QDAF | Krista Cavallaro | Phone conversations regarding linkages with proposed adoption program and Grazing Best Practice Management program. |
| MLA | MMfS and MBfP state coordinators | Two webinars held with state coordinators to share project results and obtain input into design approach |
| Northern Australia producers and potential deliverers | Potential deliverers in northern WA and northern Queensland, northern producers (family and corporate) | Phone calls to outline proposed adoption program approach, and obtain feedback |
| South Australian Livestock Consultants group | Bruce Hancock | Project background and rational. Roundtable discussion on barriers and needs to participation, potential for |

| Organisation | Contact person | Details |
|---|---|---|
| | | commercial value and engagement models |
| DAFWA | Kevin Bell | Phone call to outline proposed adoption program approach, understand role of DAFWA in extension and potential linkages or conflicts |
| Dairy Australia | Neil Webster | Background to the process of establishing a database (Farm Monitor Program) and its application. Face to face meeting |
| Australian Wool Innovation | Emily King | Potential collaboration. One face to face meeting. |
| Local Land Services NSW | Richard Carter | Initial conversations on delivery opportunities in NSW. |
| JT Agrisource | Dr Jason Trompf | Workshop to discuss curriculum structure and delivery platform (service provider capability), and linkages with other E&A programs and packages relevant to red meat producers |
| JBS | Mark Inglis | Review of the value chain curriculum and role of the proposed adoption program and its delivery model relative to JBS producer activity. One face to face meeting. |
| Sheepmeat Council of Australia & Cattle Council of Australia | Policy Managers | Project background and rational. Information papers on E&A pilot project progress. |
| Goat Industry Council of Australia | Julie Petty | Background to the project and opportunity for the goat industry to fast track in the supported learning area (one phone hook up and one face to face meeting) |

# 3 Results

## 3.1 Curriculum development

For some pillars more than one curriculum was required to enable species and/or regional differences to be accounted for. This resulted in the development of ten individual curriculums:

1. Feedbase
    - Southern
    - Rangelands and northern Australia
2. Business
3. People
4. Reproduction & genetics
    - Sheep
    - Goat
    - Northern beef
    - Southern beef
5. Value chain
    - Sheep & cattle
    - Goat

There was some discussion regarding the value chain pillar and whether it required an individual curriculum or should be integrated into the other curriculums. It was determined that a standalone curriculum was the best approach to ensure that it was not "lost" and would better enable it to be updated as new knowledge is developed, however deliverers will be strongly encouraged to incorporate linkages to it in their projects.

The key elements of each curriculum are:

- Curriculum topic
- Learning topics
- Learning outcomes
- Learning activities
- Tools and resources

The curriculum topics are the key drivers for increasing of productivity and profitability on-farm. These were determined and agreed upon by the CWG, as a group and align with the findings of the National Skill and Training Needs Analysis (McRoberts, 2015).

The learning topics are the next level, identifying key topics that underpin the curriculum topic and which should be delivered in order to achieve the desired learning outcomes. The successful achievement of learning outcomes is the way in which the delivery of curriculums will be judged. The learning activities and tools and resources have been identified by curriculum authors, but delivery is not intended to be constrained to these methods and resources where deliverers have alternatives. Suggested tools and resources contain extensive links and references to procedures and tools from the MMfS and MBfP manuals.

Peer review of the curriculums by coaches identified some minor improvements to some of the curriculums – but overall the curriculums were received positively as being a useful resource by coaches. The curriculums, including an overview which provides details on the purpose and use of the curriculums, are included in Appendix 3: Curriculums.

The extensive peer review processes included as part of the curriculum development have ensured that the curriculums are robust and technically sound – they were very well-received by the pilot coaches who had not had prior exposure to them.

As part of curriculum development, members of the CWG identified potential gaps in tools or resources that would be useful in delivery of the curriculums. The complete list of these gaps, along with recommendations to address them, is provided in Appendix 5: Curriculum tools and resources gaps.

Following robust discussions amongst the project team, including the curriculum working group, it was decided to include as a compulsory first step in the delivery of all curriculums a comparative analysis session. The purpose of this session (and it could also be used very effectively as a feeder activity to engage producers) is to enable producers to **recognise the potential** – to identify where they currently sit, and the potential for improvement (including the potential impact on their business). This will require producers to share key performance indicators related to the supported learning project they're participating in (e.g. a reproduction focussed project might cover ewe conception rates (foetus' scanned/ewes joined; lamb marking % (lambs marked/ewes joined); weaning percentages (lambs weaned/ewe joined); ewe mortality rates (%); lamb survival (%) (lambs marked /foetus' scanned), etc) and wherever possible, data from the group should be compared to industry data, where available and relevant.

If participants have financial data and are willing to share it then this should be encouraged. The comparative analysis session is not focusing on financial data as a compulsory requirement as it is recognised that not all producers will have this data (KPI data is also likely to be poor in some cases) nor be willing to share it. The project will aim to transition producers to a position where financial comparative analysis is palatable and acceptable early in the supported learning process, as it will provide producers with valuable information to identify the key profit drivers or weaknesses within their business and a business case for investment in upskilling to address these deficits. The KPIs to be used in delivering comparative analysis sessions are outlined in the curriculum M&E framework (Appendix 4: Curriculum M&E framework).

## 3.2 Pilot supported learning project

Coaches developed their own supported learning projects as outlined in Table 7. The majority of coaches developed their own supported learning projects from scratch (without the benefit of the curriculums, as these were developed concurrently), except for one coach who used an existing package developed by another private consulting organisation and another who used a Victorian DPI developed package and tailored this for delivery. Projects were then marketed to producers to recruit participants, by individual deliverers. There was large variation in the quality of the supported learning projects submitted by coaches and the number of iterations required to bring them up to an acceptable standard of delivery. The majority of projects on first submission were content heavy with too broad a scope. Many consisted of a series of unlinked workshop activities with little if any repetition or reflection. If after four or five iterations a project was still not considered as meeting the requirements of a supported learning project, it was let go to the delivery phase, as this provided an opportunity to assess the impact of project design on the quality of delivery. One coach when asked to reflect on their project mid-way through made the observation that "*If I did this again I would run it differently – I would trim the content and run an extra session*". Other coaches made similar observations "*I did go about it the wrong way, it was too content heavy*". Many of the coaches noted that one of the reasons for making projects to content heavy and broad was the perception that this was how they needed to deliver value, but on reflection they had over-estimated the baseline knowledge and skills of participants – "*The expectations of deliverers is too high. What we think is basic isn't to producers*."

**Table 7: Summary of the pilot supported learning projects**

| Location | Topic | Enterprises | Outcomes as defined by pilot coaches | Delivery techniques | Recruitment approach |
|---|---|---|---|---|---|
| Victoria | Business | Sheep (some beef) | To have farming businesses working smarter not harder by optimising their on-farm productivity and profitability and developing their own 'blueprint for success' for their farming future. | Group workshops and one on one coaching via property visits | Structured marketing campaign (using email) targeting existing clients first and then wider audience via farmer contacts, other Deliverers and media. |
| Western Australia | Business | Sheep and beef | By changing from an operational farming focus to a business focus, individual businesses managers will be encouraged to review their systems to focus on per hectare output and profit margin, rather than being price focused. This change will lead to increased productivity per hectare and increase business performance. | Group workshops combined with one on one coaching via property visits | Participants from a previous workshop (More Lambs More Often) |
| South Australia | Feedbase | Sheep and beef | • Producers being able to accurately determine leaf stage of different pasture species.<br>• Producers being able to calculate and identify leaf emergence rate.<br>• Producers able to set rotation length and grazing area based on leaf emergence rate throughout the growing season.<br>• Producers able to determine the pasture intake requirements for difference classes of livestock at different points in the reproduction cycle and allocate animals to available pasture according to the best nutritional fit.<br>• Producers able to develop an annual feed budget for their property and livestock enterprises. | Group workshops with limited one on one coaching for host producers (via property visits) | Core group composed of existing clients, then direct approach to near neighbours to complete group |

| Location | Topic | Enterprises | Outcomes as defined by pilot coaches | Delivery techniques | Recruitment approach |
|---|---|---|---|---|---|
| Northern Territory | Feedbase | Beef | To improve participant's ability to assess and identify management options to improve nutrition and therefore productivity. This requires a combination of increased skills and confidence in:<br>• collecting the necessary baseline data.<br>• skills in being able to estimate the costs and benefits of implementing a strategy.<br>• skills in using economic criterion to compare strategies most likely to increase profit.<br>• ability to implement a change strategy and monitor outcomes and reflect on the result and communicate their results and learnings with the group. | Group workshops and webinars combined with one on one coaching via property visits | Participants from a previous workshop (Nutrition EDGE), delivered at beginning of E&A program project |
| Queensland | Business | Beef (some sheep) | • Improved financial literacy.<br>• Ability to measure whole business performance.<br>• Understanding of current business performance and key profit drivers.<br>• Identification of areas for improvement.<br>• Ability to make informed decisions and implement changes that will lead to improved business performance. | Group workshops and webinars combined with one on one phone calls (and email) | Direct approach to existing clients, producers who had previously expressed interest in a producer group activity, and introductions through other deliverers in the region (phone calls most effective) |
| NSW | Feedbase & Genetics | Sheep (some beef) | At the conclusion of the project, participants will be better equipped to make decisions around the right plant for the right situation. They will then have the required skills to match livestock class to the feed source to reduce turn off times and improve reproductive performance.<br>Participants will also gain a better understanding of the genotype required to deliver higher weight gains, reduced | Group workshops | Core group from a recently delivered program (LTEM); other members recruited through word of mouth |

| Location | Topic | Enterprises | Outcomes as defined by pilot coaches | Delivery techniques | Recruitment approach |
|---|---|---|---|---|---|
| | | | turn off times and improved reproductive performance. | | |
| NSW | Business | Sheep, beef and goat | • Increase their financial literacy and 'measure to manage' proficiency.<br>• Able to extract key data from existing records (sales, purchases, stock numbers and chart of accounts) to be able to create management accounts and develop financial and production KPIs.<br>• Identify the key issues restricting the profitability of their business.<br>• Find a cost effective solution to the main issue affecting their profitability. | Group workshops combined with one on one phone calls (and email) | Mixture of existing clients, producers reached through a previous field day, via phone calls |
| Victoria | Business | Sheep and beef | Embed new skills and new approaches to farm business decision making amongst participants. Improve clarity amongst participants on what changes can be made to business to improve whole-farm financial performance. Ultimately, improved financial performance amongst participant businesses. | Group workshops | Client of delivery partner (agribusiness), recruited by partner. |
| Queensland | Feedbase | Beef | • Have a basic understanding and core principles for maintaining and improving land condition.<br>• Locally, know what level of seasonal variability to expect and how best to manage around this variability.<br>• Know their current and potential property carrying capacity and have initiated actions that will get them on the path to cost-effectively achieving their potential long-term property carrying capacity.<br>• Understand the variable nutrient needs of different classes of animals and be aware of the variation in pasture feed quality throughout the year. | Group workshops combined with one on one coaching via property visits | Previously delivered workshops (Grazing Fundamentals EDGE) |

| Location | Topic | Enterprises | Outcomes as defined by pilot coaches | Delivery techniques | Recruitment approach |
|---|---|---|---|---|---|
| | | | • Start to put together a grazing and feed year plan. | | |
| Queensland | Feedbase | Beef (some sheep) | 1. Improved understanding of the diet quality technology and how it is influenced by pasture species composition, the level of C3 versus C4 plants in the diet, and plant growth phases.<br>2. Comparing diet quality with animal nutrient requirements and how to manage for this either by weaning or supplementation, including selection of supplement groups.<br>3. Estimating pasture yields and forage budgeting on an AE basis.<br>4. Exposing producers to new technologies for delivery of coaching/training (e.g. GoToTraining online sessions).<br>5. Demonstrating to producers the benefits of financially investing in a supported learning project.<br>6. Assisting producers to continually build on their learnings, and taking technologies to a higher level.<br>7. Calculating cost-benefit analyses for implement various management strategies.<br>8. Monitoring changes in fertility, mortality and turn-off. | Group workshops combined with one on one coaching via property visits | Previously delivered workshops (Nutrition EDGE and Stocktake) |

### 3.2.1 Supported learning project demographics

All the coaches in the E&A pilot project charged participants on a per business basis, some with numbers capped and others with no cap on number of participants per business. The minimum number of businesses engaged was 5, and the maximum 13, with an average of 9.6 businesses per group (Table 8). The average number of participants per group was 13, with a minimum of 10 and maximum of 19 (Table 8).

**Table 8: Numbers of producers and businesses engaged in the E&A pilot project by group**

| Group | Number of Producers | Number of Businesses |
|---|---|---|
| PGS01 | 19 | 12 |
| PGS02 | 14 | 8 |
| PGS03 | 12 | 10 |
| PGS04 | 13 | 13 |
| PGS05 | 10 | 6 |
| PGS06 | 15 | 11 |
| PGS07 | 11 | 10 |
| PGS08 | 10 | 5 |
| PGS09 | 13 | 10 |
| PGS10 | 13 | 11 |
| **Total** | **130** | **96** |
| **Average** | **13** | **9.6** |

Given the enterprise scale differences across the country, further analysis of participating producer demographics was conducted on a state by state basis. Table 9 outlines the group size by state – interestingly there were very few differences, with the exception of Victorian groups having larger numbers of producers than other states, and Queensland groups having fewer businesses (this data set is too small for these results to have any statistical validity).

**Table 9: Numbers of producers and businesses engaged in the E&A pilot project by state**

| State | Average number of producers per group | Average number of businesses per group |
|---|---|---|
| NSW | 12.5 | 11.5 |
| NT | 13 | 11 |
| QLD | 12 | 7 |
| SA | 13 | 10 |
| VIC | 16.5 | 10 |
| WA | 11 | 10 |
| **Average** | 12.9 | 10.0 |

Participating businesses managed an average of 26,000 ha, and a total of over 1.5 million hectares (the Northern Territory accounted for over 1.25 million hectares) (Table 10). The animal numbers managed by participating producers (Table 11) indicate that the producers engaged by the project are large scale and commercial, especially when compared to the average ABARES data for 2015/16

(average cattle herd 395 head and sheep 1,242, compared to 7,813 and 33,527 average per business for the E&A pilot project participants).

**Table 10: Area managed by producers engaged in the E&A pilot project**

| State | Average area managed (ha) | Total area managed (ha) |
|---|---|---|
| NSW | 2,038 | 46,863 |
| NT | 138,638 | 1,247,742 |
| QLD | 12,953 | 310,862 |
| SA | 2,022 | 20,220 |
| VIC | 1,430 | 25,740 |
| WA | 835 | 8,350 |
| **Total** | **-** | **1,659,777** |
| **Average** | **26,319** | - |

**Table 11: Total animal numbers managed by producers engaged in the E&A pilot project**

| State | Total number of cattle turned off per year | Total number of beef breeders | Total number of lambs turned off per year | Total number of ewes | Total number of goats turned off per year |
|---|---|---|---|---|---|
| NSW | 4,017 | 3,844 | 38,820 | 75,160 | 400 |
| NT | 14,800 | 33,330 | 0 | 0 | 0 |
| QLD | 10,425 | 7,303 | 19,327 | 15,717 | 0 |
| SA | 235 | 510 | 14,500 | 17,780 | 0 |
| VIC | 1,070 | 1,235 | 32,720 | 33,888 | 0 |
| WA | 655 | 656 | 18,200 | 25,090 | 0 |
| **Grand Total** | **31,202** | **46,878** | **123,567** | **167,635** | **400** |
| **Average** | **5,200** | **7,813** | **24,713** | **33,527** | **400** |

### 3.2.2 Supported learning project financials

Three coaches obtained cash support additional to MLA's support and the producer contributions for their projects (Table 12). This support consisted of cash contributions that ranged from $2,000 to $7,000 per project, and was obtained from agribusiness (finance sector) and Natural Resource Management (NRM) / Catchment Management Authority (CMA) groups. Other coaches received in-kind support including covering venue and catering costs, provision of expert presenters/advisors and recruiting. The in-kind support was provided by agribusiness (finance sector) and Local Land Services, Agriculture / Primary Industry Departments and the value ranged between $500 and $5,000. Only one deliverer obtained both cash and in-kind support; the others were either/or.

**Table 12: Pilot supported learning projects - summary of financial information**

| Cost to participate per business | External cash support ($) | Total cost of delivery ($) | Total cost of project development ($) | % producer contribution to delivery | % contribution from MLA to delivery | Net profit-loss for delivery only (with $20k MLA contribution) |
|---|---|---|---|---|---|---|
| $300 | $7,000 | $43,113 | $6,588 | 12 | 65 | -$12,513 |
| $800 | $2,000 | $23,660 | Incl. in delivery | 15 | 77 | $2,340 |
| $1,300 | 0 | $29,800 | $5,400 | 44 | 56 | $5,800 |
| $500 | 0 | $46,895 | $22,500 | 18 | 82 | -$22,395 |
| $500 | 0 | $24,000 | $7,500 | 17 | 83 | $0 |
| $697 | $2,000 | $26,528 | $11,750 | 24 | 69 | $2,442 |
| $400 | 0 | $12,000 | $6,000 | 17 | 83 | $12,000 |
| $500 | 0 | $16,600 | $1,400 | 20 | 80 | $8,400 |
| $2,000 | 0 | $33,300 | $12,500 | 33 | 67 | -$3,300 |
| 0 | 0 | $34,000 | $25,000 | 0 | 100 | -$14,000 |
| **$700** | **$1,100** | **$28,990** | **$10,960** | **20** | **76** | **-$2,123** |

The average business contribution charged by coaches was $700 (and all deliverers charged on a per business basis), with a maximum fee of $2,000 per business and minimum of zero (only one deliverer did not charge) (Table 12). The proportion of producer contribution of total income ranged between 12% up to a maximum of 44% (average of 20%), while the proportion of income from MLA ranged from 56% up to a maximum of 83% (average of 76%) (Table 12). Four coaches noted that the price that they charged per business would be increased post-pilot (and of these two had charged the highest fees already in the E&A pilot project).

Coaches provided the costs for development and delivery of their projects – some variation in daily rates was observed, although the majority were at the upper end of the scale (e.g. $1,500 per day). There also appeared to be variation in the accuracy of recording time spent on the project. As a standard cost allocation process was not provided to deliverers, variation in how coaches allocated time to recruitment, development, delivery or unallocated is likely, and we are aware that time spent on recruiting varied significantly between coaches. The total cost estimated for delivery ranged between $12,000 and $46,895, with an average of $28,990. The total cost estimated for project development ranged between $1,400 and $25,000 with an average development cost of $10,960 (Table 12).

Based on the data provided (for delivery only, including the total MLA contribution of $20,000), four deliverers made a loss, with the amount ranging from -$3,300 to -$22,395. One deliverer broke even and four made a profit ranging between $2,340 and $12,000. The average profit – loss was -$2,123. Three coaches believed that the producers involved in their supported learning projects thought that the fee charged was too cheap, five believed it was about right (with three clarifying that it was about right for a pilot) and two were unsure. When participating producers were asked to rate the cost to participate the majority (72%) believed that the price charged was about right, only 4% believed it was too expensive, with 14% unsure and 11% rating it too cheap (Figure 4).

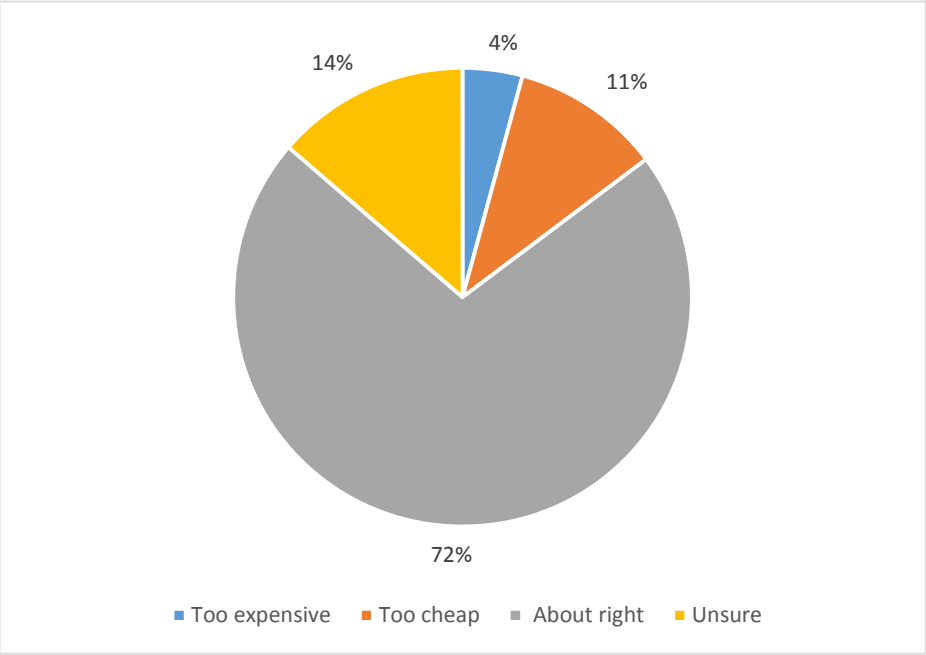


**Figure 4: Producer assessment of the cost to participate in the pilot supported learning projects**

The modelled economic benefits of the pilot supported learning projects are provided in Appendix 2: Results from E&A pilot project – economic impacts. These results are discussed further in section 3.6 Benefit cost analysis.

### 3.2.3 Knowledge and skills development

On average, producer KASA scores increased from an average of 46% pre to 76% mid-term (Figure 5). This is a positive result and indicates that producers are well on the pathway to skill development (a threshold of 75 to 80% is considered to be proficiently skilled to enable the skills to be implemented on-farm effectively – this threshold is marked on Figure 5) (Doonan, 2008). At the beginning of the project there was one group (PGS08) where the average group score was greater than 75% (79%). This indicates that either the audit questions weren't challenging enough for the existing level of knowledge and skill within the group or perhaps that the questions were asked at the end of the first session instead of at the beginning. However, this group still showed an improvement between the pre and mid KASA audits, increasing by 11% to 90%.

PGS09 producers had the greatest improvement in skills and knowledge, increasing from 18% pre to 75% mid. Even more pleasing the standard errors are the same pre and mid which indicates that the

whole group is progressing, and that there are no outliers being left behind. Group PGS01 also demonstrated massive improvement in producers' skills and knowledge (42% pre to 100% mid). Interestingly this group also had a very tight standard error (0) for the mid score - all producers scored 100%. This indicates that either as a group they worked through the skills audit and were coached to the correct responses, or that the questions were not challenging enough. The least improvement was for producers in group PGS05 which while they had a high initial score (71%), the groups only increased to 75% at mid survey. The pre skills audit for this group was conducted directly following a feeder activity (on the same topic as the supported learning project), so it would be expected that recall would be high and that responses would be largely correct. However, the mid score indicates that the skill and knowledge development has not progressed as much as would be expected. This project, despite multiple drafts, was not believed to fulfil the requirements of a true supported learning project, so this result is not surprising (this project was allowed through to the delivery stage, as this enabled an opportunity to test the effectiveness of the delivery model). PGS04 producers also had a low level of improvement, from a relatively high starting base (60 to 75%). While this project was written as a supported learning project, it was not delivered as such – delivery used more of a traditional consulting format, a fact that has become apparent through the coach reporting and M&E.

The mid KASA results for producers from three groups PGS02, PGS06, PGS07 were all below the "skilled" threshold. However, groups PGS02 and PGS06 had achieved significant improvements in the average KASA score of 26% pre compared to mid and are considered to be well on the pathway of skill development. The PGS07 coach will need to make significant progress with their producers to ensure that they reach the 75% KASA threshold on finishing the supported leaning project.

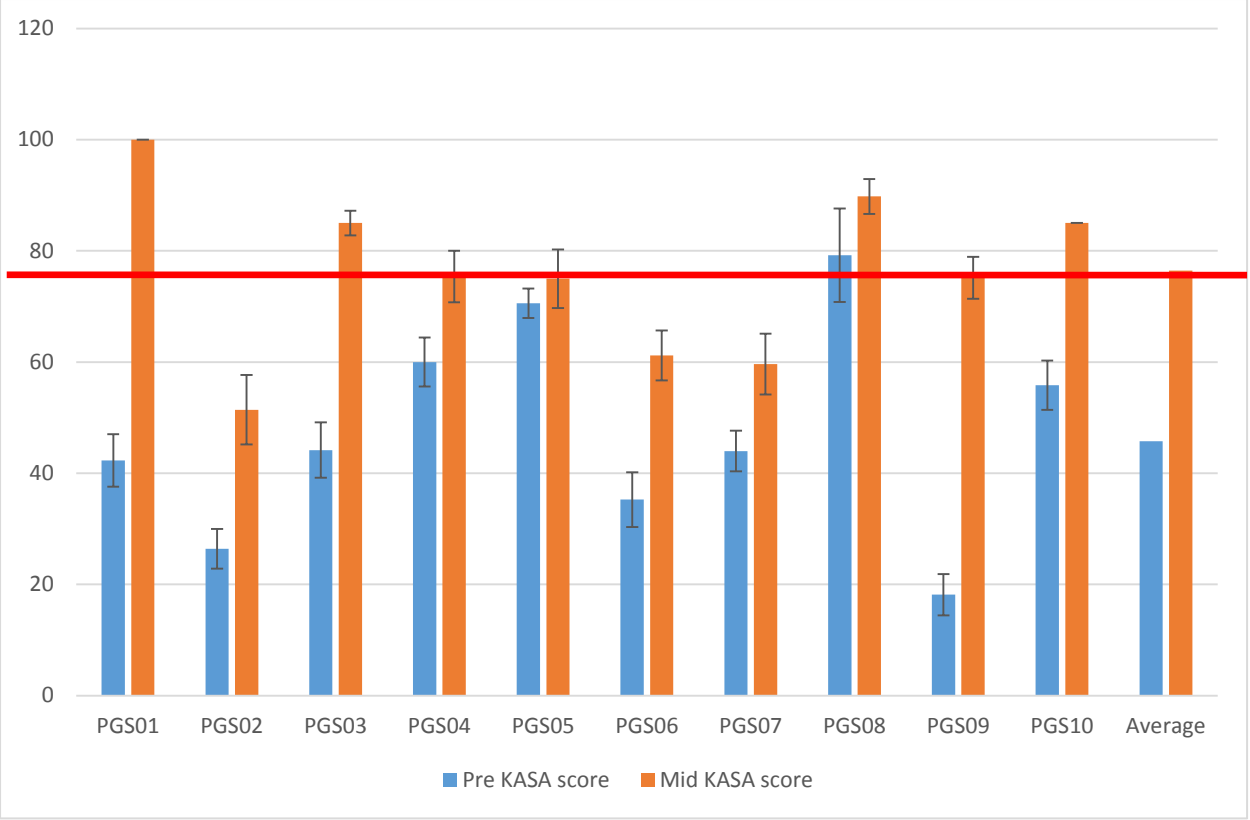


**Figure 5: Average pre and mid-term scores of producers for the skills and knowledge audit by supported learning project**

The average percentage of producers who passed the mid-term skills audit was 53% (Figure 6), while that for the pre project skills audit was 15%. The number of producers passing in all groups increased between the pre and mid-term skills audit. However, there were some differences observed, 100% of producers from groups PGS01 and PGS08 passed the mid-term skills audits, compared to only 21%, 23% and 18% of participants from groups PGS02, PGS10 and PGS07. There were four groups where no participants achieved a pass score at the pre-project skills audit. Those pre skills audits that resulted in lower scores may have asked questions that really challenged producers' existing skills and knowledge, and will provide real value in determining the change in skills and knowledge. In contrast, those audits that resulted in a high percentage of producers achieving a high score, may not have included challenging enough questions and/or the questions could have been focussed more on testing knowledge than skills (knowledge questions are much easier to ask than skills questions). Alternatively, where scores are high, coaches could have walked through the skills audit with the group and coached them to the correct answer.

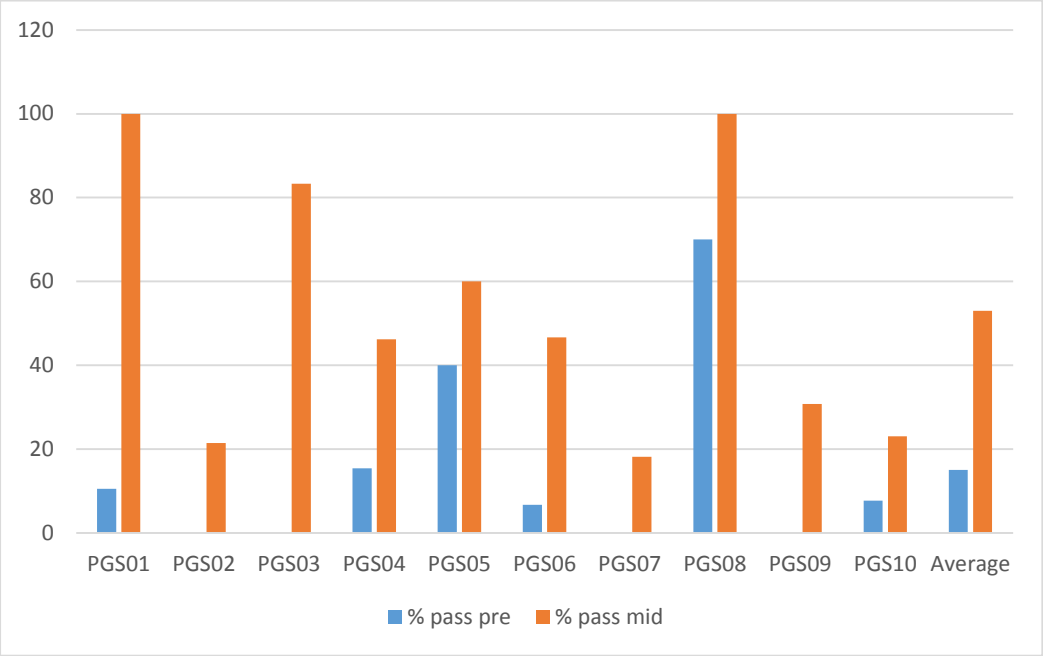


**Figure 6: Percentage of producers per group who passed the pre and mid term skills audit (scored >75%) by group**

Figure 7 and Figure 8 summarise the value and satisfaction ratings of producers participating in different supported learning projects. The average scores are pleasingly high – 8/10 for value and 8.6/10 for satisfaction. PGS06 scored highest for both value and satisfaction, closely followed by PGS01. PGS10 has large standard errors, as the numbers completing the mid-term skills audit were low.

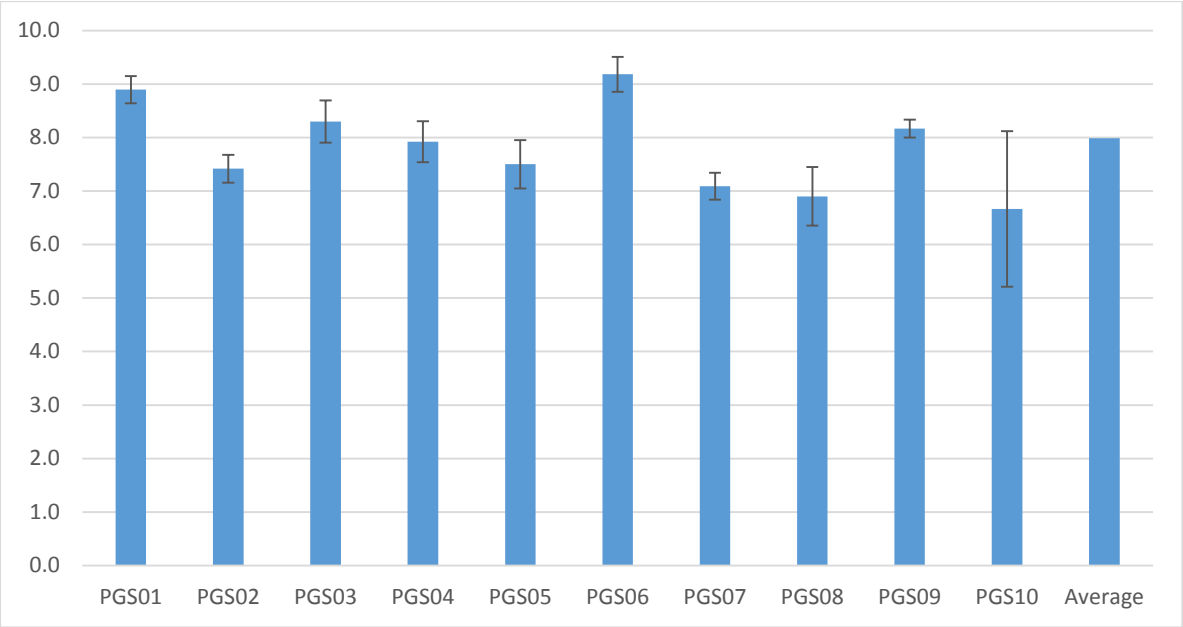


**Figure 7: Average value of E&A pilot project as rated by participating producers (by supported learning project)**

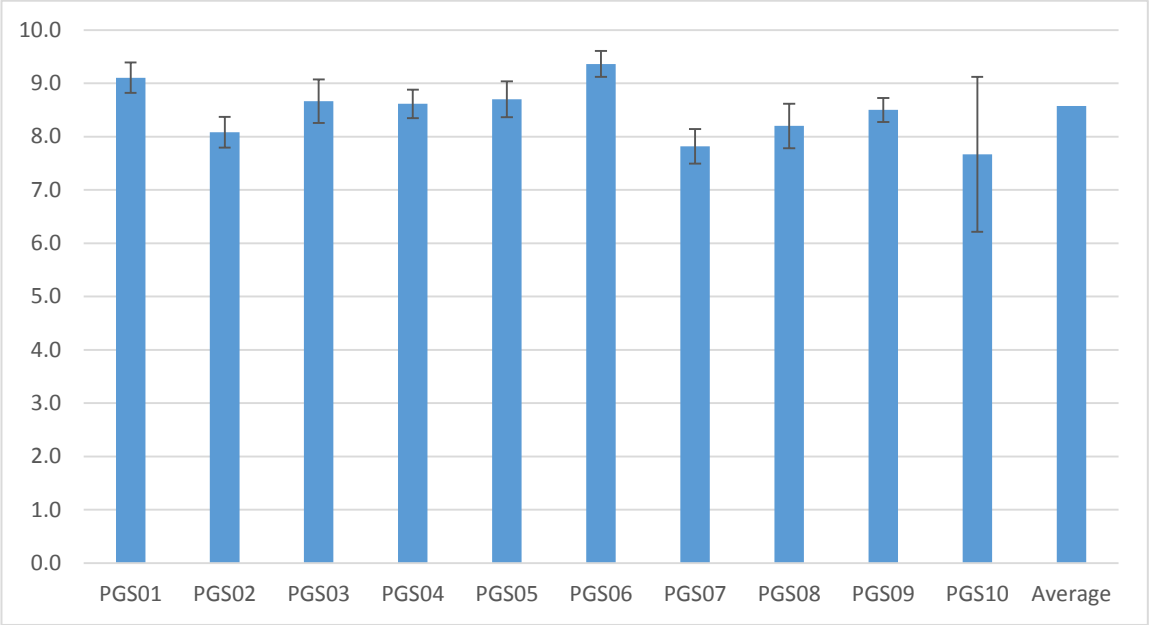


**Figure 8: Average satisfaction with E&A pilot project as rated by participating producers (by supported learning project)**

### 3.2.4 Confidence and practice change

The skills audit asked producers to rate their level of confidence in using particular skills or doing particular activities using a score out of 10. Each coach developed their own confidence questions – hence it is not possible to compare directly between different projects delivered on the same topic. Additionally, some coaches varied the confidence questions between the pre and mid-term skills

audits (and one coach forgot to ask any mid-term confidence questions). Changing questions reduces the power of the analysis to determine whether the supported learning project is helping with confidence in specific areas or not, as it is not possible to directly compare confidence for the same skill or practice pre and post. However, the average confidence data for each project has been collated and analysed (Figure 9).

PGS01 and PGS06 both increased the confidence of participating producers significantly – from an average of 5 to an average of 7. PGS06 asked 5 confidence questions so this result is very robust. In contrast PGS08 producer confidence decreased from 7 to 6 between pre and mid scores – the confidence questions were different pre and mid so this decrease may be a result of asking different questions. However, only one session had been delivered between the pre and mid audits for PGS08, so it may also reflect an increasing awareness of what they don't know, without being able to do anything about it at this early stage of the supported learning project.

Confidence levels for PGS04, PGS05 and PGS10 producers did not shift between pre and mid audits. PGS10 may be a reflection of limited delivery having occurred between the pre and mid audits. PGS05 asked different questions pre and mid so this decrease may be a result of asking different questions. However, this confidence result for PGS04 and PGS05 is consistent with the poor KASA performance for producers in these groups (Figure 5).

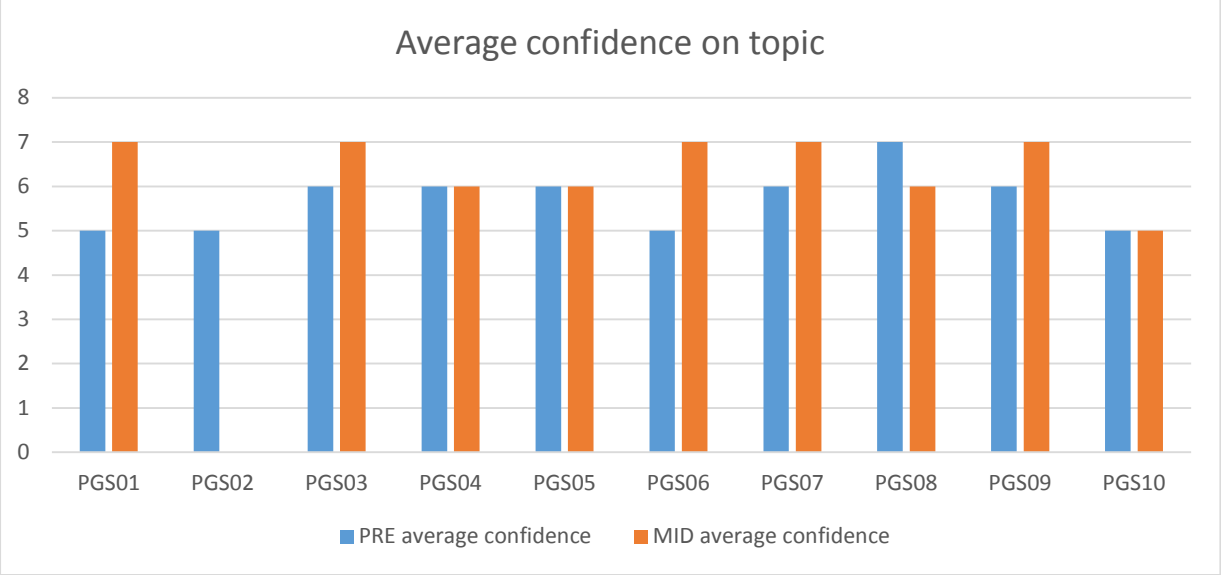


**Figure 9: Average self-rating of producers' confidence pre and mid by supported learning project**
*(standard errors not available for this data, due to variations in approach to this question between supported learning projects)*

The results from the E&A pilot project, as reported by the coaches in their mid-term reports, are positive. In particular, responses to the question of coaches regarding whether participants are on a pathway to implementing new skills in their business to lift profitability (additional to the modelled economic benefits, outlined in Appendix 2: Results from E&A pilot project – economic impacts). Six coaches believed that their participants were on the pathway and provided examples of where significant changes have occurred already. However, at least two of these examples were not related to skills – they primarily focused on adoption of new technologies by participants. Four of the coaches

believed that their participants had started the journey, but required more time (at a minimum for the rest of the supported learning project to be delivered) to make significant changes to their businesses. One coach (delivering a business-focussed project) indicated that they believed a minimum of three years was required to see meaningful change within participating businesses.

"*Yes, they are on the path. Some still need a bit more hand-holding until we have established a new normal. This would mean seeing through the growing season and another dry season with the new knowledge they have…Different seasonal conditions will also test their skill set and build their confidence going forward*."

"*Improved skills in being able to assess land condition and body condition of cattle is definitely leading to more interest in being able to calculate their long term carrying capacity benchmark*"

Producers were also asked about their intention to do anything differently as a result of the E&A pilot project in the mid-term report. Overall these results are positive – no producer in any group "didn't think any changes were needed" (Figure 10). For eight out of ten groups all participants indicated that they have either "made changes already" or that they "intend to make changes". The exceptions were groups PGS04 and PGS08. For PGS08, only two sessions had been delivered when the mid-term skills audit was completed and the majority of producers (70%) "intend to make changes" with some also "not confident just yet to make changes" (10%), and 20% "making changes already"; this data is positive for PGS08 project and indicates producers are engaged and looking forward to learning what they can do differently. PGS04 had a slightly different breakdown, with 15% "not ready to make changes", 23% "not confident just yet to make changes", 46% "intend to make changes" and 15% "making changes already".

PGS06, was a standout with all producers in the group having made changes already. PGS07 and PGS09 had just over 80% of producers "already having made changes", with just under 20% intending to, which is also a very positive result for this stage of the project.

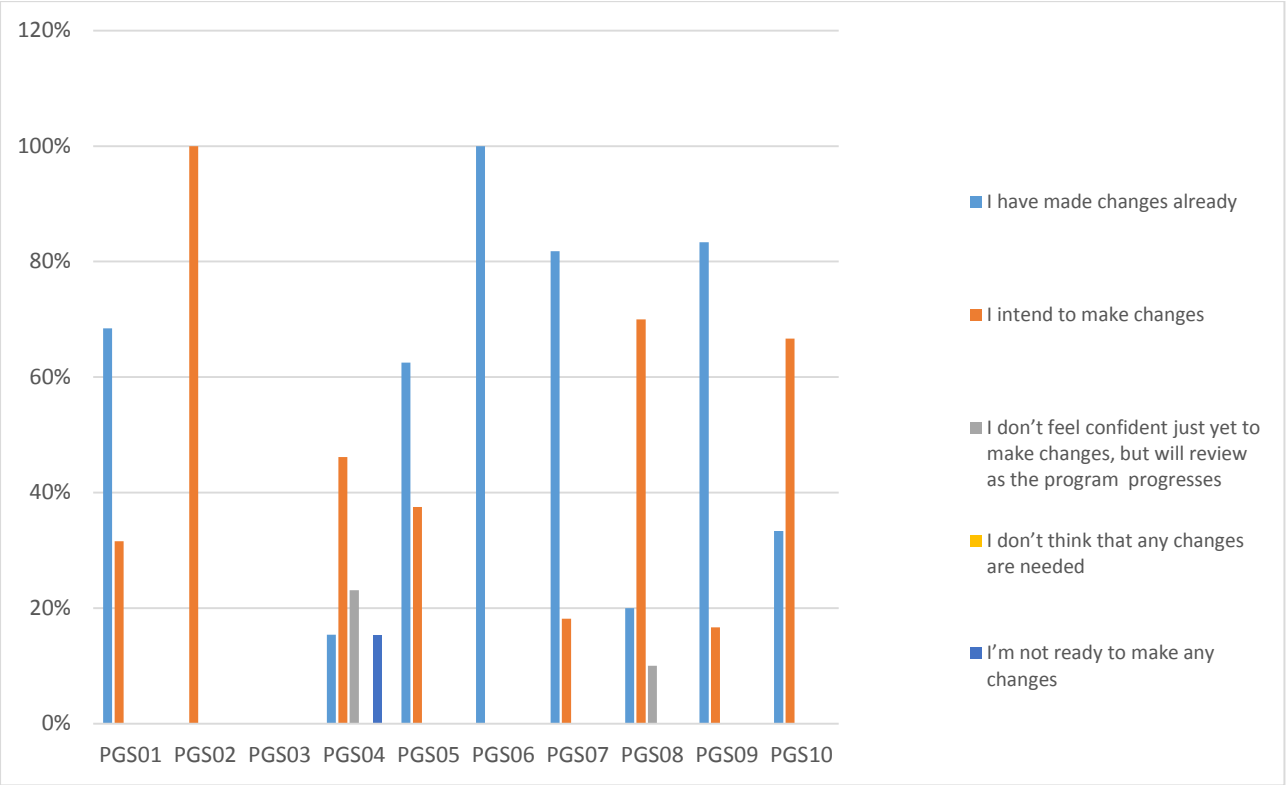


**Figure 10: Intent to change practices indicated by participating producers**

Producers were asked to nominate (in their own words) the types of changes that they have made or intend to make. These ranged from adoption of technologies (e.g. dung testing, preg scanning) or infrastructure (fencing, water points, pasture varieties) through to changes in grazing management practices, use of feed budgeting, condition scoring livestock, setting goals and planning, improving financial management and record keeping. Some of the changes included:

*"Set up rotational grazing on 60ha. Grazed all sown pastures as soon as a pluck test was done. Grazed crops (barley) to fill autumn/winter feed gap. Concentrated on leaf emergence rates - pasture grew too quick relative to number of livestock, so have bought more plus locked up paddocks for hay.*

*"Implementing dung sampling and forage budgeting. Working on spelling paddocks, especially now with early 'green break'. Better understanding of evaluating diet quality."*

*"Sown legumes, changing calving time to match feed demand/supply better and fertilise pastures after soil testing."*

*"Closer monitoring of financial performance. Forming plan to transition business to next stage (intergenerational etc)."*

*"Created a budget. Going to create a cashflow budget. Have a list of goals to work towards. Both members of the partnership are more on the same page as to where we are heading."*

*"Better focus on ewe condition, now supplementing feeding and minerals."*

These results compare favourably with a detailed analysis of MMfS/MBfP data conducted in 2014 (Howard et at 2014), where 50% of MBfP and 59% of MMfS participants that attended MLA funded

events can be thought to have made changes as a result. The types of practice change that a supported learning project should aspire to are fundamental skill-based practices which are likely to have a high impact on productivity and profitability. While technological adoption can support these outcomes, on their own they will not be sufficient to really impact business performance (e.g. pregnancy scanning ewes –pregnancy scanning on its own will not deliver as positive an outcome as if combined with skills to manage feed allocation. It will simply be an extra cost to the business). This is an underlying issue with many past E&A programs, where there is a focus on copying **what** the best do rather than **how** they do it.

In the KASA audits, coaches included a question which listed a range of best practices relevant to their area of learning and asked producers to rate the frequency which they used each of these practices. As with the confidence questions, each coach developed their own practice questions so it is not possible to compare directly the impact on practices used of different supported learning projects delivered on the same topic. Additionally, some coaches varied the practice questions between the pre and mid-term skills audits, and the number of practice questions also varied between supported learning projects. This data was analysed individually for each supported learning project, by averaging the percent of practices within each frequency category at pre and mid points. Figure 11 is the data from one supported learning project (PGS01), and a similar result was consistently found across all supported learning projects, whereby there was typically a shift away from "never" and "rarely" towards "sometime" or "normal practice" from the pre to the mid audits (with the exception of PGS07, where a higher proportion of producers selected never in the mid audit compared to pre – data not shown). The magnitude of the change varied between supported learning projects.

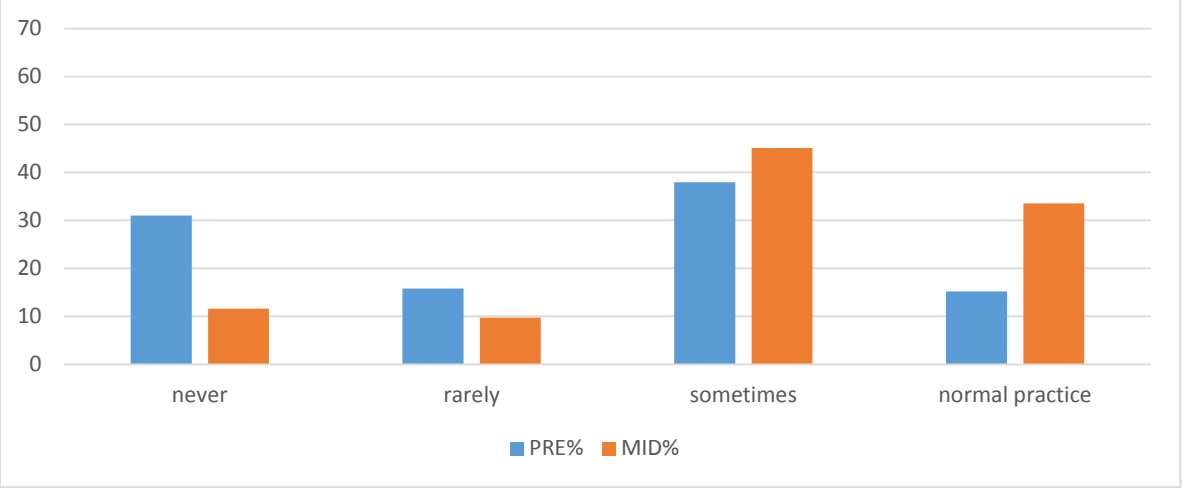


**Figure 11: Percent of practice categories selected by producers before and after participating in the E&A pilot project (PGS01 data)**

### 3.2.5 Coach and producer feedback on the E&A pilot project model

There was a significant proportion of one to one activity delivered as part of the E&A pilot project (all but one project included one to one, with six of the nine being property visits (some multiple property visits) and the remaining three phone/email contact (primarily to obtain farm financial data to prepare for upcoming group activities)). The coaches who used one to one delivery overwhelmingly rated it as being positive for both themselves (increased understanding of individual situations including areas of need and able to ensure delivery is tailored to meet needs) and the participants (able to delve deeper

into topics they're interested in, benefits of one on one coaching to maximise learning, able to raise issues/concerns that they weren't comfortable doing in front of a group). However, one to one delivery is an expensive methodology for coaches to adopt (especially when it involves property visits and where properties are remote or large distances from each other and the coach). Given that even with the MLA investment of $20,000 per group, four deliverers made a loss and one broke even, with an average profit-loss across the ten deliverers of **-$2,123** (only including delivery costs, not project development costs), one to one is a method that deliverers in future will need to consider carefully in establishing commercially sustainable extension business models. Additionally, five of the ten coaches reported challenges in establishing boundaries or managing expectations of producer participants in terms of the level of individual support that they could expect to receive as part of the supported learning project. Some coaches reported that this resulted in them "over-delivering", further increasing their costs. However, as previously noted the charge rates applied by coaches were at the upper end of the scale.

The majority of coaches in their mid-term reports provided commentary regarding the positives of working with groups of producers; creating opportunity for discussions, interactions and sharing experiences and learnings. The importance of effective group dynamics (and attitude of individual participants) to the success of projects was also noted by many coaches. *"A highlight was the open discussion regarding major business decisions enacted as a direct result of project participation".* A number also noted the importance of working with producers who were committed to the project and to changing what they're doing. When participating producers were asked what their key reasons for participating in the E&A pilot project were, the most common responses were "wanted to work with other producers" and "interest in the subject area of the supported learning project", followed by "promotion which demonstrated the potential improvement in profit" (Figure 12). Having a previous relationship with the coach also helped, however, this may be reflective of the recruitment methods employed given the short timeframes of the project.

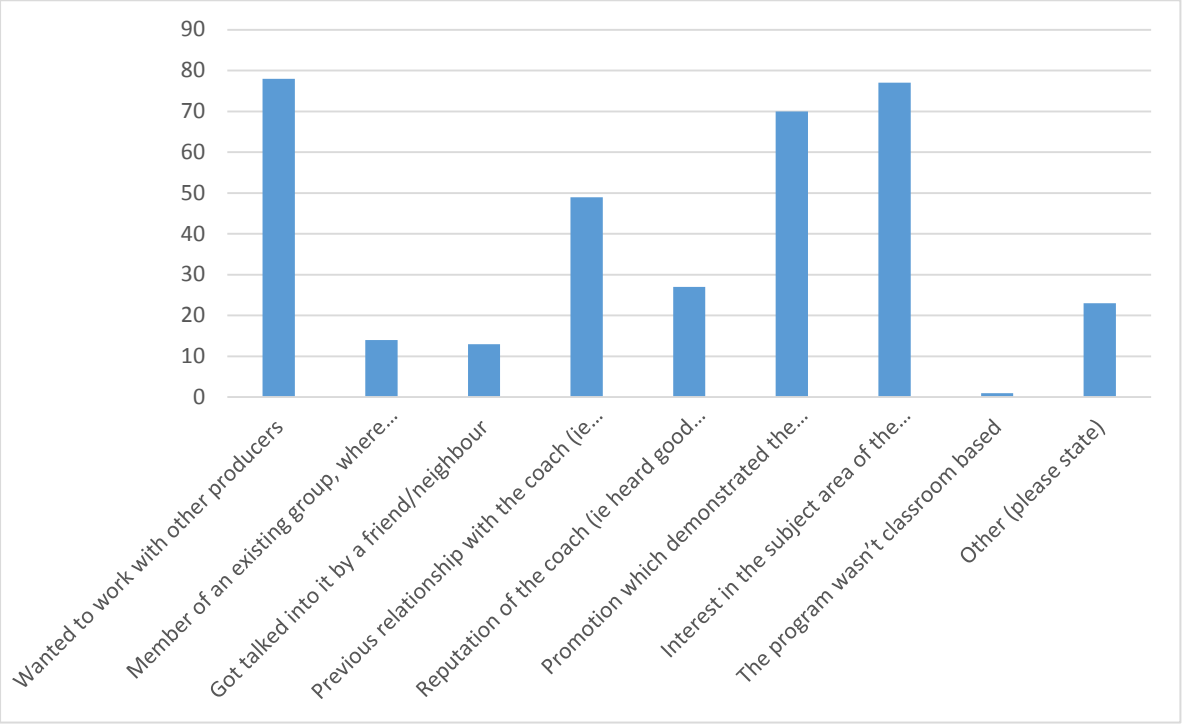


**Figure 12: Key reasons producers gave for participating in the E&A pilot project**

All four northern deliverers (Northern Territory and Queensland) utilised webinar or similar technology to deliver some sessions. Despite some technical issues being experienced, both coaches and participants were positive about the advantages of this technology, particularly in remote areas where travel is time and cost prohibitive. Effective collection of M&E data from on-line delivery is challenging and this will need to be resolved for the implementation of the business plan. Another deliverer experimented with using iMessenger and WhatsApp to facilitate discussion outside group workshops and to maintain momentum and activity.

A common positive for the E&A pilot project approach was the flexibility it afforded deliverers – "*a great combination of freedom to do what you do well and guidelines and support to ensure you're on track*". Half of the coaches noted that the E&A pilot project had provided them with a catalyst to develop and deliver a supported learning project that they had always wanted to have a go at – while three coaches expressed surprise at how poor the recall was by producers following on from a theory workshop and entering into the supported learning project. There was strong belief amongst the majority of deliverers that there was need for a supported learning model to build on learnings from workshop activities and facilitate producers to be able to make changes to their business to improve profitability and that current extension and adoption programs are not designed to do this. "*I was stunned by going on-farm to reinforce skills with participants to find how much isn't retained after a 2 day training course. It made me question if I've been wasting my time delivering extension up to now.*"

Participating producers were overwhelmingly positive about the tools and resources coaches provided them with as part of their supported learning projects (Figure 13).

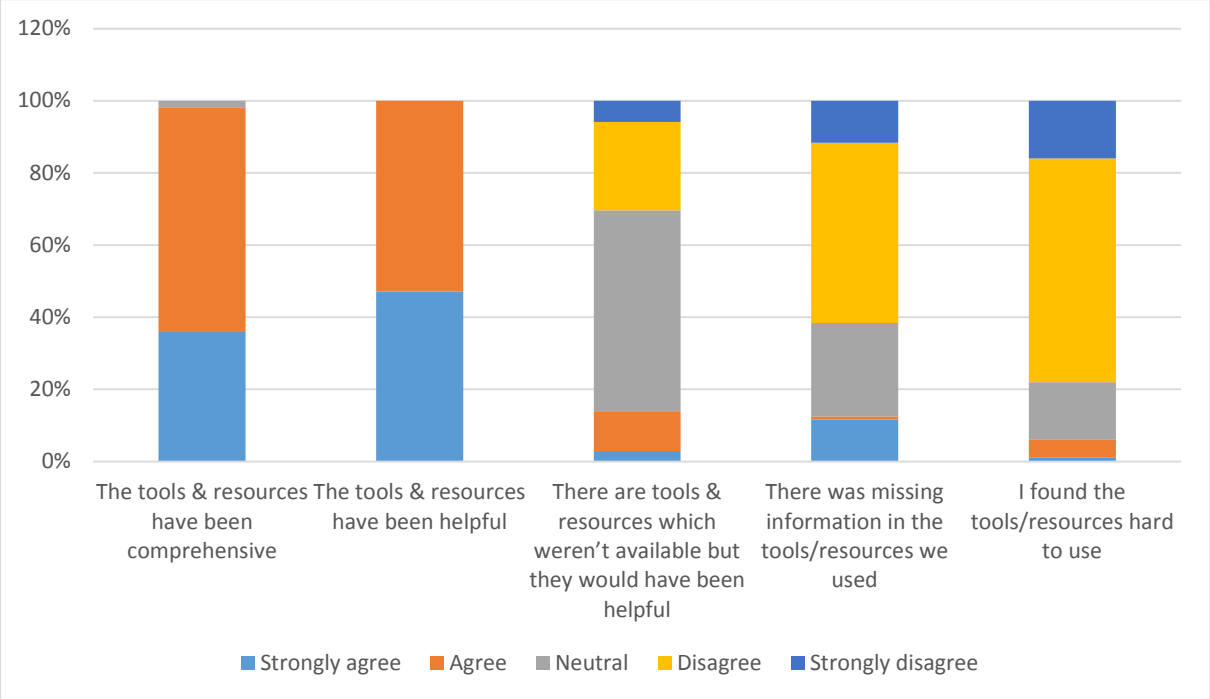


**Figure 13: Summary of producer feedback on supported learning project tools and resources**

A common issue raised by coaches was poor record keeping by the majority of producers and challenges in obtaining data from them, and that producers "*don't know what they don't know, including the potential opportunity to do better financially*". This is a potential challenge in recruiting

producers, and must be considered in the design of any recruitment / engagement strategies. "*A hurdle up front for engaging producers in our project was the requirement for business and financial information. This is just not part of industry culture, but is critical as an effective starting point, and made even more challenging by the lack of even basic record keeping*".

Three coaches noted challenges in getting full attendance at all sessions, although interestingly some coaches saw this as being more of a concern for participant learning and skill development than others ("*coaching sessions essentially involve the development of a story. It is hard to drive consistent skill development if participants miss a chapter or two of the story. Missing a coaching session is like missing an important chapter of the story"*). Some of the reasons given for participants missing sessions or poor attendance included not setting the expectations well enough at the start, not charging enough, challenging weather conditions impacting delivery, providing too much detail (notes) to participants post the coaching sessions.

The top two benefits that producers indicated that they received from participating in the E&A pilot project were (Figure 14):

- Learnt new skills & how to apply them to my farming system
- See and hear what other producers are doing

These were followed by:

- Opportunity to put numbers around decision making

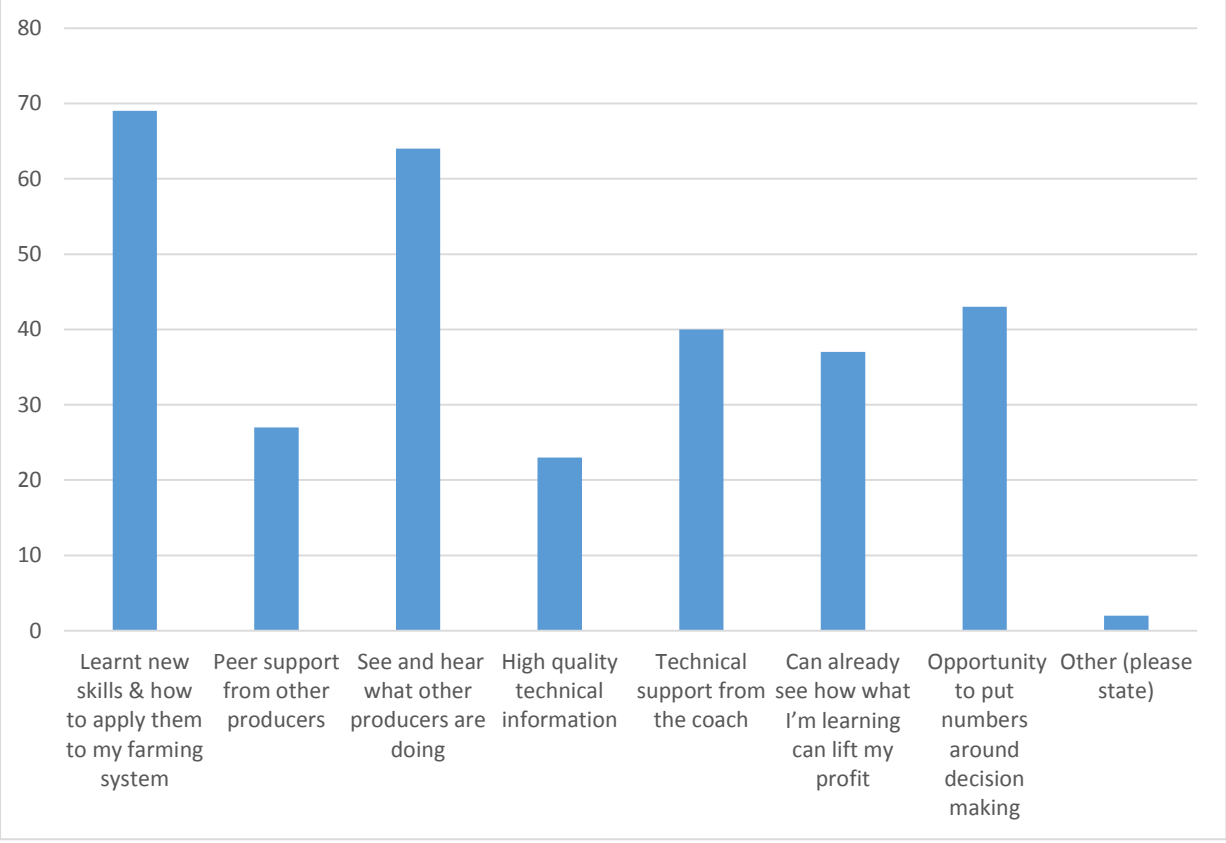


**Figure 14: Key gains nominated by producers who participated in the E&A pilot project**

Nine of the pilot coaches were interested in working with the proposed adoption program in future – comments they provided were overwhelmingly positive about the approach of the project, especially in regards to the coaching methodology and experiencing first-hand the power of the method in delivering significant practice change. The deliverer who was unsure about future engagement with proposed adoption program was from a government department, and indicated that alignment of the program with departmental priorities would be key for future engagement but that they would be willing to support private deliverers in their area.

*I have thoroughly enjoyed delivering the project thus far. I feel participants are getting really good value from the project – evident by influence on business decision making in particular. I am passionate about the need for this type of business focussed project for sheep and beef producers.*

*Yes, to be able to generate some repeatable work from our investment…Also love the skill development that takes place with producers from true supported learning projects.*

*If MLA were not to go down the track of developing the E&A project further, I would look to implement the concept of coaching within my own business because I can see the merits of such a project for effecting change on-property, particularly following on from intensive workshops.*

*"It is the project I have always wanted to run and seeing it in action has confirmed my belief about how to get farmers to make transformational changes to themselves and their businesses."*

### 3.2.6 Recruitment

Six coaches believed that additional assistance with recruitment would have increased the amount that they could have charged, two indicated that assistance would not have changed the amount that they charged but may have made it significantly easier for them to recruit (reducing their costs and potentially increasing their income if more producers enrol), and two didn't believe assistance with recruiting would have made any difference.

The recruitment approaches utilised by the pilot coaches are outlined in Table 7. Two deliverers experienced significant challenges in recruiting, but were finally successful in establishing groups. An eleventh potential deliverer did not believe there was sufficient interest amongst producers for them to recruit producers for a group, mainly due to the timing of E&A pilot project commencing (northern WA).

Given the tight timeframes of the project, most coaches elected to approach existing clients or networks and build on these, however the E&A pilot project has still provided some useful information regarding producer engagement and expectations of deliverers around this, which correlate with results from the service provider survey (Appendix 11: Service provider survey final report).

There was strong support amongst pilot coaches for some level of MLA assistance with recruiting producers "*MLA needs to invest in processes to engage with producers to 'feed' them into this type of project as this is a costly exercise if you are starting in a new area or from a low base of contacts*".

The key way in which this support could be provided was identified as "feeder activities" which have strong alignment to the supported learning project/s. Other options noted by coaches included:

- targeted marketing campaigns (at a local level for specific activities);
- engaging people whose job it is to recruit or run the feeder activities (identifying that these require specialist skills);

- better use of text message and email to notify producers of upcoming activities with options to make better use of online SMS systems and Mail Chimp etc, in addition to more effective use of social media;
- access to producer databases, including the MLA MMfS and MBfP databases for local areas was mentioned by three pilot coaches. Due to privacy reasons it would be unlikely that wider access by deliverers could be permitted, but a central coordinator would overcome this issue. Access to databases was seen to be especially valuable providing insights such as who has engaged previously and what they engaged in plus some basic demographics.

"*I have not fully costed how much time it took me to recruit the producers I got, but it is a significant time cost as it needs to be staged and managed. I have been working on my marketing and engagement strategies and am constantly reminded that this takes time and that this time is not factored into delivery cost and times lines of projects*."

In their mid-term reports three coaches highlighted the opportunity for producer case studies (or producer champions) to be utilised to help promote the opportunity for improved business performance. These could include case studies with past participants included in marketing material (e.g. youtube clips, copy and photos, etc) to help demonstrate the value to potential participants. The raw data for these case studies could be generated through the M&E processes. It could also include producers (either past participants or those who are "on message") being part of feeder events (workshops or information sessions, etc).

Two pilot coaches mentioned the need for MLA to support them in articulating a cost – benefit to industry for the E&A pilot project and in helping to transition producers to user pays for extension. However, ultimately it will be deliverers who must be responsible for creating their own value proposition, a point noted by at least one pilot coach – the key role of MLA will be in assisting deliverers to deliver consistent evidence based messages, in addition to providing M&E data back to deliverers which may be used in defining their value proposition.

Further data from the E&A pilot project producers on the barriers they perceive to participation, supports the importance of deliverers articulating a clear value proposition to producers, on a number of levels (Figure 15). For producers, the major barrier to participation is time (options one and three):

1. Time to participate
2. Unsure of the value to myself/my business
3. Don't want to commit to an ongoing program
4. Cost to participate

A clear business proposition for producer investment of their time and money will be absolutely critical to successful producer engagement and ultimately the success of the proposed adoption program.

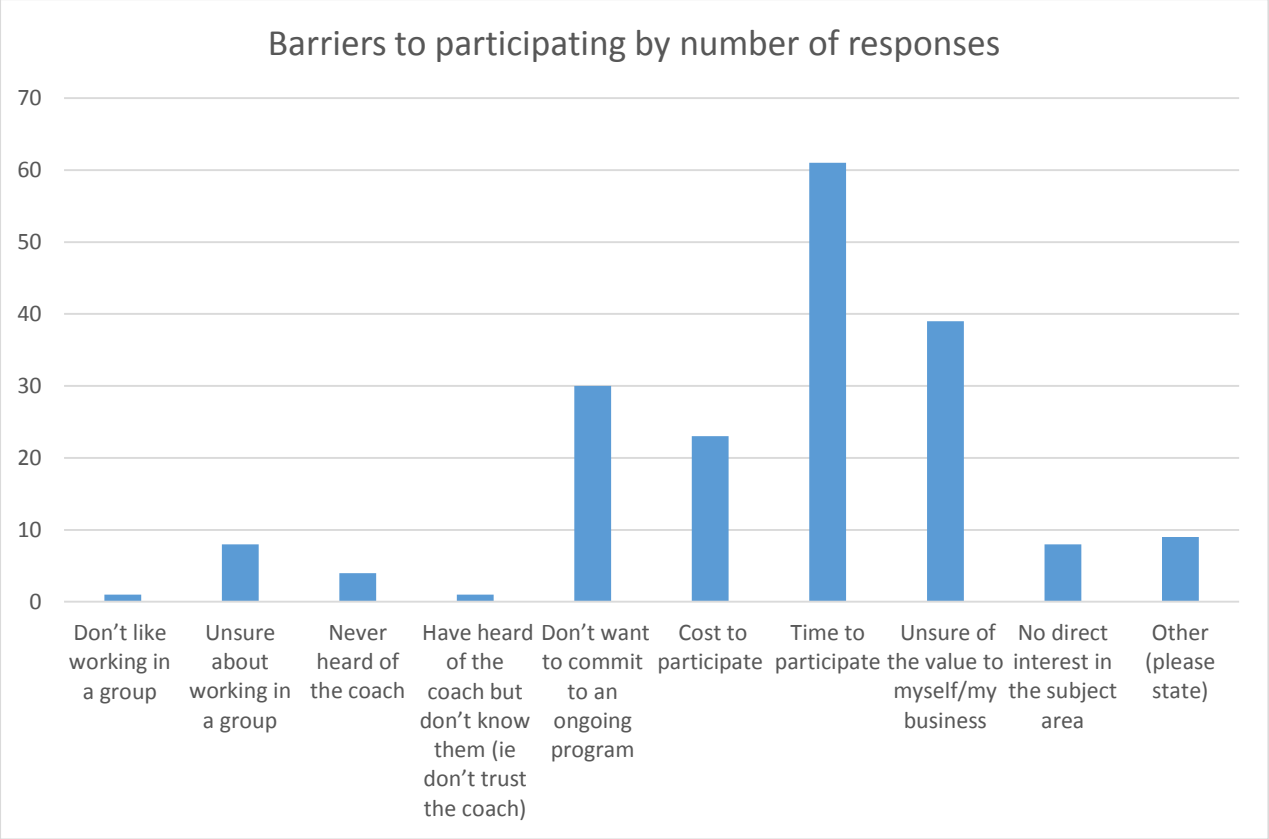


**Figure 15: Key barriers producers selected that may prevent them participating in projects such as the E&A pilot project**

### 3.2.7 Deliverer support

Three coaches in their mid-term reports noted that the support from the coaching coordinator was a highlight or positive from the E&A pilot project, while one coach believed that the coaching coordinator had not provided enough support to them, and that the templates were not of a high enough standard. The majority of deliverers stated that their confidence in developing a supported learning project was higher than at the start of the project, and that the feedback and support had been valuable in enabling them to refine their projects.

"*The biggest learning for me has been doing it – developing and delivering my project and seeing how it's gone. I'm not looking for outside help, I've learnt on the job, although the coach hook ups have been useful*".

In general, the deliverers did not self-access the Dropbox folder with the toolkit information and resources, unless directed to specific resources by the coordinator. This occurred despite an introductory webinar for coaches where the resources available to them were outlined. This meant that deliverers often didn't use templates when they were available (or used old templates), which did create some challenges in quality control, and impacted on the efficiency of coordination activities. This issue may have been exacerbated due to the project being a pilot and templates being updated as the project progressed.

Deliverer attendance at webinars was generally very good, although the majority did not provide feedback (requested via survey monkey post-webinar), despite numerous requests to do so.

The feedback on email updates to deliverers was mixed – some deliverers believed that it wasn't an efficient way to communicate with them, and key information was sometimes overlooked, despite efforts to keep emails succinct and relevant. For others it helped to keep them on track.

Four of the coaches in their midterm reports expressed interest in some level of peer support / networking opportunity with fellow deliverers: "*face to face catch-up with other coaches and the coordinators to discuss how the project is being delivered in other areas"*. Others raised the option for deliverer training across a range of areas including:

- Support for linkage with relevant MLA products and programs
- Training in the support tools / resources being developed by MLA
- Professional development on extension techniques / practices (particularly in the coaching methodology)

One coach gave the example of GRDC delivering industry updates to crop agronomists every 6 months, and suggested that there was an opportunity to have a similar approach for grazing industry professionals.

Other suggestions for support were varied and included:

- Learning / management support tools (consistent across industry) to help producers make decisions (rather than deliverers all developing their own resources), and ensuring that these tools are kept up to date and maintained as relevant.
- Investment into robust supported learning packages. "*We didn't have to invest into the development of the package we delivered, and yet we still over delivered in the pilot. A lot of*

*this over delivery came about through becoming familiar with the package and its application in the context of our farming systems and climate".*

- Some level of financial support.

- Increased consistency and linkages across extension and adoption programs as the market place appears to be quite confused / congested with multiple programs (often with similar names) competing for producer's attention. This issue had already been identified by the project team, and is highlighted in the Business Plan risk assessment, along with mitigation strategies.

## 3.3 Monitoring and Evaluation

There was some revision of the M&E materials during the roll out of the E&A pilot project, and based on feedback from coaches in the mid-term report other templates, resources and processes would benefit from further revision in the implementation of the business plan.

The coach self-assessment form was revised following the second coaches' webinar, during which it became apparent that some coaches were perhaps not delivering using a coaching methodology, as described in the Glossary (Appendix 1: Glossary of definitions). One of the pilot coaches noted that following the webinar they believed that some of the pilot coaches were "*reverting to content heavy and consulting type approaches…rather than a true supported learning and coaching approach*". The self-assessment template was updated to encourage coaches to be more reflective and self-analytical, particularly in the context of applying coaching principles to their delivery, and aligns with the following feedback from one of the pilot coaches – "*coaches need to be self-reflective to be successful and to pick up on cues from participants in regard to comprehension*".

When coaches were asked about their performance as a coach, and what challenges they experienced, it was apparent that the majority have found using this methodology to be new to them, and challenging as they had to step outside their usual way of operating.

"*I do have to keep coaching at the front of my mind, but I have been finding it easier to do naturally as the project has progressed (practice makes perfect) – but I have a way to go before I get to the unconscious competence stage.*"

"*It is challenging as I have to hold back from telling. In coaching I am trying to motivate and lead producers to the solution so they own it; and this takes time*."

"*I probably spent half the time consulting and half the time coaching. There was pressure from producers, they didn't want to work it out, they wanted an answer."*

The producer feedback forms from each session were generally not completed very thoroughly (unless coaches strongly encouraged otherwise, producers tended to just provide a score against each of the assessment criteria without any commentary). This provided minimal information to both coaches and the project coordinator to use in continuous improvement of delivery.

The approach to the KASA surveys in the E&A pilot project (coaches developing all of their own questions – across skills, knowledge, practice and confidence) resulted in data sets where it was difficult to compare across projects, even when they were being delivered on the same topic. Additionally, some coaches varied the confidence and practice questions between the pre skills audit and the mid-term skills audit, making direct comparison of the data sets difficult. Many coaches relied on asking knowledge questions, rather than skills based questions (typically many first draft skills audits contained only knowledge questions). It was particularly challenging for coaches to write skills questions for the business curriculum, and future support in this area may be required. The majority of

coaches noted that they had found developing the skills audit questions challenging and that the feedback and supported had been valuable.

- *"I was happy with the feedback from my KASA data. It provided proof that it takes time and you need to reinforce."*
- *"I found writing the skills audit questions very focussing. In future I would do this up front to make sure that the project is designed to deliver the important skills (it would help me identify and cut out the fluff)."*

A template approach, where the majority of the practice and confidence questions are fixed, and coaches' tailor only a subset of these, while developing their own skills and knowledge questions, would make it simpler for coaches in finalising M&E materials, and easier to collate and analyse data.

Many of the coaches noted that having a structured approach to M&E was beneficial for them, even if they believed that some aspects could be improved – "*Being part of a forced M&E program would be a good, forced discipline (if conducted in a more sophisticated way than current)*". There were several comments from coaches that some of the M&E process were too "tick a box" (although the point could also be made that the approach of some deliverers to M&E was also "tick a box", and focussed on contract compliance), and that improvements could be made:

- *"some form of comprehensive feedback from participants I feel would give me the information I need to evaluate my performance and identify areas for improvement"*
- *"good review processes that go beyond box ticking and academic evaluation, and are focused on the end result of adoption".*
- *"I didn't like the "tick and flick" format of the evaluation form following each activity. Even though it is quantitative so easy for statistical analysis, most producers don't write in comments or give careful thought to the score they are giving."*

There were also comments regarding the data entry templates and processes being too "clunky" and inefficient, and that coaches receive limited benefit from submission of the data (i.e. they don't receive any feedback). This latter comment will be addressed during the E&A pilot project, with all M&E data submitted at the mid-point being analysed, and reports provided back to coaches which will enable them to benchmark their performance against other coaches (using a confidential coach identification system).

A few coaches mentioned that it can be challenging for them, as the deliverer, to obtain objective feedback from their participants, and that support for independent evaluation/reviews with participants post project would be beneficial. This aligns with results from the service provider survey.

## 3.4 Service provider survey

Detailed results and recommendations from the service provider survey are provided in Appendix 11: Service provider survey final report. A summary of the key findings is as follows:

- There is a high level of interest and engagement from the service provider sector in the extension and adoption (PGS) E&A pilot project, with respondents very supportive and interested in engaging;
- Service providers perceive benefits of professional development (PD) opportunities (e.g. latest RD&E outcomes, tools and resources from MLA, and opportunities for other training activities). Offering PD opportunities to service providers will provide an incentive for them to engage with MLA;

- Considerable concern around the ability of service providers to recruit participants willing to pay (i.e. service provider capability to articulate a value proposition to producers). This concern came through repeatedly, in a number of areas of the survey;

- Service providers are not ready at this time to adopt a fully commercial user pays approach to extension, and there will need to be a transition to this over time. MLA's new approach which must not negatively impact or duplicate existing commercial delivery, but improve the standard of delivery overall and expand the potential market of producers willing to engage (and pay) by demonstrating real value;

- The funding model used in the proposed adoption program must differentiate between public, industry and private good as the basis for differentiating investment;

- M&E was seen as a compliance activity rather than a continuous improvement process by service providers and the survey identified a disconnect between theory and practice when it comes to M&E;

- The time and skills required to invest in designing a supported learning project were identified as potential issues by service providers, while flexibility to enable delivery of adoption programs tailored to client needs was a positive of the proposed new approach; and

- Recruitment of producers was seen as a key way in which MLA could support deliverers.

## 3.5 Consultation

The feedback from stakeholder consultation activities was overwhelmingly positive in regards to the direction MLA is intending to take its extension and adoption programs and constructive in terms of feedback and input. The key consideration for public providers of extension services was alignment with departmental priorities and opportunities to leverage or align with their existing programs. One state expressed low level concern for competition for the same producer target audience and questioned the level of producer demand for this project. Private providers were positive about the project direction with only minor concern about competition for producer training investment from a limited pool of producers willing to pay. A low level of concern was broadly expressed about building producer demand, design of effective producer engagement models and time required to develop supported learning projects that is often not fully recoverable. These concerns have been taken into consideration during project design. Australian Wool Innovation (AWI) has expressed early interest in exploring collaborative opportunities around feeder events.

# 4 Discussion

## 4.1 Achievement of objectives

**Table 13: Achievement of E&A pilot project objectives**

| Project objective | Achievement |
|---|---|
| Develop and deliver the Business Plan for a 5 year delivery program including objectives, KPI's and measures of success that will deliver on the relevant MISP | Completed. |

| | |
|---|---|
| 2020 and MLA objectives. Plan to include staged implementation plan for delivery to an agreed number of producer participants over the life of the proposed adoption program. | |
| In consultation with MLA, key service providers and deliverers, develop and tailor the extension program package from the national framework, for northern cattle and southern cattle, sheep and goat systems. | Completed (Appendix 3: Curriculums) |
| Identify product, tools and information gaps in the proposed adoption program package and make recommendations to MLA on approaches to address the gap based on a thorough assessment of the resources and how they may need to be adjusted or expanded to be applicable to all species. | Completed (Appendix 5: Curriculum tools and resources gaps and Appendix 6: Existing industry E&A programs and relationship to proposed adoption program) |
| Pilot the capacity building methodology with 10 groups in locations representative of the target production systems (potentially 4 southern, 4 northern and 2 western), including engaging and training/supporting cohort of coaches over a 6 month period. | Completed (methodology, results and discussion) |
| Establish and implement cost efficient and effective models for recruitment of producers and identification, training/support of up to 10 coaches to deliver the supported learning projects. Implicit will be identifying the compelling value propositions for engagement by all stakeholders and detailing a recommended process for coach quality control. | Completed (methodology, results and discussion, Appendix 11: Service provider survey final report) |
| Establish and implement cost efficient and effective models to support coaches during the pilot phase particularly for rangeland and northern systems and provide recommendations for a process for upskilling coaches in the package based on the pilot experience. | Completed (methodology, results and discussion, Appendix 11: Service provider survey final report) |
| Use an iterative process with coaches and producers to refine the training and delivery method, and producer package. | Completed (methodology, results and discussion, Service Provider Survey Report) |
| Consult with E&A pilot project deliverers and producers to establish product price point and producer willingness to pay and make recommendations for the 5 year proposed adoption program. | Completed (methodology, results and discussion) |
| Assist MLA to create a network of advocates and champions, including MLA regional consultation committees and the Goat Industry Council of Australia (GICA) to promote and create a "word of mouth" channel for engaging producers. | Completed |
| Assist MLA to scope and engage project partners and collaborators. | Completed |
| Conduct robust E&A pilot project monitoring and evaluation, including cost benefit analysis to inform a business case for a 5 year delivery of the proposed adoption program. | Completed |

## 4.2 The operating environment

An understanding of the operating environment has been developed based on a review of previous studies (Howard et al 2014, McRobert 2015), consultation during delivery of the E&A pilot project and E&A pilot project activities including the service provider survey and the supported learning projects. Key features of the operating environment that have informed the design of the proposed adoption program (including the determination of KPIs) are outlined below.

The deliverer survey clearly highlighted that deliverers are not ready at this time to adopt a fully commercial user pays approach to extension and adoption. None of the pilot coaches applied a commercial approach to their delivery although four noted this fact and attributed it to the project being a pilot. Even with the MLA investment of $20,000 per group, four deliverers made a loss and one broke even, with an average profit-loss across the ten deliverers of -$2,123 (only including delivery costs, not project development costs). The average fee charged per business was $700 (comprising an average of 22% of the total income, and 70% of participating producers believed that "the fee to participate was about right", when for the majority of supported learning projects it did not come close to reflecting the true cost of delivery. The evidence suggests that deliverers are reluctant to ask producers to pay (they are not confident to articulate a value proposition). The structure of many supported learning projects suggests that deliverers are not designing their projects with their commercial interests in mind, for example the significant use of one to one delivery including property visits is a high cost model. There is also an argument that by providing large subsidies for project delivery that there is no imperative for deliverers to behave commercially.

Producers are not participating (in extension activities) because they are not seeing the commercial value in what is on offer; an agreed and clear pathway between practices and improved meat production and profitability is not always evident (McRoberts, 2015). However, this deficit in producers valuing extension services is counter balanced by the fact that the majority of meat producers, especially northern cattle only businesses, are unprofitable (ABARES 2014, McLean et al. 2013) and their awareness and understanding of their own skill levels and actual training needs is low. There is especially low awareness of business weaknesses and opportunities (McRoberts, 2015).

This finding was confirmed by the E&A pilot project particularly with coaches running business focussed supported learning projects noting that producers typically had very poor records and very little understanding of their own business performance. The key barrier to participation noted by producers in the E&A pilot project was around the value for their investment – in particular their time commitment (cost was a secondary consideration compared to their time). This finding is supported by McRoberts (2015) who found that "*the majority of producers do not see a value proposition in the training and extension activities being offered to them*." There is a significant opportunity for a well-designed, high quality extension and adoption program, which incorporates a clear value proposition as part of a strategic recruitment process, and focuses on learning activities which will lift business performance.

There was a large amount of interest in the service provider survey with over 147 respondents, of whom the majority (62%) were interested in engaging with the proposed adoption program. This is consistent with the feedback through consultations that have been conducted during the E&A pilot project, with the vast majority of stakeholders supportive of the proposed adoption program principles and approach. Additionally, in the survey there was a strong alignment between deliverer thinking and the core principles of the proposed adoption program (supporting producers to achieve business goals and working with business focussed producers). The supported learning projects also indicate that deliverers are very supportive of the approach being proposed by MLA in delivering extension and adoption in future – "*the supported learning pathway under a user pays approach is definitely what the future of extension needs to look like. Congratulations and great work on having the courage to be the trailblazer on this front.*"

However, the industry support and enthusiasm for the proposed adoption program is tempered somewhat by service provider capability. The E&A pilot project (and the Farm300 program delivered by MLA in 2014/15) have clearly highlighted that whilst the individual technical skills of extension deliverers is generally high, there is limited understanding of, or experience with, a coaching / supported learning approach. Initially, deliverer capability is likely to be the limiting factor for

implementation of the proposed adoption program Business Plan. While the E&A pilot project deliberately provided minimal support to deliverers to upskill them in a coaching approach, the Business Plan must provide for significant levels of support for deliverers to enable them to work with MLA to achieve the Business Plan KPIs, especially in the early years of the proposed adoption program implementation. Further information about this is provided in Section 4.6 The delivery platform and approach.

MLA's existing R&D and E&A programs offer both a threat and an opportunity to the successful implementation of the proposed adoption program. If they are not integrated with the proposed adoption program, in terms of consistent approaches to pricing and messaging, and opportunities to create linkages between activities are not capitalised on, then they present a significant risk. However, if E&A activities being delivered through all of MLA's programs are well integrated and consistent then there is significant opportunity to leverage them to assist in recruiting producers to the proposed adoption program.

Currently, the linkages and synergy between the different program areas within MLA responsible for developing and delivering extension and adoption tools and packages is poor – the programs typically work independently of each other, and there is no consistent approach to pricing, terminology of activities, etc. There is opportunity through the proposed adoption program to better integrate extension and adoption delivery across all of MLA's programs, which will help to improve efficiency and consistency (across a range of areas from pricing to messaging).

The E&A pilot project has also highlighted potential competition issues between MLA's E&A program approach and that of other extension providers (e.g. other RDCs (AWI, GRDC, Dairy Australia, etc), NRM/CMA/LLS, state government primary industries departments, etc). These competition issues range from a crowded market place (competition for producer attention) right through to offering "free" extension programs, competing on price. It will be very difficult for MLA to have any influence on the approach to extension of other organisations, however discussions have commenced as part of this E&A pilot project, and should continue on implementation of the business plan. The objective of these discussions should be to facilitate a collaborative approach between MLA extension programs and others, wherever possible. The key way in which MLA can help deliverers manage this complexity in the short term is through the value proposition being offered by E&A program deliverers; and ensuring that this enables the proposed adoption program to be clearly differentiated as a high quality package that will deliver a return on investment by increasing business profit for participating producers. Figure 17 outlines a suggested approach to linking different extension programs both within MLA and externally. This is supported by the Table in Appendix 6: Existing industry E&A programs and relationship to proposed adoption program which provides an overview of existing red meat industry extension and adoption packages and linkages between these and the proposed adoption program. It also provides some recommendations to ensure that the proposed adoption program and these existing programs are delivered in future in a manner which will complement rather than compete.

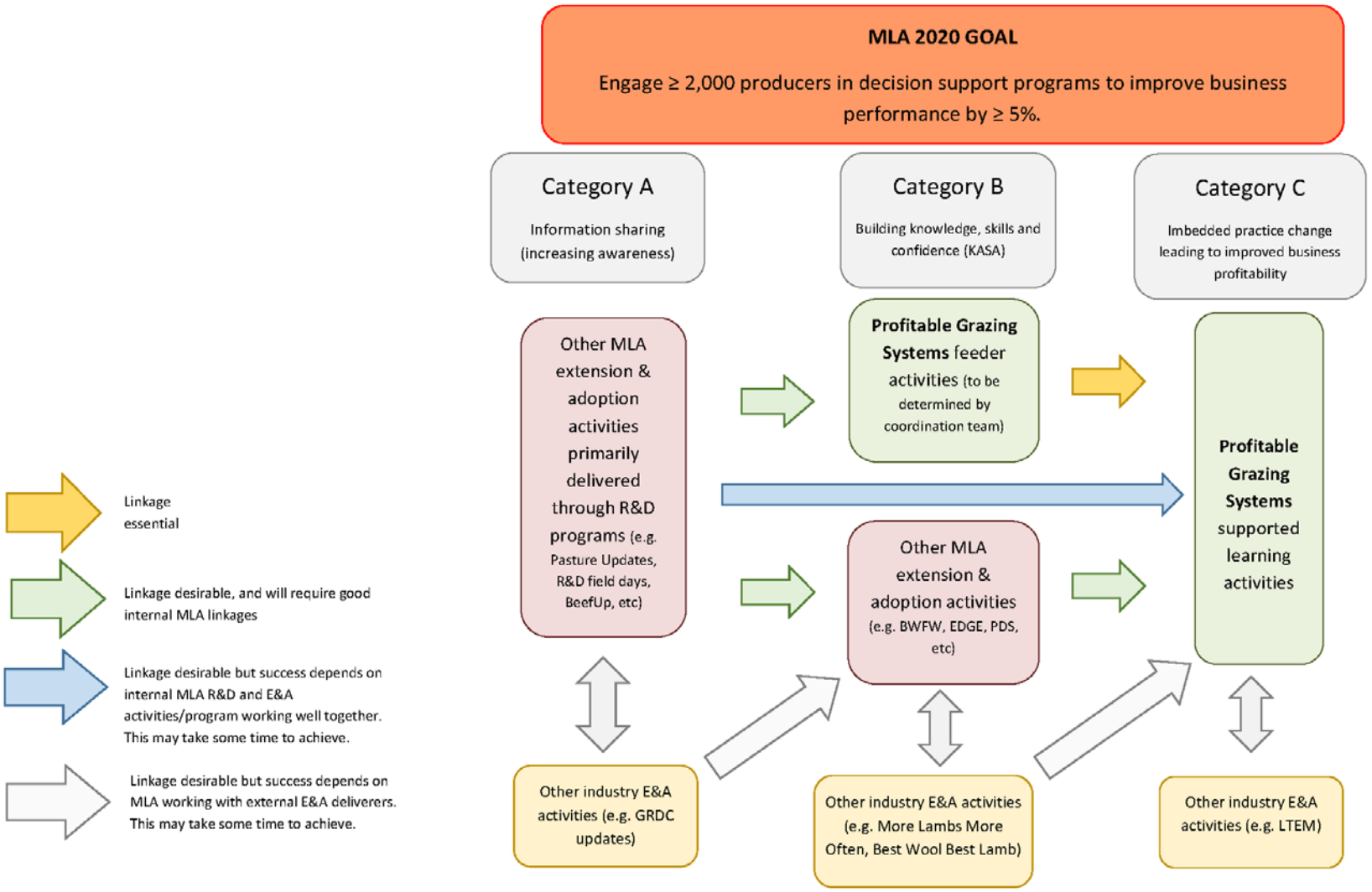


**Figure 16: Overview of E&A program approach**

## 4.3 Other challenges

Measuring the impact of the proposed adoption program on farm productivity or financial performance of participating businesses in a way that can be attributed to participation in the program is likely to be challenging:

- Trying to measure improved business performance within the lifetime of delivery will be problematic, as implementation may require longer timeframes to affect, and there may be negative seasonal or market forces prevailing which will impact on profit over and above the impacts of improved business management/performance;

- Producer data – the E&A pilot project has indicated that generally record keeping amongst red meat producers is poor and data is difficult to obtain;

- A requirement to share financial data may pose a barrier to participation, particularly where the supported learning project being delivered is of a technical nature (e.g. feedbase or reproduction);

- Not all deliverers have the necessary technical skills to conduct financial analyses.

- TFP requires that there is no change to the market price over the life of the assessment. This is unlikely to be the case, therefore linking on-farm profitability (measured as ROAM) with TFP may be challenging.

This is a major challenge, given the proposed adoption program KPIs consist of farm business benchmarks, and must be overcome for program impact to be accurately measured and attributed. Modelling (such as done for the E&A pilot project), is an option, but depends on deliverer capability to conduct the analysis. Another option being proposed is a Farm Monitor Program based on that which has been successfully established in the dairy industry. It would provide significant benefits in terms of real industry data to MLA, benefitting numerous MLA programs and activities and has strong fit with MLA's focus on digital agriculture. A similar proposal was put to the MLA Board in 2010/11 (Hogan, 2010).

Attribution of proposed adoption program activities to MLA may also prove challenging, given that it is recommended MLA contribute only a small (30%) component to delivery and provide no support to package refinement by individual deliverers. This can be overcome by MLA offering more value to deliverers than the dollar contribution towards the price deliverers' charge participants. This additional value may be provided through support for recruitment and presenting a value proposition to producers, support with conducting meaningful and structured M&E, deliverer training, support and professional development opportunities, peer support and networking including benchmarking of their performance against peers. Most importantly, MLA will ensure that the standard of delivery is high and consistent across their proposed adoption program.

## 4.4 Supported learning approach

Based on assessment of the coaches' mid-term reports, review of their supported learning projects and conversations with deliverers, at the mid-term point at least 4 of the projects and/or the delivery approach are not considered to fulfil the definition of supported learning, either partially or completely. This is not a surprising outcome, as for many deliverers it was their first exposure to this methodology, and there was no deliverer training (apart from feedback during the development of their supported

learning projects and provision of the tools and resources). This was a deliberate approach to the E&A pilot project, as one of the objectives was to understand the existing capability of the deliverer network to use a supported learning approach.

A key issue for some deliverers was the perception that to deliver value to producers required a diversity of topics and presenters, rather than delving into the topic in detail and allowing opportunity for practice, reinforcement and reflection. This has significant implications for ongoing delivery using the E&A pilot project supported learning model – it implies that deliverers undervalue their own contributions and performance, making it challenging for them to sell a strong value proposition to producers. It also increases the costs of delivering projects – which is a significant issue in transitioning to a user pays model. There is a significant opportunity for deliverers with complementary skills to partner in the delivery of projects and either co-deliver or transition producers from one deliverer to another. This requires deliverers to have a core objective of building producer independence through knowledge and skill development, so that they are able to manage their own businesses to increase profit and productivity (i.e. not delivering with the primary intention of creating dependency, or one on one consulting opportunities).

Despite the overwhelming support expressed during the E&A pilot project for the supported learning approach (from deliverers and the wider industry), and the acceptance of it as a methodology to bring about practice change within businesses (Doonan, 2011), it is apparent from both the E&A pilot project and the service provider survey, that service provider capability both to develop and deliver projects using a supported learning approach is limited. This lack of capability is likely to be a significant impediment to the successful delivery of the proposed adoption program, post the pilot. The delivery platform proposed for the Business Plan, in particular adopting a phased approach to implementation, and a focus on upskilling E&A deliverers, has been designed to address/overcome this limitation (refer to Section 4.6 The delivery platform and approach for more information).

## 4.5 The curriculum approach and proposed adoption program design

All of the curriculums have been designed to provide a national framework for a supported learning approach, but they can also be adapted to other learning approaches where these are more appropriate (such as Category B activities – refer to Appendix 1 for a definition).

At the commencement of the E&A pilot project, it was envisaged that all E&A project deliverers would develop their own supported learning projects to deliver to producers, and that the curriculums would both support deliverers in designing their supported learning projects, and also provide a framework against which these projects could be assessed. However, the learnings from the E&A pilot project have indicated that this approach is unlikely to be successful if used as the primary delivery platform. While the majority of deliverers have a limited understanding of the supported learning (coaching) approach they will consequently also have limited capability to develop effective supported learning projects, without significant investment by MLA. The service provider survey highlighted that deliverers preference is to be able to access packages which they can tailor to their audience. Consequently, the approach being recommended to developing supported learning projects, particularly in Phases 1 and 2 (Section 4.6.2 The delivery platform), is multi-faceted:

1. Use of existing MLA supported learning packages, by approved proposed adoption program deliverers;
2. Where clear gaps, combined with market demand, have been identified, MLA investment in development of supported learning packages. These will be available for proposed adoption program approved deliverers to tailor and deliver; and

3. Deliverers invest in developing their own supported learning projects, which are consistent with the relevant proposed adoption program curriculums (in this instance, deliverers will own the IP of their programs, as MLA will not provide any investment).

In all cases above, the final supported learning projects must be approved for delivery by MLA. This process is intended to provide useful feedback to deliverers to enable continuous improvement, ensure that a high standard of adoption packages is maintained, and that there is consistency in messaging through industry. This proposed approach is also consistent with McRoberts (2015) who noted that MLA should support the development of high quality training products (rather than subsidising delivery of activities for producers).

However, development and provision of packages by MLA must be accompanied by training for deliverers – not only in the package delivery, but also in upskilling deliverers in delivery methods and approaches (that the experience that they bring as deliverers is at least, if not more, important than the package or product itself). Provision of "high quality technical information" was rated seventh out of eight options as a key gain for producers involved in the E&A pilot project conversely – learning new skills and how to apply them to their farm business was the number one benefit for participants. Additionally, producers were very happy with the quality of tools and resources available to them in the E&A pilot project – so the low ranking of technical information was not due to the fact that producers believed the material was poor quality.

It is critical that delivery focuses not just on the building of technical knowledge amongst producers but how to apply and implement this knowledge into their farming systems. McRoberts (2015) also noted that *"livestock production messages need to focus on the practical aspects of implementation rather than be too technical. Training should focus on implementation or the 'how to' rather than disseminating more and more low value information*". Implementing learnings on-farm with support from an experienced technical expert and other producers with a whole farm system approach, leading to productivity and profitability improvements, must be promoted as a key point of difference for the proposed adoption program.

The curriculums will be relevant and utilised in all of the approaches outlined above. A curriculum based approach provides the greatest level of flexibility in terms of project development and delivery, whilst also offering a framework to ensure that the desired learning outcomes are achieved by the proposed activities.

The curriculums have been designed to guide the development of supported learning projects. To achieve embedded practice change and to improve business performance, both project content and the delivery method are critical. The focus of the curriculums is on content, activities and resources required to achieve specific learning outcomes. In designing supported learning projects, deliverers should follow a similar template to that of the curriculum, separately addressing each area: learning topic, learning outcome, learning activity, and tools and resources.

The curriculums have also been designed to encourage producers to move from one curriculum to another with strong links and shared topics between many of them. This cross-curriculum approach will enable producers to continue to capitalise on the business improvements possible through adoption of new practices and the development of skills. It will be a key feature of the proposed adoption project, that learning projects link with or are developed in context with, the value chain.

The curriculums will require updating and review, ideally on an annual basis, as part of the Business Plan implementation.

Careful consideration should be given to the incorporation of one to one activities into supported learning projects (particularly property visits) – the experience from the E&A pilot project indicated that

it significantly increased the cost of delivery, and from the data it doesn't appear to deliver significant additional benefit. Similarly, extensive use of external deliverers should not be necessary where deliverers have the technical capability in the curriculum topic they are covering – this is a strategy employed by a number of E&A pilot project coaches which will also contribute to increased delivery costs. Deliverers should be encouraged to utilise alternative approaches which are more cost effective.

Commencing supported learning projects with a comparative analysis session is likely to prove challenging for deliverers, given the experience with poor record keeping by the majority of producers. A flexible approach to delivery of this session will be required by both MLA and deliverers, and availability of high quality data from the Farm Monitor program will be integral to its success and acceptance amongst both producers and deliverers.

### 4.5.1 Definitions of learning activities

In addition to developing the curriculums, a Glossary of Definitions has also been developed as part of the E&A pilot project (Appendix 1: Glossary of definitions). The purpose of this Glossary is to ensure a consistent approach by both MLA and deliverers to extension and adoption, using a common language for learning activities and terms associated with their delivery. While the Glossary provides definitions to be used for activities in relation to the Proposed Adoption Program Business Plan, MLA is encouraged to adopt this approach across other extension and adoption programs to ensure consistency.

Table 23 provides an overview of the definitions for learning activity categories. These are based on MLA's previous extension programs – Making More from Sheep and More Beef from Pastures, and have been updated to reflect the increased focus on practice change and skill development for extension and adoption activities being delivered by MLA.

**Table 14: Activity category definitions for the proposed adoption program**

| Activity Category | Definition |
|---|---|
| **Category A: Awareness** | Category A activities form the initial stage of the learning pathway by seeking to engage producers with MLA's extension and adoption programs. The key purpose of these events is to enable information sharing (increasing awareness) and networking. These activities ***must*** play a role as a feeder for either Category B or C activities (highlight opportunities for producers to increase their skills or knowledge). Examples of Category A activities are field days, forums / expos, seminars, and conferences. |
| **Category B: KASA change** | Category B activities are about building producer knowledge, skills, confidence, and, as a function of skill development, some practice change (often significant) may occur over time. KASA change is defined as a measurable increase in Knowledge, a positive change in Attitude, an increase in Skills or a change in producers' Aspirations. An additional role of these events is to feed producers into a Category C activity, where they are able to convert the knowledge and/or skills they have gained into changes in practice which improve business performance. An example of a Category B event is a workshop or comparative analysis session. |
| **Category C: Embedded practice Change** | Category C activities are about supporting adoption and increasing the uptake of practice change amongst producers to achieve quantifiable increases in on farm productivity and profitability. The focus is on skill development and supporting implementation of new skills and learnings within the farm business. These activities would typically be delivered using a supported learning approach (e.g. coaching or benchmarking). |

The words used to describe the learning activities or events delivered under each of these categories have previously not been definitive (for example 'workshop' is currently used by practitioners to describe events being delivered under all three of these categories). In order to ensure clarity for Profitable Grazing Systems deliverers, participants and funding bodies/partner organisations consistency in terminology is required and has been provided in Appendix 1: Glossary of definitions.

## 4.6 The delivery platform and approach

A Program Logic has been developed to assist in mapping the proposed adoption program activities and linkages between them, and the program KPIs. This is presented in Appendix 7: Program Logic).

### 4.6.1 Coordination, management and governance

Excellent leadership and coordination will be critical to the success of the proposed adoption program - effective coordination of the program is likely to mean the difference between success or failure. The key role of program coordination will be to manage and administer all operational aspects of the proposed adoption program to achieve the vision set out in the Business Plan. These tasks are likely to include recruiting deliverers, supporting deliverers to engage producers, managing the M&E processes, including maintaining deliverer standards, and developing the materials, resources and processes required to provide the foundations for delivery of a high quality, relevant extension and adoption program. It is unlikely that one individual will have capacity or capability to deliver on all of the responsibilities required. Hence, it is recommended that program coordination will be best delivered utilising a coordination team. There must be a designated program coordinator (team leader) who has ultimate responsibility and it is recommended that this position is imbedded in MLA to

ensure linkages with MLA R&D programs, value chain activities and extension and adoption activities being delivered through other areas of the business. Ultimately it is the Program Coordinator's responsibility to ensure that the proposed adoption program meets its key performance indicators and is on track to achieve the Vision in the Business Plan. The other coordination roles identified are M&E coordinator and state based coordinators, to work closely with local networks and achieve program uptake. State-based coordinators provide an opportunity for an increased MLA presence in regional areas, and the role will be more regionally strategic and targeted than the current MMfS/MBfP state coordinator roles.

Additionally, based on the findings from the E&A pilot project and the service provider survey it is evident that deliverer capacity to develop and deliver supported learning activities is limited. In order to address this issue, the approach being proposed is to engage a deliverer leadership team to champion the program, work closely with the national coordinator to support and mentor the deliverer network, to develop and/or deliver feeder activities and deliver supported learning projects. The leadership team will consist of a small team of deliverers selected specifically for this role; their attributes and skills will be rated more highly in their selection than geographic or technical spread. The deliverer network will be drawn from service providers who wish to participate in the proposed adoption program, and meet the selection criteria – they will be selected to provide coverage across the country and across a range of technical areas. Hence, there will be two categories of deliverer engaged with proposed adoption program:

- Leadership team
- Deliverer network

A simple governance structure as outlined below (Figure 18), describes how the different roles will interact.

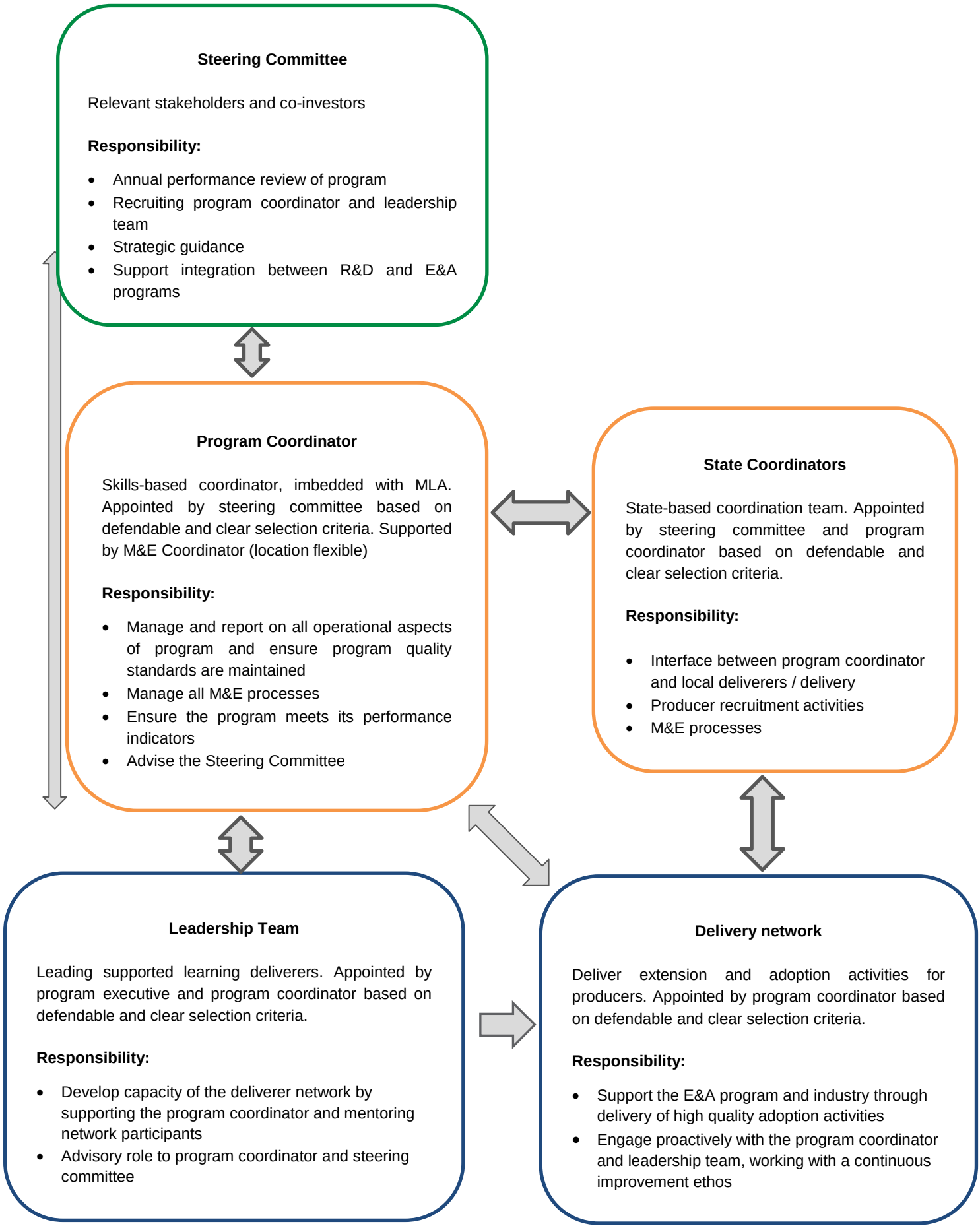


**Figure 17: Proposed governance structure for the adoption program**

### 4.6.1.1 Proposed Adoption Program Coordination

The key role of program coordination will be to manage and administer all operational aspects of the proposed adoption program to achieve the vision set out in the business plan. These tasks are likely to include recruiting deliverers, supporting deliverers to engage producers, managing the M&E processes and developing the materials, resources and processes required to provide the foundations for delivery of a high quality, relevant extension and adoption program. Responsibilities will include:

1. Engage deliverers for the delivery network.
2. Assist in the engagement of deliverers for the leadership team.
3. Coordinate the development of MLA funded supported learning projects, including review to ensure that they meet curriculum requirements.
4. Review supported learning projects submitted by deliverers, to ensure that they meet curriculum requirements, are realistic and provide a supported learning process to achieve learning outcomes.
5. Coordinate the delivery network mentor program with the deliverer leadership team and the deliverer network.
6. Coordinate professional development and networking opportunities for the delivery network and leadership team.
7. Assist in the coordination of feeder and recruitment activities on behalf of deliverers.
8. Manage the monitoring and evaluation processes including:
    i. quality control of delivery and provide a continuous improvement framework for deliverers,
    ii. measure program impact,
    iii. provide reports to the Steering Committee,
    iv. develop templates and materials where required,
    v. collate and analyse M&E data from individual programs and feedback to deliverers.
9. Liaise with relevant MLA staff and business units, including the Steering Committee, to facilitate achievement of proposed adoption program outcomes.
10. Support the Steering Committee in achieving good governance of the proposed adoption program.
11. Identify and foster relevant opportunities to partner with industry.
12. Establish effective systems to maintain regular communication with the leadership team and delivery network.
13. Develop and manage critical relationships within and around the program.
14. Advise the Steering Committee of gaps and continuous improvement opportunities.
15. Initiate opportunities to raise the interest and awareness of producers and encourage their participation.

**Attributes required of the Proposed Adoption Program Coordinator**

1. Demonstrated understanding of practice change and the delivery tools and methods which are most effective in achieving practice change.
2. The theory and practice of supported learning, in particular coaching is well understood.
3. Background in extension and adoption, with experience in project design, delivery and coordination.
4. Excellent communication skills and ability to form and maintain relationships with a range of stakeholders.
5. Experience in developing and implementing monitoring and evaluation plans to demonstrate impact.
6. Demonstrated high level project management capability and excellent organisational skills.
7. High level of professional integrity.
8. Some technical capability and knowledge of livestock production systems.

**Attributes required of the M&E Coordinator**

1. Excellent analytical capability to collate and process data and an ability to analyse, interpret and report back on data (including recommendations).
2. Experience in developing and implementing monitoring and evaluation plans.
3. Background in extension and adoption, with experience in project design, delivery and coordination.
4. High level of professional integrity.

**Attributes required of State Coordinators**

1. Background in extension and adoption, with experience in project design, delivery and coordination.
2. Proven track record of delivering high quality extension activities with high producer engagement.
3. Excellent communication skills and ability to form and maintain relationships with a range of stakeholders.
4. Existing red meat industry networks (including producers, service providers, and other industry stakeholders) or the ability to grow and form theses quickly.
5. Experience in monitoring and evaluation and capacity to provide support to deliverers in meeting M&E requirements.
6. Project management capability.
7. High level of professional integrity.
8. Some technical capability and knowledge of livestock production systems.

**Key roles of State Coordinators**

- Recruitment – local networks and local knowledge are critical in successful recruitment;
- Key contact for deliverers within each state;
- Influence event and activity design to ensure they are high impact and meet producer needs locally;
- Coordinate strategic feeder activities where required to recruit producers;
- Monitoring and evaluation (and activity QA – ensuring consistency in messaging and standards of delivery).

It would increase efficiency if a state-based coordinator was nominated to perform the functions of M&E coordinator (i.e. to act as a conduit for M&E between the state coordinators and the Program Coordinator). To ensure clarity around the different coordination roles designated above, individual roles and responsibilities and performance measures are required (contribution to meeting the overall proposed adoption program KPIs could be considered as a performance measure). Table 24 provides a breakdown of the coordination responsibilities.

#### 4.6.1.2 Leadership team

The key role of the leadership team deliverers will be to develop the capacity of the deliverer network by supporting the program coordinator and mentoring network participants:

1. Deliver feeder and recruitment activities on behalf of delivery network deliverers
2. Support the program coordinator in reviewing supported learning packages developed by MLA
3. Deliver supported learning projects under the proposed adoption program banner (minimum of one per year)

4. Mentor delivery network deliverers (minimum of 3 deliverers per mentor per year)
5. Provide support to the proposed adoption program coordinator by providing feedback and recommendations
6. Act as a champion for the proposed adoption program
7. Support good governance of the proposed adoption program

Tenure for leadership team deliverers is anticipated to be 2 years, although to maintain some stability in the group half will be retained for 3 years. It is anticipated that some deliverers who have themselves been mentored, will grow into the role of leadership team member.

**Attributes expected of leadership team deliverers**

1. Above average capability to embed practice change (demonstrated by minimal impact to producer capability once the deliverer has exited)
2. Fundamental understanding of what they're doing to achieve practice change and why they're doing it (i.e. can describe what they're doing)
3. Ability to form and maintain relationships with producers
4. Their end goal in delivering extension and adoption programs is to develop independent clients (they empower people they work with to move upwards)
5. Approach is dominated by industry good, and they have a collegial approach to their work
6. High level of professional integrity
7. The theory and practice of coaching is well understood
8. Technically strong (typically across a range of areas)
9. Ability to design supported learning packages and to train deliverers
10. Highly regarded by their peers and producers that they work with
11. High level of practical experience with, and understanding of, M&E

#### 4.6.1.3 Deliverer Network

**Role of deliverer network deliverers**

In order to deliver the outcomes of the proposed adoption program (improved profit through skill development) the deliverer network will:

1. Deliver feeder and recruitment activities as required
2. To develop or adapt supported learning projects which meet the objectives of proposed adoption program
3. Deliver supported learning projects under the proposed adoption program banner (minimum of two per year)
4. Adopt a coaching approach in delivering supported learning projects
5. Engage in professional development activities, either offered by MLA, or external to MLA but relevant to MLA's proposed adoption program
6. Actively engage in monitoring and evaluation with a particular focus on continuous improvement of their supported learning projects content and delivery
7. There may be opportunity for deliverer network deliverers to become part of the leadership team as vacancies become available, and their capability increases.

**Attributes expected of delivery network deliverers**

1. Well regarded by their peers and the producers that they work with
2. Willing to improve and learn
3. Understand the concepts of supported learning (i.e. the deliverer's ability can be separated from the program that they're delivering)
4. There is evidence that they are making a difference for producers that they are working with
5. Demonstrated ability to build rapport with producers
6. Hungry for information and keen to be part of peer to peer network
7. Strong technical skills which are further developing (may only have technical skills in one area)
8. Not a facilitation role but will require good facilitation skills
9. Their end goal in delivering extension and adoption programs is to develop independent clients (they empower people they work with to move upwards)
10. Good understanding of and attitude to M&E

.

**Table 15: Breakdown of responsibility between different members of the coordination team**

| Responsibilities | Program Coordinator | M&E Coordinator | State-based coordinator |
|---|---|---|---|
| 1. Engage Deliverers for the delivery network | ✓ | | ✓✓ |
| 2. Assist in the engagement of Deliverers for the leadership team | ✓✓ | | |
| 3. Coordinate the development of MLA funded supported learning projects, including review to ensure that they meet curriculum requirements | ✓✓ | | |
| 4. Review supported learning projects submitted by deliverers, to ensure that they meet curriculum requirements, are realistic and provide a supported learning process to achieve learning outcomes | ✓✓ | | |
| 5.Coordinate the delivery network mentor program with the deliverer leadership team and the deliverer network | ✓✓ | | ✓ |
| 6. Coordinate professional development and networking opportunities for the delivery network and leadership team | ✓✓ | | ✓ |
| 7. Assist in the coordination of feeder and recruitment activities on behalf of Deliverers | ✓ | | ✓✓ |
| 8. Manage the monitoring and evaluation processes including:<br>a. manage quality control of delivery and provide a continuous improvement framework for deliverers,<br>b. measure program impact<br>c. provide reports to the Steering Committee | <br>✓✓<br>✓✓<br>✓✓ | <br>✓✓<br>✓✓<br>✓ | <br>✓ |

| Responsibilities | Program Coordinator | M&E Coordinator | State-based coordinator |
|---|---|---|---|
| d. develop templates and materials where required | ✓ | ✓✓ | ✓ |
| e. collate and analyse M&E data from individual programs and feedback to deliverers | ✓ | ✓✓ | ✓✓ |
| 9. Liaise with relevant MLA staff, including the Steering Committee, to facilitate achievement of proposed adoption program outcomes | ✓✓ | | |
| 10. Support the Steering Committee in achieving good governance of the proposed adoption program | ✓✓ | ✓ | ✓ |
| 11. Identify and foster relevant opportunities to partner with industry | ✓✓ | | ✓✓ |
| 12. Establish effective systems to maintain regular communication with the leadership team and delivery network | ✓✓ | | ✓ |
| 13. Develop and manage critical relationships within and around the program | ✓✓ | ✓ | ✓ |
| 14. Advise the Steering Committee on gaps and continuous improvement opportunities | ✓✓ | ✓ | ✓ |
| 15. Initiate opportunities to raise the interest and awareness of producers and encourage their participation | ✓ | ✓ | ✓✓ |

✓✓ Core responsibility

✓ Supporting role

### 4.6.2 The delivery platform

Based on the limitations presented by the current operating environment and other challenges to the proposed adoption program methodology, a phased approach to implementing the proposed adoption program is recommended. This approach is summarised in the figure below (Figure 19). Essentially, it involves a foundational period (years 1 and 2) to establish the program and begin to build momentum, followed by a growth period and then a stable delivery period. In the first phase some funds will be allocated towards the development of supported learning projects by MLA where there are clear gaps and linkages with existing feeder activities. This will be essential to enable building of early momentum via delivery, while the deliverer network is upskilled to be able to develop their own packages

| **Phase 1 - 1-2 years**<br>**Setting the foundations and building momentum** | **Phase 2 - 3-5 years**<br>**Building momentum, growing Deliverer capability and increasing producer willingness to pay** | **Phase 3 - 6-10 years**<br>**Transition complete – achieving the vision** |
|---|---|---|
| Coordination team functioning | | Coordination team functioning |
| Deliverer leadership team functioning | | |
| Delivery network phase 1 | Delivery network phase 2 (growing) | Delivery network phase 3 (growing) |
| Establish M&E processes | Growing recognition of continuous improvement process | Continuous improvement process |
| Establish farm monitor project | Farm monitor project rolling out. with a multipurpose approach | |
| Platform for deliverer training and support | Refine platform for deliverer training and support | |
| Develop delivery packages (supported learning projects) | Limited development of MLA funded packages | Limited (if any) development of MLA funded packages |
| Comparative analysis activities utilise group production KPIs | Comparative analysis activities utilise group production KPIs & Farm Monitor data | Comparative analysis activities utilise group production & financial KPIs & Farm Monitor data |
| Producer recruitment strategies developed and implemented | Producer recruitment strategies refined and implemented | Producer recruitment strategies refined and implemented |
| MLA investment maximum of 30% of delivery cost | MLA investment maximum of 30% of delivery cost | MLA investment maximum of 20% of delivery cost |
| Developing linkages between MLA R&D programs | Refining linkages between MLA R&D programs | Maintaining linkages between MLA R&D programs |
| Build program momentum with successful delivery of the proposed adoption program supported learning activities to sheep, beef and goat producers | Increased program momentum with successful delivery of proposed adoption program supported learning activities to sheep, beef and goat producers | Ongoing successful delivery of the proposed adoption program supported learning activities to sheep, beef and goat producers |

**Figure 18: Outline of the phased approach to delivery of the proposed adoption program**

### 4.6.3 MLA investment framework

MLA is demonstrating a leadership role in encouraging industry to transition to a user pays approach for extension and adoption services. This approach is being driven by the reduction in resource allocation of state government extension services in many states and a need to increase the value placed on high quality extension services by industry. McRoberts (2015) recommended that MLA deliver smaller amounts of high quality / high value training based on demand from producers and charge commercial rates.

However, in order to support transition to a commercial model it is critical for MLA to adopt a robust, consistent, defendable approach to user pays which is applicable to its entire portfolio of extension and adoption products and services. The user pays framework must include products and services targeting both deliverers and producers. Additionally, there was a strong commitment to continue to build on the user pays platform that Making More from Sheep and More Beef from Pastures have established, and ensure consistency with past MLA programs.

As noted in section 4.6.2 The delivery platform, the service provide survey (2016) provided clear evidence that there is a broad lack of confidence across industry to transition to a commercial user pays model for extension and adoption services. On this basis, the user pays implementation model for the proposed adoption program will take a long term, strategic approach which is phased over a ten year period, enabling strong foundations to be set in the first few years that will transition industry to user pays for services by 2027 (10 year implementation period). Three key phases are presented and fully explained in the table below. The key risks in not getting the approach to user pays consistent and fair are:

- inconsistency across MLA programs leading to significant consequences for MLA's reputation and credibility with both deliverers and producers but also for the success of the proposed adoption program
- "double dipping" (deliverers or producers being subsidised by both MLA and other RDCs or government agencies for the same activity)
- Being perceived as anti-competitive and/or skewing the market for extension services

In developing the approach to user pays, the key principle will be through defining what constitutes public vs private vs industry benefit across services that are provided. Figure 20 provides the spectrum across public, private and industry good continuum and of the levels of respective investment that should be made into extension activities. Fundamentally, this means:

- Public good activities remain a primary responsibility of DPIs
- Industry good activities are the responsibility of RDC with some public / private co-investment
- Private good activities are increasingly undertaken on a user pays basis.

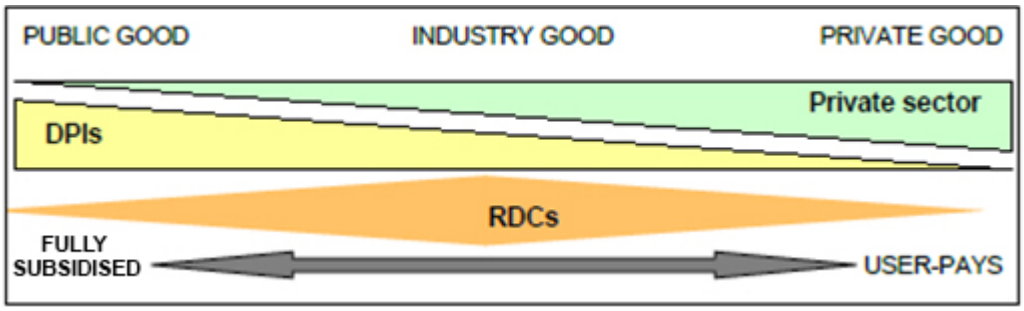


**Figure 19: Framework for allocation of public / private benefit (MLA, 2010)**

The framework below (Figure 21) was developed for MLA's extension and adoption program (2010), to help determine where benefits for extension and adoption services / products was accruing and MLA contribution towards it. This will be useful as forming a basis for further discussion. The following table (Table 25) outlines the proposed approach to proposed adoption program, with justifications for the approach covered on the following page.

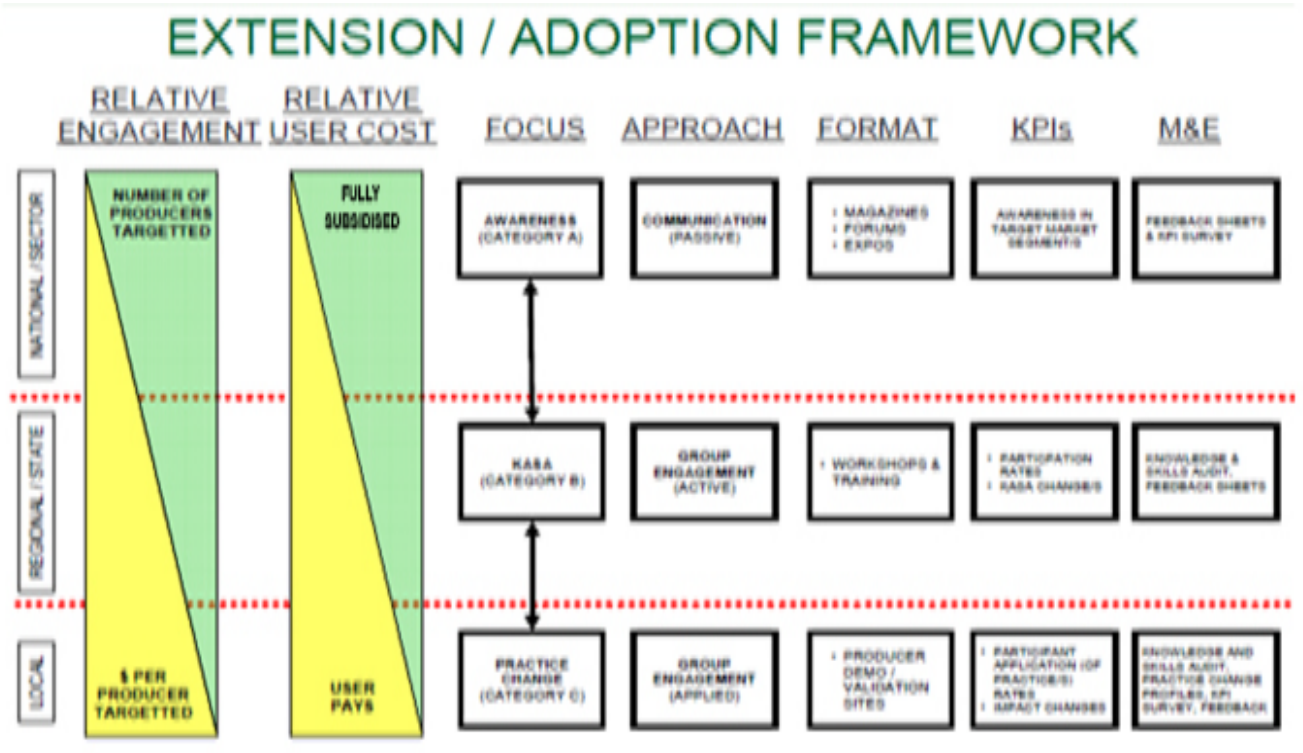


**Figure 20: Producer engagement framework (MLA, 2010)**

***Proposed MLA investment into delivery of supported learning projects***

The approach to MLA investment into the delivery of supported learning projects (Category C activities) is based on building on the current approach by MMfS and MBfP to Category C event delivery, while encouraging a more commercial focus to delivery by service providers. The industry is familiar with this framework, and while some states have struggled to delivery Category C events, other states have made significant progress. A significant increase to the MLA contribution would undermine progress to date and potentially undermine the commercial focus of the proposed adoption program. For phases 1 and 2 of the proposed adoption program the MLA contribution will increase from the current 20% investment to 30%, scaling back to 20% contribution in Phase 3. This investment is intended to cover the costs of M&E activities in program delivery. The framework is also designed to encourage a per business focus by deliverers in charging, and while there is a minimum contribution towards the activity cost expected by producers, if deliverers can source other funding this should be an option for them, particularly in the earlier years while producers adjust to the user pays approach. Travel subsidies are not being recommended for any type of activity, as they are very difficult to administer fairly and equitably, difficult to budget for, and will negatively impact a smooth transition to a fully commercial user-pays model by enabling deliverers to establish delivery models that are not financially sustainable (e.g. individual property visits).

***Recruitment activities***

The approach to MLA investment into the delivery of recruitment activities (Category A or B activities) is based on building on the current approach by MMfS and MBfP to Category A and B event delivery, again to ensure some consistency between the current approach and the new platform for E&A. Additionally, in order to ensure the effectiveness of feeder activities for recruitment there will be a specified requirement for conversion of attendees from these activities to Category C participants. The conversion rate KPIs are based on experiences with current MLA extension activities. Category A activities are likely to be delivered by other MLA programs as standalone events, with only a secondary role as a feeder activity, and only a limited proportion of the audience likely to be attracted to Category C activities. Hence the target conversion rates are low, particularly in the first phase, and existing short term planned Category A activities have no requirement for conversion of participants to other MLA activities, as they have not been designed with a recruitment role in mind.

***Deliverer support and training***

Service provider engagement and capability to deliver are critical to the success of the proposed adoption program, and provision of support and training to upskill them will have considerable industry benefits long term. The MLA investment into training and support for the deliverer network has been recommended in light of this fact and acknowledgement that for some training opportunities there will be a considerable investment of deliverer time and costs (in travel) to attend (there needs to be a strong case made for why engaging with MLA will provide more benefits than "business as usual" for deliverers). The investment from MLA is scaled back over time.

**Table 16: Recommendations for MLA support for delivery of supported learning projects, recruitment activities, learning package development and deliverer training activities**

| E&A program area | Phase 1<br><br>Years 1-2 | Phase 2<br><br>Years 3-5 | Phase 3<br><br>Years 6-10 |
|---|---|---|---|
| ***Delivery of supported learning projects***<br><br>***(equivalent to MMP Category C activity)*** | 1. Deliverers will set their own price for activities they deliver – allowing for the fact that a great deliverer can add exceptional value, and to encourage behaviours which demonstrate a clear value proposition to producers.<br>2. 30% investment by MLA into course cost, which is capped up to a maximum of $600 per business.<br>3. Where the number of participants per business is capped, MLA will contribute up to 30% of the price for each additional participants (up to a maximum of $300 per additional participant for up to 3 additional participants).<br>4. Minimum number of 6 businesses per activity (supported learning project)<br>5. Recommended that participants contribute at least 20% of the total cost<br>6. Existing industry packages which are already receiving a significant subsidy from another RDC or government agency may not be eligible for additional support from MLA. This will be up to the discretion of MLA.<br>7. No subsidy for travel for deliverers or participants will be available | 1. Deliverers will set their own price for activities they deliver – allowing for the fact that a great deliverer can add exceptional value, and to encourage behaviours which demonstrate a clear value proposition to producers.<br>2. 30% investment by MLA into course cost, which is capped up to a maximum of $600 per business.<br>3. Where the number of participants per business is capped, MLA will contribute up to 30% of the price for additional participants (up to a maximum of $300 per additional participant for up to 3 additional participants).<br>4. Minimum number of 6 businesses per activity (supported learning project)<br>5. Recommended that participants contribute at least 30% of the total cost<br>6. Existing industry packages which are already receiving a significant subsidy from another RDC or government agency may not be eligible for additional support from MLA. This will be up to the discretion of MLA.<br>7. No subsidy for travel for deliverers or participants will be available | 1. Deliverers will set their own price for activities they deliver – allowing for the fact that a great deliverer can add exceptional value, and to encourage behaviours which demonstrate a clear value proposition to producers.<br>2. 20% investment by MLA into course cost, which is capped up to a maximum of $400 per business.<br>3. Where the number of participants per business is capped, MLA will contribute up to 20% of the price for additional participants (up to a maximum of $200 per additional participant for up to 3 additional participants).<br>4. Minimum number of 8 businesses per activity (supported learning project)<br>5. Recommended that participants contribute at least 50% of the total cost<br>6. Existing industry packages which are already receiving a significant subsidy from another RDC or government agency may not be eligible for additional support from MLA. This will be up to the discretion of MLA.<br>7. No subsidy for travel for deliverers or participants will be available |
| ***Proposed adoption program recruitment*** | It is recognised that there are different levels of recruitment activities – they range from large events showcasing the latest R&D or industry best practice, where individuals are unlikely to gain significant private benefit (and there is less likely to be practice change as a result of it) (e.g. Pasture Updates), through to intense one day workshops which do provide significant value to participating businesses and where practice change is likely (e.g. Bred Well Fed Well).<br><br>The pricing of recruitment activities should be done in such a way in that the private vs public benefit is taken into account (including industry good). However, | | |

| E&A program area | Phase 1<br>Years 1-2 | Phase 2<br>Years 3-5 | Phase 3<br>Years 6-10 |
|---|---|---|---|
| ***activities*** | pricing should not be set at a level where it may act as a deterrent to producers to attend as this will negate the effectiveness of the activity as a feeder (bearing in mind that the target audience for proposed adoption program are business focussed producers).<br><br>Further information on recruitment strategies will be provided as part of the business plan for the proposed adoption program – but activities delivered to recruit producers must be strategic and targeted to be effective and a measure of their effectiveness will be both success in attracting large numbers of producers to attend, and conversion of these attendees to proposed adoption program participants.<br><br>To be effective as a feeder an activity must*:<br>• Present a clear value proposition for the supported learning activity (e.g. testimonials, ROI, money back guarantee, etc)<br>• Have a clear "call to action" with consistent messages from all presenters all pointing to the need for action and the benefits to action<br>• Challenge – it must challenge participants to be prepared to take the next step<br>• Use 'champion' producers to tell their story and encourage others to follow<br>• Have opportunity for sign up on the day – there must be no ambiguity or guess work about what the next steps are<br>• It must have the right audience in attendance – promotion must not only target the feeder activity itself but also the potential feeder option/s | | |
| Equivalent to MMP Category A (e.g. field day, conference, information session, seminar or forum*) | 1. Up to 100% MLA contribution for industry events which profile MLA R&D and / or have as their focus industry good (e.g. compliance, animal welfare, biosecurity) (unlikely to create opportunities for significant private benefit or practice change, key objective is to attract as many producers as possible and minimise any barriers).<br>2. Expected conversion to proposed adoption program Category C activity 1-3% of producer attendees<br>3. No subsidy for travel for deliverers or participants will be available | 1. Up to 100% MLA contribution for industry events which profile MLA R&D and / or have as their focus industry good (e.g. compliance, animal welfare, biosecurity) (unlikely to create opportunities for significant private benefit or practice change, key objective is to attract as many producers as possible and minimise any barriers).<br>2. Expected conversion to proposed adoption program Category C activity 3-5% of producer attendees<br>3. No subsidy for travel for deliverers or participants will be available | 1. Up to 80% MLA contribution for industry events which profile MLA R&D and / or have as their focus industry good (e.g. compliance, animal welfare, biosecurity) (unlikely to create opportunities for significant private benefit or practice change, key objective is to attract as many producers as possible and minimise any barriers).<br>2. Expected conversion to proposed adoption program Category C activity 5-7% of producer attendees<br>3. No subsidy for travel for deliverers or participants will be available |
| Equivalent to MMP Category B (e.g. workshop*) | 1. Up to 50% MLA contribution towards events which are workshop-type activities (where there is significant private benefit and opportunities for practice change). MLA contribution will be | 1. Up to 50% MLA contribution towards events which are workshop-type activities (where there is significant private benefit and opportunities for practice change). MLA contribution will be capped | 1. Up to 50% MLA contribution towards events which are workshop-type activities (where there is significant private benefit and opportunities for practice change). MLA contribution will be |

| E&A program area | Phase 1<br>Years 1-2 | Phase 2<br>Years 3-5 | Phase 3<br>Years 6-10 |
|---|---|---|---|
| | capped up to a maximum of $250 per business.<br>2. Where the number of participants per business are capped, MLA will contribute a maximum of 50% towards the cost for each additional person up to a maximum of $125 per additional person.<br>3. Where the package has been developed by MLA, the price will be determined by MLA.<br>4. Where the package has been developed by another organisation this organisation will determine the price, and MLA contributions determined by points 1 and 2, above.<br>5. Recommended that participants contribute at least 10% of the total cost<br>6. Expected minimum conversion to proposed adoption program activity 10% of producer attendees<br>7. Existing industry packages which are already receiving a significant subsidy from another RDC or government agency may not be eligible for additional support from MLA. This will be up to the discretion of MLA.<br>8. No subsidy for travel for deliverers or participants will be available | up to a maximum of $250 per business.<br>2. Where the number of participants per business are capped, MLA will contribute a maximum of 50% towards the cost for each additional person up to a maximum of $125 per additional person.<br>3. Where the package has been developed by MLA, the price will be determined by MLA.<br>4. Where the package has been developed by another organisation this organisation will determine the price, and MLA contributions determined by points 1 and 2, above.<br>5. Recommended that participants contribute at least 10% of the total cost<br>6. Expected conversion to proposed adoption program activity 15% of producer attendees<br>7. Existing industry packages which are already receiving a significant subsidy from another RDC or government agency may not be eligible for additional support from MLA. This will be up to the discretion of MLA.<br>8. No subsidy for travel for deliverers or participants will be available | capped up to a maximum of $250 per business.<br>2. Where the number of participants per business are capped, MLA will contribute a maximum of 50% towards the cost for each additional person up to a maximum of $125 per additional person.<br>3. Where the package has been developed by MLA, the price will be determined by MLA.<br>4. Where the package has been developed by another organisation this organisation will determine the price, and MLA contributions determined by points 1 and 2, above.<br>5. Recommended that participants contribute at least 10% of the total cost<br>6. Expected conversion to proposed adoption program activity 20% of producer attendees<br>7. Existing industry packages which are already receiving a significant subsidy from another RDC or government agency may not be eligible for additional support from MLA. This will be up to the discretion of MLA.<br>8. No subsidy for travel for deliverers or participants will be available |
| ***Package development (both feeder and supported learning projects)*** | • Up to 100% MLA contribution towards the development of industry supported learning and feeder packages (these packages will be made available to proposed adoption program approved deliverers to deliver).<br>• No MLA contribution towards tailoring of packages for local delivery or for development of private packages. These are seen as investments which have significant private | • Up to 100% MLA contribution towards the development of industry supported learning and feeder packages (these packages will be made available to proposed adoption program approved deliverers to deliver).<br>• No MLA contribution towards tailoring of packages for local delivery or for development of private packages. These are seen as investments which have significant private benefit for individual | • Up to 100% MLA contribution towards the development of industry supported learning and feeder packages (these packages will be made available to proposed adoption program approved deliverers to deliver).<br>• No MLA contribution towards tailoring of packages for local delivery or for development of private packages. These are seen as investments which have significant private benefit for |

| E&A program area | Phase 1<br>Years 1-2 | Phase 2<br>Years 3-5 | Phase 3<br>Years 6-10 |
|---|---|---|---|
| | benefit for individual deliverers. | deliverers. | individual deliverers. |
| ***Deliverer support and training*** | As with recruitment activities there are also different levels of deliverer support – ranging from activities that showcase the latest R&D through to more structured, formal training activities. The latter are considered to provide significant private benefit to participating deliverers, while the former has significant industry benefits via wider sharing of R&D outcomes with producers. There is another factor that should be considered in the pricing of deliverer activities - engaging deliverers is critical to the success of the proposed adoption program, and the outcome of the deliverer survey highlighted that access to MLA R&D and tools and resources is a large incentive for deliverers to engage. | | |
| R&D updates via webinar | Up to 100% MLA contribution towards activities that target deliverers and aim to share R&D outcomes via low cost options such as webinar. | Up to 100% MLA contribution towards activities that target deliverers and aim to share R&D outcomes via low cost options such as webinar. | Up to 100% MLA contribution towards activities that target deliverers and aim to share R&D outcomes via low cost options such as webinar. |
| R&D updates via seminars or workshops | Up to 100% MLA contribution towards activities that target deliverers and aim to share R&D outcomes via workshops or seminars<br><br>Costs to attend (time & travel) at Deliverers expense | Up to 100% MLA contribution towards activities that target deliverers and aim to share R&D outcomes via workshops or seminars<br><br>Costs to attend (time & travel) at Deliverers expense | Up to 80% MLA contribution towards activities that target deliverers and aim to share R&D outcomes via workshops or seminars<br><br>Costs to attend (time & travel) at Deliverers expense |
| Train the trainer activities | Up to 100% MLA contribution towards train the trainer activities that upskill deliverers to deliver MLA packages or programs<br><br>Costs to attend (time & travel) at deliverers expense | Up to 100% MLA contribution towards train the trainer activities that upskill deliverers to deliver MLA packages or programs<br><br>Costs to attend (time & travel) at deliverers expense | Up to 80% MLA contribution towards train the trainer activities that upskill deliverers to deliver MLA packages or programs<br><br>Costs to attend (time & travel) at deliverers expense |
| Building the capacity of the proposed adoption | Up to 100% MLA contribution towards activities that aim to build the proposed adoption program deliverer network and to enable sharing of learnings (this will have a significant impact on improving the | Up to 100% MLA contribution towards activities that aim to build the proposed adoption program deliverer network and to enable sharing of learnings (this will have a significant impact on improving the standard of | 80% MLA contribution towards activities that aim to build the proposed adoption program deliverer network and to enable sharing of learnings (this will have a significant impact on improving the standard |

| E&A program area | Phase 1<br><br>Years 1-2 | Phase 2<br><br>Years 3-5 | Phase 3<br><br>Years 6-10 |
|---|---|---|---|
| program deliverer network | standard of delivery with large industry benefits<br><br>Costs to attend (time & travel) at deliverers expense | delivery with large industry benefits<br><br>Costs to attend (time & travel) at deliverers expense | of delivery with large industry benefits<br><br>Costs to attend (time & travel) at deliverers expense |

* *Definitions for learning activities are provided in* Appendix 1: Glossary of definitions

## 4.7 Engagement

Ultimately, the key to successful engagement for both deliverers and producers will be in presenting (and ultimately fulfilling) a positive value proposition to both. No matter how good we believe a program to be, if no one participates then it will fail. An effective recruitment strategy will need to be part of an overarching communications plan developed for the proposed adoption program, should the Business Plan be implemented. Recruitment of producers has a significant industry good component, as it is a key mechanism for producers to learn about the potential opportunities for improvement. Effective engagement of producers will set the foundations for an overall improvement in industry performance. For producer engagement to be effective deliverers need to be on board first.

### 4.7.1 Deliverers

As evidenced by the service provider survey and the pilot coaching program, there is considerable interest in the proposed adoption program already from service providers – the key will be in converting this interest to engagement. However, this must be achieved by working only with those deliverers who are capable of delivering high quality supported learning projects at the required level. As outlined in Section 4.6.1 Coordination, management and governance, it is proposed to recruit a leadership team who will be engaged on a retainer to deliver at least one supported learning project each per year, and to assist in mentoring and growing the capability of the proposed adoption program delivery network. Part of their role will also be championing the proposed adoption program and assisting in recruitment of both deliverers and producers. The leadership team will be selected by the Steering Committee and the program coordinator by direct approach.

It is recommended that a straight forward selection process, using an application form, is used to recruit deliverers to the delivery network. This should not have defined opening or closing dates and be managed by the state coordinators, with support from the Program Coordinator (and where required the leadership team). It must be made clear to deliverers who apply to be part of the proposed adoption program that they will be performance evaluated.

It is expected that all deliverers who come into the program will have strong technical skills in their area of expertise, although they may need assistance with other aspects of the proposed adoption program including delivery using a supported learning approach, M&E processes or templates, and there will also be opportunities for them to be exposed to the latest R&D outcomes from MLA in forums tailored to deliverers.

#### 4.7.1.1 Deliverer support and training

McRoberts (2015) recommended that MLA invest in improving the skills of providers – the need for this has been clearly demonstrated as a result of this E&A pilot project. All service providers will be able to access the following opportunities for development and support from MLA, to help them understand the requirements for supported learning projects eligible for delivery under the proposed adoption program, and to improve their access to MLA R&D and tools and resources:

- Training and professional development opportunities being offered by MLA (e.g. R&D updates) or by outside organisations but which are relevant to proposed adoption program

Upon acceptance into the delivery network (via a simple selection process, against the criteria outlined in Section 4.6 The delivery platform and approach), deliverers will be eligible for additional

support from the coordination and leadership team to build their capability to deliver and/or develop a supported learning project:

- Assistance with developing their supported learning project, or access to a MLA developed program (with the end result being approval to deliver as part of the proposed adoption program)
- Assistance with finalising M&E materials and processes
- Assistance with recruiting producers for their program
- Opportunity to participate as part of a deliverer peer support network (including opportunities for mentoring from the leadership team)
- Opportunity to access and use on-line communication technologies for delivery via MLA
- Feedback and support from the coordination team, regarding deliverer performance.

It is recommended that MLA provide differing levels of support in providing each of the options above, as outlined in Section 4.6 The delivery platform and approach.

It is critical that any templates and support materials developed for deliverers are relevant across regions, species and programs.

There may be options to utilise the MLA Donor Company to support development of some deliverer training activities, where deliverers contribute 50% cash towards the cost.

### 4.7.2 Producers

Ultimately, effective engagement of producers requires selling them a value proposition which resonates with them and which they are prepared to invest in. It is clear from all of the different components of the E&A pilot project that recruitment of producers is a key issue for potential deliverers, and that coordinated and effective assistance from MLA would be highly valued. It will also be valuable for MLA to be actively managing producer recruitment, as it will ensure strong linkages and consistency between all of their programs, including R&D.

As per Section 4.6 the delivery platform and approach, it is envisaged that the program coordinators will play a key role in recruitment activities, which must be locally relevant, strategic and targeted to be effective. This is where the value of having well connected, knowledgeable state based coordinators, who are experienced in extension, will be most critical. State-based coordinators would have responsibility for maintaining producer databases (and could utilise the MMfS/MBfP databases as a starting point), and the data from this could be used to assist them in developing and delivering effective recruitment / marketing campaigns (e.g. provide insights such as who has engaged previously and what they engaged in, plus some basic demographics). It is strongly recommended that each state based coordinator develop an annual recruitment strategy, which has clear linkages to potential E&A supported learning projects and deliverers within their state. Following are some of the key recruitment methods that have been identified from the E&A pilot project, however these are not exclusive.

#### 4.7.2.1 The value proposition

From the data obtained through the E&A pilot project it is evident that many deliverers struggle to articulate a value proposition for their programs. Ultimately developing a value proposition will be the responsibility of deliverers, however, MLA can assist by:

- providing a high standard of quality assurance for programs delivered under the proposed adoption program banner;
- providing high quality supported learning projects which deliverers can tailor;
- providing linkages to and training in MLA tools and resources;
- providing support for deliverers to ensure that their programs and delivery methodology are sound and will lead to high impact outcomes for participants;
- providing M&E data back to deliverers to enable them to quantify the impact of their program, and also to improve what they're doing, ensuring that the standard of delivery is continually being raised; and
- helping to deliver the message about the value of training.

Encouraging deliverers to include a money back guarantee on their programs, may assist in presenting the value proposition to producers (e.g. come to the first two sessions and if you don't believe you're getting value and don't wish to continue, your money will be refunded). In articulating a value proposition there needs to be some awareness of potential differences in producer motivators, and the fact that sometimes people "don't know what they don't know".

The key focus in delivering a value proposition to producers should be on the potential for improved business performance – and the link between farm business performance and their own skills and knowledge. The key barrier to producer participation is the investment of their time – and this is consistent with findings in other studies (e.g. Howard and Ferrier, 2013) To be effective a value proposition must acknowledge this investment and clearly articulate the return. One of the coaches delivering a business program noted that in part 1 of the coaching program that none of the participants included financial return as an aim for the business – it may not be front and centre for everyone when making investment decisions (including whether to invest time and dollars into a coaching program). Producer case studies need to tell multiple aspects of their story to ensure that it resonates as widely as possible. Similarly feeder activities should also incorporate messages additional to business performance. One of the key reasons producers signed up to participate in the E&A pilot project was that they had an interest in the subject matter of the coaching program.

#### 4.7.2.2 Feeder activities

There have been many references to "feeder" activities throughout this report, and the value of particular learning activities as a "feeder" activities will form part of both event categorisation and the criteria for MLA support for activities (Appendix 1: Glossary of definitions and Section 4.6 The delivery platform and approach). Whilst almost any learning activity can play a role as a feeder into another activity there are some key criteria which must be met for this to be effective and for participants at a feeder event to be recruited to the intended activity. The feeder activity must:

1. Have a clear "call to action" with consistent messages from all presenters all pointing to the need for action and the benefits to action

2. Challenge – it must challenge participants to be prepared to take the next step
3. Use 'champion' producers to tell their story and encourage others to follow
4. Have opportunity for sign up on the day – there must be no ambiguity or guess work about what the next steps are
5. It must have the right audience in attendance – promotion must not only target the initial activity but also the potential feeder option

There have been suggestions for particular feeder activities including farm business health checks, and benchmarking (particularly for producers who have transitioned from merino to cross bred flocks (which is a significant number in some areas of the country), and are struggling to understand and manage the key profit drivers of this new enterprise).

#### 4.7.2.3 Producer case studies and champions

Producer case studies or producer champions, particularly when the producer involved is reasonably well-known within their area / state, are very effective at reaching out to their peers, and promoting the opportunity and benefits for upskilling or learning in a particular area. Producer case studies can be especially valuable for identifying multiple aspects of their story ensuring that it resonates as widely as possible. Producer case studies can be presented using a number of different channels:

- in person presentations on the same program as potential deliverers (even if they don't have an existing relationship with the Deliverer, as long as the messages are consistent);

- video clips which can be uploaded to youtube or other relevant websites (and/or shared via social media) or played at feeder activities;

- written case studies (and testimonials) which can be included in marketing material (this would typically be most useful when working with past participants) to help demonstrate the value to potential participants

The raw data for these case studies (and identifying potential producers) could be generated through the program M&E processes.

#### 4.7.2.4 Other recruitment options

Other options include:

- Farm Monitor program (understanding where your business sits and what the weaknesses are)
- targeted marketing campaigns (at a local level for specific activities/programs or subject areas)
- better use of text message and email to notify producers of upcoming activities with options to make better use of online SMS systems and Mail Chimp, etc
- more effective use of social media, such as Twitter and Facebook
- use of potential partners and other networks

## 4.8 R&D linkages

There are key foundational skills and practices that red meat producers must have in place for them to be profitable (McEachern et al 2016) (Figure 22). Only after they are implementing these skills and practices will they be in a position to be able to capitalise on additional productivity gains that research outcomes may deliver. For example, if a producer is not a skilled pasture manager, then it won't make much difference to their bottom line if they use the latest pasture cultivar or an old favourite, compared to if they were already at the maximum production using the old favourite and then adopted a genetically superior cultivar. Research has indicated that industry as a whole is not as productive or profitable as it could be, based on best vs average data (McEachern et al 2016), and the key purpose of the proposed adoption program is to address the underlying skills gaps in core areas of red meat business management and production.

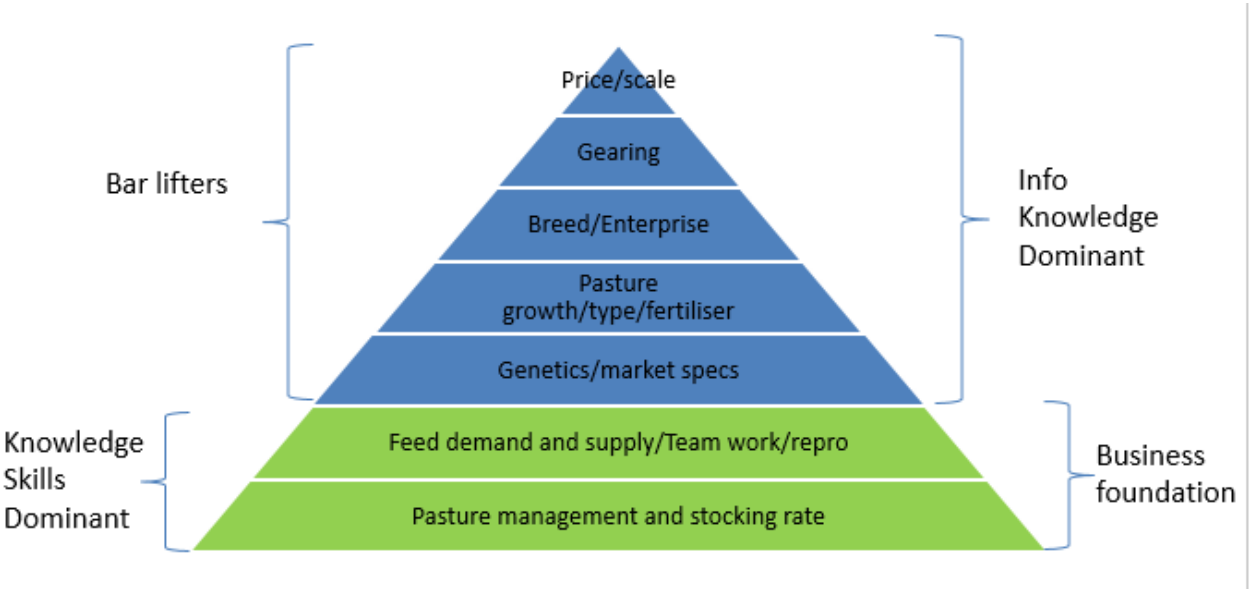


**Figure 21: Grazing systems foundation and productivity opportunities**

However, it is recognised that ensuring the MLA R&D outcomes are extended to industry will help to maximise the Return on Investment of MLA R&D to industry, and if provided in a way that producers can implement, will also have positive impacts on industry productivity and profitability. Industry input into R&D priorities is currently well-managed through the engagement of producer/industry reference groups, hence the primary objective of proposed adoption program in maintaining linkages with R&D, will be as a conduit from researchers and research outcomes to the wider industry. This objective will be achieved by:

- Providing R&D tools and resources direct to deliverers via a range of channels (e.g. website portal or e-newsletters webinars, field days, workshops);
- Regular reviews and updates of the curriculum packages to ensure that the latest information, tools and resources are incorporated;
- Having the Program Coordinator embedded within MLA will help to ensure that there are good linkages between the R&D and proposed adoption programs within MLA.

## 4.9 Partnerships and collaboration (industry engagement)

Opportunities exist to collaborate with RDC's and state departments of agriculture to leverage industry networks such as Leading Sheep and Better Beef and programs such as Grazing BMP. The proposed adoption project offers opportunities for producers embedded in those networks the opportunity to engage with MLA's proposed adoption project and develop skills, further increasing the profitability of their business. Partnership activities with other RDC's for Category B feeder activities and deliverer capacity development activities also offer potential to collaborate for mutually beneficial outcomes.

Peak Industry bodies and state farmer organisations such as Agforce also offer opportunity to assist with regional recruitment and intelligence to maximise producer engagement and alignment with regional programs. The value provided to these organisations is maximising producer's opportunities to engage with quality extension and adoption programs to ensure benefit from the levy MLA invests and linked, coordinated, efficient and effective extension and adoption system.

## 4.10 Monitoring and Evaluation

Along with program coordination, effective monitoring and evaluation (M&E) processes will be another key success factor for the proposed adoption program. Included in monitoring and evaluation is extension and adoption program quality assurance (QA). Effective M&E and QA are critical on many levels:

- Ensuring that the program is on track to deliver against KPIs and will assist MLA to meet its ultimate objective of lifting the profitability of red meat producers;
- Ensuring a high standard of delivery so that the reputations of MLA and deliverers involved in the program are enhanced;
- Ensuring that supported learning projects are delivering excellent value to producer participants;
- Enabling a culture of continuous improvement and valuing M&E amongst deliverers;
- It creates a point of difference for the program in the market place

The templates and some of the processes used in the E&A pilot project were not efficient or effective enough, and there are several recommendations for improvements:

- Provide KASA templates which are topic specific and where there are example skills and practice questions, and confidence and practice questions which are compulsory. These can all be developed using the curriculum M&E framework (Appendix 4: Curriculum M&E framework). Deliverers should be encouraged to include as many skills-based questions as possible (and if necessary use novel techniques, such as video, photos or even watching participants complete a task). It is far easier to write knowledge questions, but they are less valuable in determining program impact.
- It is essential that deliverers design their own skills and knowledge questions which reflect the baseline knowledge and skills that they would be expecting of the group (ie the questions asked would be expected to vary depending on the group). The questions should be kept consistent between pre and post skills audits.

- Redesign MLA's E&A database to track by individual rather than by event (which it currently does).

- Develop data entry templates for deliverers which are subdivided based on subject area, rather than timing (e.g. worksheet tabs for confidence pre and post, practice pre and post, KASA pre and post, producer demographics etc).

- Provide all deliverers with a unique ID code which can be used across all of their programs to enable confidential tracking and comparative analysis of their performance against their peers.

- Make the current Turning Point technology ("clickers") which are available through MMfS and MBfP, widely available to deliverers and provide training in their use.

- Review options for webinar feedback to be simply and easily collected

- At least for the first 2 phases, producer interviews should be a compulsory evaluation step for all programs. These should be conducted by an independent person and include form questions (which are both open ended and multiple choice).

- Annual analysis of data from all programs, and end of program data analysis, both of which are fed back to deliverers. This should provide enough detail to enable deliverers to be able to understand what works well for others and what doesn't, how other programs are being delivered etc. It could also form part of the peer support network for deliverers

- All deliverer contracts should have milestone payments linked with performance (results from submitted M&E data)

- Redesign the session feedback forms for producers to complete (e.g. enable greater flexibility in how deliverer obtain feedback (e.g. questionnaires, group discussion activities, etc), use questions which require a considered response (not just a score) and will provide the deliverer with constructive feedback on what can be improved)

- Consider the use of different techniques for deliverers to obtain producer feedback following session delivery (e.g. ORID) – this would need to be able to be summarised and provided to MLA as part of the delivery quality control and performance evaluation. If deliverers are able to select a method of obtaining feedback from producers that they are comfortable with it is likely to increase their engagement in the M&E processes.

- Continue with the coach self-assessment process from the E&A pilot project (version 2), as part of developing deliverer capability in supported learning

- The Farm Monitor program will provide financial performance data for the red meat industry which will be valuable for both the comparative analysis sessions, as a potential feeder into the proposed adoption program, and for measuring the impact of the proposed adoption program

Appendix 4: Curriculum M&E framework should prove valuable for both Program Coordinators and deliverers in developing skills audits and delivering comparative analysis sessions.

# 5 Conclusion and recommendations

There is appetite and momentum in the red meat industry for a new, commercial approach to extension and adoption which creates measureable impact on farm business performance and which is highly valued by both participants and deliverers. Feedback throughout the E&A pilot project from producers, service providers, peak industry councils and industry stakeholders has been overwhelmingly positive about the approach that MLA is proposing to take in delivering extension and adoption activities in the future. The need to produce real and measurable impact on business performance through extension and adoption, and the potential for a massive step-change for the red meat industry is widely recognised. Previous studies by MLA have indicated that producers are ready for a change in approach to extension and adoption which delivers them real value, and the proposed model focusing on skill development and imbedded practice change is proven.

However, the proposed new approach is a completely new way of operating, not attempted by any other RDC in Australia previously. It is already clear that despite the enthusiasm for the new approach, some segments of industry are not quite ready for a more commercial approach. In particular the capability of deliverers and their ability to demonstrate a value proposition to producers to participate. For these reasons, transforming the red meat industry approach to investing in extension and adoption is a significant undertaking for MLA, and will challenge the status quo. The proposed adoption project will deliver major benefits after 5 years, with an upfront investment in deliverer capability, but to achieve the full benefits involves long term commitment, and will be essential to achieving the desired outcomes.

The design of the proposed adoption project has been informed by a robust E&A pilot project that aimed to overcome the limitations of MLA's previous extension and adoption programs and be cognisant of the changing service provider landscape. The pilot included three key activities, curriculum development, coaching program delivery and service provider survey) that provided data and intelligence, in addition to inputs from previous reports and studies. Platform design and the delivery model evolved during the course of the E&A pilot project, and the outcome and recommendations, have been finalised after extensive consideration of potential risks and limitations. In line with the suggested phased approach, it is recommended the model be reviewed annually for the first two years, and again at 4-5 years to ensure no perverse outcomes are occurring, and the program is tracking to meet KPIs, objectives, and achieve the vision.

Building on the legacy of previous MLA extension and adoption programs, the E&A pilot project has provided valuable intelligence into the business plan and informed design of an extension and adoption program to overcome the challenges in the extension and adoption landscape and deliver the productivity gains MLA and the red meat industry aspire to.

## 5.1 Key Performance Indicators, Outcomes and Outputs

The program outputs, outcomes and KPIs are summarised in the Program Logic (Appendix 7: Program Logic), along with how they relate to the MISP and MLA 2020 goals, and the activities that are proposed to achieve them. Table 26 summarises the proposed program KPIs, key outcomes and outputs. It should be noted that the proposed adoption project, will be a partial contributor (up to 70%) in achieving these targets along with other MLA RD&E programs.

**Table 17: Proposed adoption program outputs, outcomes and KPIs**

| Output Target | Outcome Target | Proposed adoption program KPI* | MLA 2020 Goal | MISP 2020 Goal |
|---|---|---|---|---|
| Leadership team (6) deliver up to 1 supported learning project per year each, targeting up to 12 producers (72 producers per year) | MLA is contributing no more than 30% of the cost to deliver supported learning projects | Participating producers increase profitability by average of 2.5% ROAM | By 2020, improvement in total factor productivity of:<br>• 0.5% (northern beef);<br>• 1.75% (southern beef);<br>• 0.5% (sheepmeat);<br>• 0.5% (goat) | Minimum whole-of-sector increases in productivity growth above baseline levels by 2020:<br>• Northern beef production sector: 0.5%<br>• Southern beef production sector: 1.75%<br>• Sheepmeat production sector: 1.5%<br>• Goat production sector: 0.5% |
| At least 2800 producers participated in a supported learning project by 2022 | At least 2800 producers have improved skills and knowledge as a result of participating in supported learning projects by 2022 | Increased knowledge and skills of 75% of participating producers by >75% KASA score | | |
| At least 75% of deliverers attend 2 training sessions per year | At least 50 deliverers have increased capability to deliver supported learning projects by 2022 | At least 70% of participating producers are changing practices which are underpinned by an increase in their skills | | |

| | | | | |
|---|---|---|---|---|
| | 5,000 producers attend feeder activities by 2022 with 10 -15% of them going on to participate in a supported learning project | Average confidence of participating producers to use key skills or do key tasks lifts to >8/10 on average | | |

### 5.1.1 Program objectives

In order to contribute to the MLA 2020 target, the proposed adoption program objectives are:

1. **To increase the average profitability of participating red meat producers by 2.5% ROAM by improving their skills and capability by 2022.**
2. Adopting a commercial model which involves user pays for the private good component of the extension activity (generally the delivery).
3. MLA is contributing a maximum of 30% of the delivery cost of supported leaning projects
4. 5,000 producers attend feeder activities by 2022 with 10 -15% of them going on to participate in a supported learning project
5. 2,800 producers participate in supported learning projects to increase their skills and knowledge by 2022:
    a. 75% (of 2,800) increase their skills and knowledge above a skills audit score of 75% (competent);
    b. 50 deliverers have increased capability to a point where they can deliver effective high quality supported learning projects;
    c. Increase the average confidence rating of participating producers to use key skill sets or do key tasks to greater than 8/10;
    d. At least 70% of participating producers have made practice changes, which are underpinned by a change in skills.

## 5.2 The delivery platform

The delivery platform has been designed to overcome key challenges within the operating environment. The key features are as follows:

- Phased approach over 10 years, with three phases (1-2 years, 3-5 years and 6-10 years). Phase 1 is a foundational period to establish the program and begin to build momentum, phase 2 a growth period and Phase 3 a stable delivery period.

- The proposed adoption project will be overseen by a small Steering Committee, comprised of strategic stakeholders.

- Coordination team of a lead (program) coordinator with state based coordinators (one of whom should also be responsible for M&E). It is essential that the program coordinator be embedded within MLA to ensure the best possible linkages and consistency with MLA's R&D, E&A and value chain activities. State-based coordinators provide an opportunity for an increased MLA presence in regional areas.

- Deliverer leadership group to support coordination team and provide mentoring and support to deliverers.

- Training and support to be offered to deliverers to enable them to upskill in delivering extension using a supported learning approach.

- Provision of resources including curriculums, and some select supported learning packages for deliverers to enable tailoring and/or development of relevant supported learning projects

- The key features a whole farm system and business improvement focus, using a national framework with regional flexibility for implementation that aims to drive measure, monitor manage decision in a value chain context

## 5.3 MLA investment

One of the reasons for the phased approach recommended is concern by deliverers regarding the proposed adoption of a commercial model for extension, and the perceived monitoring and evaluation requirement. The key recommendations regarding MLA investment into extension and adoption are based on MLA investing only in the industry good component of activities. Industry should invest in the private good component. It is recommended that MLA "interfere" as little as possible in the extension market place, to ensure the transition for industry to user pays is as seamless as possible.

### 5.3.1 Producer support

- Phases 1 and 2 maximum MLA investment into delivery of supported learning projects will cover the cost to deliverers of conducting M&E activities. This will be set at 30%, scaling back to 20% in Phase 3 (up to a maximum of $600 per business).

- Deliverers will set their own price for activities they deliver – allowing for the fact that a great deliverer can add exceptional value, and to encourage behaviours which demonstrate a clear value proposition to producers.

- Up to 100% MLA investment into Category A events for producers in phases 1 and 2 and 80% in phase 3 due to high level of industry good.
- Target conversion of producer attendees at Category A events into proposed adoption program participants is 1-3% in phase 1, 3-5% phase 2 and 5-8% phase 3.
- Up to 50% MLA investment into Category B events for producers in all phases (up to a maximum of $250 per business).
- Price to be charged for Category B packages will be determined by the package developer in conjunction with MLA.
- Recommended that participants contribute at least 10% of the total cost for Category B packages.
- Target conversion of producer attendees at Category B events into proposed adoption program participants is 10% in phase 1, 15% phase 2 and 20% phase 3.
- No MLA subsidies for travel for deliverers or participants will be available.

### 5.3.2 Deliverer support

- Where MLA commission development of supported learning packages they will invest up to 100% of the cost, however no MLA investment will be made in tailoring existing packages, or development of private packages.
- Up to 100% MLA contribution towards activities that target deliverers and aim to share R&D outcomes via low cost options such as webinars.
- Up to 100% MLA contribution towards activities that target deliverers and aim to share R&D outcomes via workshops or seminars (Phases 1 and 2). For phase 3 this will be up to 80%.
- Up to 100% MLA contribution towards train the trainer activities that upskill deliverers to deliver MLA packages or programs. For phase 3 this will be up to 80%.
- Up to 100% MLA contribution towards activities that aim to build the proposed adoption program deliverer network and to enable sharing of learnings. For phase 3 this will be up to 80%.
- No MLA subsidies for travel for deliverers or participants will be available

## 5.4 Monitoring and evaluation

The ultimate objective of M&E is to facilitate the delivery of a high quality adoption program differentiating it from other free, low impact and low value programs which is meeting KPIs and has deliverers actively engaged and embracing a continuous improvement ethos in their delivery, and can inform producers of the impact of their investment in learning. Hence, M&E is an integral component of overall proposed adoption program quality assurance, in addition to enabling the impact of the program to be measured. The following recommendations are based on significant learnings from the E&A pilot project and from MLA's previous E&A programs

- Red meat industry Farm Monitor project will be essential to capture the ultimate impact of program on business performance of participants.

- Use KASA audits pre and post learning projects to measure change in skills, knowledge, confidence and practices, and to determine the value of the program to participants.

- Provision of KASA templates which are topic specific and where there are example skills and practice questions, and confidence and practice questions which are compulsory. Deliverers should be encouraged to include as many skills-based questions as possible (and if necessary use novel techniques, such as video, photos or even watching participants complete a task).

- Redesign MLA's E&A database to track by individual rather than by event.

- Provide all deliverers with a unique ID code which can be used across all of their projects to enable confidential tracking and benchmarking of their performance against their peers.

- Assist and facilitate deliverer adoption and use of technologies to streamline delivery or reduce costs (e.g. clickers, webinar feedback mechanisms).

- Producer interviews should be a compulsory evaluation step for all projects, conducted by an independent person and include form questions.

- Annual analysis of data from all projects, and end of project data analysis, both of which are fed back to deliverers.

- Consider the use of different techniques for deliverers to obtain producer feedback following session delivery (e.g. ORID), as long as the questions asked are consistent across methods. This feedback would be summarised and provided to MLA as part of the delivery quality control and performance evaluation.

- Continue with the deliverer self-assessment process from the E&A pilot project (version 2), as part of developing deliverer capability in supported learning.

- All deliverer contracts should have milestone payments linked to performance (results from submitted M&E data).

## 5.5 Recruitment

### 5.5.1 Deliverers

As evidenced by the deliverer survey and the E&A pilot project, there is considerable interest in the proposed adoption program already from deliverers – the key will be in converting this interest to engagement. However, this must be achieved by working only with those deliverers who are capable of delivering high quality supported learning projects at the required level. Recommendations to achieve this are:

- Utilise a deliverer leadership team to champion the proposed adoption project and assist in recruitment of both deliverers and producers.

- For deliverers use a straight forward selection process. This should not have defined opening or closing dates and be managed by the state coordinators, with support from the Program Coordinator.

- It must be made clear to deliverers who apply to be part of the proposed adoption program that they will be performance evaluated.

- It is expected that all deliverers who come into the program will have strong technical skills in their area of expertise, although they may need assistance with other aspects of proposed adoption program.

### 5.5.1 Producers

Ultimately, effective engagement of producers requires selling them a value proposition which resonates with them and which they are prepared to invest in. It is clear from all of the different components of the E&A pilot project that recruitment of producers is a key issue for potential deliverers, and that coordinated and effective assistance from MLA would be highly valued. It will also be valuable for MLA to be actively managing producer recruitment, as it will ensure strong linkages and consistency between all of their programs, including R&D. Recommendations regarding the engagement of producers are as follows:

- State-based coordinators will play a key role in recruitment activities, which must be locally relevant, strategic and targeted to be effective. It is strongly recommended that each state based coordinator develop an annual recruitment strategy, which has clear linkages to potential proposed adoption program projects and deliverers within their state. State coordinators should be prepared to use a range of tools as part of targeted marketing campaigns including feeder activities, producer case studies, targeted text message and email, social media, and collaboration opportunities with partners and other networks.

- From the data obtained through the E&A pilot project it is evident that many deliverers struggle to articulate a value proposition for their programs. Ultimately developing a value proposition will be the responsibility of deliverers, however, MLA can assist by:

    - providing a high standard of quality assurance for programs delivered under the proposed adoption program banner;

    - providing high quality supported learning projects which deliverers can tailor;

    - providing linkages to and training in MLA tools and resources;

    - providing support for deliverers to ensure that their programs and delivery methodology are sound and will lead to high impact outcomes for participants;

    - providing M&E data back to deliverers to enable them to quantify the impact of their program, and also to improve what they're doing, ensuring that the standard of delivery is continually being raised; and

    - helping to deliver the message about the value of training.

- The key focus for value propositions to producers should be on the potential for improved business performance and highlighting the link between farm business performance and their

own skills and knowledge. A value proposition must acknowledge the investment of producer time in upskilling and clearly articulate the return.

- The value of particular learning activities as "feeder" activities will form part of both event categorisation and the criteria for the level of MLA investment into activities. Feeder activities must be targeted and incorporate the key design principles to ensure that they are effective.
- Producer case studies or producer champions, particularly when the producer involved is reasonably well-known within their area / state, are very effective at reaching out to their peers, and promoting the opportunity and benefits for upskilling or learning in a particular area. Producer case studies can be especially valuable for identifying multiple aspects of their story ensuring that it resonates as widely as possible. Producer case studies can be presented in person, via video clips or written.

## 5.6 Building delivery capability

While the majority of service providers are highly technically competent, the capability of most to deliver extension programs using a supported learning methodology is limited. To ensure the success of the proposed adoption program there must be a strategic approach to upskilling service providers to be able to perform as supported learning project deliverers. This training and support should include the following:

- Delivery using a supported learning approach – this will be primarily achieved with support from the leadership team in mentoring, and will include assistance with developing their supported learning project.
- Opportunity to participate as part of a deliverer peer support network (including opportunities for mentoring from the leadership team).
- Access to MLA developed supported learning projects.
- Access to and support with M&E processes and templates, including assistance with finalising M&E materials and provision of data entry templates, and a feedback mechanism from the coordination team on deliverer performance.
- Training and professional development opportunities being offered by MLA (e.g. R&D updates) or by outside organisations which are relevant to the proposed adoption program.
- Opportunity to access and use on-line communication technologies for delivery via MLA.

It is recommended that MLA provide differing levels of support (financial vs in-kind) in delivering each of the options above, based on the public - private benefit of the support or training. There may be options to utilise the MLA Donor Company to support development of some deliverer training activities, where deliverers contribute 50% cash towards the cost.

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# Appendix 1: Glossary of definitions

## Contents

# Definition of profit and productivity

*Productivity* is an economic measure of output per unit of input. Inputs include labour and capital, while output is typically measured in revenues. Increasing productivity by definition increases profit (all other things remaining equal).

*Production*: the process of making or growing something for sale or use.

*Profit* is a financial benefit that is realized when the amount of revenue gained from a business activity exceeds the expenses, costs and taxes needed to sustain the activity.

*Profitability* is the ability of a business to earn a profit. It is often measured by price to earnings ratio.

# Definition of learning activities

## Background

To ensure a consistent approach by both MLA and deliverers to extension and adoption, a common language for learning activities and terms associated with their delivery is required. This document provides the definitions to be used for activities in relation to the Profitable Grazing Systems Business Plan, and MLA is encouraged to adopt this approach across other extension and adoption programs.

*A learning activity is defined as any activity carried out in the process of interaction (teacher and students) in order to achieve learning outcomes.*

Table 1 provides an overview of the definitions for learning activity categories. These are based on MLA's previous extension programs – Making More from Sheep and More Beef from Pastures, but updated to reflect the revised focus on practice change and skill development for Extension and Adoption activities.

**Table 18 Activity category definitions for proposed adoption program**

| Activity Category | Definition |
|---|---|
| **Category A: Awareness** | Category A activities form the initial stage of the learning pathway by seeking to engage producers with MLA's extension and adoption programs. The key purpose of these events is to enable information sharing (increasing awareness) and networking. These activities ***must*** play a role as a feeder for either Category B or C activities (highlight opportunities for producers to increase their skills or knowledge). Examples of Category A activities are field days, forums / expos, seminars, and conferences. |
| **Category B: KASA change** | Category B activities are about building producer knowledge, skills, confidence, and, as a function of skill development, some practice change (often significant) may occur over time. KASA change is defined as a measurable increase in Knowledge, a positive change in Attitude, an increase in Skills or a change in producers' Aspirations. An additional role of these events is to feed producers into a Category C activity, where they are able to convert the knowledge and/or skills they have gained into changes in practice which improve business performance. An example of a Category B event is a workshop or comparative analysis session. |
| **Category C: Embedded practice Change** | Category C activities are about supporting adoption and increasing the uptake of practice change amongst producers to achieve quantifiable increases in on farm productivity and profitability. The focus is on skill development and supporting implementation of new skills and learnings within the farm business. These activities would typically be delivered using a supported learning approach (e.g. coaching or benchmarking). |

The words used to describe the learning activities or events delivered under each of these categories has previously not been definitive (for example 'workshop' is currently used by practitioners to describe events being delivered under all three of these categories). In order to ensure clarity for extension and adoption program deliverers, participants and funding bodies/partner organisations consistency in terminology is required.

## Feeder activity

Many of the learning activities covered in this document refer to their potential as "feeder activities" – and their value as "feeder" activities forms part of event categorisation, as per Table 1. Whilst almost any learning activity can play a role as a feeder into another activity there are some key criteria which must be met for this to be effective and for participants at a feeder event to be recruited to the intended activity. The feeder activity must:

- Present a clear value proposition for the supported learning activity (e.g. testimonials, ROI, money back guarantee, etc)
- Have a clear "call to action" with consistent messages from all presenters all pointing to the need for action and the benefits to action
- Challenge – it must challenge participants to be prepared to take the next step
- Use 'champion' producers to tell their story and encourage others to follow
- Have opportunity for sign up on the day – there must be no ambiguity or guess work about what the next steps are
- It must have the right audience in attendance – promotion must not only target the initial activity but also the potential feeder option

## Discussion group

Discussion groups are formal or informal groups of producers, usually running a similar enterprise mix, in a similar region. These groups typically have a producer chair or leader, and often utilise the services of a paid facilitator who may or may not have technical expertise. Discussion groups usually have an unbounded timeframe, and meet face to face regularly, with producers driving the topics to be covered at sessions. Individual sessions or meetings may be a workshop, comparative analysis session, field day, or information session. Individual sessions are typically unlinked (i.e. unlike coaching there is no structured reinforcement of skills learnt). The key purpose of discussion groups is to increase the knowledge of participants and learn from each other. Social interaction and peer support is also significant. Discussion groups can be used to deliver other learning activities to, including supported learning projects.

The critical components of a discussion group are:

- Opportunity to increase knowledge and awareness
- Opportunity to discuss issues with peers
- Opportunity to test ideas or concepts with peers and the facilitator.

The key outcomes of a discussion group are:

- Participants are able to fill some of the gaps in their knowledge/skills
- Producer learn from the experiences of other producers

Discussion groups are used to best effect:

- As an opportunity to feed a formed group into more structured learning activities
- As a support network of peers, with significant social benefits
- A coordinated approach to solving issues is required

Discussion groups will be most effective when:

- There is a high level of trust and common ground amongst members
- Participants drive their own agenda
- Open and transparent sharing

## Field day

A field day is an activity where principles and theory are presented but (with the exception of asking questions) participants do not actively participate. Field days are usually held on-farm or at a research facility or similar (outside), and provide an opportunity for participants to see technology, research etc. in action. The key purpose of field days is to increase the awareness of participants, and there may be some knowledge transfer (although this is usually limited). Field days are a Category A activity.

The critical components of a field day are:

- Held in the "field" (see and hear)
- Opportunity to learn new principles or theory
- Based on peer reviewed scientific principles
- Encouraged to move to Category B or C (i.e. to further develop their knowledge and skills)

The key outcomes of a field day are:

- Participants are more aware of the gaps in their knowledge/skills (feeder)

- Participants are more aware of the R&D and tools and information available to industry
- Field days can be effective as 'feeder' activities into more active supported learning projects such as workshops or supported learning projects
- Awareness of new techniques or technologies that are potentially available

Field days are used to best effect when:

- There is a need to see/experience on farm or at a processing facility, etc
- They feed into other activities

Field days will be most effective when:

- The field site has direct relevance to participants and the site manager can share his/her experiences/perspective
- They are practical in nature

## Information session, seminar or forum

Information sessions are similar to field days, except they do not necessarily have the "field" component. An information session is an activity where principles and theory are presented but (with the exception of asking questions) participants do not actively participate. The key purpose of information sessions is to increase the awareness of participants, and there may be some knowledge transfer (although this is usually limited). Information sessions are a Category A activity.

The critical components of an information session or forum are:

- Learn about opportunities
- Learn about upcoming results or research
- Opportunity to learn new principles or theory
- Based on peer reviewed scientific principles
- Encouraged to move to Category B or C

The key outcomes of an Information session or forum are:

- Participants are more aware of the gaps in their knowledge/skills
- Participants are more aware of the R&D and tools and information available to industry
- Information sessions can be effective as 'feeder' activities into more active supported learning projects such as workshops or supported learning projects
- Awareness of new techniques or technologies that are potentially available

Information sessions or forums are used to best effect when:

- There is only theory to be covered
- There is a need to reach a larger audience

Information sessions or forums will be most effective when:

- The theory has direct relevance to participants
- The theory or new piece of work is simple to understand or component based

## Conference or symposium

A conference or symposium is a formal meeting in which many people gather in order to discuss and share knowledge on a particular topic or industry. There are usually many different speakers on the agenda (which can be divided into theme areas), and the event usually runs for a day or more. There will often be a field component to agricultural conferences or symposiums. The key purpose of these events is to enable information sharing (increasing awareness) and networking between participants. Conferences and symposiums are a Category A activity.

The critical components of a conference or symposium are:

- Opportunity to learn new ideas or theories from experts or peers
- Based on peer reviewed scientific research
- Usually delivered over more than one day
- Large numbers of attendees and speakers

The key outcomes of a conference or symposium are:

- Participants are aware of new innovations or technology (e.g. research, industry practice)
- Participants are more aware of the R&D and tools and information available to industry
- Participants know who the key researchers, peer leaders, etc are

Conference or symposiums are used to best effect when:

- There is only theory to be covered
- The topic/subject area justifies coverage from a number of angles
- There is a need to reach a larger audience

Conference or symposiums will be most effective when:

- The speakers are respected, experts or producers in their field
- The program is diverse and interesting
- There are plenty of opportunities for networking

## Workshop

A workshop is an activity where principles and theory are presented and there is some form of active participation by attendees (i.e. participants do some 'work' e.g. contributing through small break out discussion groups, developing action plans, practice doing calculations or learning/using skills etc). Workshops are a Category B activity. Generally, workshops will have a component which is based on real scenarios, i.e. participant's own farm data is used or case study farms.

The critical components of a workshop are:

- Opportunity to learn new principles or theory
- Based on peer reviewed scientific and/or economic principles
- Participants are engaged in some activity where they contribute to, or are actively engaged in, the event (i.e. participants are hands-on and "do" at the event)
- There may be an action list developed
- There may be a plan developed
- There may be follow-up to support implementation of plans developed

The key outcomes of a workshop are:

- Increase in knowledge, skills, awareness and confidence
- Participants are more aware of the gaps in their knowledge/skills
- Workshops can be effective 'feeder' activities into supported learning projects (i.e. to enable participants to implement the new skills/knowledge on-farm), when they are structured with this in mind. An example is Bred Well Fed Well workshops leading to Lifetime Ewe Management.

Workshops are used to best effect when:

- There is theory, underlying principles and new knowledge to be covered, including teaching some practical skills or activity
- The size of the group has less effect on the outcome

Workshops will be most effective when:

- It is delivered to groups – providing an opportunity for peer-to-peer feedback
- Producers can be encouraged to share their own experiences/knowledge with the group
- The outcomes and expectations are clearly outlined to participants
- There are integrated practical (hands-on) components to the workshop activity.

## Comparative analysis

Comparative analysis is a subset and commonly the starting point for a benchmarking program. It is often confused with or called benchmarking. Comparative analysis is used to establish where businesses are at and what's possible. It will generally identify the top performers (typically the top 10 or 20%) and the areas of the business where their businesses are outperforming the average. However, it doesn't delve any further to create a deeper understanding of the best practice used by the top performers (*how they do what they do*) – the focus is on what they do. Comparative analysis is a Category B activity, and it is a compulsory component to begin delivery of all Category C supported learning projects.

The critical components of comparative analysis are:

- Opportunity to investigate the key profit drivers

The key outcomes of comparative analysis are:

- Participants know where their business sits relative to the industry average and best
- Participants are more aware of the gaps in their knowledge
- Improve the ability to process data and information into knowledge
- An ability to evaluate decisions from an economic perspective

Comparative analysis is used to best effect when:

- There is a need to demonstrate what the key profit drivers for business performance are and the benefits to be gained in improving performance in key areas
- There is a need to establish the baseline performance of a group or individuals
- It is linked to a learning process
- The potential of an individual business or population can be compared to be the 'best'

Comparative analysis will be most effective when:

- The data reflects the situation of participants (ideally it should use the participants' own data)

- The data is accurately recorded, processed and used
- It focusses on the performance of the entire business

## Benchmarking

Comparative analysis is used to establish where businesses are at and what's possible. Benchmarking then helps participants, through a learning process to effect positive change in the business areas which have been identified as needing improvement using a supported learning methodology. A typical benchmarking program is outlined below.

1. Identify areas to improve (Critical Success Factors (CSF))
    - Achieved via comparative analysis
2. Find the top 5-10% in the group / data set
    - These are the benchmarks and highlight what's possible (the potential)
3. Document (understand) best practice used by the benchmarks
    - Learn what it is that the benchmarks do and how they do it (i.e. what drives their results). Learn these skills and knowledge
4. Adapt the practice
    - Adoption and practice change.
5. Monitor and continuously improve
    - Continuous business improvement process completed

A learning activity associated with the benchmarking process is a Category C activity. It can form a valuable component of a supported learning project to set the scene and enable participants to understand the context for the supported learning project and exactly how it will benefit them.

The critical components of a benchmarking activity are:

- Helps producers understand their businesses and the key profit drivers
- Helps producers understand how the better producers do what they do
- Opportunity to investigate the key profit drivers
- Opportunity to "rank" your business against others in the group / dataset
- Participants have the opportunity to evaluate the outcomes of business improvement activities on their business performance
- Participants should have opportunities to implement new practices in their farming system, with peer support
- Based on peer reviewed scientific principles

The key outcomes of benchmarking are:

- Increase in knowledge and awareness
- Participants are more aware of the gaps in their knowledge/skills
- Participants have solutions to problems
- Linking capability with business performance
- Increase participant confidence and skills
- Improve the ability to process data and information into knowledge
- Linking cause and effect on farm

- An ability to evaluate decisions from an economic perspective

Benchmarking is used to best effect when:

- There is a need to demonstrate what the key profit drivers for business performance are and the benefits to be gained in improving performance in key areas
- There is a need to establish the baseline performance of a group or individuals
- There is a need to understand what and how the "benchmarks" do what they do
- There is a focus on what the figures mean rather than the figures themselves

Benchmarking will be most effective when:

- The data reflects the situation of participants (ideally it should use the participants' own data)
- It is possible to link cause and effect using the data set
- There are realistic options to move the performance of an individual or population towards the best
- There is a focus on developing management

## Supported learning

The key outcomes of supported learning activities are:

- Improved capability and practice linked with improvement in business performance
- Increased participant confidence and skills
- Improved ability to process data and evidence into knowledge and corresponding actions
- Linking cause and effect on-farm
- An ability to evaluate decisions from an economic and/or farming system perspective

The critical components of a supported learning project are:

- Participants should have opportunities to evaluate the outcomes of their skill development on their management capability/business performance
- Participants should have opportunities to implement new practices in their farming system, with peer support
- There is opportunity to practice (repetition) and for reinforcement of skills and knowledge, including time to reflect
- Based on peer reviewed scientific principles
- The deliverer encourages participants to find their own solutions based on their new skills and knowledge
- It provides an opportunity for peer to peer learning
- Supported learning is not a series of workshops covering a range of topics presented by different deliverers
- Group size is a consideration for supported learning activities – groups are typically smaller, although actual size will depend on the type of supported learning project, the experience of the deliverer, logistics, type of learning activities, level of interaction required, and complexity of tasks and skills

Supported learning projects are comparatively expensive to deliver and are used to best effect when:

- There are a number of skills to be learnt, that require practice/s to be embedded within the farming system
- The skills/knowledge/practice/s and decisions are complex and interwoven
- Implementing the skills and knowledge within the farm business will be challenging because the operating environment is complex

**Coaching**

***Desired qualities of a coach***

In order to be an effective resource for the participants' development, coaches must possess a broad understanding of leadership and development and a unique combination of maturity, professional and social skills including:

- a firm grounding in technical knowledge and competencies relevant to the subject area
- understanding of farm business profit drivers
- analytical and problem solving skills
- a thorough understanding of farming systems
- effective communication skills and ability to question rather than tell
- a working knowledge of monitoring and evaluation

The critical components of a coaching program are:

- Participants should have opportunities to learn and practice new skills
- Participants should have opportunities to evaluate the outcomes of their skill development on their management capability/business performance
- Participants should have opportunities to implement new practices in their farming system, with peer support
- Based on peer reviewed scientific principles
- Generally structured in nature, meetings are scheduled on a regular basis
- Short-term (usually time-bounded) and focused on specific development areas/issues
- The agenda is focused on achieving specific targeted learning outcomes
- Coaching may be delivered one to one or in a group environment

The key outcomes of a coaching program are:

- Improved capability linked with improvement in business performance
- Increased participant confidence and skills
- Improved ability to process data and evidence into knowledge and corresponding actions
- Linking cause and effect on farm
- An ability to evaluate decisions from an economic perspective
- Change in practice which improves business performance
- Improved problem solving and decision making capability
- Develop an ability to question information

Coaching programs are comparatively expensive to deliver and are used to best effect when:

- Producers are seeking guidance and accountability regarding their decision making
- There are a number of skills to be learnt, that require practice to embed
- The skills/knowledge/practice/s are complex and interwoven
- Implementing the skills and knowledge within the farm business will be challenging

A coaching program will be most effective when:

- It is delivered to groups – providing an opportunity for peer-to-peer feedback
- The deliverer encourages participants to find their own solutions based on their new skills and knowledge
- There is opportunity to practice and for reinforcement of skills and knowledge
- It is based on sound scientific principles
- Producers are held accountable for their decisions and actions

**Mentoring**

- Mentoring is usually a one to one activity
- Mentoring is usually more informal than coaching and meetings can take place as and when the mentee needs advice, guidance or support (i.e. the meeting is instigated by them)
- Mentoring is longer-term (usually not time constrained) and takes a broader view of the person, business and challenges
- The mentor is usually more experienced and qualified than the 'mentee'. The mentor is often a senior person in the industry who can pass on knowledge, experience and open doors to otherwise out-of-reach opportunities
- The agenda and goals are set by the mentee, with the mentor providing support and guidance to prepare them for future roles
- Mentoring revolves around developing the mentee personally as well as professionally
- Mentoring requires a high level of trust between mentor and mentee.

The critical components of mentoring are:

- Establishment of goals which mentor and mentee work together to achieve
- Opportunity to learn new principles, techniques or skills
- A focus on personal development
- The knowledge and information transferred is based on personal experience and expertise of the mentor
- The participant drives the agenda, including the end point for the mentoring program

The key outcomes of mentoring are:

- Mentees learn and develop both personally and professionally
- Mentees have support to experiment with solutions to problems
- Mentees grow in confidence and skills
- Leadership and communication skills of mentees improves
- Enables strategic thinking and decision making

Mentoring programs are comparatively expensive to deliver and are used to best effect when:

- The focus of a program is on personal development

A mentoring program will be most effective when:

- It is delivered one on one
- There is a high level of trust between mentor and mentee
- The mentor encourages the mentee to find their own solutions
- The mentor has significant experience in the area, is free with their knowledge and willing to share that experience experiences
- Both parties are committed to improvement

## Consulting

Historically, in the majority of cases consulting is about problem solving and providing advice and does not have a focus on learning. However, there is an opportunity to utilise consulting to follow on from other learning activities as a further teaching mechanism.

Consulting is usually delivered one to one, but not exclusively. It is focussed around problem solving, often in a question/answer format (i.e. the client queries and the consultant provides answers). Skill

development isn't normally the focus – the focus is on immediate answers to problems. Learning is often initially dependent on trust in the consultant. Consulting is not generally categorised as a learning activity, although this depends on the level of skill development (learning outcomes) delivered by the consultant.

The critical components of consulting are:

- Opportunity to learn new principles or theory
- Ideally based on peer reviewed scientific and/or economic principles
- Provision of advice to solve a known or impending problem

The key outcomes of consulting are:

- Increase in knowledge and awareness
- Participants are more aware of the gaps in their knowledge/skills
- Participants have solutions to problems

Consulting is used to best effect when:

- It follows on from a coaching or mentoring program – so that the skills and knowledge can be tailored for implementation into an individual farming system and the client can ask better and specific questions of the consultant
- Implementing skills and knowledge within the farm business is challenging.
- Short term problems are solved and downside risk avoided
- Upside potential is captured

Consulting will be most effective when:

- It is delivered one on one
- There is a high level of trust between advisor and client
- The consultant is both experienced and talented

## Counselling

Counselling principles may need to be adopted where there are exceptional circumstances impacting on clients' mental and personal health and well-being (e.g. drought, fire, flood, dog attacks, etc). These issues will impede the capacity of clients' to actively engage in any other kinds of learning activities in a meaningful way and deliverers must be cognisant of this, and either provide, or assist in providing, professional counselling services.

Counselling is designed to assist people to clarify problems and help in their resolution by providing time, space and encouragement to explore and understand issues, and view problems from a different perspective. Counselling would usually be delivered one on one, and there must be a high level of trust between counsellor and client.

The main steps in the counselling process are:

- To help clarify the problem
- To identify options available in the situation
- To work out what the client hopes to achieve
- Identify ways to achieve this goal
- Provide support and encouragement in working towards your goal

As with coaching, counsellors should not make recommendations or offer advice - the purpose of counselling is to help people make their own decisions. However, counsellors may offer pointers on how others have successfully dealt with similar problems.

## Learning activity tools

The following activities are as much delivery tools as activities in their own right and could be incorporated as a component of Category B and C activities.

#### Farm visits/walks

Farm visits or farm walks involve bringing a group of producers to visit a property – to talk to the owner/manager and have a first-hand look at the farming system – enterprises, practices, issues, etc. Farm visits can form part of other activities – for example PDS, conference/symposium/field day, producer discussion group, workshop or supported learning project. The purpose is typically to provide an opportunity to learn from leading producers in their own environment, where it is easier to understand both the issues and the solutions or practices in context. As a standalone activity farm visits or farm walks are a Category A activity however they may also be a component activity as part of Category B or C activities.

#### Webinar

Webinars or online tools such as Go-to-Meeting provide an opportunity for delivery of a learning activity to participants who are remote from the presenter/facilitator. Webinars enable the transfer of information via powerpoint presentation, audio, shared whiteboards etc and also provide an opportunity for participants to ask questions. They are becoming a more popular delivery mechanism for information session activities in particular, however, they also have potential for supported learning activities. As a standalone activity farm visits or farm walks are a Category A activity however they may also be a component activity as part of Category B or C activities.

#### E-learning

Online supported learning projects may be a structured or unstructured and are designed to enable participants to interact with the program in their own time and at their own pace. Online supported learning projects can use a range of standalone or integrated techniques to transfer and reinforce theory increasing knowledge. Information transfer techniques include decision support tools, video, readings, powerpoint, virtual presentations, virtual reality sequences, blogs and quizzes. Online supported learning projects often have short assessments to reinforce knowledge gained. Depending on their structure and how they are integrated with other learning activities e-supported learning projects could be a Category A, B or C activity.

# Definition of value chain/supply chain

## Supply chain

#### Focus on Production

- Negotiate each transaction based on supply & demand and market information
- Improve profit by reducing costs

## Value Chain

**Focus on Consumer**

- All stakeholders add & extract value from the chain (consumer/customers)
- Save transaction costs
- Disburse profits equitably
- Develop trust & relationships
- Develop new or increased value and/or remove unnecessary cost

In order to move from a supply chain to value chain approach requires change from negotiating between links in the supply chain to adding value to the value chain

**One definition of value chain**

*"A vertically coordinated value chain has all participants working toward a common goal, sharing information with each other relevant to the goal, working cooperatively to accomplish the goal, all members having both accountability to and opportunity for product characteristics, and developing mutual trust and dependence. One segment of the vertical chain cannot profit at the expense of another segment or trust will rapidly be lost. Quality measurements must be objective, price differences must reflect value differences, the animals and products need to be traceable, and incentives for innovation and new product development must be in place. In addition, branding the product is essential in such a strategy because consumers place value on information the brand alone conveys."*

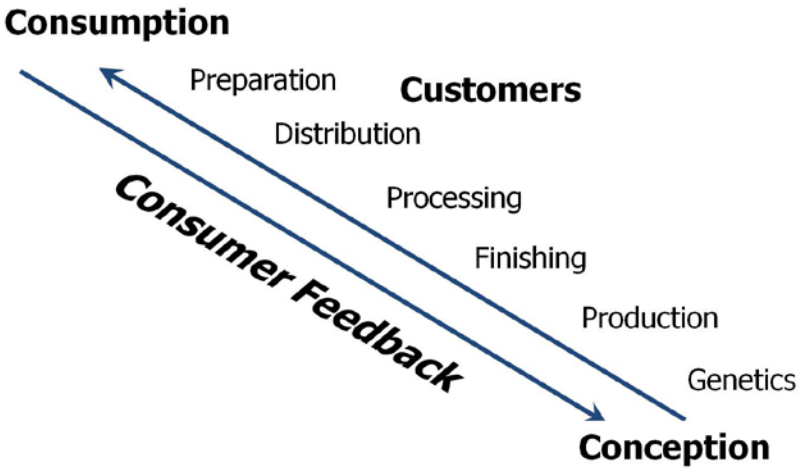
Ted C. Schroeder, Ph.D.

Professor of Agricultural Economics

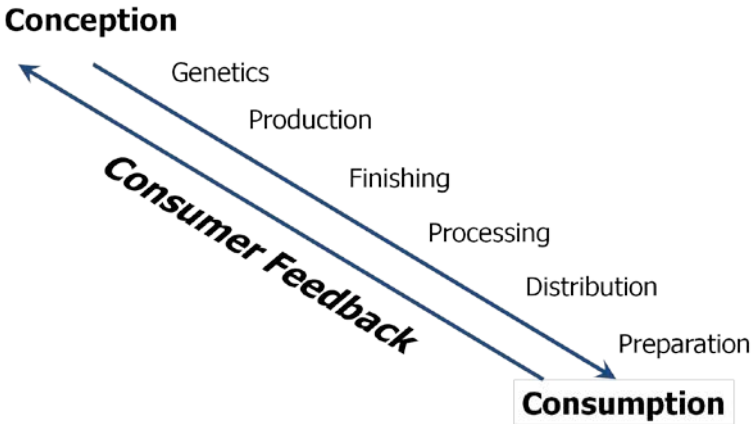
Kansas State University For National Beef Industry Development Fund

December 15, 2003

***Value chain***



## ***Supply Chain***



# Appendix 2: Results from E&A pilot project – economic impacts

| Group | Model assumptions | Area | Farm Value | | Additional Capital | Benefit | | | ROAM |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Annual Gain | less Amortised Capex* | Net Benefit | |
| Code | | ha | $/ha | $ | $ | $ pa | $ pa | $ pa | % |
| PGS09 | Additional weight gain or beef trading | 316 | 8,250 | 2,607,000 | 316 | 70,468 | 0 | 70,468 | 2.70% |
| PGS04 | | 830 | 4,150 | 3,444,880 | 0 | 18,884 | 0 | 18,884 | 0.55% |
| PGS07 | | 2,000 | 3,000 | 6,000,000 | 10,000 | 132,300 | 1,359 | 130,941 | 2.18% |
| PGS02 | Identifying low kg lamb live weight sold/ha as a weakness. Changes to production system to address achieving 15% increase in measure. | 700 | 7,350 | 5,145,000 | 30,000 | 52,500 | 12,000 | 40,500 | 0.79% |
| PGS06 | Improved carrying capacity, and performance, weaners grown heavier | 605 | 418 | 253,138 | 9,527 | 36,747 | 1,294 | 35,452 | 14.01% |
| PGS08 | ID profit drivers & target better productivity - lower operating and labour per stock unit, lower asset values per stock unit | 512,858 | 10 | 5,291,227 | 0 | 25,000 | 0 | 25,000 | 0.47% |
| PGS05 | Improved land condition more strategic grazing mgmt & supplementation, increase SR, improved conception. | 12,144 | 91 | 1,105,787 | 0 | 110,592 | 0 | 110,592 | 10.00% |
| PGS10 | Supplementing heifers with P, Augmenting with legumes | 130,000 | 54 | 7,000,000 | 0 | 29,669 | 0 | 29,669 | 0.42% |
| PGS03* | increase lamb marking by 10%, decrease turn off time by increased pasture growth' | 688 | 1,000 | 688,000 | 234,000 | 316,000 | 31,793 | 110,592 | 16.07% |
| PGS01* | Increase the SR, increase weaning %. Better pasture utilisation. | 303 | | 1,870,000 | 25,000 | 3,000 | 3,397 | -397 | -0.02% |
| | Average (9) | | | | | | | 57 | 4.72 |

* data from PGS03 and PGS01 is not included in the analysis as these were considered to be outliers

# Appendix 3: Curriculums

## Curriculum Overview

### Background

The proposed new extension and adoption program builds on the learnings, resources and networks developed by previous MLA extension programs whilst providing a more targeted service to producers who are focussed on improving business performance primarily through skill development.

The program will:

- Be the key platform for delivery of MLA beef, sheep and goat research outputs
- Develop skilled and confident producers adopting practices delivering whole farm business performance and resilience improvements through evidence-based decision making
- Embed a culture of monitoring, measuring and managing
- Embed a culture of producers valuing extension services

Based on a national curriculum, it is intended for regionally based deliverers to work with groups of producers to improve their whole of business performance, using mainly supported learning projects to imbed skills and knowledge. Flexible regional delivery will support the development of skills and adoption of practices that influence key business profit drivers. These profit drivers are primarily in the areas of business and people management, genetics and reproduction, feedbase and the value chain. Where supported learning projects are utilised, they will be developed by:

- deliverers investing in developing their own supported learning projects, which are consistent with the relevant adoption program curriculums. In this instance, deliverers will continue to own the IP of their programs;
- delivery of existing MLA supported learning packages; or
- where gaps have been identified, MLA will invest in development of supported learning packages which will be available for approved deliverers to tailor and use with groups.

Where there are MLA tools, resources and R&D outputs available, supported learning projects will be underpinned by these. MLA will invest in supporting monitoring and evaluation activities.

### Why a curriculum approach

It is recognised that there is a wealth of extension material in existence which is owned by many organisations and individuals including MLA. In future, the delivery capacity, more so that the material, is likely to be the limitation to the quantity and quality of programs delivered under the proposed adoption project. A curriculum based approach provides the greatest level of flexibility in terms of delivery, whilst also offering a framework to ensure that the desired learning outcomes are achieved by the proposed activities.

It is also recognised that varying techniques are required to achieve the desired level of change in a producer skill and knowledge, and that in many cases deliverers will want to deliver across subject areas because of the interconnected nature of red meat production. The outcome, improved business performance, is the key end point and as a result it is likely to be unproductive to be prescriptive at the delivery level but rather a much better option to provide a curriculum framework to guide program content and delivery.

### The curriculum resource

The proposed adoption program delivery framework is made up of five pillars representing the core areas associated with improved business performance. For some pillars there is more than one curriculum developed to be species and/or regionally specific, resulting in ten individual curriculums. The curriculums are intended to be used as a guide in the development of supported learning projects.

6. Feedbase
    - Southern
    - Rangelands and northern Australia
7. Business
8. People
9. Reproduction & genetics
    - Sheep
    - Goat
    - Northern beef
    - Southern beef
10. Value chain
    - Sheep & cattle
    - Goat

The key elements of each curriculum are:

- Curriculum topic
- Learning topics
- Learning outcomes
- Learning activities
- Tools and resources

The curriculum topics are the key drivers for increasing of productivity and profitability on-farm.

The learning topics are the next level, identifying key topics that underpin the curriculum topic and which should be delivered in order to achieve the desired learning outcomes. The successful achievement of learning outcomes is the way in which the delivery of curriculums will be judged (assessed using the PGS M&E methods and metrics). The learning activities and tools and resources have been identified by curriculum authors, but delivery should not be

constrained to these methods and resources where deliverers have alternatives. The tools and resources are summarised in the E&A Tools and Resources database.

The curriculums have been developed by key technical experts in each of the curriculum areas, working together to provide peer review and support.

### How to use the curriculum

Curriculums have been designed to guide the development of supported learning projects. To achieve skill development, embedded practice change and to improve business performance, both program content and the delivery method are critical. The focus of the curriculums is primarily on content, with some suggestions provided on the type of delivery method (under learning activity).

In designing supported learning projects, deliverers should follow a similar template to that of the curriculum, separately addressing each area: learning topic, learning outcome, learning activity, and tools and resources. In addition, there should also be a column for session number and session timing.

The learning topics in most curriculums are listed in the preferred order for delivery however there is no reason that individual topics can't be delivered standalone, the order of delivery changed or topics from different curriculums delivered as part of the same package.

The value chain curriculum in particular is designed to be integrated into the delivery of any of the topics from other curriculums and deliverers are encouraged to do this to ensure a customer focus is maintained when delivering other pillars. Similarly, incorporating some form of economic assessment into decision making is a core component of the curriculums (e.g. marginal cost versus marginal benefit).

The curriculums have been designed to encourage producers to move from one curriculum to another with strong links and shared topics between many of them (e.g. reproduction and feedbase, feedbase and business, etc). This cross-curriculum approach will enable producers to capitalise on the business improvements possible through adaption of new practices and the development of skills. Additionally, deliverers are encouraged to use supported learning projects where skill development is a primary objective of delivery to address whole of business issues (e.g. meeting market requirements, optimising supply and demand, optimising business return). However, caution should be exercised in designing programs that incorporate many topics, but don't enable opportunity for reinforcement and reflection of core skills and knowledge, as these will not be effective in achieving the proposed adoption program outcomes.

It is anticipated that the majority of producers will eventually progress to the business curriculum where they can capitalise on improved technical skills to realise business performance improvements.

A compulsory first step in the delivery of all curriculums will be a comparative analysis session to allow producers to share key performance indicators related to the supported learning project objectives so that they can see where they currently sit, identify the potential for improvement and the potential impact on their business. Data from the group will be compared to industry data, where available and relevant. Templates will be provided to deliverers to use for the comparative analysis session if they wish, although they may prefer to use their own.

It would be beneficial to revisit the comparative analysis session at the conclusion of the program to remind participants why they signed up, prove that they are more skilled and likely to be more profitable and to link them to the next learning activity.

**Colour code for inclusion of learning topics, outcomes, activities, or tools/resources**

Within each curriculum there are some items that have been identified as being essential to achieving the adoption/productivity improvement outcomes, while others are considered optional. These have been differentiated using a colour coding system, as follows:

- Where items are essential to enable the learning outcomes to be achieved, they are in normal (black font).
- Where items are recommended to be used for the learning outcomes to be achieved, they are in green
- Where items are optional to be used for the learning outcomes to be achieved, they are in orange
- The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

### Delivery model options

Where skill development is required for skill development and imbedded practice change to catalyse improved business performance, it is critical that curriculums are delivered as supported learning projects (i.e. that there is some level of coaching/ongoing technical and peer support), in order to implement the theory on farm. The exceptions to this are topics where skill development is not required, and the focus is primarily on knowledge transfer. Deliverers are advised to use the learning activities and resources in the curriculum as a guide, but are encouraged to adopt alternative approaches.

Where deliverers do not have all the necessary technical and/or coaching skills to deliver across all curriculums, they are encouraged to collaborate in transitioning producers between curriculums, or to partner in program delivery to optimise the commercial value to producers, and to ensure impact in successfully achieving the proposed adoption program outcomes.

#### *Using the curriculum to develop a supported learning project*

Some prepared supported learning packages will be made available to deliverers. Deliverers will be encouraged to tailor these programs to ensure that they are locally relevant or able to include topics from other curriculums.

In other cases deliverers may wish to develop their own supported learning projects – they may already have an existing program that fulfils the curriculum requirements or they may wish to develop one from scratch, using the curriculums as a guide.

In all cases above, all programs must be approved for delivery by MLA. This process is intended to provide useful feedback to deliverers to enable continuous improvement, and ensure that a high standard of adoption packages is maintained. MLA will not provide funding for development of individual programs or for tailoring of existing packages. These are the responsibility of the deliverer to invest in.

A supported learning project must cover the key learning topics outlined under the relevant curriculum topics, and include a strong focus on skill development where relevant to these topics. Within each curriculum topic, the component learning topics are numbered. This numbering should be applied to the learning topics within supported learning projects developed by deliverers (or MLA), and an acceptable number of learning topics must be included to meet the requirements for the curriculum topic (refer to diagram over the page). Deliverers may add additional learning topics, outside those already

identified in the curriculum. Both program content and the delivery approach will be used to assess programs to determine whether they are likely to be able to achieve the desired learning outcomes, as written.

**Curriculum topic – number 3**

| | | | | | |
|---|---|---|---|---|---|
| 3.→ Business·performance·assessment·and·analysis¶<br>¶<br>Assessing·business·performance·helps·to·identify·areas·of·strength·and·weakness.·It·provides·the·opportunity·to·understand·which·areas·to·improve.·Monitoring·allows·for·assessment·of·the·value·of·the·impact·of·the·changes·made.¶<br>¶<br>*This·topic·is·where·all·coaches·should·aim·to·transition·their·participants·to,·from·the·within·curriculum·comparative·analysis·(so·that·there·is·a·shift·from·performance·KPIs·to·business·KPIs)*¤ | 3.1·What·to·monitor·and·report.·The·difference·between·compliance·and·management·accounts.¶<br>¶<br>3.2·Key·management·concepts·of·performance·—·liquidity,·efficiency,·wealth.¶<br>¶<br>3.3·Measures·of·efficiency·—·return·on·assets·managed/return·on·equity¶<br>¶<br>3.4·Understanding·comparative·analysis·(why·conduct·comparisons,·what·cohort·to·compare·and·what·is·the·difference)·¶<br>¶<br>3.5·Key·performance·indicators·—·calculation,·use·and·interpretation.¶<br>¶<br>¤ | Can·explain·the·difference·between·compliance·and·management·reports/accounts¶<br>¶<br>Can·explain·the·different·approaches·to·valuing·natural·increase·in·flocks/herds.·¶<br>¶<br>Know·the·difference·between·whole·farm·and·enterprise·level·analysis.¶<br>¶<br>Ability·to·calculate·whole·farm·performance·indicators·including·return·on·assets·managed·and·return·on·equity.¶<br>¶<br>Understanding·of·the·total·farm·return·including·capital·return·and·operating·return.·¶<br>¶<br>Can·identify·the·target·level·of·farm·performance·for·a·highly·profitable·farm·business·across·key·performance·indicators.¶<br>¶<br>Can·calculate·the·level·of·farm·performance·on·own·farm·business·across·key·performance·indicators.·¶<br>¶<br>Can·interpret·a·sensitivity·analysis·to·establish·factors·driving·a·financial·outcome.¶<br>¶<br>Some·of·the·measures·that·can·be·used·as·performance·metrics·for·comparative·analysis·include:¶<br>• → Return·on·investment¶<br>• → Net·profit·%·gross·profit¶<br>• → Labour·efficiency·(DSE·or·AE·per·LU·or·FTE)¶<br>• → Cost·of·production¶<br>• → Enterprise·gross·margin¶<br>• → Production·(kg·DM/unit·area/mm·rainfall)¶ | Understanding·key·performance·indicators,·how·they·are·calculated·and·the·targets·(workshop,·reinforced·by·mentoring).¶<br>¶<br>Southern/northern·Business·Edge**·(workshop).¶<br>¶<br>Benchmarking·group·workshop·sessions·(delivered·over·a·period·of·time)¶<br>¶<br>Study·tours·—·producer·case·study/s·preferably·where·>5·year·historical·business·performance·available.¤ | MLA·MBfP·(Module·1.·Setting·directions·Tool·1.06·Industry·benchmarks)¶<br>¶<br>MLA·MBfP·(Module·1.·Setting·directions·Procedure·5·Implement·and·monitor·progress)¶<br>¶<br>MLA·MMfS·(Module·1.·Plan·for·success·Tool·1.9·Indicative·industry·benchmarks)¶<br>MLA·MMfS·(Module·1.·Plan·for·success·Procedure·1.3·Compare·your·business·performance·against·industry·benchmarks)¶<br>¶<br>MLA·MMfS·(Module·1.·Plan·for·success)¶<br>¶<br>Southern/northern·Business·Edge·(Reference·notes·Session·3.·Understanding·and·measuring·whole·business·performance).¶<br>¶<br>Benchmarking·tools·and·methodology·(propriety·tools·available·from·private·industry·providers).¤ | People·—·understanding·labour·efficiency·and·human·resource·management·(P3)¶<br>¶<br>Performance·will·be·dependent·on·the·integration·of·feedbase,·genetics,·people·and·value·chain·technologies:¶<br>FB1,·FB3,·FB4,·FB5¶<br>RG1,·RG2,·RG5¶<br>VC3··¤ |

**Learning topic number. If topic 3.5 is included in a supported learning project it should be numbered as it is here (even if delivered in a**

## Summary of each curriculum pillar – description, curriculum topics, overarching learning outcome and the value proposition for participants

| | Value chain | Reproduction/genetics | Feedbase | Business | People |
|---|---|---|---|---|---|
| **Pillar description** | *There are two separate value chain curriculums – **sheep/cattle and goats.***<br><br>The value chain curriculum covers the key market influences that flow through a supply chain to livestock producers. Different segments of the production chain will have different customer requirements. These broad market segments may include:<br><br>• Live Export North (Cattle)<br>• Live Export South (Cattle)<br>• Live Export Sheep<br>• Slaughter Cattle (domestic or export)<br>• Slaughter Sheep (domestic or export)<br>• Slaughter goats (domestic or export) (*written as a separate curriculum)*<br>• Store animals<br><br>Whatever the segment/s of the value chain that producers are targeting, it is critical that they understand the importance of producing what their customer requires. All members of | *There are four separate curriculums under the reproduction and genetics pillar – **sheep, goats, northern and southern beef**.*<br><br>This pillar aims to incorporate management and genetics factors that contribute to improving animal reproduction and profitability. Reproductive efficiency is a key profit driver for red meat enterprises, hence this pillar acknowledges the importance of genetics while focusing on management to achieve reproduction targets to ensure a profitable red meat enterprise.<br><br>*This pillar has strong links to* | *There are two separate curriculums under the Feedbase pillar –Northern and Southern Feedbase.*<br>The **Northern Feedbase curriculum** includes Northern Australia and southern rangelands and covers areas which have mainly C4 dominant pastures and are typically non-temperate areas with highly variable rainfall patterns within and between years. The curriculum covers the principles associated with growing, utilising and supplementing the feedbase (pasture, fodder, grain) for cattle, sheep and goats to meet market requirements and optimise profitability.<br><br>The **Southern Feedbase curriculum** covers the growing, harvesting and | The business curriculum includes business strategy and planning, financial literacy, whole business performance assessment and analysis, enterprise performance assessment and risk analysis and planning. The business curriculum applies to broad acre livestock enterprises including sheep, cattle and goats in northern and southern Australia. It is also applicable to businesses with cropping. The business curriculum aims to build financial literacy by identifying areas of strength and weakness, recognising areas for improvement and monitoring to measure the value of the impact of change. | The people curriculum develops the skills required for business managers and owners to work in a team, recruit and manage staff, accomplish the transition of business owners into and out of the business, and make confident decisions. The value to the business is improved decision making. To make good decisions people must be working together and managing conflicts effectively. The business needs to be able to find good people with appropriate skills and manage them well. It also needs to be compliant with the law by properly managing employment and workplace safety risks.<br><br>*The people pillar has strong links with the business pillar with an emphasis on business analysis to determine the capacity of the business to* |

| | | | | | |
|---|---|---|---|---|---|
| | the value chain should value and understand feedback and market compliance. Red meat producers should be able to incorporate customer requirements and animal feedback into management and/or business decisions.<br><br>Customer requirements form the basis of market specifications and grids. Having skills in live animal assessment will allow producers to match their livestock to the market specifications.<br><br>*The value chain pillar is linked to and has relevance to all of the other curriculum pillars – feedbase, reproduction and genetics, business and people. The value chain curriculum is designed to be able to be integrated into the delivery of any of the other curriculums and deliverers are encouraged to do this.* | *other pillars; feedbase is critical to providing sufficient nutrition to ensure that the reproductive potential can be achieved; understanding the linkages between genetics and the value chain will help ensure market compliance. The business and people pillars both have strong links to the reproduction and genetics pillar as these will help producers determine the goals of the business and how these can be achieved.* | supplementation of the feedbase (pasture, fodder, grain) for sheep, cattle and goats to meet market and production requirements and optimise profitability in the temperate zone of Southern Australia.<br><br>*This pillar has strong links to reproduction, value chain and business pillars.* | *The business curriculum is inextricably linked to all pillars.* | *accommodate succession.* |

| | Value chain | Reproduction/genetics | Feedbase | Business | People |
|---|---|---|---|---|---|
| **Key learning outcome** | Be able to understand the importance of customer requirements and value based trading to all sectors of the red-meat value chain. Understand how management and production can impact on both profit and the ability to meet customer needs. | Understand the link between nutrition and reproductive performance and be able to manage breeding herds/flocks to optimise reproductive potential.<br><br>A strategic approach to managing animal genetics. | To grow and utilise feed to achieve a profitable livestock operation while maintaining or enhancing the natural resource base | To build financial literacy and implement profitable strategies through an improved understanding of business management | To enable farm business owners to:<br><br>Effectively manage relationships within the business and develop a strong team. This will improve decision-making and the team will support the important decisions.<br><br>Understand and be able to implement the process of bringing owners into the business or manage risks when leaving the business.<br><br>Have the skills to recruit, manage and retain staff. |
| **Value proposition** | Improve your capacity to deliver to your customer within specification every time. Maximise business returns through producing what the customer wants and getting paid accordingly - value based pricing. | **Improved herd performance and business profitability** through:<br>a.) Optimising increases in reproductive performance and<br>b.) targeted genetic selection<br>**Increased satisfaction** as a result of producing a product that is sought after by consumers. | To improve the profitability of the livestock operation on my property through matching and manipulating the feed I grow and what the animals eat. | Improve the productivity and profitability of livestock enterprises by improving financial literacy and making better informed decisions. | • Enjoy farming more<br>• **Improved business profitability and longevity** through better decision making<br>• **A more enjoyable workplace** through improved relationships<br>• **Reduced employment costs** through lower staff turnover<br>• **A safer workplace** through better risk management |

| | | | | | |
|---|---|---|---|---|---|
| **Curriculum topics** | Comparative analysis<br>1. Having a customer focus. Understanding that customer requirements form the basis of grids and market specifications.<br>2. Developing live animal assessment skills<br>3. Understanding feedback and the opportunities in meeting market specs (and the costs of not meeting market specifications). | Assessing productive performance to identify priority areas for improvement<br>**Reproduction**<br>1. Optimise the nutritional management of your herd/flock<br>2. Optimise the reproductive management of your herd/flock<br>3. Effective management of reproductive disease and health<br>**Genetics**<br>4. Determine your breeding objective, to improve herd/flock performance, market compliance and profit<br>5. Implement your breeding strategy to maximise the genetic gains for your herd/flock | Assessing productive performance to identify priority areas for improvement<br>1. Optimise feed grown<br>2. Animal requirements<br>3. Optimal feed utilisation<br>4. Managing seasonal variability (topic to be imbedded in other learning topics for the northern feedbase curriculum)<br>5. Identify feed gaps and take appropriate action | Business is a measure of performance; hence linkages with other pillars are crucial to lifting business performance.<br>1. Business strategy and planning<br>2. Financial literacy<br>3. Business performance assessment and analysis<br>4. Enterprise performance assessment and analysis<br>5. Budgeting, investment and risk analysis | 1. Working together well<br>2. Transitioning people (succession)<br>3. Employment:<br>a. Recruitment, induction, and reward<br>b. Managing people and teamwork<br>c. Individual performance and skills development<br>d. Compliance (working conditions / awards, WH&S responsibilities)<br>4. Confident decision making |

## Business Curriculum V1.1

**Curriculum description:**

*The business curriculum includes business strategy and planning, financial literacy, whole business performance assessment and analysis, enterprise performance assessment and risk analysis and planning. The business curriculum applies to broad acre livestock enterprises including sheep, cattle and goats in northern and southern Australia. It is also applicable to businesses with cropping. The business curriculum aims to build financial literacy by identifying areas of strength and weakness, recognising areas for improvement and monitoring to measure the value of the impact of change. The business curriculum is inextricably linked to all curriculums as business performance is dependent on the effective implementation of alternative curriculum learnings. While the topics are listed in the preferred order for them to be delivered were a coach going to deliver the entire business curriculum, there is no reason that individual topics can't be delivered as standalone or in any particular order.*

**Overarching learning outcome:** *To build financial literacy and implement profitable strategies through an improved understanding of business management*

**Value proposition:** *Improve the productivity and profitability of livestock enterprises by improving financial literacy and making better decisions.*

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| 1. Business strategy and planning | 1.1 Goal setting and identification<br><br>1.2 Now, where, how analysis<br><br>1.3 Business and enterprise strategy setting<br><br>1.4 Conduct a SWOT | Can distinguish between long and short term goals.<br><br>Develop a now, where, how plan for the business.<br><br>Used the SMART (specific, measurable, action-oriented, realistic, time specific) acronym to set short term business goals.<br><br>Ability to use the SWOT matrix/analysis | Business planning theory and practical workshop session where participants learn the theory by applying to their own business<br><br>Delivered over a period of time will enable review of progress | MLA MBfP (Module 1. Setting directions)<br><br>MLA MMfS (Module 1. Plan for success)<br><br>MLA Going into Goats (Module 2. Financial analysis)<br><br>Now, Where, How – generic tools<br><br>SWOT – generic tools | Value chain – to assist in understanding market requirements (VC 1 & VC3)<br><br>Feedbase – in understanding the constraints of the resource base and |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | analysis<br><br>1.5 Understanding the resource base and its management (Physical, human, financial). | to create a business strategy<br><br>Can identify and list the physical resources (land and infrastructure) necessary for managing different enterprises and meeting specific market needs.<br><br>Can identify personal needs and goals and incorporate these into the business goals | | | livestock requirements (FB1 & FB4)<br><br>People – understanding the human resources required to achieve the business goals. Identifying skills in the business. (P1, P3, P4)<br><br>Genetics – to suit resource availability and market end point. (RG4) |
| 2. Financial literacy | 2.1 The language of money and accounting principles. Description of accounting terminology.<br><br>2.2 Understanding gross profit (income) in the business including sales, purchases and | Improved financial literacy<br><br>Ability to distinguish between gross profit and sales.<br><br>Able to calculate the value of inventory change and understand the impact on income/gross profit.<br><br>Able to distinguish between enterprise | Theory on terminology, concepts and ratios with practical sessions applied to participant businesses (Workshop). Recommended delivery via more than | Southern/Northern Business Edge (Reference notes Session 2. Acquiring financial literacy: talking the language of money)**<br><br>MLA MBfP (Module 1. Setting | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | inventory change.<br><br>2.3 Understanding expenses in the business. Enterprise expenses, overhead expenses, financing and lease expenses, taxation. Cash and non-cash expenses<br><br>2.4 Calculating and understanding profit. | expenses and overhead expenses.<br><br>Can understand that financing, lease and taxation costs occur below the profit line.<br><br>Can calculate profit expressed as earnings before interest and tax.<br><br>Can calculate profit expressed as net profit after tax.<br><br>Ability to differentiate between cashflow and profit. | one workshop, for example Northern or Southern Business Edge**, followed by coaching sessions | directions)<br><br>MLA MMfS (Module 1. Plan for success)<br><br>MLA Going into Goats (Module 2. Financial analysis) | |
| 3. Business performance assessment and analysis<br><br>Assessing business performance helps to identify areas of strength and weakness. It provides the opportunity to understand which | 3.1 What to monitor and report. The difference between compliance and management accounts.<br><br>3.2 Key management concepts of performance – liquidity, efficiency, wealth.<br><br>3.3 Measures of | Can explain the difference between compliance and management reports/accounts<br><br>Can explain the different approaches to valuing natural increase in flocks/herds.<br><br>Know the difference between whole farm and enterprise level analysis.<br><br>Ability to calculate whole farm performance indicators including return on assets managed and return on equity.<br><br>Understanding of the total farm return | Understanding key performance indicators, how they are calculated and the targets (workshop, reinforced by mentoring).<br><br>Southern/northern Business Edge** (workshop).<br><br>Benchmarking group | MLA MBfP (Module 1. Setting directions Tool 1.06 Industry benchmarks)<br><br>MLA MBfP (Module 1. Setting directions Procedure 5 Implement and monitor progress)<br><br>MLA MMfS (Module 1. Plan for success Tool 1.9 Indicative industry benchmarks)<br><br>MLA MMfS (Module 1. Plan for success Procedure 1.3 Compare | People – understanding labour efficiency and human resource management (P3)<br><br>Performance will be dependent on the integration of feedbase, genetics, people and value |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| areas to improve. Monitoring allows for assessment of the value of the impact of the changes made.<br><br>*This topic is where all coaches should aim to transition their participants to, from the within curriculum comparative analysis (so that there is a shift from performance KPIs to business KPIs)* | efficiency – return on assets managed/return on equity<br><br>3.4 Understanding comparative analysis (why conduct comparisons, what cohort to compare and what is the difference)<br><br>3.5 Key performance indicators – calculation, use and interpretation. | including capital return and operating return.<br><br>Can identify the target level of farm performance for a highly profitable farm business across key performance indicators.<br><br>Can calculate the level of farm performance on own farm business across key performance indicators.<br><br>Some of the measures that can be used as performance metrics for comparative analysis include:<br><br>• Return on investment<br>• Return on assets managed<br>• EBIT<br>• Net profit % gross profit<br>• Labour efficiency (DSE or AE per LU or FTE)<br>• Cost of production<br>• Enterprise gross margin<br>• Production (kg DM/unit area/mm rainfall)<br>• Production (kg red meat/unit area/mm rainfall)<br>• Finance ratios (e.g. interest cover) | workshop sessions (delivered over a period of time)<br><br>Study tours – producer case study/s preferably where >5 year historical business performance available. | your business performance against industry benchmarks)<br><br>MLA MMfS (Module 1. Plan for success)<br><br>Southern/northern Business Edge (Reference notes Session 3. Understanding and measuring whole business performance).**<br><br>Benchmarking tools and methodology (propriety tools available from private industry providers).<br><br>Benchmarking data sets (Farm Monitor Program (Victoria only), Ag Insights, or private data sets) | chain technologies:<br><br>FB1, FB3, FB4, FB5<br><br>RG1, RG2, RG5<br><br>VC3 |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| 4. Enterprise performance assessment and analysis | 4.1 Assessing livestock production<br>• per animal unit<br>• per unit area<br>• per unit area per millimetre of rainfall<br>4.2 Assessing alternative enterprise production (eg crop)<br>4.3 Stock flows, inventory analysis and production levels<br>4.4 Livestock/crop production record keeping and measurement<br>4.5 Cost of production – definition, use, deficiencies and outcome assessment. | Identifying the key drivers of profit and implementing strategies to achieve improved performance against them<br>Ability to calculate monthly stocking rate by enterprise<br>Ability to calculate the annual effective area allocated to grazing enterprises<br>Can conduct an annual stock flow and understands livestock movements (sales, purchases, deaths and between classes)<br>Knows the record keeping requirements to generate production performance indicators at an enterprise level<br>Ability to calculate cost of production<br>Ability to allocate enterprise and overhead costs by enterprise | Cost of production – workshop<br>Enterprise level benchmarking – theory on how to and interpretation (workshop and coaching/mentoring where year on year).<br>Theory – how to benchmark enterprise performance (workshop and coaching or mentoring) | Cost of production tool<br>MLA Going into Goats (Module 2. Financial analysis)<br>Breedcow plus/Dynama plus<br>BusinessEDGE – session 6 Understanding and measuring enterprise performance and Session 6A – Issues with a multi-enterprise grazing business** | Value chain regarding production value relative to market specifications (VC3)<br>Genetics – meeting production and reproductive targets (RG1, RG2, RG3, RG5)<br>Feedbase – feed utilisation. (FB1, FB3, FB5)<br>People – labour efficiency at enterprise level (P1, P3) |
| 5. Budgeting, investment and risk analysis | 5.1 Partial budgeting<br>5.2 Investment analysis – why use it, the components, outputs | Can conduct, analyse and understand the outcome of a partial budget<br>Can interpret a sensitivity analysis to establish factors driving a financial | Southern/northern Business Edge** | MLA MMfS (Module 1. Plan for success. Procedure 1.5 Assess enterprise changes and new technologies). | Genetics, Feedbase, People, Value Chain – marginal benefit/cost of change. (RG1, RG2, |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | and how to assess the outcome.<br><br>5.3 Cash flow budgeting<br><br>5.4 Understanding, analysing and managing risk<br><br>5.5 Sensitivity and scenario analysis | outcome.<br><br>Understands the concept that the future value of money is lower than the current value<br><br>Ability to identify the most profitable investment from a number of investment options.<br><br>Can identify the investment generating the highest profit from a number of investment options.<br><br>Can allocate risks according to a probability and consequence matrix.<br><br>Ability to identify the probability of a given occurrence from a historical range of occurrences.<br><br>Ability to conduct a two way variable analysis to project an outcome. | Risk management workshop – theory and practical component using livestock examples (workshop – coaching)<br><br>Feed budgeting (workshop/coaching) | Southern/northern Business Edge (Reference notes Session 5. Managing and allocating working capital).**<br><br>Evergraze Pasture improvement calculator (benefit - cost of investment in pasture improvement)<br><br>Feed budgeting tools – risk management.<br><br>BusinessEDGE – Session 4 Managing business risk** | RG4, RG5)<br><br>Feedbase – feed budgeting for risk management. (FB3, FB4, FB5)<br><br>Value chain – considering options from changes in market conditions/requirements (VC1, VC3)<br><br>People – valuing potential changes in the labour force. (P2, P4) |

**Colour code for learning topics, outcomes, activities, or tools/resources:**
Where items are essential to be used for the learning outcomes to be achieved, they are in normal (black font)
Where items are recommended to be used for the learning outcomes to be achieved, they are in green

Where items are optional to be used for the learning outcomes to be achieved, they are in orange
The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages**

| Topic | Repro & genetics 1 | Repro & genetics 2 | Repro & genetics 3 | Repro & genetics 4 | Repro & genetics 5 | Feedbase 1 | Feedbase 2 | Feedbase 3 | Feedbase 4 | Feedbase 5 | Value chain 1 | Value chain 2 | Value chain 3 | People 1 | People 2 | People 3 | People 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | |
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| 5 | | | | | | | | | | | | | | | | | |

strong links
moderate links
weak links

**Monitoring and evaluation for assessing delivery performance for the Business Curriculum**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the business curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the Extension and Adoption program activities will be divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the business curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|
| • Return on investment<br>• Return on assets managed<br>• Earnings Before Interest and Tax (EBIT)<br>• Net profit % gross profit<br>• Labour efficiency (DSE or AE per LU or FTE)<br>• Cost of production<br>• Enterprise gross margin<br>• Production (kg DM/unit area/mm rainfall)<br>• Production (kg red meat/unit area/mm rainfall)<br>• Finance ratios (e.g. interest cover) | • Benchmark business performance<br>• Develop business strategy and plan<br>• Assess business performance<br>• Assess enterprise performance<br>• Cash flow budgeting<br>• Investment cost-benefit analysis | • Assessing and ranking investment returns<br>• Identify key business performance indicators<br>• Read and interpret financial statements<br>• Assess business performance against benchmarks<br>• Assess and measure marginal cost and marginal benefit | • Capable of measuring and assessing business performance<br>• Able to identify the best opportunities for improving profitability<br>• Ability to interpret financial statements<br>• Ability to develop a budget<br>• Able to conduct cost-benefit analysis<br>• Able to calculate marginal cost/benefit<br>• Ability to differentiate between variable and fixed costs |

## Feedbase Curriculum V1.1 (northern and rangelands)

**Curriculum description***: The Northern Australia and southern rangeland feedbase curriculum covers areas which have mainly C4 dominant pastures and are typically non-temperate areas with highly variable rainfall patterns within and between years. The curriculum covers the principles associated with growing, utilising and supplementing the feed base (pasture, fodder, grain) for cattle, sheep and goats to meet market requirements and optimise profitability. This curriculum has strong links to the reproduction, value chain and business curriculums.*

**Overarching learning outcome:** *To grow and utilise feed to achieve a profitable livestock operation while maintaining or enhancing the natural resource base.*

**Value proposition**: *To improve the profitability of the livestock operation on my property through matching and manipulating the feed I grow and what the animals eat.*

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Recognising the potential - Comparative analysis | • Quantify individual performance for relevant KPIs<br>• Comparison against industry best practice and/or regional benchmarks<br>• Identify priority areas for improvement<br>• Action plan to achieve improvements | • Ability to calculate feed related animal performance<br>• Can determine areas of improvement and the potential gain<br>• Action plan developed to achieve improvements | Workshop session to cover:<br>• Calculate stocking rate, pasture utilisation, animal growth and reproductive performance (as per KPIs below) (ideally use 3-5 years of farm data)<br>• Determine average and best practice benchmarks (or have this information to hand based on broad industry data, to compare group to)<br>• Identify potential opportunities for improvement to the business<br><br>Some of the measures that can be used as performance metrics for comparative analysis include: | • individual data to be brought to session by participants<br>• Industry data to be provided by deliverer<br>• MLA **feed demand calculator** (to calculate stocking rate and pasture utilisation)<br>• **Benchmarking reports** – various (to provide some comparative data) – to be provided by deliverer<br>• Action planning template – generic or propriety template to be used<br>• Benchmarking data sets (Farm Monitor Program | Business (B3, B4, B5)<br>• analysis around the likely $ opportunity from improvement<br><br>Reproduction & genetics (RG2, RG4)<br>• reproductive opportunity for improvement<br>Value chain (VC3)<br>• understanding the production opportunities by changing |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | | • Stocking rate (AE or DSE / area unit) OR per mm rainfall<br>• Mortality rates (%)<br>• Growth rate (kg DM/day)<br>• Steer/lamb/goat selling age (months)<br>• Weaning %<br>• Kg turned off per female mated<br>• Dry season pasture residual (kg DM / ha)<br>• Utilisation rate measured as Demand per ha for grazing period (kg DM /ha) / total palatable pasture (kg DM /ha)*<br>• Change in land condition (A, B, C)<br><br>* Total palatable pasture = Yield minus detachment minus unpalatable pasture | (Victoria only), Ag Insights, or private data sets) | product specs through timing of operations and selling. |
| 1. *Optimise feed grown per mm of rainfall* | 1.1 Understand the productive capability (**carrying capacity**) and limitations of the land as underpinned by the local climate and mix of different **land types** (soil, pasture and woodland) on the property.<br>• Seasonal pasture growth patterns | Understand the connection between land condition, pasture growth and animal production<br><br>Understand how climate influences pasture growth<br><br>Understand how soil properties influence pasture growth | Pasture, grazing management and landscape processes theory (e.g. energy flow, water and nutrient cycling). Core concepts and management principles (workshop, re-inforce by coaching)<br><br>Develop field skills<br>• Assessing land condition (soil, pasture and woodland condition) | **Grazing Fundamentals EDGE *or* Grazing Land Management EDGE**** (Delivered as a whole or as separate modules – Grazing land ecosystem, Managing grazing, Managing with fire, Using sown pastures, Managing tree-grass balance, Managing weeds)<br><br>**Property map** with paddock boundaries and land types | Business (B4, B5)<br>• likely return for spending money (marginal return and cost), and cash flow implications |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | • Soil properties and their influence on pasture growth (texture, fertility, depth, water-holding capacity etc.)<br>• Common pasture species and their grazing value (e.g. 3P grasses, weeds, annuals)<br>• Principles behind maintaining the health of pastures<br>• Impact of woodland thickening and invasive woody weeds on pasture growth<br>• Long-term carrying capacity<br>• Sown pasture and fodder crop species suitable for different land types<br><br>1.2 Assessing **land condition** and its impact on long term carrying capacity and productivity.<br>• How to assess and monitor the key indicators of land condition<br>• Impact of poor land | Understand the role of perennial grasses in land condition and pasture stability<br><br>Understand how grazing affects pasture plants, their productivity, growth and persistence<br><br>Identify the dominant pasture species and know their value as grazing plants<br><br>Assess and monitor land and forage condition<br><br>Understand how the long-term carrying capacity of a property is determined<br><br>Identify strategies that will improve or maintain land condition<br><br>Understand how and when to use spelling<br><br>Understand how to manage grazing pressure so that residual grass stubble always remains in each paddock at key times of the year (at the end of the dry season in northern Australia). | • Assessing feed quantity and quality<br>• Setting up monitoring sites<br>• Plant identification<br>• Assessing erosion risk (e.g. ground cover)<br>• Identify key annual, perennial and browse indicator species<br>• Quantify the impact of shrubs and tree density on pasture production<br>(workshop, reinforce with coaching)<br><br>Using the Stocktake+ App<br>• Store monitoring data<br>• Generate land condition reports<br>• Generate carrying capacity reports<br>• Calculate forage budgets<br>(workshop, re-inforce with coaching)<br><br>Generate a seasonal pasture growth profile – length of growing season, green date, production point, end of growing season. Identify key annual, perennial and browse species.<br>(workshop, refine with coaching)<br><br>Decide on a grazing approach and develop a grazing plan to maintain or improve land condition and species composition (coaching)<br><br>Implement a pasture monitoring | marked on. Paddock areas and land type areas within paddocks calculated. (Accurately shows paddock boundaries, land type areas, watering points and significant infrastructure. Paddock and land type areas within paddocks are listed in an accompanying table. Areas used for calculating carrying capacity, forage budgets and planning grazing management)<br><br>Alternatively, use **NRM Hub –** web tool that provides land managers with the systems, tools, data, and skills needed to dramatically improve access to property-scale information www.nrm.com.au .<br><br>**Land type sheets** (accessible from the FutureBeef website for Qld and NT https://futurebeef.com.au/knowledge-centre/grazing-land-management/#landtypes and Dept. of Ag and Food website for the Kimberley and Pilbara https://www.agric.wa.gov.au/rangelands/land-systems-kimberley-region-western-australia for WA). Profile the typical soil, pasture and woodland characteristics, land use recommendations and | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | condition on carrying capacity<br>• **Remediation strategies** to improve land condition (e.g. weed control, strategic spelling etc.)<br><br>1.3 **Management strategies** to maintain or improve the productive capacity of the land.<br>• Match stocking rate to carrying capacity (long and short-term, including the use of forage budgets and appropriate utilisation rates)<br>• Timing and length of pasture spelling<br>• Retain a minimum **residual of grass stubble** (at the end of the dry season in northern Australia)<br>• Manage woodland thickening to maintain the tree-grass balance | Identify key seasonal decision dates to assess pasture supply and animal demand<br><br>Understand the role of sown pastures and fodder crops<br><br>Identify strategies to manage woodland thickening<br><br>Able to monitor and evaluate the impact of management changes | system (workshop, reinforce with coaching)<br><br>Managing the tree-grass balance. Quantify the impact of shrubs and tree density on pasture production (GLM module, delivered to relevant groups)<br><br>Using fire (GLM module, delivered to relevant groups)<br><br>Sown pastures (GLM module, delivered to relevant groups) | limitations, recommended utilisation rates and linkages to Regional Ecosystems)<br><br>**Stocktake -** field skills associated with land and forage condition monitoring, storing monitoring data and generating reports<br><br>**Stocktake+ App** to store and process land and pasture condition photos and data, calculate forage budgets and generate condition and paddock and property carrying capacity reports<br><br>**Shears, quadrat and scales** to cut and measure dry matter yield and to create customised photo standards<br><br>**Photo standards** available on the FutureBeef website. Provides generic pasture yield photos for different land types with accompanying yields to assist producers to assess feed on hand<br><br>**BOM climate data** http://www.bom.gov.au/climate/data/?ref=ftr<br><br>**FutureBeef website** has a range | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | | | of fact sheets on pasture species and species selections and establishment and management www.futurebeef.com.au<br><br>**FORAGE** is web-based system which generates and distributes information relating to climate and pasture condition at user-specified locations https://www.longpaddock.qld.gov.au/forage/<br><br>**Soil tests** in areas where new pastures and forage crops will be sown. Soil tests should be conducted prior to planting to gauge soil nutrient levels and identify any additives e.g. fertiliser required to improve the establishment and vigour of the crop<br><br>**Pasture identification books** available from DAFF, catchment groups and CSIRO<br><br>**Tropical forages** - an interactive pasture selection tool http://www.tropicalforages.info/<br><br>**Weeds, DAF Qld website** profiles different types of weeds in Qld, their pest status | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | | | and control methods https://www.daf.qld.gov.au/plants/weeds-pest-animals-ants/weeds )<br><br>**Weed identification tool** – an interactive online weed identification tool http://www.weeds.org.au/weedident.htm )<br><br>**AgBiz Farm Budgeting Tools** - Agbiz Excel spreadsheets to help farmers calculate forage budgets, calculate profit, construct budgets and cashflows, and improve decision-making https://www.business.qld.gov.au /industry/agriculture/agribusiness/agbiz | |
| 2. *Meet animal nutrient requirements (to achieve reproductive performance and target market specifications)* | 2.1 **Feed requirements** for specific levels of animal performance (physiological status) and the interaction between feed quality and quantity, intake and animal performance.<br><br>2.2 **Reproductive and growth targets** (Condition Score) and **market specifications** (weight, fat, | Understand CP, digestibility and ME and how to test for them<br><br>Understand the role of minerals and assessing mineral status<br><br>Understand how to assess pasture quality and quantity<br><br>Understand how to increase Dry Matter Intake | Factors affecting pasture quality – species, stage of growth, plant factors (workshop, reinforced by coaching)<br><br>Theory behind how pasture and browse quality and quantity affect intake and animal performance (workshop, reinforced by coaching).<br><br>How species' diet selection, diet preference and grazing behaviour influences intake and grazing | **Nutrition EDGE****<br><br>**Grazing Fundamentals** or **Grazing Land Management EDGE** (**Managing grazing module)<br><br>**Stocktake+ App** to store and process land and pasture condition photos and data, calculate forage budgets and generate condition and paddock and property carrying | Value chain (VC1, VC2, VC3)<br>• understanding market specifications and costs of non-compliance<br>• Animal assessment (weight, fat) to ensure they meet market specs |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | dentition, sex) and the implications and cost if these are not met<br><br>2.3 Understand market specifications and the nutrient requirements to meet market specifications<br><br>2.4 Using genetic tools to enhance livestock performance and better meet market specifications<br><br>2.5 Diet selection, diet preference, and grazing behaviour of sheep, cattle and goats. | Understand what nutrient levels animals require to reach certain levels of performance<br><br>Understand target market specifications<br><br>Awareness of genetic tools available to improve growth rate and carcase traits.<br><br>Understand the implications (costs) of not achieving performance targets and non-compliance with market specs<br><br>Conversant with genetic selection tools and how they can influence animal performance off feed<br><br>Competence in **assessing and monitoring animal condition** during the year (using the 1-5 condition scoring system)<br><br>Able to monitor and evaluate the impact of management changes | management decisions.<br><br>Practice estimating livestock performance and condition score (e.g. growth rate; condition score) by understanding animal requirements and regularly assessing feed and diet quality, CS and tracking/recording animal performance over-time (coaching).<br><br>How to calculate a forage budget (workshop, reinforced by coaching)<br><br>Diet quality analysis – how to collect and send samples, using diet quality results and interpretations (workshop, reinforced by coaching)<br><br>Identify means of testing mineral status for various minerals (workshop)<br><br>Overview of genetic tools available for growth rate and carcase, including:<br>• Group BREEDPLAN and use of EBV's<br>• Breed trait influence on growth rate and carcase traits<br>• Breeding systems<br><br>Understand the influence of Dry Matter Intake (DMI) on production and strategies to increase DMI | capacity reports<br><br>**FutureBeef website** has a range of fact sheets on animal nutrient requirements and marketing<br><br>**F.NIRS sampling kits**<br><br>**Breeding EDGE****<br><br>Herd/mob recording and management software (e.g. recommended software that records, processes and reports on production data for individual and mobs of animals. E.g. weight gain, supplement, match NIRS results to paddocks with different mobs, stage of pregnancy for breeders etc.)<br><br>MLA Making More from Sheep and More Beef from Pastures (useful background information on animal requirements and assessment techniques)<br><br>AWI Lifetime Ewe Management (useful background information on animal requirements and implications of not meeting performance targets**<br><br>Agbiz Farm Budgeting Tools - Agbiz Excel spreadsheets to | • market requirements for strategic decisions (timing of lambing, calving, selling)<br><br>Reproduction and genetics (RG1, RG4)<br>• condition / feeding to meet key reproductive targets (reaching puberty, return ovulation)<br><br>Business (B4, B5)<br>• Cost benefit of different feed strategies |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | | (workshop, reinforce by coaching)<br><br>Understand the influence of dry matter on total nutrient intake and how to increase dry matter intake (workshop, reinforced by coaching)<br><br>Understand animal requirements at different physiological states and the implications if these targets are not met. Develop field skills in assessing animal condition (workshop, reinforced by coaching).<br><br>Presentation of various market specifications (workshop)[1]<br><br>Calculate costs of market non-compliance (workshop)[1] | help farmers calculate forage budgets, calculate profit, construct budgets and cashflows, and improve decision-making<br>https://www.business.qld.gov.au/industry/agriculture/agribusiness/agbiz | |
| 3. *Optimal feed utilisation (grazing system, infrastructure placement, supplementation)* | 3.1 Managing **total grazing pressure** (feed eaten v feed grown)<br>• Pasture **utilisation rate**<br>• Relationship between grazing pressure and **diet quality**<br>• **Phases of growth** – how grazing affects plants during the | Understand how grazing affects pasture plants, their productivity, growth and persistence<br><br>Understand the relationship between grazing pressure, diet quality and animal performance<br><br>Understand how to achieve desired livestock | Pasture and grazing management theory (workshop)<br><br>Develop field skills<br>• Assessing feed quantity and quality<br>• Phases of growth<br>• Species composition<br>• Estimating unmanaged grazing pressure from non-domestic animals (e.g. kangaroos, camels, etc.) | **Grazing Fundamentals** or **Grazing Land Management** workshop - Grazing Management Module (useful background information about concepts)<br><br>**Nutrition EDGE** workshop**<br><br>**Property map** with paddock boundaries and land types marked on. Paddock areas and | Value chain VC1. VC3<br>• understanding alternative markets<br><br>Reproduction and genetics (RG1)<br>• better match feed availability with demand<br><br>Business (B3, B4, B5) |

[1] May be delivered through value chain pillar

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | different phases of growth<br>• Accounting for all classes of grazing animals, including macropods, when calculating grazing pressure (convert to **Adult Equivalents or Dry Sheep Equivalents**)<br><br>3.2 **Assess pasture quality** at key times of the year and comparing this to pre-determined pasture and animal requirements<br>• Identify **seasonal nutrient deficiencies** and **imbalances**<br>• Identify **endemic nutrient deficiencies**<br><br>3.3 Managing **evenness of grazing** at both a landscape and plant level.<br>• Infrastructure placement and distance to water<br>• Land type preference<br>• Patch grazing<br>• Preference of particular plant species and stages | performance from the feed available<br><br>Know how to assess and calculate total grazing pressure (to account for all grazing animals)<br><br>Understand the factors that drive uneven use of pastures and develop a plan practical strategies to overcome these problems<br><br>Generate an annual feed supply and animal demand profile. Refine using monitoring records (e.g. F.NIRS)<br><br>Understand when to schedule joining, weaning and stock sales to complement feed availability<br><br>Know the principles underlying successful grazing systems<br><br>Skills to assess pasture quality and quantity throughout the year<br><br>Able to monitor and evaluate the impact of | (workshop, reinforce with coaching)<br><br>Construct annual feed supply and animal demand profiles, including the variability (risk) around pasture growth, unmanaged grazing pressure from non-domestic animals and identification of areas of potential feed deficits (workshop, coaching)<br><br>Discuss/plan strategic actions (grazing system, timing of operations, infrastructure placement, forage crops, target markets etc.) to optimise feed utilisation. Prioritise actions by conducting marginal cost- marginal benefit analysis to determine most profitable strategies (workshop, coaching).<br><br>Design a grazing system that best matches the climate, land types, livestock needs, pasture requirement and long term sustainability of the grazing business (coaching). | land type areas within paddocks calculated. (used to plan grazing management, infrastructure placement and distance between water)<br><br>**Stocktake -** field skills associated with land and forage condition monitoring, storing monitoring data and generating reports (workshop, reinforced with coaching)<br><br>**Stocktake+ App** (to store and process land and pasture condition photos and data, calculate forage budgets and generate condition and paddock and property carrying capacity reports)<br><br>**FutureBeef website** has a range of fact sheets on grazing management<br><br>**Property management software** e.g. Phoenix, Stocktake+ App (to record changes in stock inventory and convert between stock numbers and AEs)<br><br>MLA **feed demand calculator** (to construct strategic feed supply, demand curves, identify feed gaps etc. | • marginal cost – marginal benefit analysis<br><br>People (P4) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | of growth at different times of the year<br><br>3.4 Identify possible **strategies** to better match feed demand and feed grown<br>• **Grazing system**<br>• **Timing of livestock management** (joining, weaning and stock sales)<br>• **Forage budgets**/grazing charts to estimate short-term carrying capacity<br>• **Fodder crops** | management changes | | MLA **Making More from sheep** and **More Beef from pastures** (useful background information on pasture growth rates)<br><br>**AgBiz Farm Budgeting Tools** - Agbiz Excel spreadsheets to help farmers calculate forage budgets, calculate profit, construct budgets and cashflows, and improve decision-making https://www.business.qld.gov.au/industry/agriculture/agribusiness/agbiz<br><br>**Testing Management Options**, DAFF<br><br>**Cost of Production Calculator**, MLA | |
| 4. *Tactics to manage seasonal variability* | 4.1 Understand **seasonal pasture growth patterns** (influenced by rainfall, temperature and soil available nutrients)<br><br>4.2 Obtain tools and skills to proactively manage for **extended dry seasons, droughts and natural disasters**.<br><br>4.3 Identify **tactics to** | Generate an annual feed supply and animal demand profile. Refine using monitoring records (e.g. F.NIRS).<br><br>Understand key pasture thresholds (e.g. residuals at end of dry season) and how breaching these risks land condition and production potential. | Generate a seasonal pasture growth profile – length of growing season, green date, production point, end of growing season, (workshop, refine with coaching)<br><br>Based on the seasonal pasture growth profile, identify trigger dates to review pasture and animal condition, and identify key pasture and livestock production thresholds (workshop, implement with coaching) | **Grazing Fundamentals** *or* **Grazing Land Management EDGE****<br><br>**Stocktake** - field skills associated with land and forage condition monitoring, storing monitoring data and generating reports<br><br>**Stocktake+ App** to store and process land and pasture condition photos and data, | Value chain VC1, VC3<br>• understanding alternative markets<br>• meeting market demands<br><br>Reproduction and genetics (RG1, RG2)<br><br>Business (B1, B3, B4, B5) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | **manage seasonal variability** to better match short-term feed demand with feed grown:<br>• Adjusting stock numbers<br>• Timing of livestock management (joining, weaning and stock sales)<br>• Supplementary feeding<br>• Opportunistic sowing of fodder crops | Understand key livestock growth and condition targets and how not meeting these impacts production (e.g. condition score at lambing/calving/kidding).<br><br>Know critical times of the year (trigger dates) to assess pasture condition and animal performance for the purpose of reviewing stocking rates and feeding plans<br><br>Identify priority stock classes/mobs for feeding and exit strategies for others<br><br>Understand when to schedule joining, weaning and stock sales to complement feed availability<br><br>Develop strategies to manage seasonal variability in feed quantity and quality<br><br>Develop a methodical process for tactical decision-making<br><br>Skills to assess pasture | Identify options for managing pasture and animals at each trigger point (workshop, implement with coaching). Must include marginal cost-marginal benefit analysis to inform strategies.<br><br>Assess feed quantity and quality and review the seasonal outlook at each trigger point (coaching)<br><br>Animal assessment (at critical decision points) for condition score, fat score and weight, and monitoring condition scoring, (group on-farm learning, coaching)<br><br>Calculate forage budgets to respond to seasonal conditions – particular emphasis on dry season forage budgets (workshop, implement with coaching)<br><br>Identify appropriate, cost effective feeding requirements or options for de-stocking if a critical feed deficit exists (coaching). Marginal cost-marginal benefit analysis to inform strategies<br><br>Group discussion on how individuals manage strategic and tactical decisions. Time meeting around trigger dates (group discussion/webinar) | calculate forage budgets and generate condition and paddock and property carrying capacity reports)<br><br>**Livestock weighing scales** / yards (with races) to conduct hands-on animal assessment<br><br>**Book:**<br>"Dry season management of a beef business – A guide to planning, managing and supplementary feeding"<br><br>**FutureBeef website** has a range of fact sheets on managing seasonal variability<br><br>MLA **feed demand calculator** (to construct strategic feed supply, demand curves, identify feed gaps etc.)<br><br>MLA **Making More from sheep** and **More Beef from pastures** (useful background information on animal requirements and assessment techniques)<br><br>**CliMATE** - suite of climate analysis tools. CliMate allows you to interrogate climate records to ask questions relating to rainfall, temperature, radiation, and | People (P4) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | quality and quantity throughout the year<br><br>Skills to assess animal condition during the year.<br><br>Understand how enterprise choice (e.g. breeder vs store), grazing management, stocking rate decisions, and total grazing pressure management are linked to exposure to seasonal risk.<br><br>Can formulate cost effective tactics to respond to feed deficits or excesses and below or above animal condition<br><br>Able to monitor and evaluate the impact of management changes | Visit other successful grazing businesses to understand what planning they undertake, key assessments they make and how this informs the decisions they make (property visit). | derived variables such as heat sums, soil water and soil nitrate, and well as El Nino Southern Oscillation status http://www.australianclimate.net.au/<br><br>**The Long Paddock** – climate outlooks, forecasting tools, maps, Aussie GRASS, Silo, SPOTA 1, FORAGE etc.) https://www.longpaddock.qld.gov.au/<br><br>BOM Agriculture – forecast tools http://www.bom.gov.au/watl/index.shtml<br><br>**AgBiz Farm Budgeting Tools** - Agbiz Excel spreadsheets to help farmers calculate profit, construct budgets and cashflows, and improve decision-making https://www.business.qld.gov.au /industry/agriculture/agribusiness/agbiz<br><br>**Testing Management Options**, DAFF<br><br>**Cost of Production Calculator**, MLA | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| 5. *Make cost-effective decisions around feed gaps and feed surpluses* | 5.1 Determine **production targets** for meeting reproduction, growth and market requirements<br>• Setting seasonal monitoring targets for livestock and pastures and how / when these should be monitored<br><br>5.2 Determine **animal nutrient requirements** based on targeted animal performance<br><br>5.3 **Assess pasture quality** at key times of the year/management cycle and comparing this to pre-determined pasture and animal requirements<br>• Identify **seasonal nutrient deficiencies** and **imbalances**<br>• Identify **endemic nutrient deficiencies**<br><br>5.4 **Assess pasture quality and diet quality** where appropriate, in conjunction in conjunction with dry matter intake, to calculate nutrient intake | Identify current production levels<br><br>Identify options for addressing gaps in production between what animals receive from the pasture and their requirements for a given production target<br><br>Understand how to use animal nutrient requirement tables and how animal nutrient requirements vary with weight and stage of growth/lifecycle<br><br>Understand the concept of, and the process to determine:<br>• Gaps in production<br>• Primary limiting nutrient(s)<br>• Nutrient deficiencies<br>• Nutrient imbalances<br>• Pasture quality and quantity across the year<br><br>Assess pasture quality to:<br>• Create appropriate feed budgets<br>• Determine when dry matter intake will be limiting | Protein, energy and mineral requirements for dry stock and breeding stock (workshop)<br><br>Determine nutrient intake from pastures (workshop)<br><br>Calculate feed gaps (workshop, reinforced by coaching)<br><br>Evaluate options for addressing feed gaps (workshop, implement via coaching). Must include marginal cost-marginal benefit analysis<br><br>Determine nutrient deficiencies (workshop)<br><br>Concept of primary limiting nutrients and how to determine the primary limiting nutrient(s) and how they change over the course of a year (workshop, reinforce via coaching)<br><br>Determine nutrient imbalances (workshop, reinforce via coaching)<br><br>Evaluate options for addressing feed gaps (implementation via coaching). Must include marginal cost-marginal benefit analysis<br><br>Evaluate supplementation options (workshop, implementation via coaching). Must include marginal cost-marginal benefit analysis | **Nutrition EDGE****<br><br>**Books**:<br>• Phosphorus management of beef cattle in northern Australia<br>• Heifer management in northern beef herds<br>• Weaner management in northern beef herds<br><br>Livestock weighing scales / yards (with races) to conduct hands on animal assessment<br><br>**F.NIRS sampling kits**<br><br>**Forage and hay analysis** results<br><br>Individual property **feed label**s<br><br>**FutureBeef website** has a range of fact sheets and spreadsheets related to cost-effective feeding systems https://futurebeef.com.au/knowledge-centre/business-management/beef-business-tools/#hofspreadsheets<br><br>**Cost of Production Calculator** on the MLA website http://tools.mla.com.au/cop/<br><br>**Business EDGE** | Value chain. (VC1, VC3)<br><br>Business analysis (B3, B4, B5)<br>• likely risk / return for different options<br><br>Reproduction and genetics (RG1)<br><br>People (P4) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | 5.5 **Forage budgeting**, to:<br>• Pasture growth profile<br>• Develop feed production curves and variability around monthly pasture growth<br>• Options when pasture is limiting<br>• Options when pasture is limiting and below desired residual pasture stubble<br><br>5.6 Identify **tactics to manage seasonal variability** to better match short-term feed demand with feed grown:<br>• Adjusting stock numbers<br>• Timing of livestock management (joining, weaning and stock sales)<br>• Supplementary feeding<br>• Opportunistic sowing of fodder crops<br><br>5.7 **Nutritional management strategies** for addressing animal | • Better utilise pasture, particularly in conjunction with supplements<br><br>Understand when to schedule joining, weaning and stock sales to complement feed availability and meet market requirements<br><br>Understand how to identify key supplement groups (energy, protein and minerals) and when they are required<br><br>How to read a feed product label<br><br>Formulate cost-effective tactics (responses) to use when conditions don't align with the long term grazing plan.<br><br>Identify appropriate feed supplement groups and read and evaluate feed product labels<br><br>Calculate supplement intake requirements and cost-effectiveness of supplements | Identify supplement groups (workshop)<br><br>Evaluate supplements for suitability to current feed conditions (workshop, implementation via coaching). Marginal cost-marginal benefit analysis<br><br>Animal assessment (at critical decision points) for condition score, fat score and weight (on-property group activity, coaching)<br><br>Pasture assessment (at critical decision points) for DM, quality, species composition, phase of growth (workshop, coaching)<br><br>Develop supplement strategies to meet production and animal condition/nutrition targets (coaching). Must include marginal cost-marginal benefit analysis to inform strategies.<br><br>Construct appropriate forage budgets (coaching)<br><br>Discuss, identify, apply and reflect on key assessment points to inform tactical decisions around seasonal feed supply, animal condition (CS, FS, weight), supplementary feeding, seasonal forecasts and market prices | **Stocktake -** field skills associated with land and forage condition monitoring, storing monitoring data and generating reports<br><br>**Stocktake+ App** to store and process land and pasture condition photos and data, calculate forage budgets and generate condition and paddock and property carrying capacity reports<br><br>**Testing Management Options**, DAFF<br><br>**Lifetime Ewe Management**<br><br>MLA **Making More from sheep** and **More Beef from pastures** (useful background information on animal requirements and assessment techniques)<br><br>**CliMATE** - suite of climate analysis tools. CliMate allows you to interrogate climate records to ask questions relating to rainfall, temperature, radiation, and derived variables such as heat sums, soil water and soil nitrate, and well as El Nino Southern Oscillation status | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | nutrient requirements for production and meeting deficiencies<br>• **Calculate supplementation requirements** (amount and cost) compared to other options (selling)<br>• **Nutritional management options** to fill feed shortages and manage surpluses<br><br>5.8 **Cost-effective supplementation:**<br>• Identify appropriate **supplement groups** for meeting production targets and nutrient requirements<br>• Knowing how to **read and analyse a label** to assess effectiveness for meeting nutrient requirements<br><br>5.9 **Assess animal condition score**<br>• Compare this to animal requirements and diet quality to | Skills to:<br>• Assess animal condition at key times during the year<br>• Develop strategies to manage for critical animal condition score thresholds<br><br>Able to monitor and evaluate the impact of management changes | (coaching, with regular assessments and reflection)<br><br>Presentation by peers on how they manage strategic and tactical decisions (group presentation, peer review)<br><br>Visit other similar high performing farming businesses to understand what planning they undertake, key assessments they make and how this informs the decisions they make (group presentation)<br><br>Understand the key indicators of feed quality from a feed analysis report (e.g. hay) | http://www.australianclimate.net.au/<br><br>**The Long Paddock** – climate outlooks, forecasting tools, maps, Aussie GRASS, Silo, SPOTA 1, FORAGE etc.) https://www.longpaddock.qld.gov.au/<br><br>BOM Agriculture – forecast tools http://www.bom.gov.au/watl/index.shtml<br><br>**AgBiz Farm Budgeting Tools** - Agbiz Excel spreadsheets to help farmers calculate forage budgets, calculate profit, construct budgets and cashflows, and improve decision-making https://www.business.qld.gov.au/industry/agriculture/agribusiness/agbiz<br><br>**Testing Management Options**, DAFF<br><br>**Cost of Production Calculator**, MLA | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | identify gaps<br>• Monitor rate of change at key times<br>• Develop nutritional management strategies for livestock using diet quality and animal condition score as a guide (e.g. weaning, supplementation, selling, agisting, lot feeding, etc.) | | | | |

**Colour code for learning topics, outcomes, activities, or tools/resources:**

Where items are essential to be used for the learning outcomes to be achieved, they are in normal (black font).

Where items are recommended to be used for the learning outcomes to be achieved, they are in green

Where items are optional to be used for the learning outcomes to be achieved, they are in orange

The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages for Feedbase (northern and rangelands) with other curriculums**

| | Repro & genetics | Repro & genetics | Repro & genetics | Repro & genetics | Repro & genetics | Value chain | Value chain | Value chain | Business | Business | Business | Business | Business | People | People | People | People |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Topic** | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** |
| **1** | | | | | | | | | | | | | | | | | |
| **2** | | | | | | | | | | | | | | | | | |
| **3** | | | | | | | | | | | | | | | | | |
| **4** | | | | | | | | | | | | | | | | | |
| **5** | | | | | | | | | | | | | | | | | |

strong links

moderate

links
weak links

**Monitoring and evaluation for assessing delivery performance for the northern and rangelands feedbase Curriculum**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the northern and rangelands feedbase curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the Extension and Adoption program activities will be divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the northern and rangelands feedbase curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|
| • Stocking rate (AE or DSE/area unit) OR per mm rainfall<br>• Mortality rates (%)<br>• Growth rate (kg DM/day)<br>• Steer/lamb/goat selling age (months)<br>• Weaning %<br>• Kg turned off per female mated<br>• Dry season pasture residual (kg DM/ha)<br>• Utilisation rate measured as demand per ha for grazing period (kg DM/ha) / total palatable pasture (kg DM /ha)*<br>• Change in land condition (A, B, C)<br><br>* Total palatable pasture = yield minus detachment minus unpalatable pasture | • Benchmark grazing and business performance<br>• Assess land condition<br>• Calculate and use a forage budget<br>• Assess pasture yield and quality<br>• Use diet quality analysis to make nutritional management decisions<br>• Measure feed on hand and determine appropriate stocking rate based on animal requirements<br>• Manage to achieve target residual pasture yield (kg DM/ha) and ground cover at key times of the year<br>• Use a property management plan for managing seasonal variability and more specifically drought – including operational and tactical strategies and contingency plans<br>• Calculate the cost-benefit of management decisions | • Optimise stocking rate based on annual feed supply, animal demand and acceptable level of risk<br>• Meet animal feed requirements to optimise production and meet market specifications<br>• Accurately measure:<br>o feed quality and quantity<br>o leaf emergence and spelling/rotation<br>o animal condition<br>• Make investment decisions based on the calculated cost and return | • Capable of assessing land condition<br>• Capable of assessing ground cover<br>• Capable of assessing yield (kg DM / ha)<br>• Able to calculate the long-term carrying capacity<br>• Capable of identifying pasture growth phase<br>• Capable of identifying indicators of pasture quality<br>• Able to identify key pasture species (increaser and decreaser species)<br>• Know the minimum residual pasture yield (kg DM/ha) that should be retained in paddocks at key times during the year (e.g. at the end of the dry season in northern Australia)<br>• Know the nutrient availability of feed at different growth stages<br>• Capable of developing a forage budget<br>• Understand appropriate spelling regimes<br>• Able to record stock numbers accurately and ability to convert this into Adult Equivalents (or Dry Sheep Equivalents)<br>• Able to identify critical animal performance targets (weaning %, mortality %, kg calf/lamb/kid weaned/female mated, wet season growth rate, annual growth rate)<br>• Accurately assess animals for condition (CS system 1-5)<br>• Determine animal performance based on pasture quality and quantity (calculating animal nutrient requirements and difference between what the pasture provides and what the animal requires)<br>• Identify plant types and contribution to diet quality<br>• Know the typical seasonal pasture growth profile<br>• Manage tree - grass balance and able to quantify impacts of shrub and tree density on pasture production<br>• Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis |

## Feedbase Curriculum (Southern) V1.1

**Curriculum description:**

*The Southern Feedbase curriculum covers the growing, harvesting and supplementation of the feedbase (pasture, fodder, grain) for sheep, cattle and goats to meet market and production requirements and optimise profitability in the temperate zone of Southern Australia.*

*In growing pasture, the broad areas covered include suitable plants for the land types, soils and climate (species selection, 'good' and 'bad' weeds), requirements to maintain healthy soil condition (fertiliser, lime) and grazing practices to maximise plant production and persistence (grazing height, recovery period, tiller and seed set).*

*In harvesting pasture, the broad areas covered include understanding livestock requirements to meet reproductive demands and market requirements, what grazing approach will allocate enough pasture to achieve these livestock requirements along with strategies (long term) and tactics (short term) to best match the feed grown with animal needs.*

*This curriculum has strong links to the reproduction, value chain and business curriculums.*

**Overarching learning outcome:** *To grow and utilise feed to achieve a profitable livestock operation while maintaining or enhancing the natural resource base.*

**Value proposition:** *To improve the profitability of the livestock operation on my farm through matching and manipulating the feed I grow and what the animals eat.*

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Recognising the potential (Comparative analysis) | • Quantify individual performance for relevant KPIs<br>• Comparison against industry best practice and/or regional benchmarks<br>• Identify priority areas for improvement<br>• Action plan to achieve improvements | • Ability to calculate feed related animal performance<br>• Can determine areas of improvement and the potential gain<br>• Action plan developed to achieve improvements | Workshop session to cover:<br>• Calculate stocking rate, pasture utilisation, animal growth and reproductive performance (as per KPIs below) (ideally use 3-5 years of farm data)<br>• Determine average and best practice benchmarks (or have this information to hand based on broad industry data, to | • individual data to be brought to session by participants<br>• Industry data to be provided by deliverer – available benchmarking data sets include (Farm Monitor Program (Victoria only), Ag Insights, or private data sets)<br>• MLA **Making More from sheep** and **More Beef from pastures** MBfP Tool 3.04 (utilisation) | **Business (B3, B4, B5)**<br>• analysis around the likely $ opportunity from improvement<br>**Reproduction & genetics (RG2, RG4)**<br>• reproductive opportunity for improvement<br>**Value chain (VC3)** |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | | compare group to)<br>• Identify potential opportunities for improvement to the business<br><br>Some of the measures that can be used as performance metrics for comparative analysis include:<br><br>• Stocking rate (DSE or AE/ha)<br>• Pasture growth rates (kg/ha/day)<br>• Pasture production (kg DM/ha/100mm rainfall<br>• Pasture utilisation (% of feed grown)<br>• Pasture yield and quality at critical times (kg/ha)<br>• Animal condition score at critical times<br>• Animal growth rates (g/day)<br>• Reproductive performance (% young per adult joined) | • MLA **feed demand calculator** (to calculate stocking rate and pasture utilisation)<br>• **WUE models** - French Shultz (to provide indicative stocking rate potential)<br>• **Benchmarking reports** – various (to provide some comparative data)<br>• Action planning template – generic or propriety template to be used | • understanding the production opportunities by changing product specs through timing of operations and selling. |
| *1 Optimise feed grown (making best use of the soils, landscape, rainfall, species and fertiliser)* | 1.1 Principles behind plant growth and survival (leaf emergence, light interception, plant reserves, leaf decay, fertility requirements, tillering and seed production)<br>1.2 Species identification and characteristics (i.e. what they like and | Use plant production principles to optimise the feed grown. This requires:<br><br>• knowledge what drives pasture growth and persistence (in general and species specific)<br>• Knowledge of how to manipulate and maintain the feed base to ensure | • Theory / science behind how plants grow and persist – both desirable species and weeds (workshop, re-inforce by coaching)<br>• In paddock pasture assessment (at critical decision points) for DM, quality, species composition, leaf stage and emergence (coaching)<br>• Testing methods and test results | • MLA **Making More from sheep** and **More Beef from pastures** (MBfP tool 3.03 pasture growth rates, tool 3.04 (utilisation)<br>• MBfP Tool 2.9 (nutrients)<br><br>• **Pasture DM measure** (ruler, MLA pasture ruler, plate meter) MBfP Tool 3.01 (dry matter ruler) | **Business (B4, B5)**<br>• likely return for spending money (marginal return and cost), and cash flow implications |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | don't like)<br>1.3 Understanding suitable species for soil type, climate landscape and periods of current feed deficits<br>1.4 Soil / tissue testing and appropriate inputs to use (fertiliser, lime, gypsum) | productivity and persistence (soils, species, grazing)<br>• Ability to assess pasture quality, botanical composition and quantity throughout the year.<br><br>Able to monitor and evaluate the impact of management changes | to determine soil conditions, nutrient requirements, lime, gypsum, feed quality and how to improve them in a cost effective way (workshop, reinforced by coaching with relevant farmer soil and feed tests, observations)<br>• Soil mapping, species, fertiliser information (workshop) | • MLA **phosphorus tool** (to calculate the benefit : cost of P fertiliser investment)<br><br>• Evergraze **Pasture improvement calculator** (to calculate the benefit : cost of investment in pasture improvement)<br><br>• Lifetimewool **pasture photo gallery** (to assist with FOO assessment)<br><br>• AWI **Feed on offer (FOO) library** (to assist with FOO assessment) | |
| *2 Animal requirements (to achieve reproductive performance and target market specifications)* | 2.1 Feeding requirements for certain levels of animal performance (physiological status) and the interaction between feed quality and quantity, intake and animal performance.<br>2.2 Reproductive targets (Condition Score) and market specifications (weight, fat, dentition, | Achieve animal production targets (reproduction, growth, market specs) by calculating livestock needs. This requires:<br><br>• Knowledge of what animals require to reach certain levels of performance<br>• Understanding target market specifications<br>• Knowing the implications | • Understanding animal requirements at different physiological states and the implications if these targets are not met (workshop, reinforced by coaching)<br>• Presentation of various market specifications (workshop)[2]<br>• Calculating costs of missing market specifications (workshop)[1]<br>• Theory behind how pasture quality and quantity affects | • MLA **Making More from sheep** and **More Beef from pastures** (MMfS tool 10.4 recommended CS for ewes, 10.5 FS for young animals). MBfP Tool 5.2 (CS of cattle)<br><br>• **Grazfeed** (as a learning tool to establish concepts and for intake, performance and supplement calculations) | **Value chain (VC1, VC2, VC3)**<br>• understanding market specifications and costs of non-compliance<br>• Animal assessment (weight, fat) to ensure they meet market specs<br>• market requirements for strategic decisions (timing of |

[2] May be delivered through value chain pillar

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | sex) and the implications / cost if these are not met<br>2.3 Understanding market specifications<br>2.4 Opportunities for genetics to better meet market specifications | (costs) if animal performance targets are not met<br>• Understanding how genetic selection can influence animal performance from feed<br>• The ability to assess animal condition during the year<br>• Able to monitor and evaluate the impact of management changes | intake and animal performance (workshop, reinforced by coaching using relevant performance tables or computer program e.g. Grazfeed).<br>• Learn skills in assessing animal condition | • AWI **Lifetime Ewe Management** (useful background information on animal requirements and implications of not meeting performance targets | lambing, calving, selling)<br>**Reproduction and genetics (RG1, RG4)**<br>• condition / feeding to meet key reproductive targets (reaching puberty, return ovulation)<br>Business (B4, B5)<br>• Cost benefit of different feed strategies |
| *3 Optimal feed utilisation (grazing choices, fencing, water, supplementation)* | 3.1 Understand long run feed production (and variability) and long run animal demand, identifying likely deficits and surpluses<br>3.2 Identify possible strategies (considering stocking rate, enterprise mix and timing of operation etc) to better match feed demand and feed grown<br>3.3 Grazing approaches to optimise utilisation, plant growth and persistence<br>3.4 Manipulation techniques to manage | Adopt a plan that best matches plant production and livestock requirements. This requires;<br>• The ability to create an annual feed supply and animal demand budget.<br>• Designing a grazing system that best matches the livestock needs, pasture requirement and long term sustainability of the grazing<br>• Understanding of the possible compromises (trade-offs) that can occur when feed supply and animal demand cannot be matched perfectly.<br>• Able to monitor and | • Construction of annual farm feed supply and animal demand budgets and curves including the variability (risk) around pasture growth and identification of areas of potential feed deficits (workshop, coaching)<br>• Discussion / planning of strategic actions (stocking rate, timing of operations, species mix and proportion, target markets etc) to best utilise long run feed supply (workshop, coaching)<br>• Use cost-benefit analysis to inform decision making | • MLA **feed demand calculator** (to construct strategic feed supply, demand curves, identify feed gaps etc)<br>• MLA **Making More from sheep** and **More Beef from pastures** (MBfP Tool 3.03 (Pasture GR)<br>• **Pastures from space** (to understand historic and close to real time pasture variability). | **Value chain VC1. VC3**<br>• understanding alternative markets<br>**Reproduction and genetics (RG1)**<br>• better match feed availability with demand<br>**Business (B3, B4, B5)**<br>• marginal cost – marginal benefit analysis<br>**People (P4)** |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | weeds (grazing, herbicides) | evaluate the impact of management changes | | | |
| *4 Manage seasonal variability* | 4.1 Identify possible tactics (considering supplementary feeding, reducing or increasing stock numbers, increasing pasture growth, opportunistic sowing etc) to better match short term feed demand and feed grown | Design a tactical plan than enables manipulation of feed supply (and animal demand) by implementing a range of possible options. This requires;<br>• The creation of critical monitoring points (triggers) to assess annual pasture and animal performance against<br>• Knowledge of cost effective tactics that could be implemented if the feed required to optimise animal production is above or below targets.<br><br>Able to monitor and evaluate the impact of management changes | • Identification of critical animal and pasture monitoring points (coaching)<br>• In paddock pasture assessment (at critical decision points) for DM, quality, species composition, leaf stage and emergence (coaching)<br>• Animal assessment (at critical decision points) for condition score, fat score and weight (coaching)<br>• Constructing appropriate short term feed budgets to respond to seasonal conditions (coaching)<br>• Identifying appropriate, cost effective feeding requirements or options for de-stocking if a critical feed deficit exists (coaching)<br>• Presentation by peers on how they manage strategic and tactical decisions (group presentation)<br>• Visit to other similar high performing farming businesses to understand what planning they undertake, key assessments they make and | • **Pasture DM measure** (ruler, MLA pasture ruler, plate meter) MBfP Tool 3.01 (dry matter ruler)<br>• MLA **Making More from sheep** and **More Beef from pastures** (MMfS tool 10.1 condition scoring, 10.4 recommended CS for ewes, 10.5 FS for young animals). MBfP Tool 5.2 (CS of cattle)<br>• MLA **stocking rate calculator** (to inform tactic grazing decisions)<br>• Livestock weighing scales / yards (with races) to conduct hands on animal assessment<br>• Evergraze **feed budget and rotation planner** (to inform tactical grazing decisions)<br>• Evergraze Calculate the Value of Nitrogen and Gibberellic Acid (to calculate requirements and costs to | **Value chain VC1, VC3**<br>• understanding alternative markets<br>• meeting market demands<br>**Reproduction and genetics (RG1, RG2)**<br><br>**Business (B1, B3, B4, B5)**<br><br>**People (P4)** |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | | how this informs the decisions they make (group presentation). | fill feed shortage)<br>• **Pastures from space** (to understand historic and close to real time pasture variability). | |
| *5 Identify feed gaps / surpluses and take appropriate action* | 5.1 Feed production curves and variability around monthly pasture growth<br>5.2 Assessing pasture quality and quantity at different times of the year and comparing this to pre-determined pasture and animal requirements<br>5.3 Assessing animal condition and comparing this to animal requirements<br>5.4 Short term feed budgets<br>5.5 Calculating supplementation (amount and cost) compared to other options (selling)<br>5.6 Setting seasonal monitoring targets for livestock and pastures and how / when these should be monitored.<br>5.7 Options to fill feed | Identify and implement actions to address feed gaps or surpluses to optimise profitability and sustainability of the grazing system.<br><br>This requires;<br>• Assessing pasture quality and quantity throughout the year<br>• Assessing animal condition during the year<br>• Creation of appropriate feed budgets<br>• Formulation of cost effective responses to use when conditions don't align with the long term grazing plan.<br><br>Able to monitor and evaluate the impact of management changes | • In paddock pasture assessment (at critical decision points) for DM, quality, species composition, leaf stage and emergence (coaching)<br>• Animal assessment (at critical decision points) for condition score, fat score and weight (coaching)<br>• Constructing appropriate short term feed budgets (coaching)<br>• Discussion, identification, application and reflection of key assessment points to inform tactical decisions around seasonal feed supply, animal condition (CS, FS, weight), supplementary feeding, seasonal forecasts and market prices (coaching, with regular assessments and reflection)<br>• Presentation by peers on how they manage strategic and tactical decisions (group presentation)<br>• Visit to other similar high performing farming businesses | • **Pasture DM measure** (ruler, MLA pasture ruler, plate meter)<br>• MLA **Rainfall to pasture outlook tool** (to inform future seasonal pasture growth)<br>• BOM **climate forecasts** (to inform future seasonal conditions)<br>• Livestock weighing scales / yards (with races) to conduct hands on animal assessment<br>• MLA **Making More from sheep** and **More Beef from pastures** (useful background information on animal requirements and assessment techniques) | Value chain.(VC1, VC3)<br><br>Business analysis (B3, B4, B5)<br>• likely risk / return for different options<br><br>Reproduction and genetics (RG1)<br><br>People (P4) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | shortages and manage surpluses | | to understand what planning they undertake, key assessments they make and how this informs the decisions they make (group presentation). | | |

**Colour code for learning topics, outcomes, activities, or tools/resources:**

Where items are essential to be used for the learning outcomes to be achieved, they are in normal (black font).

Where items are recommended to be used for the learning outcomes to be achieved, they are in green

Where items are optional to be used for the learning outcomes to be achieved, they are in orange

The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages for Feedbase (southern) with other curriculums**

| | Repro & genetics | Repro & genetics | Repro & genetics | Repro & genetics | Repro & genetics | Value chain | Value chain | Value chain | Business | Business | Business | Business | Business | People | People | People | People |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Topic** | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** |
| **1** | | | | | | | | | | | | | | | | | |
| **2** | | | | | | | | | | | | | | | | | |
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| **4** | | | | | | | | | | | | | | | | | |
| **5** | | | | | | | | | | | | | | | | | |

strong links
moderate links
weak links

**Monitoring and evaluation for assessing delivery performance for the southern feedbase Curriculum**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the southern feedbase curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the Extension and Adoption program activities will be divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the southern feedbase curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|
| • Stocking rate (DSE or AE/ha)<br>• Pasture growth rates (kg/ha/day)<br>• Pasture production (kg DM/ha/100mm rainfall<br>• Pasture utilisation (% of feed grown)<br>• Pasture yield and quality at critical times (kg/ha)<br>• Animal condition score (CS) at critical times<br>• Animal growth rates (g/day)<br>• Reproductive performance (% young per adult joined) | • Benchmark grazing and business performance<br>• Assess pasture quality, quantity, and growth<br>• Assess animal condition and performance requirements<br>• Make tactical grazing decisions based on pasture quality, quantity and growth, and animal condition and performance<br>• Make strategic stocking rate, timing of operations and marketing decisions based on annual feed supply and animal demand calculations<br>• Make investment decisions based on the calculated cost and return (e.g. fertiliser, fencing, water, buying, selling and supplementary feeding) | • Optimise stocking rate based on annual feed supply, animal demand and acceptable level of risk<br>• Optimising feed grown per mm rainfall<br>• Meet animal feed requirements to optimise production and meet market specifications<br>• Accurately measure:<br>o feed quality and quantity<br>o leaf emergence and spelling/rotation<br>o animal condition<br>• Make investment decisions based on the calculated cost and return | • Accurately assess pasture quality, quantity, plant/pasture species and animal condition<br>• Can calculate annual feed supply, animal demand and expected pasture cover<br>• Can determine animal's energy (feed) requirements to meet production targets<br>• Can design strategies to match feed supply with animal demand<br>• Know critical assessment times and targets (e.g. minimum DM cover, CS)<br>• Can implement best practice strategies and manipulation techniques for integrated weed control<br>• Can determine suitable species for soil type, climate, landscape and periods of current feed deficits<br>• Can identify the key limitations to feed production and determine cost effective actions<br>• Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis |

## People Curriculum V1.2

**Curriculum description:**

*The people curriculum develops the skills required for business managers and owners to work in a team, recruit and manage staff, accomplish the transition of business owners into and out of the business, and make confident decisions. The value to the business is improved decision making which engages the full diversity of skills available to the business. To make good decisions people must be working together and managing conflicts effectively as they arise. The business needs to be able to find good people with appropriate skills and manage them well. It also needs to be compliant with the law by properly managing employment and workplace safety risks.*

*The people curriculum has strong links with the business curriculum with an emphasis on business analysis to determine the capacity of the business to accommodate succession.*

**Overarching learning outcome:**

*To enable farm business owners to:*
*Effectively manage relationships within the business and develop a strong team. This will improve decision-making and the team will support the important decisions.*
*Understand and be able to implement the process of bringing owners into the business or manage risks when leaving the business.*
*Have the skills to recruit, manage and retain staff.*

**Value proposition:**

*The main value proposition is to enjoy farming. This will come with:*
***Improved business profitability and longevity** through better decision making*
***A more enjoyable workplace** through improved relationships*
***Reduced employment costs** through lower staff turnover*
***A safer workplace** through better risk management*

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| **5. Working together well**<br>- with a focus on how the business owners / managers work together | 1.1 Goal setting<br><br>1.2 Understanding roles and responsibilities<br><br>1.3 Building effective teams<br><br>1.4 Assertive communication (includes self awareness)<br><br>1.5 Conflict management | Know the importance of having established, clear and strategic business and personal goals that provide a common sense of purpose<br><br>Be able to set clear goals<br><br>Be able to understand and define clear roles and responsibilities within the business<br><br>Know how to communicate in a way that respects others' voices while upholding your own voice (or opinions and values).<br><br>Can appreciate the strengths, weaknesses and personality styles of others<br><br>Can better manage conflicts that will satisfy the needs of all parties | Note: Learning topic (LT) LT1.1 -1.2 Personal / business visioning and goal setting, identifying roles and responsibilities (½ day workshop)<br><br>LT 1.3 – 1.5. Team building, self awareness and assertiveness, conflict management (full day workshop)<br>- activities to focus on: problem solving, coping strategies, learning / personality styles, communicating & listen, respecting difference, how others view us / how we view ourselves, using role play, games and other exercises | **EDGEnetwork (MLA / DPI Vic) Working in Groups** program materials: manual, workshop notes, facilitators guide, course plan<br><br>**MMfS Module 4: Capable and confident producers**<br>Tool 4.1 Establishing a business agreement<br><br>Procedure 4.3 Develop a sound business purpose<br><br>Procedure 4.1 Know who does what in the business<br><br>Procedure 4.2 Develop more effective communication<br><br>Procedure 4.4 Build knowledge and skills in the business<br><br>Procedure 4.5 Maintain a happy balance between work and family time<br><br>People in Dairy Module: Working Together | Business (B1) - understanding the business' future direction in relation to the internal communication, roles and individual goals of key stakeholders.<br><br>Value chain (VC1) – improving relationships along the value chain to enable the business to become a preferred supplier. |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| **2. Family Farm Businesses**<br>- bringing people in and out of the business | 2.1 The fundamentals of succession planning – know what is essential<br><br>2.2 The fundamentals of running family farm businesses | Understand the importance of business profitability in enabling succession<br><br>Know the importance of aligned expectations about the future (between all owners / family members)<br><br>Know the fundamental and crucial elements of an effective plan for succession<br><br>Understand the difference between equity and fairness in succession discussions<br><br>Understand the skills needed of professionals who can help farm businesses work through succession - noting that this curriculum topic is only the beginning of the process<br><br>Understand the importance of roles and responsibilities<br><br>How to run effective family farm business (and staff) meetings | LT2.1 Discussion and analysis of essentials of farm succession (one day workshop reinforced through mentoring) which covers:<br>▪ The importance of business analysis<br>▪ Differences in decision making when the business is:<br>- profitable: pays rent & labour with good return on assets<br>- sometimes profitable: difficult due to uncertainty and nonaligned expectations<br>- unprofitable: eyes need to be open<br>▪ Meetings required to determine aspirations and set expectations<br>▪ Preparing the buy/sell agreement | **People in Dairy**<br>Module: Planning for the Future<br><br>**Vegetable Industry Development Program (Ausveg):**<br>A smooth transition – navigating your way through the family business<br><br>**GRDC: A Guide to Succession Planning, Sustaining Families and Farms**<br><br>**MMfS Module 1 Plan for success**<br>Tool 1.5 Photo Voice<br><br>**Next Rural succession planning guide**<br><br>**ProAGtive video interview (Isobel Knight)** | Business (B1, B3, B5) – strong connections to business planning and risk management (to take the emotion out of decisions) |
| **3. Employment**<br>Main elements include:<br>a. Recruitment, | 3.1 Recruitment, engagement and reward | Know how to recruit well and be confident in managing people | LT3.1 – 3.3 Responsibilities as an employer<br>(full day workshop)<br>- theory and practical | **Beef and Lamb New Zealand – HR Toolkit for Farmers** (including checklists and templates) | Business (B3, B5) – Understanding the impact of staff on business |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| induction, and reward<br>b. Managing people and teamwork<br>c. Individual performance and skills development<br>d. Compliance (working conditions / awards, WH&S responsibilities ) | 3.2 Managing people and teams<br><br>3.3 Managing employment risks | Know what an induction program is and should contain<br><br>Know the important elements of position descriptions, roles and responsibilities, employment contracts and package, standard operating procedures and record keeping<br><br>Understand the importance of expectations – alignment and management of<br><br>Know how to provide feedback during performance reviews including regular review of skills development<br><br>Know how to be compliant by understanding all WH&S and other employment obligations<br><br>Appreciate and accept the importance of meeting all employer responsibilities | sessions e.g.<br>*Attract* – session where participants conduct a job analysis, prepare position descriptions, role-play interview techniques, and negotiate contract<br>*Retain* - session with staff review role plays, review of PDs, career progression issues<br>*Motivate* – session on getting the best out of staff, identifying training needs<br>*Legal* – session reviewing employment conditions & awards, WH&S responsibilities | **People in Dairy**<br>Module: Working Together<br><br>Module: Recruitment<br><br>People in Dairy Tool: People Analysis<br><br>People in Dairy Checklist: Work Life Balance<br><br>Module: Farm Safety and Policies<br><br>Module : Employment & Reward (inc. resources in the form of tools, checklists, letter templates)<br><br>Module: Performance & Education<br>**GRDC Farming The Business Manual**<br>Module 1: 2. Leadership & people management<br><br>**ALA, AWI – Attracting and retaining staff in Australia's beef, sheep and pastoral industries**<br><br>Visit www.fairwork.gov.au or call Fairwork Infoline 13 13 94 to review pay and conditions for your enterprise | performance and the associated HR aspects. This includes benchmarks such as labour efficiency. |
| **4. Confident decision making**<br>- a focus on how to make clear, agreed | 4.1 Understanding strategic, tactical and operational decisions | Know which level of decision making is fit for which purpose<br>i.e. what is a strategic decision | Decision making theory and practice (one day workshop followed by coaching) which covers: | Note: there is unlikely to be a specific course already being delivered but useful materials include: | Business (B3, B4, B5) – strong link between decision making and business |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| and timely decisions that are supported by knowledge, skills and evidence | 4.2 Simple, complicated and complex decision making<br><br>4.3 Types of decision making tools (financial, climate, social)<br><br>4.4 Decision making processes (group decision making, advisory boards ) | and when does it have to be made?<br><br>Be able to apply decision-making processes appropriately<br><br>A clear understanding of the types of decision-making tools available<br><br>An ability to use appropriate tools to assist in group decision making | ▪ Learning how to focus on the decision<br>▪ Self assessment of decision making ability / own tools<br>▪ Case studies of decision analysis<br>▪ Group decision making exercises<br>▪ Group discussion and participant examples | **EDGEnetwork (MLA / DPI Vic)**<br>**Working in Groups manual** e.g. decision making model, group decision making<br><br>**Grain and Graze3 decision making and mixed farms**<br>- publications, case studies and stories from producers (audio files)<br><br>- tools to understand how farmers think about making a decision<br><br>- Online book: *Farm decision making: the interaction of personality farm business and risk to make more informed decision*<br><br>**GRDC**<br>**Making effective business decisions fact sheet**<br><br>**Making good decisions great**<br><br>**Farm advisory boards fact sheets (2)**<br><br>**MLA Decision Making Checklist** | management and performance.<br><br>Feedbase (FB3, FB4, FB5) – implementing decisions on feed base management that are supported by technical advice, skills and tools.<br><br>Value Chain (VC1, VC3) – understanding current and future market prices and specifications to make decisions that drive profitability and integrate risk factors.<br><br>Genetics (RG4) – utilising herd information, tools, advice/feedback and aligning them with market requirements in decision-making. |

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Where items are recommended to be used for the learning outcomes to be achieved, they are in green
Where items are optional to be used for the learning outcomes to be achieved, they are in orange

The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages**

| | Repro & genetics | Repro & genetics | Repro & genetics | Repro & genetics | Repro & genetics | Feed base | Feed base | Feed base | Feed base | Feed base | Value chain | Value chain | Value chain | Business | Business | Business | Business | Business |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Topic** | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **1** | **2** | **3** | **4** | **5** |
| **1** | | | | | | | | | | | | | | | | | | |
| **2** | | | | | | | | | | | | | | | | | | |
| **3** | | | | | | | | | | | | | | | | | | |
| **4** | | | | | | | | | | | | | | | | | | |

strong links
moderate links
weak links

**Monitoring and evaluation KPIs for assessing delivery performance for the People Curriculum**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the people curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the extension and adoption program are divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the people curriculum which can be incorporated directly into KASA audits.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|
| Ultimately:<br>• Business profitability indicators (as identified in | • Evaluate decisions for financial impact<br>• Buy - sell agreement in place | • Family members are satisfied and confident in their decision making<br>• All family members in each | • Know how to measure business performance indicators<br>• Capable of resolving conflicts in the business |

| | | | |
|---|---|---|---|
| business pillar)<br><br>Major:<br>• Level of staff satisfaction (safe and enjoyable workplace - % satisfied)<br><br>Minor:<br>• Staff retention ratio % | • Recruit and retain good staff<br>• Staff induction program in place<br>• Compliance with work place employment law<br>• Execution of all WH&S responsibilities | generation are aware of each others' goals and aspirations<br>• Ability to performance manage staff and maintain a safe and enjoyable workplace | • Know the crucial elements of an effective plan for succession<br>• Know the important aspects of employing and managing staff (including legal requirements)<br>• Capable of monitoring staff performance<br>• Capacity to pass a work cover inspection<br>• Be able to apply decision making processes appropriately |

## Reproduction & genetics curriculum V1.1 (Sheep)

**Curriculum description:**

*This curriculum aims to incorporate management and genetics factors that contribute to improving sheep reproduction and profitability. Reproductive efficiency is a key profit driver for sheep meat enterprises, hence this curriculum acknowledges the importance of genetics while focusing on management of sheep to achieve reproduction targets to ensure a profitable sheep enterprise. This curriculum has strong links to other curriculums; feedbase is critical to providing sufficient nutrition to sheep to ensure that the reproductive potential can be achieved; understanding the linkages between genetics and the value chain will help ensure market compliance. The business and people curriculums both have strong links to the reproduction and genetics curriculum as these will help producers determine the goals of the sheep business and how these can be achieved.*

**Overarching learning outcome:**

*Understand the link between nutrition and reproductive performance and be able to manage breeding herds/flocks to optimise reproductive potential. A strategic approach to managing animal genetics.*

**Value proposition:**

***Improved flock performance and business profitability*** *through:*

- *c.) Optimising increases in reproductive performance and*
- *d.) targeted genetic selection*

***Increased satisfaction*** *as a result of producing a product that is sought after by consumers.*

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Assessing reproductive performance to identify areas for improvement | • Quantify individual performance for relevant performance metrics (KPIs)<br>• Comparison against industry best practice and/or regional benchmarks<br>• Identify priority areas for improvement<br>• Action plan to achieve improvements | • Ability to calculate reproduction related animal performance<br>• Understand individual flock reproductive performance relative to industry average/best.<br>• Can determine areas of improvement and the potential gain<br>• Action plan developed to achieve improvements | Workshop session to cover:<br>• Calculate reproductive performance (as per KPIs below) (ideally use 3-5 years of farm data if available)<br>• Determine average and best practice benchmarks (and/or have this information to hand based on broad industry data, to compare group to)<br>• Identify potential opportunities for improvement<br><br>Some of the measures that can be used as performance metrics for comparative analysis include:<br>• Ewe conception rates (foetus' scanned/ewes joined)<br>• Lamb marking % (lambs marked/ewes joined)<br>• Weaning percentages (lambs weaned/ewe joined)<br>• Ewe mortality rates (%)<br>• Lamb survival (%) (lambs marked /foetus' scanned)<br>• Lamb growth rates pre weaning (g/day)<br>• Lamb growth rates post weaning (g/day)<br>• Average weaning weight (kg)<br>• kg lambs weaned per ewe joined<br>•<br>• Weaner mortality rates (%)<br>• Pasture quantity at lambing time (kg DM/Ha)<br>• Progress to or achievement of the breeding objective | • individual data to be brought to session by participants<br>• Industry data to be provided by deliverer - available benchmarking data sets (Farm Monitor Program (Victoria only), Ag Insights, or private data sets)<br>• Action planning template – generic or propriety template to be used<br><br>• LTEM Yr2 Session 5 Activity No.2 Lamb survival indicator** | Business (B1, B3, B4, B5) and feedbase (FB1, FB2, FB3, FB4) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Reproduction 1 Optimise the nutritional management of your flock | 1.1 Using condition score targets to maximise reproductive potential<br><br>1.2 Assessing feed quality and quantity<br><br>1.3 Nutritional requirements of animals<br><br>1.4 Nutritional management of the ewe (and ram):<br>• prior to and during joining<br>• during pregnancy (twins vs singles)<br>• at lambing (twins vs singles)<br>• during lactation<br>• at weaning. | Know key CS targets for ewes and rams during various stages of the reproductive cycle<br><br>Understand the risks associated with not meeting CS targets<br><br>Able to CS live animals<br><br>Able to measure feed availability in the paddock<br><br>Able to carry out a feed budget<br>Know the nutritional value of different feed options (e.g. pasture, grain, silage/hay)<br>Able to read and interpret feed test results for different feeds<br><br>Know the energy requirements of ewes throughout different stages of their reproductive cycle<br>Able to do a cost – benefit analysis to identify best management where there are feed gaps | Theory session covering lifetime wool data – Benefits of managing ewes to meet CS targets throughout the reproductive cycle (Workshop/coaching)<br><br>Developing field skills via coaching program (to enable practice)<br>• CS of live animals<br>• pasture assessments (quality and quantity) (kg DM/ha)<br><br>Theory workshop and coaching activity<br>• Discuss the variation of energy and protein levels for different feed types and the variation within feed types<br>• Compare energy and protein levels of different feed sources on an as fed and dry matter basis<br><br>Theory workshops and coaching activities<br>• Animal requirements at key points in the reproductive cycle<br>• Feed budgeting<br>• Compare pasture supply with demand throughout the year (Feed demand calculator)<br>• Cost-benefit analysis of supplementary feeding for a change in CS at various stages of the ewe reproductive cycle<br>• CS responsiveness of a flock<br><br>Within Farm Data collection and Analysis | Lifetimewool.com.au<br>• Ewe Management tab<br>• Tools for management tab (Condition Scoring, Pasture quality and quantity, pasture photo gallery (AWI))<br>• Blue Chart - Condition Scoring of Sheep and How to Condition Score<br><br>Feed budget tables for<br>• drought/dry conditions in southern Australia<br>• Break of season<br>• Green Feed Budgeting for ewe Flocks (SE Australia)<br>• Ewe Flocks – New South Wales<br><br>Making More From Sheep Module 8 Turn Pasture into Product<br>• Tool 8.2 Daily pasture growth estimates<br>• Tool 8.3 MLA Feed Demand calculator<br>• Tool 8.4 Feed budgeting template<br><br>MMfS Module 10 Wean more Lambs<br>10.1 Condition Scoring<br>10.2 The lambing planner<br>10.4 Recommend condition score and fat score targets for ewes<br>10.5 Bodyweight targets for weaners and young ewes<br>10.6 Ram checklist<br>10.7 Pregnancy scanning of ewes | Feedbase (FB1, FB2, FB3, FB4, FB5)<br>Strong links; the ability to provide feed for ewes to meet their changing demands throughout the year drives reproductive success.<br><br>Business (B1, B3, B4, B5)<br><br>Value chain (VC2)<br>• Live animal assessment skills<br>• Meeting market specification<br><br>People (P4)<br>• Confident decision making |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | 1.5 Pregnancy scanning as a tool to manage ewes during pregnancy and lambing<br><br>1.6 Identified areas for improvement within reproductive management | Understand the value of pregnancy scanning as a tool to managing ewes to CS targets<br>Able to use data from pregnancy scanning to manage ewes to maximise lamb survival and minimise ewe mortality<br><br>Identified strengths and weaknesses of flock nutritional management<br><br>Able to monitor and evaluate the impact of management changes | • Compare paddock FOO (Food On Offer) levels with lamb survival<br>• Lambing mob size<br>• Sheltered paddocks<br>• CS at lambing<br>• CS change over pregnancy<br><br>Benefits of managing ewes to meet CS targets with particular focus on the different energy requirements of ewes of different pregnancy status (workshop/coaching)<br><br>Cost-benefit analysis of scanning and splitting ewes based on pregnancy status to improve feed allocation and nutrition levels<br><br>SWOT analysis of sheep enterprise (particularly ewe nutrition for reproductive performance) | Making More From Sheep Lambs alive tool | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Reproduction 2 Optimise the reproductive management of your herd/flock | 2.1 Joining time and length to optimise reproductive performance | Understand factors that influence optimal joining length<br>Understand the seasonal influences on ewe conception and develop management practices that are sensitive to seasonal influences.<br>Develop a joining strategy (length and timing)<br><br>Able to identify limiting factors in marking percentages.<br>Identify key areas of management to increase marking percentages. | Theory workshop and coaching activities<br>• Ewe conception rates at varying times of the year<br>• Advantages in extending joining length<br>• Practical ways to maximise conception rates<br>• Managing the ram effect<br><br>Benchmark marking percentages of the group compared with industry average/best with particular focus on where improvement can be made (conception/embryonic loss/neonatal loss) | MMfS Entire Module 10<br>Specifically<br>Procedure 10.1 Ensure most ewes get in lamb<br>Tool 10.2 The lambing planner<br>Tool 10.3 How the 'ram effect' works<br><br>AWI – Planning for Profit – Chapter 6 Joining Management<br><br>LTEM Yr2 Session 5 Activity No.2 Lamb survival indicator** | Feedbase (FB2)<br>Strong links with feedbase, the ability to provide feed for ewes to meet their changing demands throughout the year drives reproductive success.<br><br>Business (B1, B3, B4, B5)<br>• Business strategy and planning (model needs to be able to adapt to a change in reproductive performance)<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis).<br><br>Value chain (VC1, VC3)<br>• Meeting market |
| | 2.2 Managing to CS targets for joining and throughout pregnancy | Know key CS targets for ewes and rams during various stages of the reproductive cycle<br>Understand the risks associated with not meeting CS targets<br><br>Able to CS live animals | Theory session covering lifetime wool data – Benefits of managing ewes to meet CS targets throughout the reproductive cycle (workshop/coaching)<br><br>Developing field skills via coaching program (to enable practice)<br>• CS live animals<br>• pasture assessments (quality and quantity) | Lifetimewool.com.au<br>• Ewe Management tab<br>• Tools for management tab (Condition Scoring, Pasture quality and quantity, pasture photo gallery (AWI))<br>• Blue Chart - Condition Scoring of Sheep and How to Condition Score | |
| | 2.3 Pregnancy scanning as a tool to manage ewes during pregnancy and lambing | Understand the value of pregnancy scanning as a tool to managing ewes to CS targets<br>Able to use data from | Theory session covering lifetime wool data – Benefits of managing ewes to meet CS targets with particular focus on the different energy requirements of ewes of different pregnancy status (workshop/coaching)<br>Review of preg scanning as a tool to | MMfS tools<br>10.7 Pregnancy scanning of ewes<br>AWI – Planning for Profit – Chapter 7 Improving Lamb Survival - Scanning | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | pregnancy scanning to manage ewes to maximise lamb survival and minimise ewe mortality | manage ewes.<br><br>Practical activity<br>• CS ewes 2-4 months post lambing that have not been managed based on pregnancy status to show CS difference. | | specification<br>• Impact of reproduction management through the production system |
| | 2.4 Lamb survival | Understand the key factors impacting lamb survival<br>Acquire skills for basic lamb post mortem<br>Able to implement management practices to maximise lamb survival<br>Able to calculate chill index<br>Understand the impact of lambing paddock selection on lamb survival | Practical workshop (could link the management practices with coaching)<br>• Understanding the causes of lamb mortality on farm<br>• Identify management practice changes that will reduce lamb mortality<br><br>Workshop/coaching session showing producers how to calculate chill index.<br>Discuss ways to reduce lamb losses in bad weather (lamb birth weight/shelter/FOO/Manage Ewes to CS Targets) | Making More From Sheep Lambs alive tool<br><br>MMfS Module 10 Wean more Lambs<br>10.8 Check list for new born lamb mortalities<br><br>Evergraze Lamb Survival – Turning reproductive potential into reality<br>LambAlive (Horizon Agriculture). Computer program to determine lamb mortality risk<br>AWI – Planning for Profit – Chapter 7 Improving Lamb Survival | People (P4)<br>• Skill sets need to be adapted to allow for improved nutritional management |
| | 2.5 Weaning (ewes) | Understand the benefits of early weaning on ewe reproductive performance the following year<br><br>Understanding how management practices need to be flexible in variable seasons | Workshop/coaching session<br>• Cost-benefit analysis of early weaning<br><br>Workshop/coaching session<br>• Seasonal variability and the need for stocking rate flexibility in variable seasons | MMfS<br>Procedure 10.5 Prepare your ewes for next joining<br>Grazfeed (Horizon Agriculture). Computer modelling program. | |
| | 2.6 Best practice weaner management OR weaning to maximise flock performance<br>2.7 Maximising maiden ewe fertility | Know weaner growth rate targets to minimise disease and mortality rates<br><br>Know the critical mating weight for maidens/ewe | Workshop/coaching session<br>• Discuss the role of live weight gain in preventing disease in weaners<br>• Set targets for weaner live weight<br>Workshop and/or practical skills<br>Weigh mature ewes in CS3 to develop | MMfS Module 10 Wean more Lambs<br>Procedure 10.4 Manage weaners for lifetime productivity<br>10.5 Bodyweight targets for weaners and young ewes<br><br>SheepCRC Practical Wisdom<br>Managing Merino Weaners<br>MLA Website www.mla.com.au/Research-and-development/Genetics-and-breeding/Sheep/Reproduction/Weaners | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | lambs.<br>Know the effects age, live weight, season and genetics have on ewe lamb conception. | critical mating weight for ewe replacements<br>Weigh maiden ewes at joining and compare to conception rates to identify target mating weights<br>Discuss the influences that effect ewe lamb fertility | AWI – Planning for Profit – Chapter 8 Weaner management | |
| | 2.8 Maximising ram performance | Understand the major causes of infertility / underperformance in rams<br>Able to assess rams for physical health<br>Know how to minimise risk of introducing disease when purchasing rams<br>Know what ram percentage is required for your ewe flock<br><br>Able to monitor and evaluate the impact of management changes | Workshop/coaching sessions<br>• Theory of ram health/performance<br>• How to reduce ram breakdown and when are the key times to focus attention on rams<br>• Learn how to physically assess rams for health<br>• Discuss ram joining percentage requirements for different seasons | | |
| Reproduction 3 Effective management of reproductive disease and health | 3.1 Keeping the flock disease free | Develop an on-farm biosecurity plan to help prevent entry and spread of disease. | Theory session on disease risk. Steps for keeping the flock healthy. Develop on-farm biosecurity plans-step for introducing animals and maintaining health status of herd (workshop). | VEIN – Sheep Health & Production Chapter 7. Reproductive management and diseases in naturally mated flocks | Business (B4, B5)<br>• Major profit drivers such as stocking rate do increase the risk of many animal diseases and an awareness of this is critical.<br><br>People (P4)<br><br>Value chain |
| | 3.2 Reproductive disease monitoring | Develop skills to monitor reproductive success within flock | Benchmarking session and workshop<br>• Compare reproductive success of different age groups of ewes<br>• Identify properties (or discuss typical presentations )that show potential reproductive disease problems | MMfS Module 11 Tool 11.17 Common sheep diseases and predisposing factors<br><br>VEIN Chapter 7: Health and Management at Lambing, Management and diseases of lactating ewes | |
| | 3.3 Metabolic Diseases | Understand the metabolic diseases that affect sheep reproduction and how they | Workshop/coaching session | VEIN Chapter 7: Abortion in ewes and prenatal diseases in lambs | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | should be managed.<br>Know the risk factors that increase the likelihood of metabolic disease<br>Develop management strategies for managing metabolic diseases | • Theory of metabolic diseases – causes, symptoms and impacts<br>• Strategies to reduce incidence of disease | | (VC3) |
| | 3.4 Causes of Abortion<br>• Toxoplasmosis<br>• Campylobacter<br>• Listeria<br>• Leptospirosis | Understand the diseases that impact sheep reproduction and how they should be managed.<br>Identify the risk factors for reproductive diseases<br>Develop management strategies for managing reproductive diseases. | Workshop/coaching session<br>• Theory of reproductive diseases – causes, symptoms and impacts<br>• Understand the prevalence<br>• Strategies to reduce incidence of these diseases<br>• Develop annual 'decision tree' for managing high risk mobs/properties<br>• Cost-benefit analysis of vaccination programs | | |
| | 3.5 Internal Parasites | Understand the impacts that internal parasites have on sheep productivity.<br>Know how to monitor sheep parasite levels.<br>Develop a strategic worm control program | Workshop and coaching sessions<br>• Theory of internal parasites – what are the species, lifecycles, symptoms, impacts, etc<br>• How to monitor for internal parasites<br>• Best practice worm management for the breeding flock (including weaners)<br>• Develop a strategic worm control program<br>• Link to genetics (breeding objective)- breeding for worm management. | Wormboss – Subscribe to your states monthly outlook<br>VEIN Chapter 9: Helminth diseases of sheep<br>MMfS Module 11 Tool 11.8 Guidleines for management of worms | |
| | 3.6 Foot Health | Understand the relationship between foot health problems and ewe mortality | Workshop and Coaching sessions<br>• Theory of foot health – what are the causes, symptoms, impacts<br>• Review the connection between foot health and animal production | VEIN Chapter 13: Lameness<br>Major bacterial dermatoses and Footrot | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | over lambing.<br>Understand the risk factors for the two main diseases of sheep feet; footrot and foot abscess<br>Develop a quarantine protocol for introduced sheep | • Develop a quarantine protocol for all introduced sheep | | |
| | 3.7 Trace element and Vitamin deficiencies | Know the deficiencies that occur in your area.<br>Develop a strategy to ensure deficiencies are not affecting production | Workshop and coaching sessions<br>• Theory of element and vitamin deficiencies, tailored to local areas. What are the key issues, what are the symptoms and impacts, how to test.<br>• Develop and implement a plan to test for deficiencies and then develop property-specific nutrient management strategy. | VEIN Chapter 11: Trace elements and vitamins; deficiency and excess<br><br>MMfS Module 11 Tool 11.7 Diagnosis and management of trace element deficiencies<br><br>MMfS Module 10 Wean more Lambs Tool 10.6 Ram checklist<br><br>MMfS Module 11 Tool 11.14 Minimising the risk of potential sources of disease 11.15 Quarantine periods and procedures for important sheep diseases | |
| | 3.8 Ram health | Understand the major causes of infertility/underperformance in rams<br>Able to assess rams for physical health<br>Know how to minimise risk of introducing disease when purchasing rams<br>Know what ram percentage is required for your ewe flock<br><br>Able to monitor and evaluate the impact of | Workshop/coaching sessions<br>• Theory of ram health/performance<br>• How to reduce ram breakdown and when are the key times to focus attention on rams<br>• Learn how to physically assess rams for health<br>• Discuss ram joining percentage requirements for different season | | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | management changes | | | |
| Genetics<br>4 Determine your breeding objective, to improve performance, market compliance and profit | 4.1 Productive and profitable genetics<br><br>4.2 Trait selection<br><br>4.3 Selecting profitable sheep<br><br>4.4 Evaluate current genetics<br><br>4.5 Genetic progress and how it is achieved<br><br>4.6 Australian Sheep Breeding Values (ASBV's) | Overall outcome from developing a breeding objective is to increase business profitability through informed genetic selection.<br><br>Able to identify genetic traits that will increase flock profitability<br><br>Identify how to select for profitable sheep<br><br>Identify and set a breeding objective for the sheep enterprise/s.<br><br>Objectively evaluate current genetic source<br><br>Understanding the drivers of genetic progress<br><br>Understanding and applying ASBV's in a balanced manner | Workshop/coaching sessions<br>• Discuss the impact of traits on increasing farm profit<br>• Role of ASBVs in increasing sheep profitability<br>• Role of phenotype in selection<br>• Cost-benefit analysis of focusing on different traits<br>• Define your breeding objective (Objectives may vary for different enterprises within the sheep flock, e.g. Different sire type for different ewes)<br>• Have producers set goals for genetic improvement (qualitative/quantitative)<br><br>Workshop/coaching session<br>• Facilitate discussion on how producers can evaluate their current genetics (wether trials/benchmarking/lamb growth rate trials, average ASBV of sire team)<br>• Producer evaluation/justification of their current genetic source<br><br>Workshop/coaching session<br>• Theory explaining genetic progress and how it is achieved. | AWI Planning for Profit Chapter 4 Selection of Superior Genetics<br>MMfS Module 9: Gain from Genetics<br>VEIN Chapter 5 Genetics on the sheep farm<br>Sheep Genetics Australia Proof of Profit PDF<br><br>1 page tool available from BWFW Workshop (Bred Well Fed Well 1 page breeding objective tool)**<br><br>AWI Planning for Profit Chapter 4 Selection of Superior Genetics<br>MMfS Module 9: Gain from Genetics<br>VEIN Chapter 5 Genetics on the sheep farm<br>Sheep Genetics Australia Proof of Profit PDF<br><br>Sheep Genetics Australia (SGA) Brochures and fact sheets<br>Proof of Profit<br>A Pocket Guide to ASBVs<br>Higher level of detail in<br>• Carcase<br>• Growth<br>• WEC<br>• Health<br>• Wool<br>LAMBPLAN information | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Feedbase (FB3, FB4)<br>• Maximising feed grown and animal requirements (meeting the nutritional requirements of genetic improvement)<br><br>Value chain (VC1, VC3)<br>• Understanding customer requirements and market specification |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | | Workshop/coaching session<br>Theory of ASBV's – how they are calculated, how to read them, how to interpret them, the influence of accuracy, and comparing different breeds (workshop) | • An intro to LAMBPLAN<br>• Understanding LAMBPLAN EBVs<br>• Understanding LAMBPLAN Maternal EBVs<br>• Terminal Sire Index Summary<br>• Maternal Sire Index Summary<br>• Lambing Ease ASBVs<br>MERINOSELECT<br>• An introduction to MERINOSELECT<br>• Understanding MERINOSELECT ASBVs<br>• Understanding MERINOSELECT Indexes<br>Various (17) case studies on Sheep genetics Website http://www.sheepgenetics.org.au/Resources/Brochures-and-fact-sheets | (aligning breeding objects)<br>• Addressing non-compliance issues via breeding.<br><br>People (P4)<br>• Decision making |
| | 4.7 Assessing structural soundness and phenotype | Balancing phenotypic and genotypic selection | Assessing structural soundness and phenotype (workshop, field day, or coaching) | | |
| | 4.8 Genetics and labour use efficiency | Recognising which traits contribute to ease of management | Workshop/coaching session<br>• Theory on which traits contribute to ease of management and higher labour productivity<br>• Cost-benefit analysis of easy care traits | | |
| | 4.9 Meat eating quality | Understanding of genetic advances in lean meat yield and eating quality in the lamb industry and knowledge of traits that are correlated | Workshop/coaching session<br>• Current methods to select for animals with increased lean meat yield (RBV LMY) and improved meat eating quality traits (IMF and SHEARF5) | | |
| | 4.10 Cost effective genetic improvement | Know how to improve genetics cost effectively | Workshop<br>• Cost-benefit analysis of different ways to introduce a change of genetics into your flock<br>• Cost-benefit analysis of an improved ASBVs (How much extra is an ASBV unit worth) | | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Genetics<br>5 Implement your breeding strategy to maximise the genetic gains for your herd/flock | 5.1 Selecting genetics to meet your breeding objectives<br><br>5.2 Breeding strategy | Able to source genetics that meet your breeding objective<br><br>Able to quantify the benefit from purchasing rams of higher genetic merit<br><br>Develop and implement a genetic improvement strategy<br>Implement ewe selection principles and identify techniques to ensure ewe selection is in line with breeding objective.<br><br>Able to monitor and evaluate the impact of management changes | Workshop/coaching session<br>• Use tools (SGA website/merino bloodline performance data) to show how to search for rams with traits that fit breeding objectives<br>• Cost-benefit analysis of an improved ASBVs (How much extra is an ASBV unit worth)<br><br>Workshop/coaching sessions<br>• Compare rate of genetic improvement from ram selection compared to ewe selection<br>• Discuss ways producers can put selection pressure on ewes<br>• Cost-benefit analysis of ewe classing techniques<br>• Measuring ewe performance for increased genetic improvement<br>• Benefits of heterosis to increase productivity<br>Monitor and evaluate progress toward achieving breeding objective (coaching). | SGA Proof of Profit PDF<br><br>SGA Search tool http://sgsearch.sheepgenetics.org.au/Search/Advanced.aspx?AnalysisId=2<br><br>CRC Ram select website ramselect.com.au (Promises to be good – fairly useless at the moment)<br><br>AWI Planning for Profit Chapter 4 Selection of Superior Genetics<br>MMfS Module 9: Gain from Genetics<br>VEIN Chapter 5 Genetics on the sheep farm<br>Sheep Genetics Australia Proof of Profit PDF | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Value chain (VC2, VC3)<br>• Hitting target markets effectively and efficiently<br><br>People (P4)<br>• skill sets need to be adapted to implement the strategy |

**Colour code for learning topics, outcomes, activities, or tools/resources:**

Where items are essential to be used for the learning outcomes to be achieved, they are in normal (black font).

Where items are recommended to be used for the learning outcomes to be achieved, they are in green

Where items are optional to be used for the learning outcomes to be achieved, they are in orange

The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages for Reproduction and Genetics with other curriculums**

| | Feed base | Feed base | Feed base | Feed base | Feed base | Value chain | Value chain | Value chain | Business | Business | Business | Business | Business | People | People | People | People |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Topic** | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** |
| **1** | | | | | | | | | | | | | | | | | |
| **2** | | | | | | | | | | | | | | | | | |
| **3** | | | | | | | | | | | | | | | | | |
| **4** | | | | | | | | | | | | | | | | | |
| **5** | | | | | | | | | | | | | | | | | |

strong links
moderate links
weak links

**Monitoring and evaluation for assessing delivery performance for the sheep reproduction and genetics curriculum**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the sheep reproduction and genetics curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the Extension and Adoption program activities will be divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the sheep reproduction and genetics curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|
| • Ewe conception rates (foetus' scanned/ewes joined)<br>• Lamb marking % (lambs marked/ewes joined)<br>• Weaning percentages (lambs weaned/ewe joined)<br>• Ewe mortality rates (%)<br>• Lamb survival (%) (lambs marked /foetus' scanned)<br>• Lamb growth rates pre weaning (g/day)<br>• Lamb growth rates post weaning (g/day)<br>• Average weaning weight (kg)<br>• kg lambs weaned per ewe joined<br>• Weaner mortality rates (%)<br>• Pasture quantity at lambing time (kg DM/Ha)<br>• Compliance rate to market specifications<br>• Cost of production ($/kg lwt or dwt) | • Benchmark flock and business performance<br>• Record flock performance data (as per KPI column)<br>• Condition score sheep<br>• Ensuring CS targets at critical points in the reproduction cycle are met<br>• Assess feed quantity and quality regularly<br>• Use feed budgeting to match feed requirements and availability<br>• Pregnancy scan ewes for multiples and use of data to manage single and twin bearing ewes separately<br>• Paddock allocation for ewes at lambing time based on status<br>• Develop a strategic worm control program, which is an integrated approach to parasite management<br>• Determine flock breeding objectives<br>• Use ASBVs to select rams<br>• Use genetic selection to improve performance, market compliance and profit | • Able to satisfy feed requirements of different classes of stock to achieve specific animal performance targets<br>• Accurately assess pasture quality and quantity<br>• Management of ewes with different pregnancy status to optimise lamb birth weight and lamb survival and minimise ewe mortality<br>• Managing weaners to optimise performance<br>• Management is effective in preventing reproductive and metabolic disease<br>• Genetic direction is profitable<br>• Genetic selection is in line with sheep production goals | • Accurately condition score sheep and manage the ewe nutrition profile<br>• Calculate sheep energy requirements<br>• Match feed with requirements<br>• Know the target condition scores for ewes at different stages of the reproductive cycle<br>• Understand the factors which impact lamb survival during lambing (shelter, feed on offer, stocking rate)<br>• Accurately assess pasture quality and quantity<br>• Use scan data to differentially manage twins and single ewes<br>• Calculate a feed budget<br>• Able to do a cost benefit analysis to help determine appropriate management actions<br>• Capable of determining the critical mating weight of maiden and ewe lambs<br>• Know the minimum required weight gain for weaner survival<br>• Have an understanding of the major causes of weaner ill-thrift and mortality<br>• Know the major causes of abortion and embryonic death in pregnant ewes<br>• Understand how ASBVs are calculated and how to use them to assist in selecting rams.<br>• Able to examine rams and ensure that they are fit |

## Reproduction & genetics curriculum V1.1 (Goat)

Curriculum description:

*This curriculum aims to incorporate management and genetics factors that contribute to improving goat reproductive performance and profitability. Reproductive efficiency is a key profit driver for goat meat enterprises, hence this curriculum acknowledges the importance of genetics while focusing on management to achieve reproduction targets to ensure a profitable goat enterprise. This curriculum has strong links to other curriculums; feedbase is critical to providing sufficient nutrition to goats to ensure that reproductive potential can be achieved and; understanding the linkages between genetics and the value chain will help ensure market compliance. The business and people curriculums both have strong links to the reproduction and genetics curriculums as these will help producers determine the goals of the sheep business and how these can be achieved.*

*Intensely and extensively managed herds).*

*This curriculum is relevant to both intensively managed and low input herds. Where there are differences in approach they are identified as follows:*

*IM (intensively managed) – content more relevant to intensively managed herds

*LI-SM (low input / semi-managed) - content more relevant to extensively/semi-managed herds i.e. rangeland goat production

Overarching learning outcome:

*Understand the link between nutrition and reproductive performance and be able to manage breeding herds/flocks to optimise reproductive potential. A strategic approach to managing animal genetics.*

Value proposition:

*Improved herd performance and business profitability through:*

- *e.) Optimising increases in reproductive performance and*
- *f.) targeted genetic selection*

*Increased satisfaction as a result of producing a product that is sought after by consumers.*

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Assessing reproductive performance to identify priority areas for improvement | • Quantify individual performance for relevant KPIs<br>• Comparison against industry best practice and/or regional benchmarks<br>• Identify priority areas for improvement<br>• Action plan to achieve improvements | Producers are able to:<br>Collect data to monitor and benchmark their herds' reproductive performance<br><br>Assess and Identify:<br>• Where reproductive potential is not being met<br>• Levels of herd performance that can be cost-effectively achieved<br><br>Identify where to direct effort and investment to lift reproductive performance. | Benchmarking workshops, producers bring information they record about reproductive performance of their herd. Examine performance indicators and compare factors to explain performance differences within the group (and in comparison with industry data if available).<br><br>Some of the measures that can be used as performance metrics for comparative analysis include:<br>• Fertility (does kidding/does joined)<br>• Survival (kids marked/does joined)<br>• Weaning percentage (kids weaned/does joined)<br>• Average weaning weight<br>• kg kids weaned per doe joined<br>• Kid growth rates pre weaning (g/day)<br>• Kid growth rates post weaning (g/day)<br>• Total paddock productivity (e.g. kg of meat produced per hectare per 100mm of rain)<br>• Doe mortality rates (%)<br>• Pasture quantity at kidding time (kg DM/Ha)<br>The actual KPIs selected by deliverers to use will vary depending on the intensity of the goat management systems.<br>Producers present their current (*IM ) goat husbandry annual cycle/(*LI-SM) | Producer's herd data<br>Deliverer to provide industry data if available – Industry benchmarking data sets (Farm Monitor Program (Victoria only), Ag Insights, or private data sets)<br><br>GiG- Module 6 (production cycles; management recommendations for improved reproduction; condition score targets for does and bucks at different points in the reproductive cycle).<br><br>How responsive is the conception rate of your Merino ewes (outlines a procedure to investigate how response conception rates are to condition score or body weight).<br><br>SWOT template | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis (Benchmarking process)<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis of actions identified in SWOT)<br><br>Feedbase (FB1, FB2, FB3, FB4)<br>• Animal requirements<br>• Pasture, resource and stocking rate assessment |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | | production system cycle - highlighting important activities and decision points that influence their herds' reproduction performance (workshop; group discussion)<br>• Age of joining<br>• Husbandry cycle<br>• Production system<br>• Nutritional management<br>• Resource condition assessment<br>• Stocking rate<br><br>Theory on key performance indicators and recording information. Improved approaches for collecting production data, sessions held over the reproductive cycle. (Workshop; coaching).<br><br>SWOT analysis of each goat enterprises' reproductive performance and management. Identify actions that are likely to deliver the best improvement in profitability. Marginal cost- marginal benefit analysis. (Workshop).<br><br>Develop a herd management action plan, which can be added to and reviewed during coaching. | | |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Reproduction<br>1. Optimise the nutritional management of your herd/flock | 1.1 Nutritional requirement of does and bucks at different points in the breeding cycle<br><br>1.2 Monitor and allocating feed to meet nutritional requirements at key points in the breeding cycle<br><br>1.3 Nutritional management to improve:<br>• Fertility/fecundity<br>• Kid survival and growth rates.<br><br>1.4 Strategic and tactical management approaches for optimising nutritional requirements | Producers are able to: Understand the nutritional requirements of goats at different points in the breeding cycle.<br><br>Use monitoring data (e.g. scanning results; live weight and condition score assessment) to make tactical decisions to meet nutritional requirement.<br><br>Prepare a grazing plan to match feed available to animal requirements; set targets (quality and quantity); select and 'set up' paddocks for key times in the joining period.<br><br>Evaluate and decide on cost-effective strategic management changes to optimise reproduction via nutritional management. | Theory of goat nutritional requirements; setting live-weight and condition score targets and the benefits of achieving targets. Practice using nutritional requirement tables to calculate energy and protein requirements (workshop coaching).<br><br>Coaching to develop practical skills required to monitor and manage herd nutritional requirements to improve reproduction including:<br>• Condition scoring of live animals<br>• Pasture assessment – quantity (Herbage mass kgDMHa$^{-1}$) and quality (% digestibility)<br>• Feed budgeting<br>• Grazing management strategies for selecting and preparing kidding paddocks; placing does on a raising plan of nutrition at joining.<br>• Supplementary feeding- feeding management and developing cost-effective rations.<br>• Pregnancy scanning<br>• Data recording and animal identification<br><br>Producers develop grazing plans to meet nutritional requirements at key points in the breeding cycle. Practice setting quality and quantity targets; developing strategies to set up | GiG- Module 6 (production cycles; management recommendations for improved reproduction; condition score targets for does and bucks at different points in the reproductive cycle).<br><br>GiG- Module 4 (nutritional requirements)<br><br>Reproductive management of fibre and meat goats (management practices that affect reproductive performance, fertility and mating during autumn).<br><br>Farming Meat Goats – breeding, production and marketing (basic information on managing goat reproduction).<br><br>Assessment skills for goat meat markets (Condition scoring and fat scoring techniques) | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis (Benchmarking process)<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Feedbase (FB1, FB2, FB3, FB4, FB5)<br>• Animal Requirements<br>• Optimal feed utilisation<br>• Seasonal planning and feed gaps<br>• Pasture assessment<br><br>Value chain (VC2)<br>• Live animal assessment skills<br>• Meeting market specification<br><br>People (P4)<br>• Confident decision making |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | Monitor and evaluate the impact of management changes | paddocks for key times in the breeding cycle. Include grazing plan in the herd management action plan.<br><br>Practical examples of management approaches to improve optimise nutritional requirements. Discuss and evaluate alternative approaches. Develop management plans to optimise nutritional management to improve herd performance, targeting cost-effective actions that will have the most impact on performance (workshop). Coaching helps with updating and implementing action plans – follow-up assistance; reflect and review on success etc. as well as practising skills (workshop coaching). | | |
| Reproduction<br>2 Optimise the reproductive management of your herd/flock | 2.1 Management to optimise fertility and fecundity rates<br><br>2.2 Buck assessment and management<br><br>2.3 Kid survival and setting progeny growth rate targets.<br><br>2.4 Weaning<br><br>2.5 Managing maiden does<br><br>2.6 Pregnancy scanning for | Producers able to:<br>Identify factors limiting optimal net reproduction rates.<br><br>Understand the non-nutritional factors that affect doe fertility and fecundity. Implement management practices to optimise joining.<br><br>Understand the major causes of buck infertility and under performance. Assess | Theory session on factors that influence doe fertility and fecundity including;<br>• Breeding session<br>• Doe conception rates at varying times of the year<br>• Doe age, weight, condition score<br>• Assessing and culling unfit does<br><br>Management decisions and how they influence fertility and fecundity at joining, and whole-farm productivity.<br>• Continuous versus controlled joining<br>• (*LI-SM) Mustering, drafting and turn-off frequency and timing. | GiG- Module 6 (production cycles; management recommendations for improved reproduction; condition score targets for does and bucks at different points in the reproductive cycle).<br><br>GiG- Module 6 – Tool 6.10 (Joining options).<br><br>Diseases of the Goat (buck assessment; processes for assessing fertility problems).<br><br>MMFS –Module 12 tool 12.16; | Feedbase (FB2)<br>• Animal requirements<br><br>Business (B1, B3, B4, B5)<br>• Business strategy and planning (model needs to be able to adapt to a change in reproductive performance)<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Value chain (VC1, VC3)<br>• Meeting market specification |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | assessing herd performance. | bucks for physical health. Quantify the buck percentage required.<br><br>Understand the non-nutritional factors affecting kid survival and growth rates. Implement management practices to optimise kid survival<br><br>Make decision about weaning kids that suits their production system, optimises growth rates and doe performance in the next breeding cycle.<br><br>Determine optimal time/weight to join maiden does. Set targets for optimising weight and condition score before joining.<br><br>Understand how pregnancy-scanning results are used to monitor; identify priority areas for improvement and | • (*IM) Weaning age and weight<br>• Age/weight at first joining<br>• Joining time<br>• Joining length<br><br>Theory session on buck health/performance;<br>• How to reduce buck breakdown and when are the key times to focus attention on bucks<br>• Learn how to physically assess bucks<br>• Discuss buck joining percentage requirements for different season, experience, and production systems<br>Make changes to (*IM ) goat husbandry annual cycle/(*LI-SM) production system cycle plans aimed at optimising fertility and fecundity rates, (including tactical decision points which vary with seasonal conditions. Includes marginal cost- marginal benefit analysis to inform decision making (coaching).<br><br>Theory session on factors that influence doe survival and kid survival and growth rates including;<br>• Expose to extreme conditions – shelter, paddock selection etc.<br>• Predator control<br>• Health<br>• Doe age, weight, condition score | 12.17; 12.18 (predator control-controlling foxes; wild dog; and feral pigs). | • Impact of reproduction management through the production system<br><br>People (P4)<br>• Skill sets need to be adapted to allow for improved nutritional management |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | make decision.<br><br>Monitor and evaluate the impact of management changes | • Investigating the causes of kid mortality on farm (e.g. post mortem)<br>Management decisions and how they influence kid survival and growth rates, and whole-farm productivity:<br>• Kidding paddock selection and preparation<br>• Disease monitoring (e.g. worm testing)<br>• Predator control programs<br>• Pros and cons of marking kids in different production systems. (workshop)<br>Make changes to (*IM ) goat husbandry annual cycle/(*LI-SM) production system cycle plans aimed at optimising kid survival and growth rates, (including tactical decision points which vary with seasonal conditions). Includes marginal cost- marginal benefit analysis to inform decision making (coaching).<br><br>Discuss the practicality of weaning in different production systems. Theory session:<br>• Management to minimise stress and production loss.<br>• Setting targets and monitoring growth rates and health.<br>• Advantage of separating males and females.<br>Practical sessions that track and | | |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | | compare growth rates of kids and doe condition scores, under different weaning management, including financial analysis. (workshop, coaching)<br><br>Discuss the effects of live weight and age on puberty and reproductive performance. Discuss pro and cons of early versus delayed joining. Practical session – weight mature does in CS3 to establish critical mating weight for maiden does. Weigh maiden does at joining to compare to conception rates to identify optimal mating weights (workshop, coaching).<br><br>Scanning demonstration and follow-up decision-making and or performance checking (workshop). Includes marginal cost- marginal benefit analysis. Scanning used to evaluate impact of nutritional and other reproduction management changes. (e.g. (*IM) if targeting improvements in fecundity–responsiveness activity; if targeting kid survival and growth scan and C/S does and develop a nutritional plan based on the information; (*LI-SM) using scanning to make decisions about does to stock 'harvest and hold' paddocks (twin bearing; third trimester pregnancies).<br><br>Update and review herd management | | |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | | action plans at key points during workshops and coaching. | | |
| Reproduction<br>3 Effective management of reproductive disease and health | 3.1 Keeping the herd disease free<br><br>3.2 Metabolic Diseases<br><br>3.3 Causes of Abortion<br>• Toxoplasmosis<br>• Listeria<br>• Leptospirosis<br>• Q fever<br>• Brucellosis (early pregnancy) | Producers are able to:<br>Develop an on-farm biosecurity plan to help prevent entry and spread of disease.<br>Understand the implications of free-ranging goats.<br><br>Understand the metabolic diseases that affect goat reproduction. Identify the risk factors that increase the likelihood of metabolic disease. Develop management strategies for managing metabolic diseases.<br><br>Understand the diseases that cause abortion. Identify the risk factors for reproductive diseases Develop management strategies for managing reproductive diseases. | Theory session on disease risk. Steps for keeping the herd healthy. Develop on-farm biosecurity plans-step for introducing animals and maintaining health status of herd (workshop).<br>Workshop/coaching session<br>• Theory of metabolic diseases – causes, symptoms and impacts<br>• Strategies to reduce incidence of disease<br><br>Workshop/coaching session<br>• Theory of reproductive diseases – causes, symptoms and impacts<br>• Understand the prevalence within properties<br>• Strategies to reduce incidence of these diseases<br>• Develop annual 'decision tree' for managing high risk herds/properties<br>• Cost-benefit analysis of vaccination programs | GiG – Module tool 6.2, 6.3 (common health problems)<br><br>Primefact: keeping the herd disease free (steps to help prevent disease entry and spread.<br><br>Webinar 7: On-farm biosecurity (what you need to know to protect your herd)<br>Webinar 9: Biosecurity plans (how to set one up for your business and reap the rewards)<br><br>GiG Module tool 6.2 (Pregnancy toxaemia; Ketosis) – tool 6.11 (Hypocalcaemia- conditions, diagnosis, treatment; prevention)<br><br>Agfact: Goat health: pregnancy toxaemia (Does at risk, cause, signs, prevention; diagnosis).<br><br>Causes of infectious abortions in goats (U.S. document to | Business (B4, B5)<br>• Major profit drivers such as stocking rate do increase the risk of many animal diseases and an awareness of this is critical.<br><br>People (P4)<br><br>Value chain (VC3) |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | 3.4 Internal Parasites<br><br>3.5 Foot Health<br><br>3.6 Trace element and Vitamin deficiencies | Understand the impacts that internal parasites have on goat productivity.<br>Know how to monitor goat parasite levels.<br>Develop a strategic worm control program, which is an integrated approach to parasite management (e.g. includes grazing and browsing).<br><br>Understand the relationship between foot health problems and reproductive performance.<br>Understand the risk factors for goat feet; footrot and foot abscess. Develop a quarantine protocol for introduced goats.<br><br>Identify deficiencies that occur in their district. Develop a strategy to address deficiencies; if there is a known deficiency in the region or a | Workshop and coaching sessions<br>• Theory of internal parasites – what are the species, lifecycles, symptoms, impacts, etc.<br>• How to monitor for internal parasites<br>• Best practice worm management for the breeding herds (including weaners)<br>• Develop a strategic/ integrated worm control program<br>• Products registered for use in goats<br>• Link to genetics (breeding objective)- breeding for worm management.<br><br>Workshop and Coaching sessions<br>• Theory of foot health – what are the causes, symptoms, impacts<br>• Review the connection between foot health and animal production<br>• Develop a quarantine protocol for all introduced goats<br><br>Workshop and coaching sessions<br>• Theory of element and vitamin deficiencies, tailored | describes all causes )<br><br>GiG Module tool 6.2 (Internal parasites-conditions when likely to occur; diagnosis etc.)<br><br>Wormboss (Internal parasite information and management) (IM)<br><br>Agfact: Goat Health: Coccidiosis (signs, prevention, diagnosis etc.)<br><br>Webinar 6: FAMACHA and goats (a practical on-farm technique for Barber's Pole)<br>GiG: Module 6- Other health issues (Lameness- conditions; diagnosis, prevention)<br><br>Primefact Footrot in sheep and goats (the diseases; foots scoring photos; regulations; eradication).<br><br>Lameness in sheep and goats (foot health issues and their management)<br><br>GiG – Module tool 6.3 (distribution maps of trace element deficiencies in Australia) | |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | deficiency has been diagnosed in the herd.<br><br>Monitor and evaluate the impact of management changes . | to local areas. What are the key issues, what are the symptoms and impacts, how to test.<br>• Develop and implement a plan to test for deficiencies and then develop property-specific nutrient management strategy. | Trace elements requirements of goats (outlines iodine, selenium, cobalt, copper deficiency issues) (*older document – check currency or find alternative*) | |
| Genetics<br>4 Determine your breeding objective, to improve performance, market compliance and profit | 4.1 Genetic principles, tools and breeding systems<br>• The value of genetics<br>• Genetic principles<br>• Genetic progress and how it is achieved<br>• Methods and tools for genetic improvement<br>• Breeding systems and the role of hybrid vigour<br>• Breeds and variation within breeds.<br><br>4.2 Selection of traits and tools available<br><br>4.3 Breeding Objectives and Selection<br><br>4.4 Industry programs for evaluating genetic merit of sires and herds. | Producer are able to:<br>Understanding the drivers of genetic progress.<br><br>Assess opportunities and limitations in their goat production system and the industry's stud breeding sector potential for making genetic progress.<br>Understand the importance of 'fit for purpose' animal selection.<br><br>Select a breed or combination of breeds (cross breeding program) that best suits their production environment, markets and management. | Theory explaining genetic progress and how it is achieved. Discuss limitations to genetic progress (workshop).<br><br>Examine different breeds and discuss the benefits of cross breeding.<br>Benchmark or compare performance of different breed, selection line, stud sources, and crosses within the group (if there is sufficient diversity (workshop; coaching).<br><br>Theory of EBV's and indexes– how are they calculated, how to read them, how to interpret them, the influence of accuracy (workshop).<br><br>Discuss the impact of traits on increasing farm profit. Identify traits that will improve herd profitability by conducting a cost-benefit analysis. Producers define a breeding objective for their goat enterprise (workshop; coaching). | GiG – module 5 – Goat selection and breeding (breeds; setting a breeding objective; breeding tools).<br><br>MLA Tips and Tools:<br>• How can I use EBVs<br>• How can I use indexes<br>• Kidplan for breeders<br>• Kid plan for commercial producers<br>(Describes kidplan, EBVs and how producers can use this information)<br><br>Sheep Genetics Kidplan Fact sheets<br>• Introduction to Kidplan<br>• Understanding Kidplan EBVs<br>• Kidpand EBV definitions<br>(Describes kidplan and EBVs)<br><br>Presentation 'Introduction to | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Feedbase (FB3, FB4)<br>• Maximising feed grown and animal requirements (meeting the nutritional requirements of genetic improvement)<br><br>Value chain (VC1, VC3)<br>• Understanding customer requirements and market specification (aligning breeding objects)<br>• Addressing non-compliance issues via breeding.<br><br>People (P4) |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | Understand what EBV's and indexes are and how to use them; Availability of bucks with performance records.<br><br>Identify genetic traits that will increase herd profitability. Decide if using EBVs or visual selection is most appropriate for the traits identified.<br><br>Describe their breeding objective.<br><br>Develop an implementation plan to achieve their breeding objective, including plans to overcome limitations in the production systems or access to buck sources<br><br>Understand how industry programs can evaluate the genetic merit of bucks. | Develop an implementation plan to achieve their breeding objective, including plans to overcome limitations in the production systems or access to buck sources | kidplan' (what influences genetic performance; Kidplan (EBVs); calculating breeding values; accuracy; common traits EBV are available for; economic comparisons of different EBVs; indexes)<br><br>Goat visual score (*developed by Swain and Casey- requires some development*)<br><br>Webinar 3: Genetic improvement and parasite management and Boer Select Breeders Group Buck Evaluation Program – Report on visual and measured traits (Result from a Boer selection producer demonstration, which evaluated Boer bucks and the performance of their progeny)<br>Producer case-studies<br>• GiG module 5- Breeding meat goats for meat producers<br>• Rangeland Goat Production in western NSW- case studies 2, 5 and 6.<br>• (examples of practical selection and genetic improvement). | • Decision making |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| Genetics<br>5 Implement your breeding strategy to maximise the genetic gains for your herd/flock | 5.1 Selecting genetics to achieve breeding objectives and implementing a genetic improvement strategy<br><br>5.2 Buck Selection<br><br>5.3 Doe selection | Producers are able to:<br>Select and source genetics (if available) that meet their breeding objective<br><br>Assess, grade and value bucks for purchase.<br><br>Understand the value of buck assessment and selection; Quantify the benefit from purchasing bucks of higher genetic merit.<br><br>Understand the relative importance of doe selection and identify techniques to ensure doe selection is in line with breeding objectives.<br><br>Implement doe selection principles and culling programs that maintain adequate number of breeders in the herd structure.<br><br>Able to monitor and evaluate the impact of management changes | Practical exercise that demonstrates processes for selecting a buck source. Examine penned bucks, with pen cards information and work through assessing, grading and valuing bucks. Discuss different purchasing options and strategies. Coaching support when producers are actually buying bucks (workshop; coaching).<br><br>Assessing structural soundness and phenotype (workshop, field day, or coaching)<br><br>Compare rate of genetic improvement from buck selection compared to doe selection. Discuss ways producers can put selection pressure on does. Cost-benefit analysis of doe classing techniques. Measuring doe performance for increased genetic improvement. Include marginal cost-marginal benefit analysis (coaching).<br><br>Practical exercise that demonstrates processes for classing, selecting does and identify an appropriate number of does to cull. Herd structure reviews and planning (workshop).<br><br>Monitor and evaluate progress toward achieving breeding objective (coaching). | GiG – module 5 – Goat selection and breeding (breeds; setting a breeding objective; breeding tools).<br><br>Presentation 'Introduction to kidplan' (what influences genetic performance; Kidplan (EBVs); calculating breeding values; accuracy; common traits EBV are available for; economic comparisons of different EBVs; indexes)<br><br>Goat visual score (*developed by Swain and Casey- requires some development*) | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Value chain (VC2, VC3)<br>• Hitting target markets effectively and efficiently<br><br>People (P4)<br>• skill sets need to be adapted to implement the strategy |

**Colour code for learning topics, outcomes, activities, or tools/resources:**

Where items are essential to be used for the learning outcomes to be achieved, they are in normal (black font).

Where items are recommended to be used for the learning outcomes to be achieved, they are in green

Where items are optional to be used for the learning outcomes to be achieved, they are in orange

The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages for Reproduction and Genetics (GOAT) with other curriculums**

| Topic | Feedbase | | | | | Value chain | | | Business | | | | | People | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 |
| 1 | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |

strong links
moderate links
weak links

**Monitoring and evaluation for assessing delivery performance for the Reproduction and Genetics (GOAT) Curriculum**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the reproduction and genetics (goat) curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the Extension and Adoption program activities will be divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the reproduction and genetics (goat) curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|
| • Fertility (does kidding/does joined)<br>• Survival (kids marked/does joined)<br>• Weaning percentage (kids weaned/does joined)<br>• Average weaning weight<br>• kg kids weaned per doe joined<br>• Kid growth rates pre weaning (g/day)<br>• Kid growth rates post weaning (g/day)<br>• Total paddock productivity (e.g. kg of meat produced per hectare per 100mm of rain)<br>• Doe mortality rates (%)<br>• Pasture quantity at kidding time (kg DM/Ha)<br>• Compliance rate to market specifications<br>• Cost of production ($/kg lwt or dwt)<br><br>The actual KPIs selected by deliverers to use will vary depending on the intensity of the goat management systems. | • Benchmark herd and business performance<br>• Record herd performance data (kid survival, doe mortality etc, as per KPI column)<br>• Condition score and weigh goats at key decision times<br>• Pasture quality and quantity assessments<br>• Assess and allocate feed to meet nutritional requirements at key points in the breeding cycle (feed budgeting) e.g. appropriate paddock allocation for does at kidding time<br>• Pregnancy scan does and using data to make management decisions<br>• Implement on-farm biosecurity procedures and plans<br>• Develop a strategic worm control program, which is an integrated approach to parasite management (e.g. includes grazing and browsing).<br>• Determine herd breeding objectives<br>• Implement a selection and genetic improvement plan guided by a breeding objective | • Calculating the cost and benefit of implementing reproductive and genetics changes<br>• Assess pasture quality and quantity<br>• Able to satisfy feed requirements of different classes of stock to achieve specific animal performance targets<br>• Proactive weaner management to maximise survival and growth rates<br>• Buck assessment and management to maximise herd productivity | • Accurately condition score<br>• Collect and record data to monitor and benchmark herd performance<br>• Calculate nutritional requirements and match feed supply and demand<br>• Accurately estimate pasture and browse quality and quantity and calculate a feed budget<br>• Determine the costs and benefits associated with management changes to improve reproduction rate<br>• Capable of determining the critical livestock performance targets (e.g. condition score and liveweight) at key times<br>• Able to conduct a pre-joining check on a buck and doe<br>• Understand the major causes of weaner ill-thrift and mortality and the strategies to prevent and manage them.<br>• Know the major causes of abortion and embryonic death in pregnant does, and prevention strategies<br>• Understand the impacts that internal parasites have on goat productivity and the prevention/management strategies<br>• Able to interpret and use EBVs for evaluating and selecting bucks<br>• Understand genetic principles, tools and breeding systems |

## Reproduction & genetics curriculum V1.1 (northern beef)

Curriculum description: *The northern beef reproduction and genetics curriculum covers core topic areas designed to address key profit drivers of northern beef businesses related to reproduction and genetics.*
*Understanding the key profit drivers and how to measure and monitor herd performance is integral to improved business outcomes in northern Australia. The pillar curriculum addresses this first.*
*Comparatively lower reproductive performance means that most herds in northern Australia have a majority of breeding cattle. There is usually considerable scope for improvement in the performance of breeding cattle. Most of the management strategies are designed to deal with the poor pasture nutrition during the long dry seasons and during drought that impact on reproductive performance. This is where this pillar has linkages to the feed base pillar.*
*Genetic improvement in heritable traits can contribute to key profit drivers if implemented correctly. The main focus is genetic improvement through bull selection.*

Overarching learning outcome:
*Understand the link between nutrition and reproductive performance and be able to manage breeding herds/flocks to optimise reproductive potential.*
*A strategic approach to managing and improving animal genetics.*
Value proposition:
*Improve the reproductive performance of your herd/flock, through informed management, leading to optimal returns.*
*Achieve genetic improvements that optimise the genetic potential of your herd/flock.*

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| Recognising the potential (Comparative analysis) | • Quantify individual performance for relevant KPIs<br>• Comparison against industry best practice and/or regional benchmarks<br>• Identify priority areas for improvement<br>• Action plan to achieve improvements | Understand how herd reproduction performance measures are calculated<br><br>Ability to calculate current herd performance indicators and KPIs.<br><br>Understanding impact of *current* herd performance on profit indicators.<br><br>Knowledge in levels of herd performance that can be achieved.<br><br>Understand the impact of *improved* herd performance key profit drivers.<br><br>Skills in setting new KPIs | Herd Performance and Key Profit Drivers Workshop<br><br><u>Workshop context</u>: Linkage of herd performance metrics (see list below) with key profit drivers and herd profitability indicators (GM/AE), with research data/evidence to demonstrate what is achievable in northern Australia.<br><br>Determine average and best practice benchmarks (or have this information to hand based on broad industry data, to compare group to)<br><br>Identify potential opportunities for improvement to the business<br><br>Some of the measures that can be used as performance metrics for comparative analysis include:<br><u>Reproduction</u><br>• CS average and range at calving and at weaning rounds<br>• Weaning % per cows | Individual data to be brought to session by participants<br><br>Industry data to be provided by deliverer – available benchmarking data sets (Farm Monitor Program (Victoria only), Ag Insights, or private data sets)<br><br>Module 1 Breeding EDGE – herd performance section**<br><br>Cash Cow BRICK for data collection (and user guide)<br><br>Regional Cash Cow Benchmarks and annual steer growth rates.<br><br>MLA Breeder mortality calculator<br><br>Breedcow Dynama (likely best used to demonstrate rather than training producers to use; useful in the absence of good herd records) - Bcowplus, Cowtrade | Business (B1, B3, B4, B5)<br>• profit indicators<br>• partial budgeting & comparative analysis<br>• partial budgeting & comparative analysis<br><br>Feedbase (FB1, FB2, FB3, FB4) |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | | joined<br>• Mortality rates (%) of cows and heifers<br>• Average weaning weight<br>• Kilograms of beef weaned per cow joined<br>• Heifer growth rates<br>• Heifer conception %<br>• First lactation cow conception (%)<br>• Mature cow conception %<br>• PM4 conception %<br>• Bull Breeding Soundness Evaluation data<br>• Calf survival % per cows PTIC<br>• Conception/calving spread and percentage<br>• Calf growth rates post weaning (g/day)<br><br><u>Genetics</u><br>• Progress to or achievement of the breeding objective<br>• Steer growth rates<br>• Weight for age<br>• Carcase compliance<br>• MSA scores<br>• Datalink | Robust production and whole of business benchmarking tool (templates provided for partial analysis or sourced in full from industry consultants)<br><br>Action planning template – generic or propriety template to be used | |
| 6. Optimise the nutritional status and management of | Nutrition is the key to drive efficient reproduction.<br><br>Determine and match the nutritional | Overall outcome of the reproduction pillar is to increase the reproductive rate | Grazing management theory (workshop)<br><br>On-farm coaching program | Cash Cow – drivers of reproductive performance | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| your herd | requirements of the breeding herd to optimise fertility, cow and calf survival, ability to re-join, lactation and calf weaning weights:<br><br>1.1 Selecting appropriate calving time to best match nutritional requirements to feed supply and increase kilograms of beef weaned per cow joined.<br><br>1.2 Calving time to consider the projected weight and nutritional demand of the weaner animal.<br><br>1.3 Strategic grazing management and/or supplementary feeding to match nutritional requirements for optimal reproductive success from each class of animal<br><br>1.4 Determining energy / nutritional requirements for:<br>o Replacement heifers<br>o First calvers<br>o Cows<br>o Pre-calving to minimise difficulties during calving<br>o Calving to joining<br>o Weaner animals through summer and autumn<br>o Bulls | (kilograms of beef weaned per cow joined) in northern beef herds through informed and disciplined herd management.<br><br>Achieving this outcome will require skill development across a number of key areas specific to reproduction. These skills are closely linked with many of the learning outcomes of the feedbase pillar:<br><br>1. Best practice grazing management theory is understood.<br><br>2. Grazing management skill set is highly developed as per the northern feedbase curriculum.<br><br>3. Producers are able to determine the nutritional | to enable supported learning around key grazing management principles (coaching). Core skills should include:<br>• Assessing land condition (soil, pasture and woodland condition)<br>• Assessing feed quantity and quality<br>• How to calculate a forage budget<br>• Diet quality analysis<br><br>Animal nutrition theory that works through nutritional requirements at different points in the reproductive cycle, including the introduction of practical rules of thumb (workshop)<br><br>On-farm coaching program to enable supported learning around calculating animal nutrition requirements and allocating stock classes to available feed to meet their nutritional requirements (coaching)<br><br>Theory and then practice condition scoring each | Breeding EDGE (new version)**:<br>Module 3 Female Reproduction<br><br>Breeding EDGE (new version)**:<br>Module 6 Managing the Breeding Herd<br><br>Phosphorus book (MLA)<br><br>Breeder management technical notes<br><br>Managing Indigenous Pastoral Lands (MIPL) power points – modules 6 & 7<br><br>Heifer management technical notes<br><br>Heifer Management in northern beef herds - book (MLA)<br><br>MIPL power points – module 6<br><br>Herd Performance templates<br>Cash Cow BRICK (for herd | (Benchmarking process)<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Feedbase (FB1, FB2, FB3, FB4, FB5)<br>• Animal Requirements<br>• Optimal feed utilisation<br>• Seasonal planning and feed gaps<br>• Pasture assessment<br><br>Value chain (VC2)<br>• Live animal assessment skills<br>• Meeting market specification<br><br>People (P4)<br>Confident decision making |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | requirements of breeding stock at each point in the reproduction cycle.<br><br>4. Producers are able to apply a particular focus on the nutrition of replacement heifers from weaning to second joining.<br><br>5. Producers are able to match nutritional requirements with grazing management and strategic supplementary feeding to optimise kilograms of beef weaned per cow joined in a cost effective manner.<br><br>6. Producers can Condition Score (CS) animals.<br><br>7. Producers can relate CS to correct | livestock class and work through the implications of condition score and timing of the reproductive cycle (short workshop plus coaching).<br><br>Workshop on strategic and cost effective supplementation when available feed or feed quality is less than animal requirements (workshop) | data & performance indicators) ,<br><br>Condition score photo standards<br><br>Australian Cattle Vets (ACV) | |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | nutritional management for each stock class so reproduction targets are met.<br><br>8. Producers have the skills to adjust time of weaning based on cow condition score. | | | |
| 2 Optimise the reproductive management of your herd | Management of each stock class to optimise reproduction rate:<br>2.1 Selecting a fertile and reproductively resilient genotype and phenotype<br>2.2 Managing for low breeder, heifer, and weaner mortality<br>2.3 Heifer management<br>o Management of heifers from weaning to joining to reach critical mating weight and critical calving weights<br>o Ensure critical mating weights are based on a realistic assessment of mature weights.<br>o Good physical condition at calving<br>o Good nutrition post calving to joining as pregnancy rate for the second joining is critical<br>2.4 Mating Management strategies (controlled, breeder segregation, continuous combo | Increasing kilograms of beef weaned per cow joined requires benchmarking current reproductive and herd performance and identifying the weak links.<br><br>A number of skills are required to achieve this:<br><br>1. Producers recognising how a defined calving pattern contributes to increasing total kilograms of beef produced, simplifying management, and improving compliance against | Theory and then practice condition scoring each livestock class and working through the implications of condition score and timing of the reproductive cycle (short workshop plus coaching)<br><br>Physically assessing both bulls and cows (conformation, udder, scrotal assessments, etc) (short workshop plus coaching).<br><br>Theory and practice in regard to calculating key benchmarks that are specific to herd reproductive performance and kilograms of beef weaned per calf joined, to | MBfP Module 5 Tools and Procedures<br>• Tools 5.01 to 5.07<br>• Condition scoring beef cattle<br>• Evaluating and Reporting bull fertility<br>• Calving histogram<br>Procedures 1 to 4<br><br>Control mating technical note.<br><br>Module 2 Male Reproduction (Breeding EDGE)**<br><br>ACV Bull book (from Australian cattle vets | Feedbase (FB2)<br>• Animal requirements<br><br>Business (B1, B3, B4, B5)<br>• Business strategy and planning (model needs to be able to adapt to a change in reproductive performance)<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Value chain (VC1, VC3)<br>• Meeting market specification<br>• Impact of reproduction management through the production system |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | options)<br>2.5 Managing for minimal losses between pregnancy testing and weaning<br>2.6 Selecting sires for herd fertility and ease of calving<br>2.7 Managing bulls for high conception<br>o Rates of bull allocation to mating herds<br>o Bull condition scoring<br>o Management pre-mating to increase fertility<br>o Annual check of structural and physical soundness and serving ability.<br>o Pesti virus & Vibriosis effectively managed<br>o BBSE testing<br>2.8 Pregnancy testing, foetal aging and management post pregnancy testing<br>2.9 Culling strategies for best practice herd reproductive management<br>2.10 Weaning<br>2.11 Recording and monitoring reproductive performance<br>2.12 Artificial insemination as a mating option | market specifications.<br><br>2. Producers working towards a defined mating period across heifers and the main cow herd.<br><br>3. Producers collecting critical data to benchmark and evaluate reproductive performance. This includes:<br>a.) Pregnancy rate achieved on maiden heifers<br>b.) Pregnancy rate achieved on first calving heifers (second joining)<br>c.) Pregnancy rate on mature cow herd<br>d.) Kilograms of beef weaned per cow joined<br>e.) Cow, heifer, and calf mortality<br>f.) Weaning weights from first calving heifers<br>g.) Weaning weights from mature cow | inform management decisions on weaning, mating etc. (workshop and coaching)<br><br>Plan, Action, and Review process implemented to improve areas where sub-optimal performance is taking place (coaching)<br><br>Templates provided to calculate key benchmarks where possible. Ultimate goal is whole of business benchmarking on an annual basis<br><br>Theory in regard to nutritional influences on foetal development and minimising calf losses (workshop). On-farm coaching program to enable supported learning around calculating animal nutrition | website)<br><br>Heifer management technical notes<br><br>Heifer Management in northern beef herds - book (MLA)<br><br>Breeding EDGE Module 6 Managing the Breeding Herd – Managing the Bulls *component***<br><br>Condition score photo standards<br><br>Australian Cattle Vets (ACV)<br><br>My Herd Management Plan template to link in with KPI template<br><br>Beef CRC Continuous Improvement and Innovation (CI&I) tools<br><br>KPI template | People (P4) |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | herd<br><br>4. Merits and risks of earlier joining of heifers to allow for longer recovery explored<br><br>5. Producers able to recognise the phenotypic and genotypic traits in breeding females that contribute to high fertility<br><br>6. Producers able to effectively manage nutrition pre and during calving to minimise calving difficulties and dystocia<br><br>7. Producers are able to condition score animals<br><br>8. Producers able to evaluate bulls for physical soundness pre joining<br><br>9. Producers understand the | requirements and allocating stock classes to available feed to meet their nutritional needs (coaching)<br><br>Practice assessing animal soundness (coaching)<br><br>Pregnancy testing (workshop and coaching)<br><br>Theory covering time of weaning (workshop and field day)<br><br>Creating a suitable culling policy for the herd (workshop session)<br><br>The benefits of tracking life time breeder performance through existing electronic identification (eID) considered (workshop session) | | |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | importance and value of pregnancy testing<br><br>10. Pregnancy testing completed as standard practice<br><br>11. Producers able to implement a practical culling strategy on replacement heifers, dry cows, and aging cows that will allow improvements in herd fertility over time. This needs to be balanced with an understanding that bull selection will have a much greater influence over the genetic direction of the herd.<br><br>12. Producers understand and are able to implement effective weaning strategy and weaner management<br><br>13. Producers able to use the calving histogram calculator to identify | | | |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | the percentage of cows conceiving at each cycle and benchmark current performance.<br><br>14. Able to monitor and evaluate the impact of management changes | | | |
| 3 Effective management of reproductive disease and health | 3.1 Reproductive Diseases<br><br>3.2 Diseases which cause losses and/or poor health in northern Australia<br><br>3.3 Using a diagnostic approach to identifying the major diseases affecting herd performance<br><br>3.4 Cost effective health programs<br><br>3.5 Strategies to manage disease and improve herd health<br>o Vaccination programs and protocols<br>o Biosecurity management<br>o Animal selection and culling<br>o Monitoring & treatment | Knowledge of reproductive diseases and diseases which cause losses and understanding of impacts.<br><br>Ability to determine causes of poor reproductive performance due to disease & health.<br><br>Understanding of a range of strategies to manage reproductive diseases, and how to best implement these, or improve on existing management.<br><br>Able to monitor and evaluate the impact of management changes | Theory workshop covering reproductive diseases and health issues and how they can be managed, with practical activity or case studies on identifying reproductive diseases.<br><br>Developing a vaccination strategy (workshop activity)<br><br>Developing a biosecurity plan (workshop activity)<br><br>Theory and supported learning on effective management of internal and external parasites (workshop and coaching) | Breeding Edge:<br>• Module 6 Managing the Breeding Herd – Managing the Bulls – Disease Management *component (1 page)*<br>• Module 7 –Animal behaviour, health & Welfare – Animal health *component (2 pages)t;* Appendix 1 reproductive diseases<br><br>Managing Indigenous Pastoral Lands (MIPL) manual: module 7 (Health, Handling & Welfare)<br><br>Departmental websites (biosecurity and animal health) | Business (B4, B5)<br>• Major profit drivers such as stocking rate do increase the risk of many animal diseases and an awareness of this is critical.<br><br>People (P4)<br><br>Value chain (VC3) |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| Genetics<br>4 Determine your breeding objective, to improve herd performance, market compliance and profit | <u>Genetic Improvement</u><br><br>4.1 Genetic principles, tools and Breeding Systems<br>o The value of genetics<br>o Basic genetic principles<br>o Methods and tools for genetic improvement & selection (e.g. Breedplan, EBVs)<br>o Breeding systems and the role/value of Hybrid Vigour<br>o Selecting a breed(s)<br><br>4.2 Breeding Objectives and Selection<br>o Developing Breeding Objectives<br>o Identifying and Prioritising Selection Criteria<br><br>4.3 Genetic Selection of Desired Traits<br>o Structural Soundness<br>o Reproductive<br>o Growth<br>o Carcase<br>o Temperament<br>o Adaptive<br><br>4.4 Sourcing Bulls with genetic information<br><br>4.5 Breeding Your Own Bulls<br><br>4.6 Female Selection | Understanding of how genetics impacts on herd performance and key profit drivers.<br><br>Basic understanding of genetic principles, breeding systems and the importance of bull selection in setting the direction of the herd.<br><br>Ability and knowledge to use genetic improvement tools and systems, including EBVs and breed differences.<br><br>Knowledge to use or refine breeding systems to improve herd performance.<br><br>Developing a practical breeding objective that balances and prioritises genetic traits in a way that is tailored to your markets, management, and production | Theory workshop to provide knowledge and skills in genetics and genetic improvement, with some practical exercises such as:<br>• using EBVs<br>• using internet data bases for searching bulls with EBVs<br>• Practical activities in assessing physical traits of bulls (e.g. structural soundness)<br><br>*workshop could be developed from existing EDGE materials***<br><br>Series of workshops to deliver:<br>Exercise developing breeding objectives for own herd to be included in a Genetic Improvement Plan.<br><br>Exercise to develop a plan (with action plans and KPIs) that incorporates new | Breeding EDGE Module 4 Genetic Principles, Tools and Breeding Systems**<br><br>Breedplan Basics (TBTS)<br><br>Futurebeef website notes<br><br>Breeding EDGE Module 5 Breeding Objectives and Selection (Breeding Edge). My Breeding Objective Tool**<br><br>BREEDOBJECT – $indexes<br><br>Breed Society EBV search tools<br><br>Beef CRC findings Phases II and III (genetics improvement of reproduction in tropical beef cattle) (MLA website)<br><br>Genetic Improvement Plan template<br>KPI tool – deliverers need to develop selves<br><br>Beef CRC CI&I tools | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Feedbase (FB3, FB4)<br>• Maximising feed grown and animal requirements (meeting the nutritional requirements of genetic improvement)<br><br>Value chain (VC1, VC3)<br>• Understanding customer requirements and market specification (aligning breeding objects)<br>• Addressing non-compliance issues via breeding.<br>•<br>People (P4)<br>Decision making |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | o Heritable reproductive traits<br>o Selection and Culling for genetic improvement<br>4.7 Impact of genetic improvement<br><br>4.8 Genetic Improvement Plan – developing breeding objectives and a breeding plan, with actions and KPIs | environment.<br><br>Skills in trait selection, understanding trait correlations and trait heritability.<br><br>Balancing phenotypic and genotypic selection.<br><br>Confidence to interpret and assess objective data in a bull sale catalogues and to apportion appropriate value for sale bulls.<br><br>Skills and confidence in female selection strategies for genetic improvement (as opposed to phenotypic improvement).<br><br>Understand the impact genetics on the key profit drivers for beef herds.<br><br>Ability to develop and discuss a Herd Genetic Improvement Plan | Breeding Objectives (include opportunity to review KPIs set in the comparative analysis session to start the program).<br>Suggest commence after theory sessions and refine through coaching and group facilitated sessions. Should include presentations of action plans. | Herd performance templates:<br>Cash Cow BRICK<br>Breedcow Dynama - Bcowplus<br><br>MLA MyMSA and Data Link, or other market feedback system | |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | which details overall breeding objectives, specific KPIs, strategies and associated actions to genetically improve the herd for improved profitability. | | | |
| 5 Implement your breeding strategy to maximise the genetic gains for your herd | This curriculum topic is intended to cover the more practical application of genetics and genetic selection to enable implementation of the breeding strategy.<br><br>5.1 Key principles to be covered include:<br>• Selecting bulls<br>• Bringing new bulls home<br>• Selecting replacement females<br>• Managing bulls outside of joining<br><br>5.2 Reviewing the breeding strategy and progress to achieving breeding objectives | Ability to implement genetic improvement strategies.<br>Ability to measure herd performance against set KPIs.<br><br>Able to monitor herd performance and market compliance (e.g. MyMSA).<br><br>1. Developing selection criteria for which seedstock herds to acquire genetics from<br>a.) Genetic merit<br>b.) Value for money<br>c.) Herd health status<br>d.) Back-up service<br>e.) Accessibility for support | Ongoing skills training and coaching. Ideally delivered on-farm, preferably in groups, to enable participants to practice skills and problem solve at the implementation level.<br>Refine plan and implementation through coaching and group facilitated sessions, with opportunities to problem solve. Could include presentations of progress with action plan implementation.<br><br>Training Options:<br>Using Genomics (CRC sources and other); Tropical Beef Technology Services workshops, Breedplan, Group Breedplan, MateSel; etc | Breeding EDGE Module 4 Genetic Principles, Tools and Breeding Systems**<br><br>Breedplan Basics (TBTS)<br><br>Futurebeef website notes<br><br>BREEDOBJECT – $indexes<br><br>Breed Society EBV search tools<br><br>Beef CRC findings Phases II and III (genetics improvement of reproduction in tropical beef cattle) (MLA website)<br><br>Beef CRC CI&I tools<br><br>Herd performance templates:<br>Cash Cow BRICK<br>Breedcow Dynama - | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Value chain (VC2, VC3)<br>• Hitting target markets effectively and efficiently<br><br>People (P4)<br>• skill sets need to be adapted to implement the strategy |

| Curriculum topic^ | Learning topic* | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | 2. Procuring suitable genetics in a cost effective manner<br><br>3. Bringing new bulls home safely and introducing them to your property<br><br>4. Practical strategies to select replacement heifers and cull under performing breeding cows<br><br>5. Managing bulls outside of joining | | Bcowplus<br><br>MLA MyMSA and Data Link, or other market feedback system | |

**Colour code for learning topics, outcomes, activities, or tools/resources:**

Where items are essential to be used for the learning outcomes to be achieved, they are in normal (black font).

Where items are recommended to be used for the learning outcomes to be achieved, they are in green

Where items are optional to be used for the learning outcomes to be achieved, they are in orange

The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages for Reproduction and Genetics (northern beef) with other curriculums**

| Topic | Feedbase | | | | | Value chain | | | Business | | | | | People | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 |
| 1 | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |

strong links
moderate links
weak links

**Monitoring and evaluation for assessing delivery performance for the reproduction and genetics northern beef curriculum**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the reproduction and genetics northern beef curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the Extension and Adoption program activities will be divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the reproduction and genetics northern beef curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|
| • CS average and range at calving and at weaning rounds<br>• Weaning % per cows joined<br>• Mortality rates (%) of cows and heifers<br>• Average weaning weight<br>• Kilograms of beef weaned per cow joined<br>• Heifer growth rates<br>• Heifer conception %<br>• First lactation cow conception (%)<br>• Mature cow conception %<br>• PM4 conception %<br>• Bull Breeding Soundness Evaluation (BBSE) data<br>• Calf survival % per cows PTIC<br>• Conception/calving spread and percentage<br>• Calf growth rates pre weaning (g/day)<br>• Calf growth rates post weaning (g/day)<br>• Compliance rate to market specifications<br>• Cost of production ($/kg lwt or dwt) | • Benchmark herd and business performance<br>• Recording herd performance data (as per KPI column)<br>• Condition score (CS) heifers and cows<br>• Ensure CS targets are met at critical points in the reproduction cycle<br>• Match available feed to animal requirements by measuring both<br>• Use supplements effectively to improve reproductive outcomes<br>• Use of foetal aging, wet/dry status<br>• Use of proactive culling and selection strategy<br>• Use a diagnostic approach to identify the major diseases affecting herd performance<br>• Determine herd breeding objectives<br>• Proactive selection of bulls using ABVs including annual checks (BBSE)<br>• Implement a selection and genetic improvement plan guided by a breeding objective | • Managing nutritional status of cows<br>• Managing conception rates and cow/calf survival<br>• Ability to manage stocking rates and pasture condition<br>• Appropriate mating system(s) to optimise productivity<br>• Proactive weaning management strategies to optimise productivity<br>• Managing heifers for optimal growth, conception and rec-conception, to optimise productivity<br>• Selecting reproductively sound bulls and managing fertility<br>• Controlling and managing disease<br>• Identify heritable traits for genetic improvement and select for these traits correctly using tools and objective information | • Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis<br>• Able to condition score accurately<br>• Identify and manage dietary shortfalls<br>• Implement correct weaning strategies and programs<br>• Able to correctly implement a suitable mating system(s)<br>• Implementation of appropriate heifer growth and mating management system<br>• Correct analysis of foetal aging data<br>• Able to identify poor performers in a herd<br>• Correctly determine % calves weaned and other performance measures<br>• Correct use of BBSE data and bull soundness information<br>• Understand how to implement correct vaccination programs<br>• Written breeding objectives and genetic improvement plan<br>• Trait selection to achieve breeding objectives<br>• Able to select bulls for genetic merit in specific traits using Breedplan EBVs and objective data |

## Reproduction & genetics Curriculum V1.1 (southern beef)

Curriculum description:

*The southern beef genetics and reproduction curriculum covers core topic areas designed to address key profit drivers of southern beef businesses related to reproduction and genetics. This curriculum covers how producers can influence genetic selection and the reproductive cycle in southern beef herds to optimise fertility, kilograms of beef produced per cow, enterprise profitability, and market suitability.*

*Genetic selection is linked with the value chain curriculum in terms of selection for increased compliance to market specifications and enhanced eating quality for consumer satisfaction. Genetics are also linked with the business curriculum as genetic selection has the ability to increase price received, increase kilograms produced, and potentially reduce cost of production.*

*The reproduction curriculum is tightly linked with the feedbase curriculum as animal nutrition at critical points in the reproductive cycle is a key driver of fertility and kilograms of beef produced per cow. The reproduction curriculum is also linked to the business curriculum as herd reproduction rate and performance is a key profit driver in beef enterprises.*

Overarching learning outcome:

*Understand the link between nutrition and reproductive performance and be able to manage breeding herds to optimise reproductive potential. A strategic approach to managing and improving animal genetics.*

Value proposition:

*Improved herd performance and business profitability through:*

- *g.) Optimising increases in reproductive performance and*
- *h.) Implementing targeted genetic selection*

*Increased satisfaction as a result of producing a product that is sought after by consumers.*

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| Recognising the potential (Comparative analysis) | • Quantify individual performance for relevant KPIs<br>• Comparison against industry best practice and/or regional benchmarks<br>• Identify priority areas for improvement<br>• Action plan to achieve improvements | • Ability to calculate reproduction-related animal performance<br>• Can determine areas of improvement and the potential gain<br>• Action plan developed to achieve improvements | Workshop session to cover:<br>• Calculate reproductive performance KPIs)<br>• Determine average and best practice benchmarks (or have this information to hand based on broad industry data, to compare group to)<br>• Identify potential opportunities for improvement to the business<br><br>Some of the measures that can be used as performance metrics for comparative analysis include:<br>• Kilograms of beef weaned per cow joined<br>• Weaning % (number calves weaned/cows joined)<br>• Pregnancy rate in maiden heifers, first calving heifers for their second pregnancy and the mature cow herd<br>• Meat produced (kg/ha/100mm)<br>• Gross margin per hectare<br>• EBIT per hectare | Individual data to be brought to session by participants<br><br>Industry data to be provided by deliverer - available benchmarking data sets (Farm Monitor Program (Victoria only), Ag Insights, or private data sets)<br><br>Robust production and whole of business benchmarking tool (templates provided for partial analysis or sourced in full from industry consultants)<br><br>MLA Cost of Production (CoP) calculator<br><br>Action planning template – generic or propriety template to be used | Business (B1, B3, B4, B5)<br><br>Feedbase (FB1, FB2, FB3, FB4) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | | • Return on Assets Managed<br>• Pasture harvest (kg DM / ha / 100mm of annual rainfall)<br>• % of the herd that calves in the first cycle and % of the herd that calves in the second cycle<br>• Mortality %Bull cost per calf born<br>• Kilograms of beef produced per hectare per 100mm annual rainfall<br>• Compliance rate to market specifications<br>• Calf growth rates pre weaning (g/day)<br>• Calf growth rates post weaning (g/day) | | |
| *Reproduction*<br>*1 Optimise the nutritional status and management of your herd* | Nutrition is the key to drive efficient reproduction.<br><br>Determine and match the nutritional requirements of the breeding herd to optimise fertility, cow and calf survival, ability to re-join quickly, lactation and calf weaning weights:<br><br>1.1 Selecting appropriate calving time to best match nutritional requirements | Overall outcome of the reproduction pillar is to increase the reproductive rate (kilograms of beef weaned per cow joined) in southern beef herds through informed and disciplined herd management.<br><br>Achieving this outcome will require skill development across a number of key areas specific to reproduction. These skills are closely linked with many of the learning outcomes of the | Grazing management theory (workshop)<br><br>On-farm coaching program to enable supported learning around key grazing management principles (coaching)<br>Core skills will include:<br>• Understanding Leaf Emergence Rate (LER) and leaf stage<br>• Setting rotation length<br>• Measuring dry matter | MBfP Manual - Module 2 Pasture Growth<br><br>MBfP Module 2 Tools<br>• Tools 2.02, 2.07, 2.11<br>• Assessing groundcover<br>• Field based pasture measurements<br>• Grazing management tactics | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis (Benchmarking process)<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | to feed supply and increase kilograms of beef weaned per cow joined.<br>1.2 Calving time to consider the projected weight and nutritional demand of the weaner animal.<br>1.3 Strategic grazing management and/or supplementary feeding to match nutritional requirements for optimal reproductive success from each class of animal<br>1.4 Determining energy / nutritional requirements for:<br>o Replacement heifers<br>o First calvers<br>o Cows<br>o Pre-calving to minimise difficulties during calving<br>o Calving to joining<br>o Weaner animals through summer and autumn<br>o Bulls | feedbase pillar:<br><br>1. Best practice grazing management theory is understood.<br><br>2. Grazing management skill set is highly developed as per the feedbase curriculum.<br><br>3. Producers are able to determine the nutritional requirements of breeding stock at each point in the reproduction cycle.<br><br>4. Producers are able to apply a particular focus on the nutrition of replacement heifers from weaning to second joining.<br><br>5. Producers are able to match nutritional requirements with grazing management and strategic supplementary feeding to optimise kilograms of beef weaned per cow joined in a cost effective manner.<br><br>6. Producers can Condition Score (CS).<br><br>7. Producers can relate CS to | • Feed budgeting<br><br>Animal nutrition theory that works through nutritional requirements at different points in the reproductive cycle, including the introduction of practical rules of thumb (workshop)<br><br>On-farm coaching program to enable supported learning around calculating animal nutrition requirements and allocating stock classes to available feed to meet their nutritional requirements(coaching)<br><br>Theory and then practice condition scoring each livestock class and working through the implications of condition score and timing of the reproductive cycle (short workshop plus coaching)<br><br>Workshop on strategic and cost effective supplementation when available feed is less than animal requirements (workshop) | MBfP Manual - Module 3 Pasture Utilisation<br><br>MBfP Module 3 Tools and Procedures<br>• Tools 3.01 to 3.05<br>• Pasture rulers<br>• Setting pasture targets<br>• Pasture growth estimates<br>• Pasture utilisation<br>• Grazing management options<br>• Grazing management methods<br>• Procedures 1 to 5<br><br>MBfP Manual - Module 5 Weaner Throughput<br><br>MBfP Module 5 Tools and Procedures<br>• Tools 5.01 to 5.08<br>• Procedures 1 to 4<br>• Maximise live calves (includes a table on ME requirements)<br>• Control mating period<br>• Wean early<br>• Cull and replace females<br><br>Rules of thumb to calculate nutritional requirements for each stock class (sourced from industry consultants)<br><br>MLA Feed Demand calculator | Feedbase (FB1, FB2, FB3, FB4, FB5)<br>• Animal Requirements<br>• Optimal feed utilisation<br>• Seasonal planning and feed gaps<br>• Pasture assessment<br><br>Value chain (VC2)<br>• Live animal assessment skills<br>• Meeting market specification<br><br>People (P4)<br>Confident decision making |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | correct nutritional management for each stock class so reproduction targets are met.<br><br>8. Producers have the skills to adjust time of weaning based on cow condition score.<br><br>9. Applying the use of foetal aging to optimise weaner output.<br><br>10. Able to monitor and evaluate the impact of management changes | | MLA Rainfall to Pasture Growth<br><br>EverGraze resources and calculators<br><br>ProGraze resources | |
| *Reproduction*<br>*2 Optimise the reproductive management of your herd* | Management of each stock class to optimise reproduction rate:<br>2.1 Selecting a fertile and reproductively resilient genotype and phenotype<br>2.2 Managing for low breeder, heifer, and weaner mortality<br>2.3 Heifer management<br>o Management of heifers from weaning to joining to reach critical mating weight and critical calving weights<br>o Ensure critical mating weights are based on | Increasing kilograms of beef weaned per cow joined requires benchmarking current reproductive and herd performance and identifying the weak links.<br><br>A number of skills are required to achieve this:<br><br>1. Producers able to use the calving histogram calculator to identify the percentage of cows conceiving at each cycle and benchmark current performance.<br><br>2. Producers recognising how a | Theory workshop and practice in regard to the application of the calving histogram calculator (workshop and coaching).<br><br>Theory workshop - the benefits from a tight calving (workshop and coaching).<br><br>Maternal productivity theory (workshop)<br><br>Bull selection for herd fertility and ease of calving (workshop)<br><br>Theory and then practice | MBfP Manual - Module 5 Weaner Throughput<br><br>MBfP Module 5 Tools and Procedures<br>• Tools 5.01 to 5.07<br>• Minimum live weights of weaner heifers<br>• Condition scoring beef cattle<br>• Evaluating and Reporting bull fertility<br>• Calving histogram<br>• Artificial Insemination<br>• AI program checklist<br>• Procedures 1 to 4<br><br>Beef CRC Maternal Productivity project – results and extension | Feedbase (FB2)<br>• Animal requirements<br><br>Business (B1, B3, B4, B5)<br>• Business strategy and planning (model needs to be able to adapt to a change in reproductive performance)<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | a realistic assessment of mature weights (550kg to 700kg).<br>o Good physical condition at calving<br>o Supervision at calving<br>o Good nutrition post calving to joining as pregnancy rate for the second joining is critical<br>2.4 Controlling mating period in heifers and mature cows<br>2.5 Managing for minimal losses between pregnancy testing and weaning<br>2.6 Selecting sires for herd fertility and ease of calving<br>2.7 Managing bulls for high conception<br>o Rates of bull allocation to mating herds<br>o Bull condition scoring<br>o Management pre-mating to increase fertility<br>o Annual check of structural and physical soundness and serving ability.<br>o Pesti virus & Vibriosis effectively managed | tight calving pattern contributes to increasing total kilograms of beef produced, simplifying management, and improving compliance against market specifications.<br><br>3. Producers applying a short mating period across heifers and the main cow herd.<br><br>4. Producers collecting critical data to benchmark and evaluate reproductive performance. This includes:<br>h.) Pregnancy rate achieved on maiden heifers<br>i.) Pregnancy rate achieved on first calving heifers (second joining)<br>j.) Pregnancy rate on mature cow herd<br>k.) Kilograms of beef weaned per cow joined<br>l.) Cow, heifer, and calf mortality that is calving related<br>m.) Weaning weights from first calving heifers<br>n.) Weaning weights from mature cow herd<br><br>5. Merits and risks of earlier joining of heifers to allow for | condition scoring each livestock class and working through the implications of condition score and timing of the reproductive cycle (short workshop plus coaching)<br><br>Physically assessing both bulls and cows (conformation, udder, scrotal assessments, etc) (short workshop plus coaching).<br><br>Theory and practice in regard to calculating key benchmarks that are specific to herd reproductive performance and kilograms of beef weaned per calf joined. (workshop and coaching)<br><br>Plan, Action, and Review process implemented to improve areas where sub-optimal performance is taking place (coaching)<br><br>Templates provided to calculate key benchmarks where possible. Ultimate goal is whole of business benchmarking on an annual basis | materials<br><br>Southern Beef Technology Services Bull Select workshop materials**<br><br>Beef *Bred Well Fed Well* workshop materials**<br><br>Robust production and whole of business benchmarking tool (templates provided for partial analysis or full system sourced from industry consultants) | Value chain (VC1, VC3)<br>• Meeting market specification<br>• Impact of reproduction management through the production system<br><br>People (P4) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | o Semen evaluation<br>2.8 Pregnancy testing and management post pregnancy testing<br>2.9 Culling strategies for best practice herd reproductive management<br>2.10 Weaning<br>2.11 Recording and monitoring reproductive performance<br>2.12 Artificial insemination as a mating option | longer recovery explored<br><br>6. Producers able to recognise the phenotypic and genotypic traits in breeding females that contribute to high fertility<br><br>7. Producers able to effectively manage nutrition pre and during calving to minimise calving difficulties and dystocia<br><br>8. Producers are able to condition score animals<br><br>9. Producers able to evaluate bulls for physical soundness pre joining<br><br>10. Producers understand the importance and value of pregnancy testing<br><br>11. Pregnancy testing completed as standard practice<br><br>12. Producers able to implement a practical culling strategy on replacement heifers, dry cows, and aging cows that will allow improvements in herd fertility over time. This needs to be balanced with | Theory in regard to nutritional influences on foetal development and minimising dystocia (workshop). On-farm coaching program to enable supported learning around calculating animal nutrition requirements and allocating stock classes to available feed to meet their nutritional needs (coaching)<br><br>Practice assessing animal soundness (coaching)<br><br>Pregnancy testing (workshop and coaching)<br><br>Theory covering time of weaning and benefits of yard weaning (workshop and field day)<br><br>Creating a suitable culling policy for the herd (workshop session) | MBfP Module 5 – Procedure 3<br>• Timely weaning<br>• Guide to yard weaning | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | an understanding that bull selection will have a much greater influence over the genetic direction of the herd.<br><br>13. Producers understand and are able to implement effective weaning strategy and weaner management<br><br>14. Able to monitor and evaluate the impact of management changes | The benefits of tracking life time breeder performance through existing electronic identification (eID) considered (workshop session) | | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| *Reproduction*<br>*3 Effective management of reproductive diseases and health* | Managing and reducing the risk of reproductive diseases and health issues<br>3.1 Identifying common reproductive diseases and losses – i.e. poor conception, foetal losses or newborn calf losses<br>3.2 Developing a practical and cost effective strategy for the prevention of diseases<br>3.3 Vaccination strategy and protocol<br>3.4 Culling strategies for unhealthy cows and heifers<br>3.5 Biosecurity strategies to ensure bulls and cows entering the property are fit and healthy<br>3.6 Managing internal and external parasites to ensure optimal herd health<br>3.7 Record and monitor reproductive performance. Ensure any underperformance is not being created by poor herd health or reproductive disease. | Effective management of reproductive diseases requires knowledge of the key diseases and how they can be prevented or managed<br><br>Skills and knowledge to be developed include:<br><br>1. Knowledge of the main reproductive diseases<br>a.) Vibriosis<br>b.) Pestivirus<br>c.) Leptospirosis<br>d.) Trichomoniasis<br><br>2. Vaccination and management strategy developed for disease prevention/management<br><br>3. Biosecurity strategy developed to prevent the introduction of diseased animals<br><br>4. How to manage unhealthy animals<br><br>5. How to effectively manage internal and external parasites including development of practical strategies to minimise the risk of developing resistance | Theory covering reproductive diseases and health issues and how they can be managed (workshop)<br><br>In-field activity or case study on identifying reproductive diseases<br>Developing a vaccination strategy (workshop activity)<br><br>Developing a biosecurity plan (theory workshop and then a workshop activity)<br><br>Theory and supported learning on effective management of internal and external parasites (workshop and coaching) | MBfP Manual – Module 6 Herd Health & Welfare<br><br>MBfP Module 6 Tools and Procedures<br>• Tools 6.01 to 6.07<br>• Health cost benefit calculator<br>• Cattle diseases vaccines and strategies<br>• Zoonotics diseases of cattle<br>• Cattle disease guide<br>• Procedures 1 to 5<br><br>Animal Heath Australia<br>www.animalhealthaustralia.com.au<br><br>Livestock Biosecurity Network<br>www.lbn.org.au<br><br>National Farm Biosecurity<br>www.farmbiosecurity.com.au<br>• Reference manual, tools, & videos<br><br>Robust production and whole of business benchmarking tool (templates provided for partial analysis or full system sourced | Business (B4, B5)<br>• Major profit drivers such as stocking rate do increase the risk of many animal diseases and an awareness of this is critical.<br><br>People (P4)<br><br>Value chain (VC3) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | 6. Producers collecting critical data to benchmark and evaluate reproductive performance. This includes:<br>a.) Pregnancy rate achieved on maiden heifers<br>b.) Pregnancy rate achieved on first calving heifers (second joining)<br>c.) Pregnancy rate on mature cow herd<br>d.) Kilograms of beef weaned per cow joined<br>e.) Cow, heifer, and calf mortality that is calving related<br>7. Able to monitor and evaluate the impact of management changes | | from industry consultants) | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Genetics<br>*4 Determine your breeding objective, to improve herd performance, market compliance and profit* | Guidelines and key principles for setting a breeding objective that aligns with a producer's available markets, management, and production environment.<br><br>4.1 Genetic progress and how it is achieved<br>4.2 Estimated Breeding Values (EBV's)<br>4.3 Assessing structural soundness and phenotype<br>4.4 Breed selection<br>4.5 Eating quality<br>4.6 Trait selection<br>4.7 $ Indexes | Overall outcome from developing a breeding objective is to increase business profitability through informed genetic selection.<br><br>Skills and knowledge to be developed include:<br><br>1. Understanding the drivers of genetic progress<br><br>2. Developing a practical breeding objective that balances and prioritises genetic traits in a way that is tailored to your markets, management, and production environment<br><br>3. Understanding and applying EBV's in a balanced manner<br><br>4. Understanding that bull selection will drive the genetic direction of the herd (ie a bull produces > 150 offspring in a life time)<br><br>5. Balancing phenotypic and genotypic selection<br><br>6. Selecting a breed or combinations of breeds that best suit your markets, management, and production | Theory explaining genetic progress and how it is achieved. i.e. genetic progress = sample size divided by generation interval x accuracy, the genetic bell curve, the team effect, influence of selection pressure, traits which are positively and negatively correlated, genetic trade-offs (workshop)<br><br>Developing and documenting a breeding objective (workshop and workshop activity)<br><br>Theory of EBV's – how they are calculated, how to read them, how to interpret them, the influence of accuracy, and comparing different breeds. Essentially how to get the best out of (workshop)<br><br>Assessing structural soundness and phenotype (workshop, field day, or coaching)<br><br>Theory and case studies | MBfP Manual – Module 4 Cattle Genetics<br><br>MBfP Module 4 Tools and Procedures<br>• Tools 4.01 to 4.05<br>• BreedObject™ Software<br>• Breed trait averages<br>• Considering different breeds<br>• BREEDPLAN support<br>• Bull earning capacity calculator<br>• Procedures 1 to 5<br><br>Southern Beef Technology Services Bull Select workshop materials**<br><br>Beef *Bred Well Fed Well* workshop materials**<br><br>Beef CRC Maternal Productivity research – results and extension materials<br><br>Helmsman Auction Game to bring EBV's and genetic selection together<br><br>Meat Standards Australia tips & tools – Using the MSA Index to optimise beef eating quality | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Feedbase (FB3, FB4)<br>• Maximising feed grown and animal requirements (meeting the nutritional requirements of genetic improvement)<br><br>Value chain (VC1, VC3)<br>• Understanding customer requirements and market specification (aligning breeding objects)<br>• Addressing non-compliance issues via breeding.<br><br>People (P4) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | environment<br><br>7. Understanding which traits influence eating quality & MSA compliance<br><br>8. Understanding which traits directly influence fertility and reproductive performance<br><br>9. Understanding which traits influence beef productivity in kg/ha/100mm annual rainfall<br><br>10. Recognising which traits contribute to ease of management<br><br>11. Understanding and applying $ Indexes | behind MSA compliance, the MSA Index, how the MSA Index is calculated, and which traits and management practices influence the MSA Index – IMF, fat cover, EMA, growth, carcase weight, hump height (workshop)<br><br>Interpreting MSA feedback sheets (coaching)<br><br>Maternal productivity theory and research to demonstrate which traits influence fertility – scrotal size, fat cover, days to calving, mature cow size (workshop)<br><br>Theory on which traits drive increased productivity at the gross margin or kg/ha/100mm annual rainfall level – growth, calving ease, milk, fertility (workshop)<br><br>Theory on which traits contribute to ease of management and higher labour productivity - polledness, temperament, structure, udder quality, pigmentation, constitution, calving ease (workshop) | | |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | | Theory behind heterosis and practical cross-breeding strategies that can be effective (workshop)<br><br>Understanding $ Indexes, how to read them, how to select one or create your own, and how to apply them (workshop) | | |
| *Genetics*<br>*5 Implementing your breeding strategy to maximise the genetic gains for your herd* | This curriculum topic is intended to cover the more practical application of genetics and genetic selection to enable implementation of the breeding strategy.<br><br>5.1 Selecting bulls<br>5.2 Bringing new bulls home<br>5.3 Selecting replacement females<br>5.4 Monitoring bulls during joining<br>5.5 Managing bulls outside of joining<br>5.6 Reviewing the breeding strategy and progress to achieving breeding objectives | Key knowledge and skills to be developed include:<br><br>6. Developing selection criteria for which seedstock herds to acquire genetics from<br>a.) Genetic merit<br>b.) Value for money<br>c.) Herd health status<br>d.) Back-up service<br>e.) Accessibility for support<br><br>7. Procuring suitable genetics in a cost effective manner<br><br>8. Bringing new bulls home safely and introducing them to your farm<br><br>9. Practical strategies to select replacement heifers and cull under performing breeding | Calculating bull cost per calf born (coaching)<br><br>Applying the bull earning capacity calculator, but including a suitable margin for retained profit (coaching)<br><br>Bringing new bulls home (workshop or fact sheet on successful induction)<br><br>Selecting replacement heifers<br><br>Practical culling strategies (workshop or fact sheet)<br><br>Monitoring bulls during joining (workshop or fact sheet)<br><br>Managing bulls outside of | MBfP Manual – Module 4 Cattle Genetics<br><br>MBfP Module 4 Tools and Procedures<br>• Tools 4.01 to 4.05<br>• BreedObject™ Software<br>• Breed trait averages<br>• Considering different breeds<br>• BREEDPLAN support<br>• Bull earning capacity calculator<br>• Procedures 1 to 5<br><br>Southern Beef Technology Services Bull Select workshop materials**<br><br>Beef *Bred Well Fed Well* workshop materials** | Business (B1, B3, B4, B5)<br>• Business and enterprise performance analysis<br>• Budget, investment and risk analysis (marginal coat/marginal benefit analysis)<br><br>Value chain (VC2, VC3)<br>• Hitting target markets effectively and efficiently<br><br>People (P4) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | cows<br><br>10. Monitoring bulls during joining<br><br>11. Managing bulls outside of joining<br><br>12. Able to monitor and evaluate the impact of management changes | joining (workshop or fact sheet) | | |

**Colour code for learning topics, outcomes, activities, or tools/resources:**

Where items are essential to be used for the learning outcomes to be achieved, they are in normal (black font).

Where items are recommended to be used for the learning outcomes to be achieved, they are in green

Where items are optional to be used for the learning outcomes to be achieved, they are in orange

The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages for Reproduction and Genetics (southern beef) with other curriculums**

| Topic | Feedbase | | | | | Value chain | | | Business | | | | | People | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 |
| 1 | strong | strong | strong | strong | strong | | moderate | | moderate | | moderate | strong | strong | | | | moderate |
| 2 | | strong | | | | strong | | strong | moderate | | moderate | strong | strong | | | | moderate |
| 3 | | | | | | | | strong | | | | strong | strong | | | | moderate |
| 4 | | | weak | weak | | strong | | strong | strong | | moderate | moderate | strong | | | | moderate |
| 5 | | | | | | | strong | strong | moderate | | strong | strong | strong | | | | moderate |

strong links

moderate links

weak links

**Monitoring and evaluation for assessing delivery performance for the reproduction and genetics (southern beef) curriculum**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the reproduction and genetics (southern beef) curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the Extension and Adoption program activities will be divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the reproduction and genetics (southern beef) curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|

| | | | |
|---|---|---|---|
| • Kilograms of beef weaned per cow joined<br>• Weaning % (number calves weaned/cows joined)<br>• Pregnancy rate in maiden heifers, first calving heifers for their second pregnancy and the mature cow herd<br>• Meat produced (kg/ha/100mm)<br>• Gross margin per hectare<br>• EBIT per hectare<br>• Return on assets managed<br>• Pasture harvest (kg DM/ha/100mm of annual rainfall)<br>• % of the herd that calves in the first cycle and % of the herd that calves in the second cycle<br>• Mortality %<br>• Bull cost per calf born<br>• Kilograms of beef produced per hectare per 100mm annual rainfall<br>• Compliance rate to market specifications<br>• Calf growth rates pre weaning (g/day)<br>• Calf growth rates post weaning (g/day)<br>• Cost of production ($/kg lwt or dwt) | • Benchmark herd and business performance<br>• Record herd performance data (as per KPI column)<br>• Condition score (CS) heifers and cows<br>• Ensuring CS targets are met at critical points in the reproduction cycle<br>• Match available feed to animal requirements by measuring both<br>• Manage the herd for a 6 week or 9 week joining while optimising pregnancy rates<br>• Pregnancy testing<br>• Develop and implement a vaccination and management strategy to protect the herd health in a cost effective manner<br>• Determine herd breeding objective<br>• Implement a selection and genetic improvement plan guided by a breeding objective<br>• Record herd performance data (as per KPI column)<br>• | • Managing grazing pressure to ensure animal requirements are met<br>• Managing seasonal variability<br>• Making cost effective decisions around feed gaps and feed surpluses<br>• Able to satisfy feed requirements of different classes of stock to achieve specific animal performance targets<br>• Optimising herd fertility<br>• Measuring reproductive performance annually with particular emphasis on kilograms of beef weaned per cow joined<br>• Maintaining a 365 day calving interval and a tight calving pattern<br>• Managing reproductive diseases and parasites effectively<br>• Identify heritable traits for genetic improvement and select for these traits using tools and objective information | • Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis<br>• Calculating available feed and grazing days<br>• Capable of quickly calculating the energy requirements of different classes of animals throughout production cycle<br>• Accurately assess animal condition score<br>• Developing an annual budget of feed supply and feed demand<br>• Know the target critical mating weight at which your heifers should be mated to achieve a high pregnancy rate when first joined<br>• Successfully managing drench resistance<br>• Protecting the herd from reproductive disease in a timely and cost effective manner<br>• Objectively assess and purchase bulls<br>• Successful induction and management of new bulls<br>• Implementing a culling strategy that will increase consistency against your breeding objective over time |

## Value Chain Curriculum V1.1

**Curriculum description:** *The value chain curriculum covers the key market influences that flow through a supply chain to livestock producers. Different segments of the production chain will have different customer requirements. These broad market segments may include:*

- *Live Export North (Cattle)*
- *Live Export South (Cattle)*
- *Live Export Sheep*
- *Slaughter Cattle*
- *Slaughter Sheep* } *Domestic & Export*
- *Store animals (sheep and cattle)– purchased for breeding or future finishing for slaughter*

*Whatever the segment/s of the value chain that producers are targeting, it is critical that they understand the importance of producing what their customer requires. All members of the value chain should value and understand animal feedback and market compliance. Red meat producers should be able to incorporate customer requirements and animal feedback into management and/or business decisions.*

*In understanding feedback, this curriculum will highlight that customer requirements form the basis of market specifications and grids. Interpreting grid specifications and subsequent animal feedback will be included. Having skills in live animal assessment will allow producers to match their livestock to the market specifications. For producers, the value of understanding and responding to animal feedback will also be covered. At this point, it is acknowledged that the value chain curriculum is linked to and has relevance to all of the other curriculums – feedbase, reproduction and genetics, business and people. The value chain curriculum is designed to be able to be integrated into the delivery of any of the other curriculums and deliverers are encouraged to do this. The aim of this curriculum is to ensure that a market based customer focus is maintained when delivering other curriculums. Alternatively it could provide a link (feeder) to other curriculums.*

**Overarching learning outcome:** *Be able to understand the importance of customer requirements and value based trading to all sectors of the red-meat value chain. Understand how management and production can impact on both profit and the ability to meet customer needs.*

**Value proposition:** *Improve your capacity to deliver to your customer within specification every time. Maximise business returns through producing what the customer wants and getting paid accordingly - value based pricing.*

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Recognising the potential (Comparative analysis) | • Quantify individual performance for relevant KPIs<br>• Comparison against industry best practice and/or regional benchmarks<br>• Identify priority areas for improvement<br>• Action plan to achieve improvements | • Ability to analyse performance in meeting market specs<br>• Can determine areas of improvement and the potential gain<br>• Action plan developed to achieve improvements | Workshop session to cover:<br>• Calculate relevant KPIs (see list below)<br>• Determine average and best practice benchmarks (or have this information to hand based on broad industry data, to compare group to)<br>• Identify potential opportunities for improvement to the business<br>Some of the measures that can be used as performance metrics for comparative analysis include:<br>• Average growth rate to target market (kg/head/day).<br>• Assess fat score on the live animal to predict carcase GR fat depth in sheep and P8 fat depth in cattle.<br>• Calculate dressing percentage from live-weight and fat score to estimate carcase weight and fat.<br>• Carcase feedback improving over time:<br>o Dressing percentage<br>o Carcase weight<br>o Fat<br>o Lean meat yield<br>o Eating quality measurements).<br>• Percentage compliance to target market specifications (i.e. % grading MSA or meeting premium price on grid.)<br>• Cost of production ($/kg lwt or dwt)<br>• Gross margin ($/DSE or AE) or ($/ha) | Individual data to be brought to session by participants<br>Industry data to be provided by deliverer - available benchmarking data sets (Farm Monitor Program (Victoria only), Ag Insights, or private data sets)<br><br>Action planning template – generic or propriety template to be used | Business (B3) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| 1. Having a customer focus.<br><br>Understand that customer requirements form the basis of grids and market specifications. | 1.1 Characteristics of a Supply chain<br><br>1.2 Characteristics of a Value chain | Producers understand the differences between a supply chain and value chain.<br><br>Producers are able to assess their current marketing methods to determine what best suits their production system.<br><br>Producers know where to source market intelligence and are able to respond and cope with external factors influencing supply, demand and price. | Theory component delivered via a workshop plus site visits to feedlots/processor to hear direct from customers on requirements<br><br>Work through the key market specifications for the market segments relevant to the audience:<br>• Live Export North (Cattle)<br>• Live Export South (Cattle)<br>• Live Export Sheep<br>• Slaughter Cattle<br>• Slaughter Sheep<br>• Store Cattle<br>• Store Sheep<br>• Specific Supply chain brands | Module 8: Marketing in MLA's Going into Goats<br><br>MLA's Lamb Guide<br><br>MSA beef and sheep meat information kits:<br><br>Processor/ supply chain coordinator - guest speaker / videos relevant to the audience.<br>Case studies relevant for the area | People (P1, P4)<br>• Communication skills<br>• building relationships<br>• conflict resolution<br>• negotiation<br>• working in groups<br>• Ability to view their industry from another perspective<br>• Collaborative relationships<br>• Confident decision making |
| | 1.3 Understanding customer requirements & market specifications. | Producers understand that customer requirements can cover all or some of the following:<br>• Physical animal specifications<br>• Carcase characteristics - eating quality, nutrition, lean meat yield<br>• QA & food safety<br>• Traceability, LPA & NLIS obligations<br>• Animal Welfare<br>• Sustainability | In depth examination of store (export, feedlot) and slaughter grids.<br><br>Identify the critical specifications for the types of animals that they produce.<br><br>Demonstration from grids and slaughter sheets the KEY aspects of the AUSMEAT | Module 3: Market focused lamb and sheep meat production from the Making More From Sheep manual<br>3.1 Decide what product you can produce most profitably - select a production system to suit the environment and monitor and evaluate productivity and profitability.<br>3.2 Manage the production system to meet market specifications – use Meat Standards Australia™ (MSA) guidelines for producing sheepmeat.<br>3.3 Decide on the most profitable selling method – evaluate selling options and develop relationships along the entire lamb and sheepmeat supply chain. | Business (B1)<br>• Business strategy and planning |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
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| | | | language. | 3.4 Respond to short and long term price and market signals – use market intelligence to implement a continuous improvement program.<br><br>Module 7: Meeting market specifications from MLA's More Beef from Pastures<br>1 : Know your market specifications<br>2: Meet market specifications on time<br>3: Achieve best carcase dressing<br>4: Evaluate market opportunities<br>Associated tools<br><br>Is it Fit to Load Animal Welfare Standards<br><br>Examination of Feedlot, Live Export and Processor grids specific to the target audience: Exercise: bring grids specific to the audience and work through examples in small groups. Calculate premiums and discounts for example set of animals – which ones will meet the specifications, which won't.<br><br>Handbook of Australian Meat<br>Ausmeat Producer Resources | |
| 2. Live animal assessment skills. | 2.1 Developing skills in live animal assessment so producers are able to match their livestock to the market specifications. | Producers are competent at assessing store and slaughter livestock<br><br>Producers are competent at assessing livestock pre-slaughter for fat score, | Practice assessing physical and carcase quality attributes in the live animal, via coaching on-farm (time to develop these skills) | Dressing percentage guide NSW DPI, PRIMEFACT 340<br><br>MLA Live animal assessment yard book<br><br>Various fact sheets on live cattle assessment | Reproduction and Genetics (RG3, RG4)<br>• Determine your breeding objective, to improve performance, |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | estimated dressed weight and other relevant characteristics which affect compliance to specification (assessed by measurement accuracy). | | BeefSpecs calculator | market compliance and profit<br><br>Feedbase (FB2)<br>• Animal requirements<br>• Condition/ fat score<br>Weight for Age |
| | 2.2 Basic benchmarking of kill data vs live animal data | Producers are able to match the outcomes of on-farm live animal assessment with the known requirements of a specific market. | Conduct live animal assessment and follow animals through to slaughter (& review the feedback sheets for individual animals). Best done via on-farm coaching linked farm / abattoir / feedlot visits, with a workshop session.<br><br>Practical demonstration by butcher – carcase breakdown of different Fat score animals. Ability to relate live animal assessment to carcase weight and fat, and also to lean meat yield (For lean meat yield demonstrations- best to have two carcases of the same weight but different fat scores). | MyMSA– online training guide<br><br>Ausmeat Producer Resources<br><br>Livecorp | |
| 3. Understanding feedback and the opportunities in meeting market specs (and the costs of not meeting market specifications). | 3.1 Hitting target markets effectively and efficiently. | Producers understand data feedback from processors:<br>• how it is generated<br>• ability to relate their results to their on farm live animal characteristics and genetic, nutrition and management decisions<br>Producers know the cost of non-compliance with market specs. | Discussion of implications on profitability for both the processor and producer for non-compliance (Inefficiency and high cost of producing fat and increased processing costs).<br><br>Workshop activity – Producer brings in examples of recent feedback sheets for review (or use Livestock data link if available).<br><br>Overview of the assessment methodology used to produce feedback (especially objective carcase | Livestock DataLink (LDL) – deliverer can log in and use example data to analyse carcase performance in terms of compliance to market or customer specification and show how to get solutions to feedback to address non-compliant issues.<br><br>Lamb growth rate calculator (MmfS tool)<br><br>Lamb Value Calculator (Graham Gardner / Sheep CRC) | All Learning activities for this section will link with other pillars:<br><br>Feedbase (FB2, FB3, FB5)<br>• Animal requirements<br>• Identify feed gaps and take appropriate action<br>• Optimal feed |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | | measurement - current and future).(Video / theory – powerpoint photos / demonstration in-plant) | MyMSA– online training guide | utilisation |
| | 3.2 Understand feedback sheets and non-compliance issues. | Producers understand objective and subjective assessments made by the customer and delivered to them as feedback or non-compliance. | Workshop Activity: Using real participant data, list how animals fell out of specification. Discuss/plan how to address these issues through genetics and management. (to do this effectively will require strong links with other curriculum topics) | Ausmeat Producer Resources<br><br>National Sheep Health monitoring project (animal health feedback)<br><br>Enhanced Abattoir surveillance (animal health feedback)<br><br>JBS robotic technology | Reproduction and genetics (RG2, RG3, RG4, RG5)<br>• Determine your breeding objective, to improve performance, market compliance and profit |
| | 3.3 How to work out solutions to feedback.(strategies to respond to feedback and improve results) | Producers have the ability to generate solutions to non-compliance. | Action planning session; identify and discuss the potential solutions. Which are practical/cost-effective? What is required to implement them? Start action plan for your own business in the workshop.<br><br>Session to review action plan (workshop) | Objective-carcase-measurement: Sheep<br>Cattle<br><br>BeefSpecs calculator<br><br>Improving lamb lean meat yield publication<br><br>Case study set of data to look at non-compliance<br>- Could look at MSA calculator or data set from LDL | People (P1, P4)<br>• Livestock temperament and handling – LSS<br>• Technical skills available within the business<br>• Work-life balance<br><br>Business (B1, B3, B4, B5)<br>• Business strategy and planning<br>• Enterprise performance |
| | 3.4 Continuous improvement based | | | Action planning template – generic or propriety template to be used | assessment and analysis<br>• Budgeting, |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | on price signals and information flow along the value chain. | Producers have an action plan in place and are regularly reviewing it based on feedback from customers. This links with a proactive approach to addressing shortcomings in other curriculum areas.<br><br>Producers are able to monitor and evaluate the impact of management changes | | | investment and analysis. |

**Colour code for learning topics, outcomes, activities, or tools/resources:**

Where items are essential to be used for the learning outcomes to be achieved, they are in normal (black font)

Where items are recommended to be used for the learning outcomes to be achieved, they are in green

Where items are optional to be used for the learning outcomes to be achieved, they are in orange

The learning resources marked with an ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages**

| Topic | Repro & genetics | | | | | Feedbase | | | | | Business | | | | | People | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 |
| 1 | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |

strong links
moderate links
weak links

**Monitoring and evaluation for assessing delivery performance for the Value Chain Curriculum**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the value chain curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the Extension and Adoption program activities will be divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the value chain curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|
| • Average growth rate to target market (kg/head/day)<br>• Assess fat score on the live animal to predict carcase GR fat depth in sheep/goats and P8 fat depth in cattle<br>• Calculate dressing percentage from live-weight and fat score to estimate carcase weight and fat<br>• Carcase feedback improving over time:<br>o Dressing percentage<br>o Carcase weight<br>o Fat<br>o Lean meat yield<br>o Eating quality measurements)<br>• Percentage compliance to target market specifications (i.e. % grading MSA or meeting premium price on grid)<br>• Cost of production ($/kg lwt or dwt)<br>• Gross margin ($/DSE or AE) or ($/ha) | • Consistent and accurate on-farm data collection of key performance indicators (average growth rate and fat score to marketing)<br>• Weigh and fat score live animals.<br>• Identify, measure and monitor live animal assessment accuracy and correlate to compliance to specifications over time<br>• Calculate the cost of non-compliance<br>• Action plan to address non-compliance issues on-farm in a cost effective manner | • Follow best practice guidelines for the management of livestock including low stress handling techniques (animal welfare and meat eating quality)<br>• Able to confidently estimate carcase characteristics based on live animal assessment<br>• Able to understand and interpret market grids and feedback sheets<br>• Able to identify solutions to feedback and non-compliance<br>• Ability to source market intelligence and respond to external factors influencing supply, demand and price | • Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis<br>• Capable of interpreting market grids and understanding requirements for target market<br>• Understand definitions and the factors affecting carcase characteristics<br>• Understand the role that genetics, nutrition, growth rate and management have on carcase lean meat yield and eating quality<br>• Able to interpret carcase feedback and understand solutions to increase meeting specification on-farm (genetics, feedbase, management)<br>• Able to calculate dressing percentage, carcase weight, fat score and lean meat yield<br>• Able to understand the impact of on-farm preparation for feeder and live export markets<br>• Ability to analyse, integrate and share data to underpin livestock marketing |

## Value Chain Curriculum (Goats) V1.1

**Curriculum description:** The value chain curriculum covers the key market influences that flow through a supply chain to livestock producers. Different segments of the production chain will have different customer requirements. These broad market segments may include:

- Live Export North (Cattle)
- Live Export South (Cattle)
- Live Export Sheep
- Live Export Goats
- Slaughter Cattle
- Slaughter Sheep
- Slaughter Goats

} Domestic & Export

- Store animals (sheep and cattle)– purchased for breeding or future finishing for slaughter

Whatever the segment/s of the value chain that producers are targeting, it is critical that they understand the importance of producing what their customer requires. All members of the value chain should value and understand feedback, compliance and have the capability to respond to these. Red meat producers should be able to incorporate customer requirements and feedback in making management or business decisions.

In understanding feedback, this curriculum will highlight that customer requirements form the basis of market specifications and grids. Interpreting grid specifications and the resulting feedback and value to the producer will be included. Having skills in live animal assessment will allow producers to match their livestock to the market specifications. Responding to feedback will also be covered. At this point, it is acknowledged that the value chain curriculum is linked to and has relevance to all of the other curriculums – feedbase, reproduction and genetics, business and people. The value chain curriculum is designed to be able to be integrated into the delivery of any of the other curriculums and deliverers are encouraged to do this, to encourage customer and feedback oriented behaviour. The aim of this curriculum is to ensure that a customer focus is maintained when delivering other pillars. Alternatively, it could provide a link (feeder) to other curriculums.

This goat value chain curriculum is based on the standard value chain curriculum for sheep and cattle producers, with goat specific tools and resources included.

**Overarching learning outcome:** Understand the importance of customer requirements to red meat production, and set up your production system so that it meets customer needs.

**Value proposition:** Improve your capacity to deliver to your customer within specifications every time. Maximise business returns through producing what the customer wants and getting paid accordingly.

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| Recognising the potential (Comparative analysis) | • Quantify individual performance for relevant KPIs<br>• Comparison against industry best practice and/or regional benchmarks<br>• Identify priority areas for improvement<br>• Action plan to achieve improvements | • Ability to analyse performance in meeting market specs<br>• Can determine areas of improvement and the potential gain<br>• Action plan developed to achieve improvements | Workshop session to cover:<br>• Calculate relevant KPIs<br>• Determine average and best practice benchmarks (or have this information to hand based on broad industry data, to compare group to)<br>• Identify potential opportunities for improvement to the business<br><br>Some of the measures that can be used as performance metrics for comparative analysis include:<br>• Average growth rate to target market (kg/head/day).<br>• Assess fat score on the live animal to predict carcase GR fat depth in sheep/goats and P8 fat depth in cattle.<br>• Calculate dressing percentage from live-weight and fat score to estimate carcase weight and fat.<br>• Carcase feedback improving over time:<br>o Dressing percentage<br>o Carcase weight<br>o Fat<br>o Lean meat yield<br>o Eating quality measurements).<br>• Percentage compliance to target market specifications (i.e. % grading MSA or meeting premium price on grid.)<br>• Cost of production ($/kg lwt or dwt)<br>• Gross margin ($/DSE or AE) or ($/ha) | Individual data to be brought to session by participants<br>Industry data to be provided by deliverer - available benchmarking data sets (Farm Monitor Program (Victoria only), Ag Insights, or private data sets)<br>Action planning template – generic or propriety template to be used | Business (B3) |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| 1. Having a customer focus.<br><br>Understanding that customer requirements form the basis of grids and market specifications. | 1.1 Characteristics of a supply chain<br><br>1.2 Characteristics of a value chain<br><br>1.3 Understanding customer requirements and market specifications. | Producers understand the differences between a supply chain and value chain.<br><br>Producers are able to assess their current marketing methods to determine what best suits their production system.<br><br>Producers know where to source market intelligence and are able to respond and cope with external factors influencing supply, demand and price.<br><br>Producers will understand that customer requirements can cover all or some of the following:<br>• Physical animal specifications<br>• Carcase characteristics - eating quality, nutrition, lean meat yield<br>• Quality assurance and food safety<br>• Traceability, LPA and NLIS obligations<br>• Animal Welfare<br>• Sustainability<br><br>Producers understand that customer requirements are | Theory component delivered via a workshop plus site visits to feedlots/processor to hear direct from customers on requirements<br><br>Work through the key market specifications for the market segments relevant to the audience:<br>• Live Export North (Cattle)<br>• Live Export South (Cattle)<br>• Live Export Sheep<br>• Slaughter Cattle<br>• Slaughter Sheep<br>• Slaughter Goats<br>• Live Export Goats<br>• Store Cattle<br>• Store Sheep<br>• Specific supply chain brands<br><br>Group discussion: existing markets; potential market expansion; or new markets. List sources of information (both formal and informal). Identify critical specifications for their target market. | GiG - Module 8 Marketing (target market specification, exploiting opportunities, and managing risk).<br><br>GiG (Rangelands) - Chapter 5 Marketing (target market specifications).<br>Ausmeat Goatmeat language (definitions of dentation descriptions; carcase standard; fat class and weight class).<br><br>Handbook of Australian Meat (product and cut descriptions)<br><br>MLA goat webinar 5: The goat live-export industry (an overview of the live-export industry)<br>Market intelligence:<br>Goats on the Move (quarterly eNewsletter providing goatmeat industry information).<br><br>MLA's National Livestock Reporting Service -Over the hooks report, export goat Eastern States (Fortnightly update on over the hook goat meat prices) | People (P1, P4)<br>• Communication skills<br>• building relationships<br>• conflict resolution<br>• negotiation<br>• working in groups<br>• Ability to view their industry from another perspective<br>• Collaborative relationships<br>• Confident decision making<br><br>Business (B1)<br>• Business strategy and planning |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | presented to producers as market specifications and grids.<br><br>Producers can read and interpret grids and market specifications.<br><br>Producers understand that there is a common AUSMEAT language used by Australian processors in relation to carcase description.<br><br>Producers establish a network/list of buyers and stay up to date with selling options. | | MLA Market Information App<br><br>Market research – Australian goatmeat export (Final report on current and potential markets – coaches could use content as a basis for discussion)<br><br>Webinar 2: Goatmeat markets – opportunities, development and promotion (market information)<br>Webinar 1: Goatmeat market requirements, prices & trends (market specification and recent market trends)<br>Processor/ supply chain coordinator - guest speaker / videos relevant to the audience.<br><br>Processor grids specific to the audience | |
| 2. Live animal assessment skills | 2.1 Developing skills in live animal assessment so producers are able to match their livestock to the market specifications | Producers are competent at assessing store, export and slaughter livestock<br><br>Producers are competent at assessing livestock pre-slaughter for fat score, estimated dressed weight and other relevant | Practice assessing physical and carcase quality attributes in the live animal, via coaching on-farm (time to develop these skills). Including a discussion/demonstration on using liveweight scales.<br><br>Influences on the dressing percentage of goats (workshop). | Assessment skills for goat meat markets (Fat scoring and condition scoring guides)<br><br>Agfact: How to tell the age of goats. (Photo standards to age goats) | Reproduction and Genetics (RG3, RG4)<br>• Determine your breeding objective, to improve performance, market |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | 2.2 Basic benchmarking of kill data vs live animal data | characteristics which affect compliance to specification.<br><br>Producers are able to match the outcomes of on-farm live animal assessment with the known requirements of a specific market<br><br>Producer are able to select and prepare goats for market (plan, select, draft and deliver to meet market specifications) | Conduct live animal assessment, estimate dressing percentage, and follow animals through to slaughter. (farm and abattoir visit, with workshop session)<br><br>For live-exporters, discuss the impact of on-farm preparation, follow goats through, and tour export preparation facility (workshop, guest speaker). | Meat and offal yields of goats (factors influencing yield and meeting market specifications)<br><br>GiG (Rangelands Ch12) Animal husbandry and welfare; Chapter 5: Marketing- 5.3 Drafting; Case study (selling goats for the commodity market)<br><br>Preparing meat goats for sale (discusses the correct preparation of meat goats prior to dispatch to the identified market)<br><br>Requirements for handling goats to maximise eating quality (describes how handling can affect eating quality and provides management recommendations)<br><br>Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock (standards for preparing goats for market)<br><br>*MLA Live animal assessment yard book (tool development for goats)* | compliance and profit<br><br>Feedbase (FB2)<br>• Animal requirements<br>• Condition/ fat score<br>• Weight for Age |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | | | Australian standards for the export of livestock (standards for on-farm preparation of goats). | |
| 3. Understanding feedback and opportunities in meeting and the costs of not meetings specifications. | 3.1 Hitting target markets effectively and efficiently.<br><br>3.2 Understand feedback sheets and non-compliance issues.<br><br>3.3 How to work out solutions to feedback.<br><br>3.4 Continuous improvement based on price signals and information flow along the supply/value chain. | Producers understand data feedback from processors:<br>• how it is generated<br>• ability to relate their results to their on farm live animal characteristics and genetic, nutrition and management decisions<br>Producers know the cost of non-compliance with market specs.<br><br>Producers understand objective and subjective assessments made by the customer and delivered to them as feedback or non-compliance.<br><br>Producers have ability to generate solutions to non-compliance.<br><br>Producers have an action plan in place and are regularly reviewing it based on feedback from customers. This links with a proactive approach to addressing shortcomings in other curriculum areas. | Producers bring in examples of recent feedback sheets, ideally for review. Ask producer to share the feedback they get from a range of processors. Benchmark yields between producers and between processors. List how animals fell out of specification or why difference in dressing percentage occurs and then discuss how to address these issues through management.<br><br>For domestic market suppliers, Paddock to Plate Supply Chain days that brings together producer, butchers, wholesalers, chefs. Carcase breakdown and cooking (workshop).<br><br>Discussion of implications on profitability for both the processor and producer for non-compliance<br><br>Action planning session; identify and discuss the potential solutions. Which are practical/cost-effective? What is required to implement them? Start business plan for your own business in the workshop<br><br>Session to review action plan (workshop)<br><br>Overview of the assessment methodology used to produce feedback (especially | A range of feedback sheets – supplied by participants<br><br>Abattoir surveillance (animal health feedback) Guest speaker – processor, depot operator, live-exporter, domestic market retailer or chef. (Direct feedback to the group about improving product and meeting specification)<br><br>Action planning template<br><br>MSA feedback (sheep) (example of feedback system; weight, fat)<br><br>Livestock Data Link (LDL) – deliverer can log in and use example data to show how to get solutions to feedback (cattle). (example of feedback system) | All Learning activities for this section will link with other pillars:<br><br>Feedbase (FB2, FB3, FB5)<br>• Animal requirements<br>• Identify feed gaps and take appropriate action<br>• Optimal feed utilisation<br><br>Reproduction and genetics (RG2, RG3, RG4, RG5)<br>• Determine your breeding objective, to improve performance, market compliance and profit<br><br>Business (B1, B3, B4, B5)<br>• Business strategy |

| Curriculum topic | Learning topic | Learning outcomes | Learning activities | Tools/data/learning resources | Curriculum links |
|---|---|---|---|---|---|
| | | Producers are able to monitor and evaluate the impact of management changes | objective carcase measurement - current and future). (Video / theory – powerpoint photos / demonstration in-plant). Including latest technology/ services in sheep and beef industries. | | and planning<br>• Enterprise performance assessment and analysis<br>• Budgeting, investment and analysis.<br><br>Feedbase (FB2, FB3, FB5)<br>assess and monitor the progress of animals towards market specification.<br><br>People (P1, P4)<br>• Livestock temperament and handling – LSS<br>• Technical skills available within the business<br>• Work-life balance |

**Colour code for learning topics, outcomes, activities, or tools/resources:**
Where items are essential to be used for the learning outcomes to be achieved, they are in normal (black font).
Where items are recommended to be used for the learning outcomes to be achieved, they are in green
Where items are optional to be used for the learning outcomes to be achieved, they are in orange
The learning resources highlighted with ** are materials that are only available to approved deliverers (and are not widely available)

**Map of curriculum linkages for Value Chain Curriculum with other curriculums**

| Topic | Repro & genetics | | | | | Feeedbase | | | | | Business | | | | | People | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 |
| 1 | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |

strong links
moderate links
weak links

**Monitoring and evaluation for assessing delivery performance for the Value Chain Curriculum (Goats)**

The table below summarises the key M&E metrics required to enable effective measurement of program practice change in a meaningful way, for the value chain curriculum. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the Extension and Adoption program activities will be divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge for the value chain curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

| Key business/performance metrics (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|
| • Average growth rate to target market (kg/head/day)<br>• Assess fat score on the live animal to predict carcase GR fat depth in sheep/goats and P8 fat depth in cattle<br>• Calculate dressing percentage from live-weight and fat score to estimate carcase weight and fat<br>• Carcase feedback improving over time:<br>o Dressing percentage<br>o Carcase weight<br>o Fat<br>o Lean meat yield<br>o Eating quality measurements)<br>• Percentage compliance to target market specifications (i.e. % grading MSA or meeting premium price on grid)<br>• Cost of production ($/kg lwt or dwt)<br>• Gross margin ($/DSE or AE) or ($/ha) | • Consistent and accurate on-farm data collection of key performance indicators (average growth rate and fat score to marketing)<br>• Weigh and fat score live animals.<br>• Identify, measure and monitor live animal assessment accuracy and correlate to compliance to specifications over time<br>• Calculate the cost of non-compliance<br>• Action plan to address non-compliance issues on-farm in a cost effective manner | • Follow best practice guidelines for the management of livestock including low stress handling techniques (animal welfare and meat eating quality)<br>• Able to confidently estimate carcase characteristics based on live animal assessment<br>• Able to understand and interpret market grids and feedback sheets<br>• Able to identify solutions to feedback and non-compliance<br>• Ability to source market intelligence and respond to external factors influencing supply, demand and price | • Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis<br>• Capable of interpreting market grids and understanding requirements for target market<br>• Understand definitions and the factors affecting carcase characteristics<br>• Understand the role that genetics, nutrition, growth rate and management have on carcase lean meat yield and eating quality<br>• Able to interpret carcase feedback and understand solutions to increase meeting specification on-farm (genetics, feedbase, management)<br>• Able to calculate dressing percentage, carcase weight, fat score and lean meat yield<br>• Able to understand the impact of on-farm preparation for feeder and live export markets<br>• Ability to analyse, integrate and share data to underpin livestock marketing |

# Appendix 4: Curriculum M&E framework

This document summarises the key monitoring and evaluation (M&E) metrics required to enable effective measurement of program practice change in a meaningful way, across each of the curriculum areas. It is intended to provide a guide to deliverers when developing KASA audits to assess the effectiveness and impact of their supported learning project. KASA audits will be required to be completed by all program participants prior to commencing a supported learning project and then on completion. KASA audits for the extension and adoption program are divided into two sections – section A asks questions to determine participant knowledge and skills about the supported learning project subject. Section B asks questions regarding confidence and current practices relevant to the supported learning project subject. The table below provides suggestions for key practices, areas of confidence and skills and knowledge across each curriculum which can be incorporated directly into KASA audits.

The key business/performance metrics (KPIs) listed in the table below are intended to be used by deliverers in collating relevant information from participants' to conduct the comparative analysis to start the supported learning projects and to demonstrate impact of the program on productivity and profitability. Deliverers may choose to use all of the metrics or a subset, whichever is deemed appropriate for the target audience.

In addition to baseline and project completion reporting of productivity and profitability, MLA expects at least annual reporting of participant KASA and practice change.

| Pillar | Sector | Key business/performance indicator (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|---|---|
| Business | N/A | • Return on investment<br>• Return on assets managed<br>• Earnings Before Interest and Tax (EBIT)<br>• Net profit % gross profit<br>• Labour efficiency (DSE or AE per LU or FTE)<br>• Cost of production<br>• Enterprise gross margin<br>• Production (kg DM/unit area/mm rainfall)<br>• Production (kg red meat/unit area/mm rainfall)<br>• Finance ratios (e.g. interest cover) | • Benchmark business performance<br>• Develop business strategy and plan<br>• Assess business performance<br>• Assess enterprise performance<br>• Cash flow budgeting<br>• Investment cost-benefit analysis | • Assessing and ranking investment returns<br>• Identify key business performance indicators<br>• Read and interpret financial statements<br>• Assess business performance against benchmarks<br>• Assess and measure marginal cost and marginal benefit | • Capable of measuring and assessing business performance<br>• Able to identify the best opportunities for improving profitability<br>• Ability to interpret financial statements<br>• Ability to develop a budget<br>• Able to conduct cost-benefit analysis<br>• Able to calculate marginal cost/benefit<br>• Ability to differentiate between variable and fixed costs |

| Pillar | Sector | Key business/performance indicator (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|---|---|
| Feedbase | Southern | • Stocking rate (DSE or AE/ha)<br>• Pasture growth rates (kg/ha/day)<br>• Pasture production (kg DM/ha/100mm rainfall<br>• Pasture utilisation (% of feed grown)<br>• Pasture yield and quality at critical times (kg/ha)<br>• Animal condition score (CS) at critical times<br>• Animal growth rates (g/day)<br>• Reproductive performance (% young per adult joined) | • Benchmark grazing and business performance<br>• Assess pasture quality, quantity, and growth<br>• Assess animal condition and performance requirements<br>• Make tactical grazing decisions based on pasture quality, quantity and growth, and animal condition and performance<br>• Make strategic stocking rate, timing of operations and marketing decisions based on annual feed supply and animal demand calculations<br>• Make investment decisions based on the calculated cost and return (e.g. fertiliser, fencing, water, buying, selling and supplementary feeding) | • Optimise stocking rate based on annual feed supply, animal demand and acceptable level of risk<br>• Optimising feed grown per mm rainfall<br>• Meet animal feed requirements to optimise production and meet market specifications<br>• Accurately measure:<br>o feed quality and quantity<br>o leaf emergence and spelling/rotation<br>o animal condition<br>• Make investment decisions based on the calculated cost and return | • Accurately assess pasture quality, quantity, plant/pasture species and animal condition<br>• Can calculate annual feed supply, animal demand and expected pasture cover<br>• Can determine animal's energy (feed) requirements to meet production targets<br>• Can design strategies to match feed supply with animal demand<br>• Know critical assessment times and targets (e.g. minimum DM cover, CS)<br>• Can implement best practice strategies and manipulation techniques for integrated weed control<br>• Can determine suitable species for soil type, climate, landscape and periods of current feed deficits<br>• Can identify the key limitations to feed production and determine cost effective actions<br>• Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis |
| Feedbase | Northern feedbase | • Stocking rate (AE or DSE/area unit) OR per mm rainfall<br>• Mortality rates (%)<br>• Growth rate (kg DM/day)<br>• Steer/lamb/goat selling age (months)<br>• Weaning %<br>• Kg turned off per female mated<br>• Dry season pasture residual (kg DM/ha)<br>• Utilisation rate measured as demand per ha for grazing period (kg DM/ha) / total palatable pasture (kg DM /ha)*<br>• Change in land condition (A, B, C) | • Benchmark grazing and business performance<br>• Assess land condition<br>• Calculate and use a forage budget<br>• Assess pasture yield and quality<br>• Use diet quality analysis to make nutritional management decisions<br>• Measure feed on hand and determine appropriate stocking rate based on animal requirements | • Optimise stocking rate based on annual feed supply, animal demand and acceptable level of risk<br>• Meet animal feed requirements to optimise production and meet market specifications<br>• Accurately measure:<br>o feed quality and quantity<br>o leaf emergence and spelling/rotation<br>o animal condition<br>• Make investment decisions based on the calculated cost and return | • Capable of assessing land condition<br>• Capable of assessing ground cover<br>• Capable of assessing yield (kg DM / ha)<br>• Able to calculate the long-term carrying capacity<br>• Capable of identifying pasture growth phase<br>• Capable of identifying indicators of pasture quality<br>• Able to identify key pasture species (increaser and decreaser species)<br>• Know the minimum residual pasture yield (kg DM/ha) that should be retained in paddocks at key times during the year |

| Pillar | Sector | Key business/performance indicator (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|---|---|
| | | * Total palatable pasture = yield minus detachment minus unpalatable pasture | • Manage to achieve target residual pasture yield (kg DM/ha) and ground cover at key times of the year<br>• Use a property management plan for managing seasonal variability and more specifically drought – including operational and tactical strategies and contingency plans<br>• Calculate the cost-benefit of management decisions | | (e.g. at the end of the dry season in northern Australia)<br>• Know the nutrient availability of feed at different growth stages<br>• Capable of developing a forage budget<br>• Understand appropriate spelling regimes<br>• Able to record stock numbers accurately and ability to convert this into Adult Equivalents (or Dry Sheep Equivalents)<br>• Able to identify critical animal performance targets (weaning %, mortality %, kg calf/lamb/kid weaned/female mated, wet season growth rate, annual growth rate)<br>• Accurately assess animals for condition (CS system 1-5)<br>• Determine animal performance based on pasture quality and quantity (calculating animal nutrient requirements and difference between what the pasture provides and what the animal requires)<br>• Identify plant types and contribution to diet quality<br>• Know the typical seasonal pasture growth profile<br>• Manage tree - grass balance and able to quantify impacts of shrub and tree density on pasture production<br>• Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis |

| Pillar | Sector | Key business/performance indicator (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|---|---|
| People | N/A | Ultimately:<br>• Business profitability indicators (as identified in business pillar)<br>Major:<br>• Level of staff satisfaction (safe and enjoyable workplace - % satisfied)<br>Minor:<br>• Staff retention ratio % | • Evaluate decisions for financial impact<br>• Buy - sell agreement in place<br>• Recruit and retain good staff<br>• Staff induction program in place<br>• Compliance with work place employment law<br>• Execution of all WH&S responsibilities | • Family members are satisfied and confident in their decision making<br>• All family members in each generation are aware of each others' goals and aspirations<br>• Ability to performance manage staff and maintain a safe and enjoyable workplace | • Know how to measure business performance indicators<br>• Capable of resolving conflicts in the business<br>• Know the crucial elements of an effective plan for succession<br>• Know the important aspects of employing and managing staff (including legal requirements)<br>• Capable of monitoring staff performance<br>• Capacity to pass a work cover inspection<br>• Be able to apply decision making processes appropriately |
| Repro / genetics | Southern beef | • Kilograms of beef weaned per cow joined<br>• Weaning % (number calves weaned/cows joined)<br>• Pregnancy rate in maiden heifers, first calving heifers for their second pregnancy and the mature cow herd<br>• Meat produced (kg/ha/100mm)<br>• Gross margin per hectare<br>• EBIT per hectare<br>• Return on assets managed<br>• Pasture harvest (kg DM/ha/100mm of annual rainfall)<br>• % of the herd that calves in the first cycle and % of the herd that calves in the second cycle<br>• Mortality %<br>• Bull cost per calf born | • Benchmark herd and business performance<br>• Record herd performance data (as per KPI column)<br>• Condition score (CS) heifers and cows<br>• Ensuring CS targets are met at critical points in the reproduction cycle<br>• Match available feed to animal requirements by measuring both<br>• Manage the herd for a 6 week or 9 week joining while optimising pregnancy rates<br>• Pregnancy testing<br>• Develop and implement a | • Managing grazing pressure to ensure animal requirements are met<br>• Managing seasonal variability<br>• Making cost effective decisions around feed gaps and feed surpluses<br>• Able to satisfy feed requirements of different classes of stock to achieve specific animal performance targets<br>• Optimising herd fertility<br>• Measuring reproductive performance annually with particular emphasis on kilograms of beef weaned per cow joined<br>• Maintaining a 365 day calving interval and a tight calving pattern | • Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis<br>• Calculating available feed and grazing days<br>• Capable of quickly calculating the energy requirements of different classes of animals throughout production cycle<br>• Accurately assess animal condition score<br>• Developing an annual budget of feed supply and feed demand<br>• Know the target critical mating weight at which your heifers should be mated to achieve a high pregnancy rate when first joined<br>• Successfully managing drench |

| Pillar | Sector | Key business/performance indicator (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|---|---|
| | | • Kilograms of beef produced per hectare per 100mm annual rainfall<br>• Compliance rate to market specifications<br>• Calf growth rates pre weaning (g/day)<br>• Calf growth rates post weaning (g/day)<br>• Cost of production ($/kg lwt or dwt) | • vaccination and management strategy to protect the herd health in a cost effective manner<br>• Determine herd breeding objective<br>• Implement a selection and genetic improvement plan guided by a breeding objective<br>• Record herd performance data (as per KPI column) | • Managing reproductive diseases and parasites effectively<br>• Identify heritable traits for genetic improvement and select for these traits using tools and objective information | resistance<br>• Protecting the herd from reproductive disease in a timely and cost effective manner<br>• Objectively assess and purchase bulls<br>• Successful induction and management of new bulls<br>• Implementing a culling strategy that will increase consistency against your breeding objective over time |
| Repro / genetics | Northern beef | • CS average and range at calving and at weaning rounds<br>• Weaning % per cows joined<br>• Mortality rates (%) of cows and heifers<br>• Average weaning weight<br>• Kilograms of beef weaned per cow joined<br>• Heifer growth rates<br>• Heifer conception %<br>• First lactation cow conception (%)<br>• Mature cow conception %<br>• PM4 conception %<br>• Bull Breeding Soundness Evaluation (BBSE) data<br>• Calf survival % per cows PTIC<br>• Conception/calving spread and percentage<br>• Calf growth rates pre weaning (g/day)<br>• Calf growth rates post weaning (g/day)<br>• Compliance rate to market specifications<br>• Cost of production ($/kg lwt or dwt) | • Benchmark herd and business performance<br>• Recording herd performance data (as per KPI column)<br>• Condition score (CS) heifers and cows<br>• Ensure CS targets are met at critical points in the reproduction cycle<br>• Match available feed to animal requirements by measuring both<br>• Use supplements effectively to improve reproductive outcomes<br>• Use of foetal aging, wet/dry status<br>• Use of proactive culling and selection strategy<br>• Use a diagnostic approach to identify the major diseases affecting herd performance<br>• Determine herd breeding objectives<br>• Proactive selection of bulls | • Managing nutritional status of cows<br>• Managing conception rates and cow/calf survival<br>• Ability to manage stocking rates and pasture condition<br>• Appropriate mating system(s) to optimise productivity<br>• Proactive weaning management strategies to optimise productivity<br>• Managing heifers for optimal growth, conception and rec-conception, to optimise productivity<br>• Selecting reproductively sound bulls and managing fertility<br>• Controlling and managing disease<br>• Identify heritable traits for genetic improvement and select for these traits correctly using tools and objective information | • Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis<br>• Able to condition score accurately<br>• Identify and manage dietary shortfalls<br>• Implement correct weaning strategies and programs<br>• Able to correctly implement a suitable mating system(s)<br>• Implementation of appropriate heifer growth and mating management system<br>• Correct analysis of foetal aging data<br>• Able to identify poor performers in a herd<br>• Correctly determine % calves weaned and other performance measures<br>• Correct use of BBSE data and bull soundness information<br>• Understand how to implement correct vaccination programs<br>• Written breeding objectives and genetic improvement plan<br>• Trait selection to achieve breeding objectives<br>• Able to select bulls for genetic merit in specific traits using Breedplan EBVs and |

| Pillar | Sector | Key business/performance indicator (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|---|---|
| | | | using ABVs including annual checks (BBSE)<br>Implement a selection and genetic improvement plan guided by a breeding objective | | objective data |
| Repro / genetics | Sheep | Ewe conception rates (foetus' scanned/ewes joined)<br>Lamb marking % (lambs marked/ewes joined)<br>Weaning percentages (lambs weaned/ewe joined)<br>Ewe mortality rates (%)<br>Lamb survival (%) (lambs marked /foetus' scanned)<br>Lamb growth rates pre weaning (g/day)<br>Lamb growth rates post weaning (g/day)<br>Average weaning weight (kg)<br>kg lambs weaned per ewe joined<br>Weaner mortality rates (%)<br>Pasture quantity at lambing time (kg DM/Ha)<br>Compliance rate to market specifications<br>Cost of production ($/kg lwt or dwt) | Benchmark flock and business performance<br>Record flock performance data (as per KPI column)<br>Condition score sheep<br>Ensuring CS targets at critical points in the reproduction cycle are met<br>Assess feed quantity and quality regularly<br>Use feed budgeting to match feed requirements and availability<br>Pregnancy scan ewes for multiples and use of data to manage single and twin bearing ewes separately<br>Paddock allocation for ewes at lambing time based on status<br>Develop a strategic worm control program, which is an integrated approach to parasite management<br>Determine flock breeding objectives<br>Use ASBVs to select rams<br>Use genetic selection to improve performance, market compliance and profit | Able to satisfy feed requirements of different classes of stock to achieve specific animal performance targets<br>Accurately assess pasture quality and quantity<br>Management of ewes with different pregnancy status to optimise lamb birth weight and lamb survival and minimise ewe mortality<br>Managing weaners to optimise performance<br>Management is effective in preventing reproductive and metabolic disease<br>Genetic direction is profitable<br>Genetic selection is in line with sheep production goals | Accurately condition score sheep and manage the ewe nutrition profile<br>Calculate sheep energy requirements<br>Match feed with requirements<br>Know the target condition scores for ewes at different stages of the reproductive cycle<br>Understand the factors which impact lamb survival during lambing (shelter, feed on offer, stocking rate)<br>Accurately assess pasture quality and quantity<br>Use scan data to differentially manage twins and single ewes<br>Calculate a feed budget<br>Able to do a cost benefit analysis to help determine appropriate management actions<br>Capable of determining the critical mating weight of maiden and ewe lambs<br>Know the minimum required weight gain for weaner survival<br>Have an understanding of the major causes of weaner ill-thrift and mortality<br>Know the major causes of abortion and embryonic death in pregnant ewes<br>Understand how ASBVs are calculated and how to use them to assist in selecting rams.<br>Able to examine rams and ensure that they are fit |

| Pillar | Sector | Key business/performance indicator (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|---|---|
| Repro / genetics | Goats | • Fertility (does kidding/does joined)<br>• Survival (kids marked/does joined)<br>• Weaning percentage (kids weaned/does joined)<br>• Average weaning weight<br>• kg kids weaned per doe joined<br>• Kid growth rates pre weaning (g/day)<br>• Kid growth rates post weaning (g/day)<br>• Total paddock productivity (e.g. kg of meat produced per hectare per 100mm of rain)<br>• Doe mortality rates (%)<br>• Pasture quantity at kidding time (kg DM/Ha)<br>• Compliance rate to market specifications<br>• Cost of production ($/kg lwt or dwt)<br><br>The actual KPIs selected by deliverers to use will vary depending on the intensity of the goat management systems. | • Benchmark herd and business performance<br>• Record herd performance data (kid survival, doe mortality etc, as per KPI column)<br>• Condition score and weigh goats at key decision times<br>• Pasture quality and quantity assessments<br>• Assess and allocate feed to meet nutritional requirements at key points in the breeding cycle (feed budgeting) e.g. appropriate paddock allocation for does at kidding time<br>• Pregnancy scan does and using data to make management decisions<br>• Implement on-farm biosecurity procedures and plans<br>• Develop a strategic worm control program, which is an integrated approach to parasite management (e.g. includes grazing and browsing).<br>• Determine herd breeding objectives<br>• Implement a selection and genetic improvement plan guided by a breeding objective | • Calculating the cost and benefit of implementing reproductive and genetics changes<br>• Assess pasture quality and quantity<br>• Able to satisfy feed requirements of different classes of stock to achieve specific animal performance targets<br>• Proactive weaner management to maximise survival and growth rates<br>• Buck assessment and management to maximise herd productivity | • Accurately condition score<br>• Collect and record data to monitor and benchmark herd performance<br>• Calculate nutritional requirements and match feed supply and demand<br>• Accurately estimate pasture and browse quality and quantity and calculate a feed budget<br>• Determine the costs and benefits associated with management changes to improve reproduction rate<br>• Capable of determining the critical livestock performance targets (e.g. condition score and liveweight) at key times<br>• Able to conduct a pre-joining check on a buck and doe<br>• Understand the major causes of weaner ill-thrift and mortality and the strategies to prevent and manage them.<br>• Know the major causes of abortion and embryonic death in pregnant does, and prevention strategies<br>• Understand the impacts that internal parasites have on goat productivity and the prevention/management strategies<br>• Able to interpret and use EBVs for evaluating and selecting bucks<br>• Understand genetic principles, tools and breeding systems |

| Pillar | Sector | Key business/performance indicator (KPIs) | Key practices | Confidence | Key skills & knowledge (competencies) |
|---|---|---|---|---|---|
| Value chain | Beef, sheep and goats | • Average growth rate to target market (kg/head/day)<br>• Assess fat score on the live animal to predict carcase GR fat depth in sheep/goats and P8 fat depth in cattle<br>• Calculate dressing percentage from live-weight and fat score to estimate carcase weight and fat<br>• Carcase feedback improving over time:<br>o Dressing percentage<br>o Carcase weight<br>o Fat<br>o Lean meat yield<br>o Eating quality measurements)<br>• Percentage compliance to target market specifications (i.e. % grading MSA or meeting premium price on grid)<br>• Cost of production ($/kg lwt or dwt)<br>• Gross margin ($/DSE or AE) or ($/ha) | • Consistent and accurate on-farm data collection of key performance indicators (average growth rate and fat score to marketing)<br>• Weigh and fat score live animals.<br>• Identify, measure and monitor live animal assessment accuracy and correlate to compliance to specifications over time<br>• Calculate the cost of non-compliance<br>• Action plan to address non-compliance issues on-farm in a cost effective manner | • Follow best practice guidelines for the management of livestock including low stress handling techniques (animal welfare and meat eating quality)<br>• Able to confidently estimate carcase characteristics based on live animal assessment<br>• Able to understand and interpret market grids and feedback sheets<br>• Able to identify solutions to feedback and non-compliance<br>• Ability to source market intelligence and respond to external factors influencing supply, demand and price | • Capable of calculating and interpreting key performance benchmarks<br>• Able to complete simple cost-benefit analysis<br>• Capable of interpreting market grids and understanding requirements for target market<br>• Understand definitions and the factors affecting carcase characteristics<br>• Understand the role that genetics, nutrition, growth rate and management have on carcase lean meat yield and eating quality<br>• Able to interpret carcase feedback and understand solutions to increase meeting specification on-farm (genetics, feedbase, management)<br>• Able to calculate dressing percentage, carcase weight, fat score and lean meat yield<br>• Able to understand the impact of on-farm preparation for feeder and live export markets<br>• Ability to analyse, integrate and share data to underpin livestock marketing |

# Appendix 5: Curriculum tools and resources gaps

The following table summarises tools and resources identified by the Curriculum Working Group as being useful to help achieve learning outcomes, and which are not currently available. This document is intended to provide information to MLA in prioritising future development of tools and resources, specifically to support implementation of the proposed adoption program. High priority tools are shaded in orange, those where development is already underway or being progressed are in green.

| Relevant learning activity (i.e. what is the tool and resource intended to help teach | Brief description of the tool/resource which is needed | Is there already a tool/resource in existence which is similar or could fill the gap with some modification? | Are their research papers, technical notes or similar, which contain relevant data for building the tool/resource? | Is research, more work required to develop the technical data for the tool? | Which pillar/s is the tool/resource relevant for? | What is the priority for development? (H, M, L) | Other comments |
|---|---|---|---|---|---|---|---|
| Calculate pasture growth, utilisation feed supply and demand | Require variability in monthly GR for pastures in different areas. Only have averages which don't enable consideration of risk | Have average GR charts (but limited locations) – need to provide other deciles e.g. decile 2, decile 8 etc. | Yes could easily be done through GrassGro modelling | No | Feedbase (both) | H – as it affects all calculations and risk discussion | Best option may be to build a new tool based on outputs from existing tools (e.g. Grassgro, Rainfall to Pasture Outlook Tool, Feed Demand Calculator) |
| Theory behind how plants grow and persist. | Have some description about perennial ryegrass but none on other species eg; phalaris, tall fescue, cocksfoot, sub clover and also some weeds. | No | Yes – The SGS put out some good background info in late 1990's | No | Feedbase (southern) | H- as it affects discussion about grazing for mixed sward pastures | In progress already through SFR portfolio |
| Development of tactical plans and triggers | A guide of how to step people through developing appropriate triggers for their farm based on seasonal assessment | No – all in disparate parts that producers are expected to draw together themselves | Yes – many tactics available and written about and we create feed supply and demand curves but need to turn these into targets that we monitor against | No | Feedbase | H – otherwise people leave with lots of theory and how to measure but not how to respond | This already exists in MLMO package (sheep) and MLA should consider adapting for beef and goats, and also across different regions. Would need to develop feed supply and demand curves for goats |

| Relevant learning activity (i.e. what is the tool and resource intended to help teach | Brief description of the tool/resource which is needed | Is there already a tool/resource in existence which is similar or could fill the gap with some modification? | Are their research papers, technical notes or similar, which contain relevant data for building the tool/resource? | Is research, more work required to develop the technical data for the tool? | Which pillar/s is the tool/resource relevant for? | What is the priority for development? (H, M, L) | Other comments |
|---|---|---|---|---|---|---|---|
| Producers understand the cost of non-compliance to the producer | Case study set of data to look at the cost of non-compliance. | Livestock data link uses producers own data to look at non-compliance in reference to specific grids | Livestock Data Link | No | Value chain | H – if producers don't have access to LDL, they don't have the ability to look at non-compliance easily | |
| Dressing Percentage Calculator | Rangeland Goat Dressing Percentage Calculator | Resource similar to MLA Yard book. An on-line tool or app could also be developed | Unsure | Yes | Value Chain (Goat) | NA | May be addressed via current factsheet and resource development for goat nutrition module. |
| Understanding how rangeland forage characteristics influence animal intake | Training module for understanding how forage characteristics influence animal intake | Prograze segment 2 for Rangelands | Yes- multiple literature review required | Yes | Feedbase (north & rangelands) | H | Relevant for cattle and goats. Review how much is already included in the MMfS Rangelands module |
| Grazing Land Management western NSW, SA and WA – inc. ABCD land condition, carrying capacity support tools | Land condition assessment tool | North Rangelands | Yes | Yes | Feedbase (north & rangelands) | H | Being addressed partly via NRM spatial hub. Mainly responsibility of DPI/ A depts |
| GIG- Reproduction module (high rainfall and rangeland) | Module on improving goat reproduction. | A resource similar to wean more lambs for goats | Yes – multiple literature review required | Potentially required | Reproduction and Genetics (Goats) | H | |
| Goat selection- Visual Scores | Standards for assessing and scoring goat visual traits | Visual scores (developed by Swain and Casey- requires some development) | Yes | No | Reproduction and Genetics (Goats) | NA | Being addressed via score booklet being developed as part of goat nutrition module. |
| Using goats grazing to achieve grazing strategies | Improved overview of goat diet selection, use of browse in context etc. Synthesised into a | No | Yes- multiple literature review required | Potentially required | Feedbase | NA | Being addressed as part of goat nutrition and depot modules, and factsheets. Could |

| Relevant learning activity (i.e. what is the tool and resource intended to help teach | Brief description of the tool/resource which is needed | Is there already a tool/resource in existence which is similar or could fill the gap with some modification? | Are their research papers, technical notes or similar, which contain relevant data for building the tool/resource? | Is research, more work required to develop the technical data for the tool? | Which pillar/s is the tool/resource relevant for? | What is the priority for development? (H, M, L) | Other comments |
|---|---|---|---|---|---|---|---|
| | management package on using goat grazing for achieving grazing strategies (could be explained to include grazing behaviour or different species and how the different behaviours can be utilised to meet grazing strategies | | | | | | be better supported with producer case studies. |
| Calculation and profiling goat DSE and nutrient requirement on-farm during the year | A tool to profile Goat herd DSE, Energy and Protein requirements during 12 month management cycle | MLA feed demand calculator – demand curves for goats | Yes- GiG has a summary of nutritional requirements, but producers need to do demand curved manually. | No | Feedbase, Reproduction and genetics | NA | Being addressed as a part of the fact sheets Schuster Consulting are working on and the review of the depot and nutrition modules. The feed/demand curves for goats would need to be developed. |
| Feed demand calculator for northern Australia and rangelands | Ensure MLA tools & calculators are suitable for northern Australia and rangelands | MLA feed demand calculator | Yes – feedbase research from northern Australia and rangelands | Unsure, but unlikely | Feedbase, Reproduction and genetics | M | Part of SFR portfolio KPIs already |
| Rainfall to pasture outlook tool for northern Australia and rangelands | Ensure MLA tools & calculators are suitable for northern Australia and rangelands | MLA rainfall to pasture outlook tool | Yes | No | Feedbase, Reproduction and genetics | NA | These areas are already covered via existing tool (the issue might be reliability (i.e. there are less weather stations in these areas so maybe the tool doesn't have as much data to draw on) |

| Relevant learning activity (i.e. what is the tool and resource intended to help teach | Brief description of the tool/resource which is needed | Is there already a tool/resource in existence which is similar or could fill the gap with some modification? | Are their research papers, technical notes or similar, which contain relevant data for building the tool/resource? | Is research, more work required to develop the technical data for the tool? | Which pillar/s is the tool/resource relevant for? | What is the priority for development? (H, M, L) | Other comments |
|---|---|---|---|---|---|---|---|
| Supplementary feeding goats during feed gaps | Tool for helping producer to create and select cost effective supplementation rations (or at least include goat options in the development or upgrade or industry tools) | e.g. NSW DPI's Drought feed Calculator App | Yes- GiG has summary of nutritional requirements, but producers need to do calculations manually. McGregor (2005). Nutrition and management of goats in drought | No | Feedbase; Value chain, Reproduction and genetics | NA | This should be addressed as a part of the fact sheets being developed and the review of the goat depot and nutrition modules. |
| Effective management of reproductive disease and health for goats | Collation of goat disease and health management, e.g. causes of abortion. On-farm biosecurity resources could also be better collated and linked. | GIG – update and include more content | Yes – GiG, state government fact sheets etc. | No | Reproduction and genetics | NA | Under review, planning to progress is underway (perhaps through initial producer survey). |
| Condition score photo standards for different breeds of beef cattle – to help producers learn to CS | Condition score photo standards for different breeds of beef cattle | Future Beef have guide but not photos of a range of different breeds | Yes | No | Reproduction and genetics (northern beef), feedbase (northern and rangelands) | H | |
| Genetic Improvement Plan template<br>KPI tool | To enable producers to develop genetic KPIs and a genetics improvement plan | Unsure (maybe beef cattle bred well fed well workshop tools) | Unsure | No | Reproduction and genetics (northern beef), | L | Determine access to BWFW workshop template. |

# Appendix 6: Existing industry E&A programs and relationship to proposed adoption program

The purpose of this document is to map packages and extension and adoption programs currently being delivered/available, to make an assessment of the fit with the proposed adoption program and what the opportunities for linkages under the proposed adoption program framework are. This is to ensure that the proposed adoption program complements existing programs and adds value to products and programs currently being delivered and available. The map identifies potential feeder and recruitment activities that could be utilised to engage producers (and by default identifies gaps in feeders and recruitment activities). It also enables opportunities for strategic MLA investment into supported learning projects to be identified.

Mapping is limited to key existing industry extension and adoption programs (i.e. unless a commercial product occupies a significant proportion of the market, commercial products are not mapped). The map also does not identify shelved packages that require significant updating. However, these products may be identified as a product to be refreshed to address a gap.

| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| **All pillars** | | | | | | | |
| Grazing BMP | Workshop or consultation | Identify improved farm management practices which can help improve the long term profitability and sustainability of enterprises | Self-assessment tool which covers a range of topics including soil health, grazing land management, animal production, animal health and welfare and people and business | Managed by Fitzroy Basin Association and AgForce. Available for delivery only in Queensland (predominantly reef catchments also western Qld & northern NSW) | Delivered by DAFQ, NQ Dry Tropics, Burnett Mary Regional Group, SEQ Catchments | Potential as feeder into further pillars / topics where issues identified | Further discussions with DAFQ on potential fit for Grazing BMP as a feeder to the proposed adoption program |

| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| Best Wool Best Lamb (Victoria) | Discussion group / producer network | Participating producers increase productivity and profitability by adoption of best practice management | Annual planning meeting to set agenda for year, groups are ongoing | Agriculture Victoria approved deliverers/ AWI | Agriculture Victoria approved deliverers | Potential as feeder into all pillars (sheep only) | Continue discussions with Agriculture Victoria re linkages with the proposed adoption program |
| Better Beef | Discussion group / producer network | Better Beef coordinates an extensive network of beef producers and service providers, and manages the delivery of a suite of practice change services that support sustainable growth of the Victorian beef industry. | Annual planning meeting to set agenda for year, groups are ongoing | Agriculture Victoria | Agriculture Victoria approved deliverers | Potential as feeder into all pillars (beef only) | Continue discussions with Agriculture Victoria re linkages with the proposed adoption program |
| **Feedbase, business, value chain pillars** | | | | | | | |
| Pasture Updates | Conference or field day | Increase awareness & use of MLA feedbase tools and resources | 1 day theory conference or field day | MLA | Delivered by contractors; speakers selected by contractors with MLA | Feeder activity | Update Pasture Updates team about the proposed adoption program |

| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| **Feedbase, business, repro & genetics, value chain (northern beef)** | | | | | | | |
| BeefUp | Conference | Market and northern beef R&D update | 1 day theory conference | MLA | Delivered by contractors; speakers selected by contractors with MLA | Feeder activity | Update BeefUp team about the proposed adoption program |
| **Business** | | | | | | | |
| Business EDGE (north & south) | Workshop | • To improve the financial literacy of livestock producers<br>• Understanding and measuring whole business performance<br>• The three pillars: income statement<br>cash flow<br>balance sheet<br>• Tell a true story of where the business sits financially and why<br>• Track profitability and growth over time by using key business indicators<br>• Using financial data and Key Performance Indicators to assess enterprise performance helping to manage risk | 2 day theory workshop with some practical exercises | MLA | MLA approved deliverers | Covers B2, B3, B4, B5<br>• Potential as feeder into further business topics<br>• Potential to use as is for the theory component and bolt supported learning package on | Develop business supported learning package to follow<br><br>Encourage proposed adoption program deliverers to link in with accredited EDGE deliverers. EDGE deliverers could deliver the 2 day theory as EDGE package and then the proposed adoption program deliverer (coach) follow up with s supported learning project |

| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| Northern Beef Business Mentoring Program | Workshop<br><br>Mentoring | To take producers to the "the next level" of business thinking, skills and profitability.<br>• Working through the ABDI 12 Pillars of Business Best Practice, this mentoring program will support producers through their change process, to transform their business into a high performing beef enterprise. | • 1 day Better Beef Business workshop<br>• 12 month business mentoring program | DAFQ, MLA, Agforce, ABDI<br><br>Available for delivery only in northern Australia | ABDI deliverers | Covers B1<br>• Potential as feeder into further pillars / topics where potential identified (VC, B, RG, FB)<br>• Also opportunity to feed into this from PGS programs | Discussions with "owners" re fee structures and potential fit with the proposed adoption program (both as feeder and as end point for the proposed adoption program to feed to) |
| ACE | Supported learning project | Improved business financial skills and knowledge to assist with decision making and increase profitability. | Series of 6 workshops with option for coaching / mentor support in between | Agriculture Victoria (developed in consultation with ProAdvice) | Agriculture Victoria approved deliverers | Covers B1, B2, B3, B4 (partially), B5 (risk only)<br>• Potential to use as is as a supported learning business package | Discussions with Agriculture Victoria re potential fit with the proposed adoption program and access |
| Cost of production | Workshop | Upskill producers to use MLA CoP tool. Scenarios for producers which demonstrate impacts of variables on CoP. | 2 day workshop with some practical exercises | MLA | MLA approved deliverers | Covers B4 (CoP only)<br>• Potential as a feeder for business pillar<br>• Incorporate into SPL programs (resources available) | |

| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| **Repro & genetics sheep** | | | | | | | |
| Lifetime Ewe Management | Supported learning | • To improve nutritional and reproductive management of ewes to improve lamb survival and productivity | • 12 month, 6x sessions on-farm | RIST (AWI) | MLA approved deliverers | Covers RG1 -3, although does not cover:<br>• cost – benefit<br>• Comparative Analysis<br>• Growing the feed<br><br>Refer producers interested in sheep reproduction to participate in LTEM | Discussions with AWI and RIST on working with them to include LTEM as part of the recommended proposed adoption program suite of packages |
| Bred Well Fed Well - sheep | Workshop | • Increase producer knowledge of the impacts of ewe nutrition on ewe and progeny performance, animal welfare and farm profit<br>• Increase awareness and knowledge of how ASBVs can be used to achieve enterprise objectives. | • 1 day theory workshop with some practical exercises<br>• Set breeding objective<br>• Condition scoring<br>• Ability to do a simple energy budget | MLA & AWI | MLA approved deliverers | Covers RG1 & RG2 (briefly), & RG4<br>• Potential as feeder into R&G topics with a reproduction focus (RG1, RG2)<br>• No existing genetics program to feed to<br>• Useful templates & resources for deliverers (e.g. setting breeding objective template) | Discussions with AWI on fee structures and delivery approach to ensure complements the proposed adoption program approach. Also potential to use some of the resources in the proposed adoption program delivery.<br><br>Options for developing a genetics program to follow BWFW to be investigated. |
| Lambs Alive – not formal delivery package but significant numbers of workshops are | Workshop | To improve lamb survival by understanding more about the causes of lamb deaths | 1x day workshop with practical session doing lamb post mortem<br><br>Only tool available at this stage (not | MLA & AWI | Suitable for vets to deliver | Potential as feeder into further sheep reproduction / genetics topics | Build the workshop program & materials and make this available to deliverers, to ensure that it is effective as a feeder to PGS or other supported learning |

| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| being delivered using the Lambs Alive tool as the basis | | | ppt or other delivery materials) | | | | projects.<br><br>Opportunity to develop a similar package for goats. |
| **Feedbase (southern), Reproduction & genetics (sheep), business** | | | | | | | |
| It's Ewe Time | Forum | Increase producer awareness of the principles & capabilities that drive profitable and productive sheep enterprises | 1 day theory information session | MLA / AWI | MLA / AWI approved deliverers | Potential as a feeder for sheep producers | |
| More Lambs More Often | Workshop | Improve producer capability to manage climate variability, while minimising impacts on business performance | 1 day theory workshop with some practical exercises | RIST / Australian Government | RIST approved deliverers | Potential as a feeder for sheep producers into feedbase, business or reproduction & genetics pillars.<br><br>Useful climate variability tools which could be incorporated into a supported learning project | Discussions with RIST on potential fit for MLMO with the proposed adoption program<br><br>Potential to develop a similar package for southern and northern beef, or goats |
| **Repro & genetics (southern beef)** | | | | | | | |
| Bred Well Fed Well – southern beef | Workshop | • Bull buying strategies to ensure they are buying the best bull for their business;<br>• Ability to develop a breeding objective for their enterprise<br>• Cow nutrition and management<br>o Understand the impacts of improving | • 1 day theory workshop with some practical exercises<br>• Set breeding objective<br>• Condition scoring | MLA | MLA approved deliverers | Covers RG4<br>• Potential as feeder into further R&G topics<br>• Useful templates & resources for deliverers (e.g. setting breeding | Review of fee structures and delivery approach to ensure complements the proposed adoption program approach. Also potential to use some of the resources in proposed adoption program delivery. |

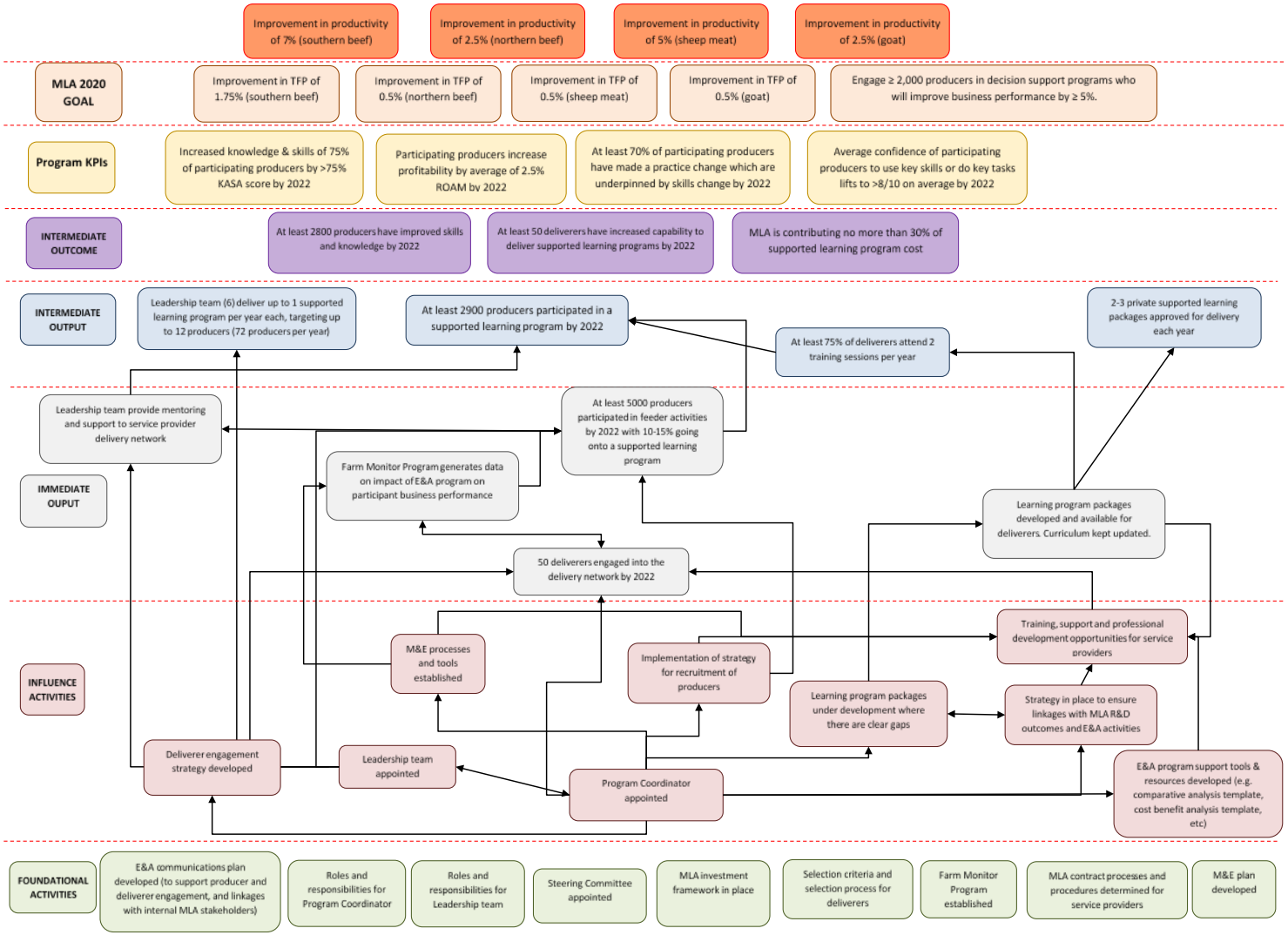
| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| | | cow nutrition and husbandry on reproductive performance<br>o Recognise that combining high performing genetics with high performance management can lift their herd profitability. | | | | | Options for developing a southern beef genetics and reproduction program to follow BWFW to be investigated. |
| Breeders for Profit | Series of sessions | • Increase profitability of commercial cattle breeding operations improving breeding herd | 2 day theory workshop | Agriculture Victoria | Accredited training delivered by RTO | RG3 RG4, RG5<br>• Potential theory resource to start supported learning project from<br>• Potential as feeder activity into proposed adoption program | Discussions with Agriculture Victoria re potential fit with the proposed adoption program |
| **Repro & genetics (northern beef)** | | | | | | | |
| Breeding EDGE | Workshop | • Develop a cattle breeding program or improve your existing one<br>• Examine your current situation<br>• Reproduction issues, genetics, setting breeding objectives, livestock selection<br>• Managing the herd to capture benefits. | Breeding EDGE 2 days, and genetics modules to be added in as deliverer desires. Due to be completed Feb 17 | MLA | MLA approved deliverers | Breeding EDGE covers RG1, RG2, RG3<br>• Genetics EDGE covers RG4, RG5 Potential as feeder into further reproduction / genetics topics<br>• Potential to use as is for the theory component and bolt supported learning package on | Develop northern grazing management supported learning package<br><br>Encourage proposed adoption program deliverers to either apply as proposed adoption program deliverers or link in with accredited EDGE deliverers, where they are different. |

| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| **Feedbase (northern Australia & rangelands)** | | | | | | | |
| Nutrition EDGE | Workshop | • How nutrition affects animal growth rates<br>• Financial returns<br>• Market Access<br>• Nutritional requirements for health and growth<br>• Use of supplements | 3 day workshop.<br><br>Theory and practical in the paddock exercises carried out. | MLA | MLA approved deliverers | Covers FB1, FB2, FB5<br>• Potential as feeder into further feedbase topics<br>• Potential to build supported learning project following theory delivery | Develop northern nutrition supported learning package<br><br>Encourage PGS deliverers to link in with accredited EDGE deliverers, where they are different. |
| Grazing Land Management (GLM) EDGE | Workshop | Provides a comprehensive overview of ruminant nutrition. The topics covered include minerals and managing deficiencies, pasture growth and quality, and grazing management | 3 day theory workshop either delivered together or separated | MLA | MLA-approved deliverers | Covers FB1, FB2, FB3, FB4, FB5<br>• Potential as feeder into further feedbase topics<br>• Potential to build supported learning project following theory delivery | Develop northern grazing management supported learning package<br><br>Encourage PGS deliverers to link in with accredited EDGE deliverers, where they are different. |
| Grazing Fundamentals | Workshop | • To give producers an overview of grazing and nutrition key principles | 1 day theory | MLA | MLA approved deliverers | Feeder activity<br>• Theory for a SLP | |
| **Feedbase (south)** | | | | | | | |
| Whole Farm Grazing Systems | Workshop and supported learning | Accredited training program which delivers information, tools and decision making processes from EverGraze regional packages and other related projects. | 6-7 1 day workshops over 2 years | MLA/AWI/DEDJTR | Approved deliverers.<br><br>From Feb 2017 manuals will be available (who will have access TBC) | Covers FB1, FB2, FB3, FB4, FB5<br><br>Could be delivered as a PGS Category C activity | Review the manual and program outline and ensure it meets PGS requirements. |

| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| Prograze | Workshop | • To visually assess pasture quantity and quality<br>• To understand how pasture quality and quantity impact on animal production<br>• Assess livestock fat scores<br>• To use pasture and livestock assessment as a basis for matching pastures to livestock requirements<br>• Use grazing management to improve the productivity and sustainability of pastures | Series of 8 practical on-farm workshops | MLA and NSW DPI | LLS in NSW and RTOs in Victoria | Covers FB1, FB2, FB3<br>• Potential to use as is as a supported learning business package | MLA check IP restrictions on this material, and review whether material will meet E&A curriculum requirements for southern feedbase |
| Nuts and bolts of grazing management | Workshop | • Integrate management of different pastures and land classes,<br>• Balance the needs of livestock and pastures,<br>• Manage pasture composition and weeds,<br>• Manage feed shortages and excess | 2 day course | Agriculture Victoria | Accredited training delivered by RTO | • Potential resource for basing SPL program on | Discussions with Agriculture Victoria re potential fit with PGS |
| **Value Chain** | | | | | | | |
| Marketing EDGE | Workshop | Helps producers prepare marketing strategies and a plan specific for their business. It includes:<br>- Market intelligence<br>- Selling options<br>- Negotiating a sale<br>- Market and customer needs<br>- Understanding marketing<br>- Marketing performance | 2 day workshop | MLA and Vic DPI (2005) | TBC | Potential resource for basing SPL program on | Review and update if useful for value chain pillar, and adapt to SPL model if applicable |

| Package name | Package type | Objective/s | Details | Ownership | Access | Proposed adoption program opportunity | Recommendations for business plan |
|---|---|---|---|---|---|---|---|
| MSA workshop | Workshop | Explains MSA and how to meet market specs | 1 day | MLA | MLA staff | Feeder activity | Have a conversation |
| Practical beef marketing | Series of sessions | Helping beef producers to produce cattle that meet market specifications and increase enterprise profitability | 6 sessions | Agriculture Victoria | Accredited training delivered by RTO | Potential resource for basing SPL program on | Discussions with Agriculture Victoria re potential fit with PGS |

# Appendix 7: Program Logic



# Appendix 11: Service provider survey final report

## Executive summary

A new extension and adoption program, Profitable Grazing Systems, being piloted by MLA is challenging traditional delivery options, by focusing on imbedding practice change into farm businesses. Profitable Grazing Systems will have a whole farm business approach linking all aspects of business performance. The key objective for MLA is to lift business productivity and profitability, support development of sustainable commercial business models that pull through R&D to producers and transition industry to user pays for adoption services.

Service providers will play a key role in achieving program success and establishing the platform for future commercial service delivery of extension activities. MLA wants to ensure the program is designed to provide commercial value to both service providers and producers.

A survey of service providers was determined as the best way to reach a large audience of potential deliverers within the timeframes and budget of the pilot project. The survey results were intended to provide the project team with guidance on how best to develop the delivery platform to engage and provide value to service providers.

The key recommendations from the service provider survey findings relevant to the design of the Profitable Grazing Systems delivery platform and business plan are as follows:

- Awareness of state-based differences in designing PGS as an effective national framework.
- Awareness of differing needs of the service provider cohort in designing PGS delivery and service provider engagement platform (in particular the program should aim to provide pathways for younger, less experienced deliverers).
- The service provider engagement strategy for PGS must have clear and formalised selection process for service providers.
- The service provider engagement strategy and delivery platform for PGS should provide recommendations on approaches to delivering service providers' professional development opportunities to ensure that they have the capability to deliver on PGS outcomes (including the payment structure for service provider PD).
- The service provider engagement strategy for PGS must be clear that service providers will be performance evaluated.
- PGS must provide a process for reporting M&E data back to service providers such that they can use it to improve their delivery and/or to present a value proposition to their customers/clients
- M&E will be critical to ensuring that there is a high standard of delivery.
- M&E can also be used to demonstrate to producers the value to be gained by participating.
- The business plan must document an approach to M&E which is valuable and acceptable to all stakeholders. Producer interviews will be an integral component of M&E.
- PGS business plan should include a transition to commercial user pays from the current situation. It must build an approach which does not negatively impact or duplicate existing commercial delivery but which improves the standard of delivery

overall and expands the potential market of producers willing to engage (and pay) through demonstrating real value.

- The funding model recommended by the PGS Business Plan will differentiate between public, industry and private good, as the basis for investment.
- Develop some structured learning programs where there are gaps or needs in the market, which can be made available to deliverers to tailor as required to their local environment / specific group needs. This approach must take into account and address quality assurance, price points and consistency in messaging.
- Promote the idea amongst deliverers that the quality of delivery/deliverer is at least as important as the quality of the package
- A producer recruitment strategy to be incorporated into the PGS delivery platform design.

# Table of Contents

# 1 Background

A new extension and adoption program, Profitable Grazing Systems, being piloted by MLA is challenging traditional delivery options, by focusing on imbedding practice change into farm businesses. Profitable Grazing Systems will have a whole farm business approach linking all aspects of business performance. The key objective for MLA is to lift business productivity and profitability, support development of sustainable commercial business models that pull through R&D to producers and transition industry to user pays for adoption services.

Service providers will play a key role in achieving program success and establishing the platform for future commercial service delivery of extension activities. MLA wants to ensure the program is designed to provide commercial value to both service providers and producers.

A survey of service providers was determined as the best way to reach a large audience of potential deliverers within the timeframes and budget of the pilot project. The survey results will provide the project team with guidance on how best to develop the delivery platform to engage service providers.

# 2 Project objectives

The objectives of the service provider survey were to better understand barriers and incentives to service providers engaging with the Profitable Grazing Systems Extension and Adoption program. Specifically, information was required on:

- service provider selection criteria and processes;
- service provider support and training;
- attitudes to user pays and monitoring and evaluation;
- quality assurance for delivery of learning programs; and
- information to assist in mitigating some of the risks of the program.

The information obtained from the survey is to be used in designing the delivery platform and approach for Profitable Grazing systems.

# 3 Methodology

The survey was electronic to enable efficient distribution and data collection. The survey consisted of nineteen questions, predominantly pre-filled. No questions were compulsory to enable providers to skip questions that may be considered commercial-in -confidence and the survey settings only enabled completion once per IP address. The survey was divided into three sections – demographic information, experience with extension and monitoring and evaluation, and feedback on Profitable Grazing Systems.

It was circulated via email to MLA contacts and networks, with a request in the covering email to forward it to colleagues and friends in the industry:

- Majority Market Program state coordinators

- Stakeholders who attended a consultation workshop in Sydney in October 2015 coordinated by MLA
- Service providers who had contacted MLA expressing interest in the project
- Pilot project coaches
- Curriculum working group members
- Farm300 coaches and service providers who attended Farm300 advisor workshops
- FutureBeef network contacts

The survey was promoted using two separate promotional bursts, one at opening (14 July 2016) and one with 4-5 days left to go until the survey closed on 3 August.

A copy of the survey is provided in Appendix 2.

# 4 Results

One hundred and forty seven (147) respondents completed the survey – although not all 147 answered every question. The question that was answered by the least number of respondents was question 7 (n = 92). However, most respondents did not drop out at this point, but skipped question 7 and continued. All figures are provided in the Appendix.

The respondents' skill base covered a broad cross section of technical areas, with the majority being from a grazing/pasture/animal nutrition background (Figure 1). The majority of respondents had more than one area of expertise – only 13% selected one area of expertise. 18% selected two areas of expertise, 16% each for three and four areas of expertise (Figure 2). Interestingly while only 10% selected five areas of expertise, 17% selected six. The numbers tapered off above six areas of expertise. A further breakdown in expertise is provided in Figure 3. Value chain and animal health were the most poorly covered technical areas, with the value chain having no representation in Queensland or Northern Territory, only one in Tasmania and three in WA.

Animal health had zero representation in Northern Territory, one in Tasmania and two in Queensland. Animal reproduction and genetics were also poorly represented in some states – Northern Territory, Tasmania and Queensland. People and Business were also not well covered in these same states, and South Australia also had a low number of service providers providing business services. 85% of animal nutritionists also included feed/pasture nutrition in their area of expertise, and 73% included reproduction (Table 1).

Across all areas of technical expertise roughly 50% (range of 53% and 45%) of respondents also covered business – the exception to this was people, where 69% of providers who had expertise in people also had expertise in business. 60% of respondents who had expertise in animal reproduction also had expertise in animal genetics, however less than half of respondents in other categories also had expertise in animal genetics.

Value chain was the technical area with the least cross over with other technical areas (<25% linkage). 73% of respondents with expertise in feed/pasture nutrition also had expertise in grazing management systems, but only 50% of grazing management systems experts also had expertise in animal nutrition and 43% of them also had expertise in animal reproduction.

There was a good spread across livestock industries - 27% of respondents worked with sheep and beef cattle respectively, wool, dairy cropping and goats were all represented (Figure 4). 73% worked with both sheep meat and beef producers, and 84% worked across the sheep industries (wool and meat), although only 65% of those who worked with beef producers also worked with wool producers. Between 16-25% worked with dairy cattle in addition to sheep/beef, and 10% worked with both sheep and goat producers (Table 2). Between 35% and 67% of deliverers worked with both livestock and cropping industries.

The years' of experience was broad with the largest cohort (6-15 years) 32% of respondents, >25 years 30%, 16-25 23% and 15% with less than 5 years' experience (Figure 5). 41% of respondents worked for a private consulting company, followed by 27% of sole operators and 26% public sector (Figure 6). The areas of expertise of the different sectors were not significantly different. There were some trends observed between age of respondent and the type of organisation (Figure 7). Sole operators had an even spread across age groups, except for <5 years which only made up 5% of this category. Younger service providers (<5 years) were most strongly represented in CMA/NRM, followed by private consulting company and then public sector. The 16-25 year age group was most strongly represented in the private consulting company category.

Respondents were distributed across the country with approximately one quarter operating in more than one state (Table 3) (in answering this question participants selected all states that they worked in, not only their home state). The majority of respondents operated in NSW (26%), followed by Victoria (21%), then SA (15%), WA (12%) and 11% each from Tasmania and Queensland, and only 4% from NT (Figure 8). 72% of respondents worked in only one state, with 13% operating across two states, 10% operating across three and only 5% operating across four states. The trends for those who operate across states are as follows - 56% of respondents who operated in Victoria also operated in NSW (Table 4). 27% of respondents who operated in Queensland also operated across the NT, compared to 40% of respondents who operated in Queensland also covering WA. There was strong overlap between WA and NT (55% worked in both places). Sole operators were more prevalent in Victoria and NSW (23% and 27% of respondents, respectively) and least common in Tasmania and the NT (7% and 4%), respectively (Table 5).

Delivery of extension activities is a significant component (>50%) for 56% of respondents, while 40% dedicated 11-25% of their time to delivering extension (Figure 9). There was no significant variation in time dedicated to extension across states or sectors.

Question 7 asked "*What proportion of benefit do different stakeholders get from each component of activity development and delivery? Provide the % breakdown under each stakeholder (producer, deliverer, MLA, sponsor)*".

There were many negative comments about this question as it was difficult for some respondents to interpret the intent of the question. However, from those that did respond some useful information can be determined:

- Deliverers recognised themselves as getting the most benefit from their own professional development (PD) and training (Figure 10)
- Producers and MLA were both rated as receiving moderate benefit from deliverer PD and training (Figure 10)

- Project management and admin overall were not rated highly as being of benefit (Figure 11)
- MLA were rated as benefiting most from project management and admin, followed by deliverers (Figure 11)
- Producers were rated as benefiting the least from Project management and admin (Figure 11)

- MLA and deliverers were rated as equally benefitting from event promotion and recruitment (Figure 12)
- Sponsors were seen to benefit the most from event promotion and recruitment and producers the least (Figure 12)

- Deliverers, producers and MLA all received similar ratings for benefiting from technical content and resources (Figure 13 and Figure 14)
- Sponsors were not rated as benefitting as much from technical content and resources (<33% benefit) (Figure 13 and Figure 14)

- Deliverers were rated as receiving the most benefit from event facilitation (Figure 15)

- Producers were rated as benefitting the least from M&E (>60% respondents rated producers as getting less than one third of the benefit of M&E), while MLA was rated as benefitting the most (Figure 16)
- Less than one third of respondents rated deliverers as receiving a large benefit from M&E (>33% of the benefit) (Figure 16)

- Over 80% of respondents rated producers as receiving the largest benefit from delivery (>34%) (Figure 17)
- Over 65% of respondents rated deliverers as receiving a large benefit from delivery (>34%) (Figure 17)
- The majority of respondents (50%) rated MLA as receiving between 11-66% of the benefit from delivery (Figure 17)

There was a large spread in answers to question 8, which asked respondents to rate their confidence in being able to recruit participants willing to pay the true cost of delivery. Over half the respondents (53%) rated themselves as not very confident at being able to recruit producers willing to pay (Figure 18). This suggests that over half of respondents are non-commercial in their delivery of extension. When compared with "sector" there were some interesting trends (Figure 19). No respondent from the public sector and only 2% of sole operators rated themselves as very confident, compared with 14% from private consulting companies, 20% from CMA/NRM (typically these organisations offer free extension services, or activities at a minimal fee), and 32% from commercial service providers. The confidence ratings of sole operators was very similar to that of the public sector.

When compared with state, there were also some interesting differences (Figure 20) – Tasmania and Victoria were the only states where any respondent rated themselves as very confident (42% and 5%, respectively). Queensland had the largest number rate themselves as moderately confident (43%), with Tasmania and South Australia the next largest at 15%. Tasmania was the only state where no one was "not confident", contrastingly 100% of NT respondents rated themselves as not confident. NSW had the next highest rating of not confident (30%). Over 63% of WA respondents rated themselves as only slightly confident,

followed by 55% of Victorian respondents. Unsurprisingly there was a strong relationship between age and confidence (Figure 21) – younger deliverers (<5 years) were more likely to rate themselves as not confident compared to other age groups (36%). The oldest cohort (>25 years) were more likely to rate themselves as confident (32%), with their ratings tapering in both directions, although more strongly skewed toward not confident (25%). The 6-15 year group followed a similar pattern to the <5 year age group, with the highest rating this cohort selected being slightly confident (47%). There were no relationships between the technical expertise of service providers and their confidence in recruiting participants willing to pay.

The preference of service providers is to deliver packages that can be tailored, preferably using materials or resources (Figure 22).

Responses to question 10 regarding collaboration with other service providers indicated a very high level of collaboration amongst respondents (Figure 23), with over half claiming that they collaborated often. This question may have benefitted from further investigation on the quality of the collaboration.

The survey indicated that overall there is a reasonable level of familiarity with monitoring and evaluation (M&E) and recognition of the benefits amongst service providers (Figure 24). However, there is still work to do, to lift the overall engagement of service providers with M&E. Some specific results are as follows:

- 83% of respondents had some level of experience with M&E
- 74% of respondents were confident in developing M&E questions
- 81% believed M&E was useful for identifying gaps in delivery
- 82% believed M&E was useful for demonstrating impact
- 79% believed it was useful for identifying gaps in client skills or knowledge (6% believed it was not and 15% were undecided)
- 50% agreed with the statement that the benefits of M&E outweigh the costs – 35% neither agreed nor disagreed and 14% disagreed
- Similarly, the value of M&E for demonstrating Return on Investment had 63% agreeing, 24% neither agreeing nor disagreeing, and 12% disagreeing
- There was a spread in response to the statement "producers are reluctant to provide information about their business" – 32% agreed with this statement (i.e. it is difficult) while 40% disagreed and 27% neither agreed nor disagreed
- Large spread in difficulty in engaging producers in M&E 37% agreed that it was difficult, while 37% found it more straightforward (and 26% neither agreed nor disagreed)
- To the statement "I don't feel comfortable asking producers to complete M&E audits" 60% disagreed, only 12% agreed and 18% neither agreed nor disagreed

Question 12 asked respondents to rank the top five benefits that they could perceive in engaging with PGS (Figure 25). M&E is unlikely to be an effective hook to engage service providers. The top 5 benefits that would encourage service providers to engage are:

1. Offering flexibility to deliver adoption programs tailored to client needs
2. Satisfaction of supporting producers to achieve business goals
3. Opportunity to work with business focussed producers
4. Collaboration opportunities with other service providers
5. Increased exposure to MLA tools and resources

The top 5 barriers to engagement with PGS were (Figure 26):

1. Recruiting participants willing to pay
2. MLA is not willing to invest enough to reduce the user pays component required of producers (maximum MLA investment expected to be 20%)
3. M&E requirements are likely to be too onerous / complicated
4. MLA's PGS program will compete with other commercial business models
5. Investment of my time in training/upskilling to be able to participate is too high

The top 5 issues that could limit effective delivery were (Figure 27):

1. Recruiting participants willing to pay
2. Time to invest in designing a supporting learning program
3. Lack of confidence to articulate a value proposition
4. The challenge of supporting producers to implement/adopt new practices on farm
5. Skills to design an effective supported learning program

The top 5 ways in which MLA could support deliverers were (Figure 28):

1. Professional development opportunities to engage with the latest RD&E outcomes from MLA
2. Funding for development of supported learning programs
3. Delivery of "feeder" activities to assist in recruiting producers
4. Travel subsidy for remote areas
5. Training in business/financial analysis (e.g. marginal cost - marginal revenue)

When responses to this question were explored in more detail, and compared with the technical expertise of respondents, respondent age and respondent sector, there were some differences. Respondents with grazing management expertise were more likely than the other technical areas to request "Funding for development of supported learning programs" and "Training in business/financial analysis". Genetics experts were more likely than others to request a "Travel subsidy for remote areas".

Those engaged in the industry for 16-25 years were more likely to request "Delivery of "feeder" activities to assist in recruiting producers" and "Coordination of peer support opportunities and networking", and less likely to select "Assistance to develop supported learning programs" and "Training in coaching supported learning principles". Less experienced respondents (<5 years) were less likely to request a "Travel subsidy for remote areas" and more likely to request "Training in business/financial analysis". The 6-15 year cohort were also more likely to request "Training in business/financial analysis". The most experienced cohort (>25 years) were less likely to select "Coordination of peer support opportunities and networking".

The three private sector groups (sole operator, private consulting and commercial service providers) are more likely to request "Delivery of feeder" activities to assist in recruiting producers". CMA/NRM are more likely to request "Off the shelf packages ready to deliver". Private consulting companies are less likely to request "Training in business/financial analysis". Commercial companies are more likely to request a "Travel subsidy for remote areas". Those from educational institutions are more likely to request "Training in coaching supported learning principles" and "Coordination of peer support opportunities and networking".

Deliverers overwhelmingly believe that they should have to prove their credentials to MLA (72% rated this option as either important or very important, and none rated it as unimportant) (Figure 29). The most popular ways in which MLA could assess potential deliverers were:

1. Proven delivery track record (76%)
2. Professional qualifications (58%)
3. Proven record of developing supported learning programs (58%)

Only using Cert IV accredited trainers was very poorly rated by respondents (Figure 30). Similarly, MLA taking action to ensure quality of delivery was also poorly rated (with 13% selecting unsure. Submission of M&E data was the most highly rated method of monitoring quality of delivery (67% rated it as important or very important), followed by interviews with producer participants (65%) or attending service provider training sessions (62%).

Respondents appeared to be supportive of PGS, with the majority (62%) likely or very likely to engage with PGS (Figure 31).

# 5 Discussion

## 5.1 Background

The response rate and broad cross section of the service provider community (geographic location, age, technical expertise, industry sector) that responded to the survey indicate that there is a high level of interest and engagement from the service provider sector in the Profitable Grazing Systems pilot project. Additionally, respondents were very supportive of PGS, with the majority (62%) likely or very likely to engage with PGS. This is all very positive as engaging a broad cross section of service providers will be critical to the success of the program. Additionally, two of the top three benefits service providers saw in PGS were:

- Satisfaction of supporting producers to achieve business goals
- Opportunity to work with business focussed producers

These are both key principles of PGS and it is very positive to have such strong alignment between service provider thinking and the approach of PGS.

Over 15% of respondents with less than 5 years' experience is promising for the future of extension and adoption services – and ensuring that this cohort is enabled through the PGS program will be important to maintain services into the future. The survey has indicated that this cohort has some different support needs to other age cohorts - this variation in needs across age cohorts should be taken into account in designing the support package for deliverers.

Whilst the majority (>80%) of respondents selected more than one area of expertise, the bulk had expertise across related areas (e.g. grazing management and animal nutrition), and only half had business expertise in addition to another technical area. This indicates that service provider capability may require some investment in order for MLA to achieve the objectives of PGS and support producers to take a whole farm systems approach focusing on enabling them to make business-driven decisions.

Interestingly, there is limited cross-over of service providers across state boundaries (only 25% worked across state boundaries) – this cross over was strongest between Victoria and New South Wales, and between the three northern areas (NT, WA and Queensland). Possibly as a result of the limited geographic spread of deliverers there were variations between states in response to some questions, in particular confidence in recruiting producers willing to pay. These state-based differences may create some challenges in designing PGS as an effective national framework.

Sole providers are a large component of potential deliverers for MLA (27% of respondents were sole providers) – and at present MLA's contracting processes are not compatible with the typical business structure utilised by sole providers. Service providers from the public sector were also a significant component of respondents (26%) – this is in contrast to the dairy industry where only 10% of service providers would be from the public sector. The PGS delivery platform design approach must not exclude public sector deliverers, as they are still a significant proportion of the service provider sector for the red meat industry.

## 5.2 Service provider training and professional development

While the willingness of service providers to pay for their own professional development was not explored in the survey there is clear recognition by them that they obtain the most benefit from any training they receive (although they perceive that MLA and producers also benefit from service provider upskilling). This is in contrast to a top 5 barrier identified by deliverers, which is that investment of their time in training/upskilling to be able to participate in PGS will be too high.

Producer contributions towards their training are gauged based on an assessment of the public / private benefit, and this approach could also be applied to service provider training. For example, given the benefits for MLA and industry in ensuring that there is an effective process to transfer knowledge regarding the latest MLA R&D outcomes to service providers, this PD opportunity could be offered either free of charge or at minimal fees, whereas for other service provider training opportunities that could be coordinated through PGS there may be a user pays fee. Additionally, service providers see in PGS the benefits of professional development opportunities to engage with the latest RD&E outcomes, tools and resources from MLA, and opportunities for other training activities (e.g. business/financial analysis). Being able to offer PD opportunities to service providers will provide an incentive for them to engage with PGS, but needs to be done in a tailored way to meet the needs of different deliverer cohorts, and to deliver a high quality service.

## 5.3 How extension and adoption are valued

Project management and administration overall were not rated highly as being of benefit by service providers – this is perhaps somewhat misleading and it is possible that this activity was confused with reporting requirements. Effective coordination is a key component of delivering high quality events – benefitting all involved.

Some of the responses to question 7 indicate that there is a strong perception that MLA is the stakeholder that most want/value the delivery of extension activities. This may indicate that service providers are comfortable with demonstrating the value of their delivery to MLA, as this is what their focus has been – but changing the focus to demonstrating value to

producers, such that they are willing to pay is going to require a shift in the thinking and approach of service providers. This is supported by the fact that an issue of concern raised in the survey was a lack of confidence in articulating a value proposition.

Based on the survey findings, there appears to be considerable concern around the ability of service providers to recruit participants willing to pay. This concern came through repeatedly, in a number of areas of the survey – it was rated as the main barrier to service providers engaging with PGS. Interestingly, a significant number of the open responses from the survey referred to the user-pays and commercial delivery model being proposed by MLA through PGS – with some concerned about MLA interfering in a commercial space and others concerned about withdrawing of subsidises for producers. One comment noted a level of concern about market distortion from MLA subsidising, but could see a positive to MLA investment, through PGS lifting the quality of delivery (and outcomes), potentially growing the market of producers who are willing to pay for extension services. Another respondent observed that the more producers contribute towards their training, the more critical they will be, also resulting in a higher standard of delivery. Additionally, in the free market, competition is considered as a positive for consumers (in this case producers). Competition will result in more choice, more value and a competitive market place for producers - and they are MLA levy payers, so the PGS approach must provide real and tangible benefits to producers.

The survey has clearly highlighted that service providers are not ready at this time to adopt a fully commercial user pays approach to extension, and that there will need to be a transition to this over time in the PGS business plan. The PGS Business Plan must be cognisant of the current situation and build an approach which does not negatively impact or duplicate existing commercial delivery, but which improves the standard of delivery overall and expands the potential market of producers willing to engage (and pay) by demonstrating real value. The funding model recommended by the PGS Business Plan must differentiate between public, industry and private good, as the basis for differentiating investment. MLA investment should focus on supporting industry good activities. The public good component of activities could be supported by organisations such as state departments or CMA/NRM, while producers pay for the private good component.

## 5.4 Monitoring and evaluation (M&E)

The response to the question regarding who benefits the most from M&E reinforces the hypothesis that MLA is seen as the key beneficiary of many of the activities associated with delivery of extension programs. It would also appear to indicate that M&E is seen as a compliance activity rather than a continuous improvement process (i.e. currently deliverers of extension for MLA see data in but no data / information out). This idea is supported by the response to question 13, where program M&E requirements were identified as a top three barrier for service providers in engaging with PGS. Responses to these two questions are both in contradiction to the responses obtained for question 11 which asked about many facets of M&E – and where respondents overwhelmingly rated M&E as high value for continuous improvement and enabling them to better service their clients. Additionally, submission of M&E data was the most highly rated method of monitoring quality of delivery, followed by interviews with producer participants. It appears that there is a disconnect between theory and practice when it comes to M&E, which the PGS program must work to rectify, by ensuring that the M&E processes for PGS are simple and effective, and offer

value back to producers and service providers. PGS needs to do better at encouraging a continuous improvement ethos towards M&E by service providers.

## 5.5 Developing supported learning programs

The survey highlighted some concerns regarding service providers developing their own supporting learning programs – the time and skills required to invest in designing a supported learning program were both identified as potential issues by service providers. In contrast, the ability of PGS to offer flexibility to enable delivery of adoption programs tailored to client needs was rated as a top five benefit of PGS, which supports the finding that the preference of service providers is to deliver packages that can be tailored, preferably using existing materials or resources.

Funding for developing supported learning programs was the second most popular way in which MLA could support deliverers. There does appear to be a strong focus of service providers on the package and the value that this brings to a learning program versus the value that the deliverer brings and the quality of their delivery.

There is an opportunity for PGS to address some concerns of service providers and improve cost effectiveness of MLA investment by investing in developing some structured learning programs where there are gaps or needs in the market. These can then be made available to deliverers to tailor as required to their local environment / specific group needs. This will ensure that there isn't duplication in funding development of multiple learning programs covering the same basic principles and that deliverers have an opportunity to value-add by investing in tailoring packages. However, it may create quality assurance and price point issues, and these risks must be addressed in the PGS platform design. Additionally, in tailoring packages consideration needs to be given to maintaining consistency in messaging.

## 5.6 Recruitment

A key way in which PGS can support deliverers was identified as being assistance with recruitment (this was also identified during the pilot coaching project) of producers. Support in engaging producers can be provided in a number of ways, some of which have already been discussed in more detail:

- Assisting deliverers articulate a value proposition
- Assisting deliverers maintain a high standard of delivery through effective M&E
- Supporting recruitment activities such as feeder events
- Employ a marketing approach post events (mining event databases / client databases and targeting producers with specific upskilling opportunities)
- Access / introductions to local producer and deliverer networks

It is likely that a producer recruitment strategy will need to be incorporated into the PGS delivery platform design.

## 5.7 Collaboration

Based on the survey findings, the collaboration between service providers is very high, with over half claiming that they collaborated with each other often. This finding is supported by a key benefit of PGS identified by service providers being collaboration opportunities with other service providers. However, there would have been benefits in further exploring this to

understand the level and types of collaboration better. Without this information it will be difficult to design the delivery platform to encourage and support collaboration that meets service provider needs, however for PGS to be effective in transitioning producers through different learning areas it must encourage some level of collaboration and networking between service providers.

# 6 Recommendations

Recommendations from the service provider survey findings relevant to the design of the Profitable Grazing Systems delivery platform and business plan are as follows:

- MLA to provide information on their contracting requirements to service providers, so that sole providers are able to structure their business in such a way that they can be contracted as deliverers.
- Awareness of state-based differences in designing PGS as an effective national framework.
- Awareness of differing needs of the service provider cohort in designing PGS delivery and service provider engagement platform (in particular the program should aim to provide pathways for younger, less experienced deliverers).
- The service provider engagement strategy for PGS must have clear and formalised selection process for service providers.
- The service provider engagement strategy and delivery platform for PGS should provide recommendations on approaches to delivering service providers' professional development opportunities to ensure that they have the capability to deliver on PGS outcomes (including the payment structure for service provider PD).
- The service provider engagement strategy for PGS must be clear that service providers will be performance evaluated (PGS will not provide an opportunity for sub-standard deliverers, as this would skew the market).
- PGS must provide a process for reporting M&E data back to service providers such that they can use it to improve their delivery and/or to present a value proposition to their customers/clients
- M&E will be critical to ensuring that there is a high standard of delivery.
- M&E can also be used to demonstrate to producers the value to be gained by participating.
- The business plan must document an approach to M&E which is valuable and acceptable to all stakeholders. Producer interviews will be an integral component of M&E.
- PGS business plan should include a transition to commercial user pays from the current situation. It must build an approach which does not negatively impact or duplicate existing commercial delivery but which improves the standard of delivery overall and expands the potential market of producers willing to engage (and pay) through demonstrating real value.
- The funding model recommended by the PGS Business Plan must differentiate between public, industry and private good, as the basis for differentiating investment.
- Consider encouraging PGS deliverers to build in a money back guarantee on their programs, to assist in building producer confidence that there is value in their programs.

- Develop some structured learning programs where there are gaps or needs in the market, which can be made available to deliverers to tailor as required to their local environment / specific group needs. This approach must take into account and address quality assurance, price points and consistency in messaging.
- Promote the idea amongst deliverers that the quality of delivery/deliverer is at least as important as the quality of the package
- A producer recruitment strategy to be incorporated into the PGS delivery platform design, including:
    - Assisting deliverers articulate a value proposition
    - Assisting deliverers maintain a high standard of delivery through effective M&E and a process of continuous improvement through use of the M&E feedback MLA aggregates and supplies
    - Supporting recruitment activities such as feeder events

# Appendix 1 - Results

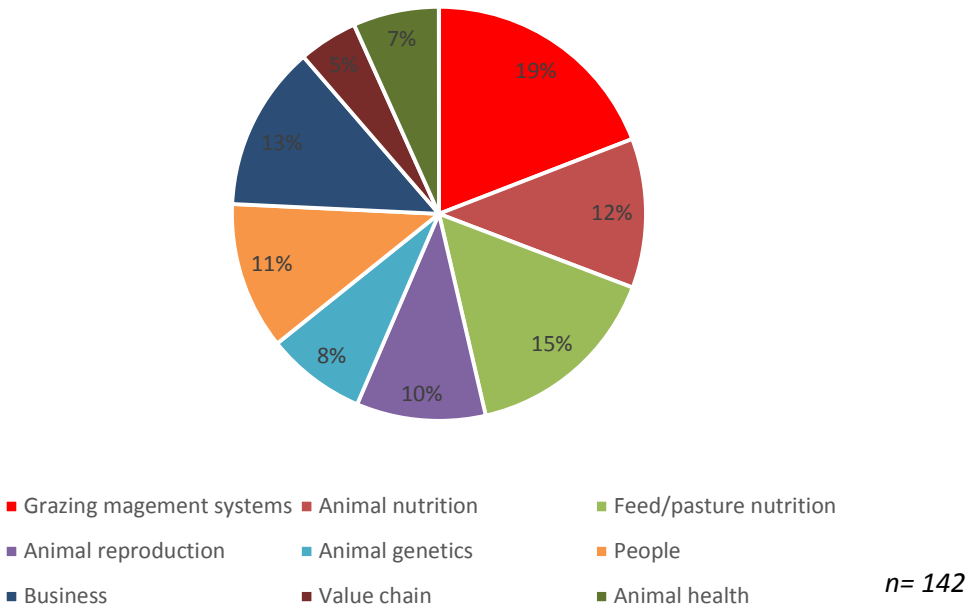



***Figure 1: Key areas of technical expertise***

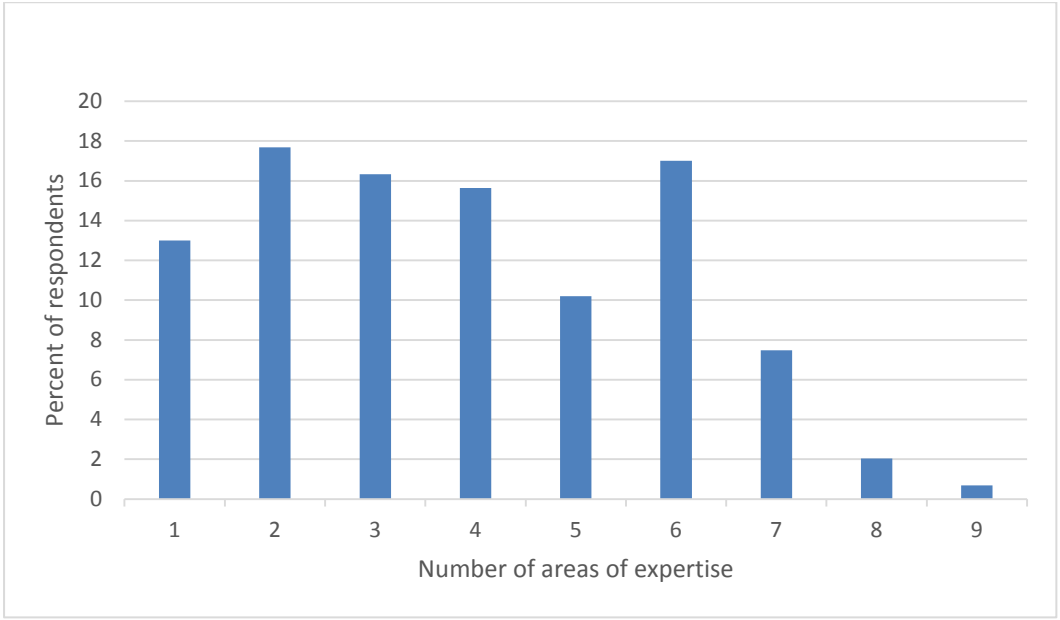



***Figure 2: Number of areas of expertise selected by service providers***

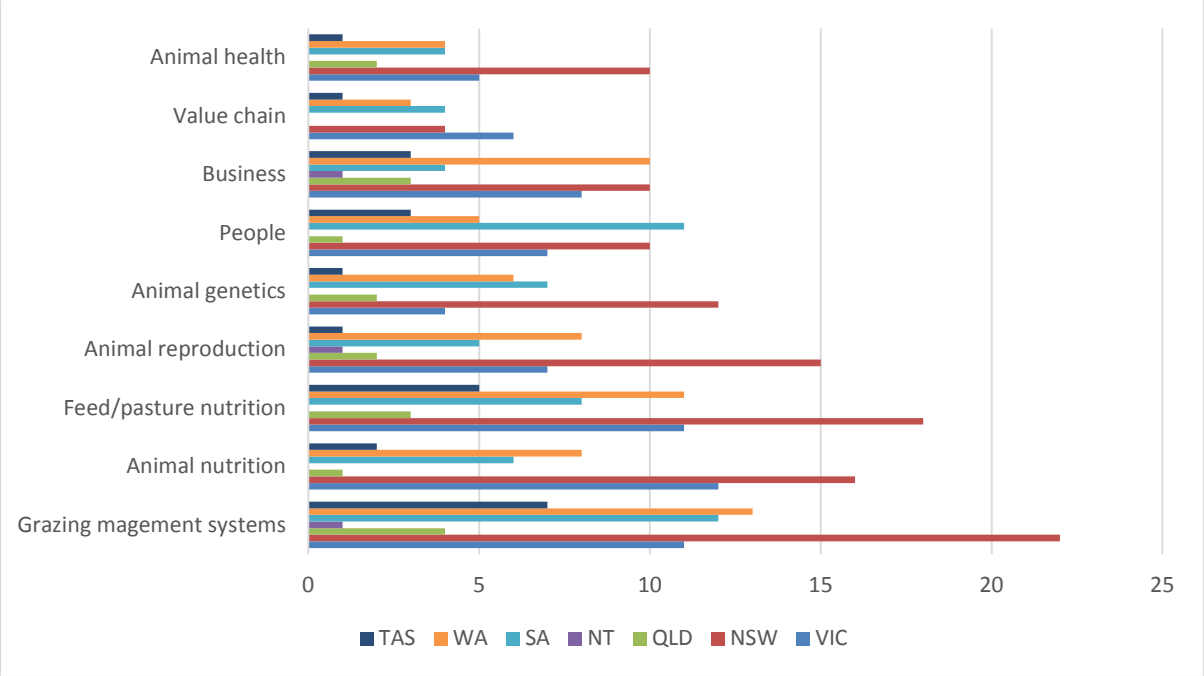
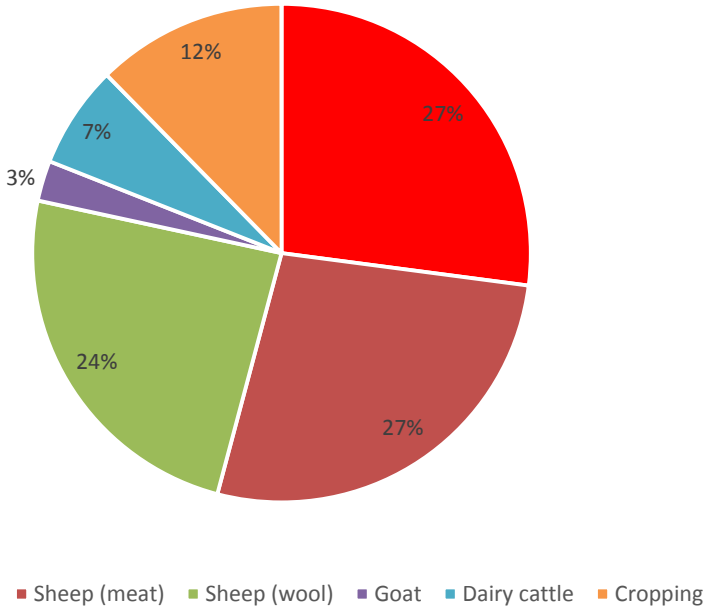



***Figure 3: Technical area of expertise by state***

***Table 1: Overlap in areas of technical expertise***

| | Grazing management systems | Animal nutrition | Feed/pasture nutrition | Animal reproduction | Animal genetics | People | Business | Value chain | Animal health |
|---|---|---|---|---|---|---|---|---|---|
| Grazing management systems | | 50% | 73% | 43% | 29% | 46% | 52% | 19% | 27% |
| Animal nutrition | | | 85% | 73% | 45% | 39% | 48% | 21% | 50% |
| Feed/pasture nutrition | | | | 52% | 33% | 39% | 48% | 20% | 35% |
| Animal reproduction | | | | | 60% | 39% | 53% | 19% | 51% |
| Animal genetics | | | | | | 48% | 45% | 14% | 45% |
| People | | | | | | | 69% | 25% | 25% |
| Business | | | | | | | | 21% | 26% |
| Value chain | | | | | | | | | 15% |

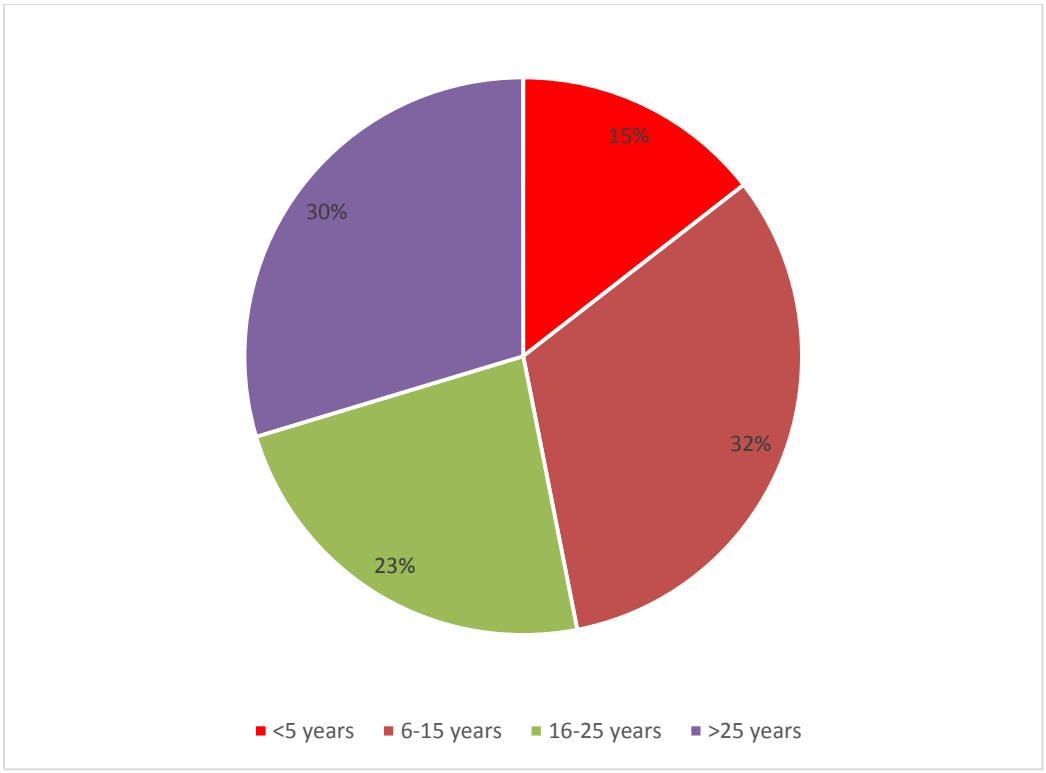



*n= 145*

***Figure 4: The enterprises worked with***

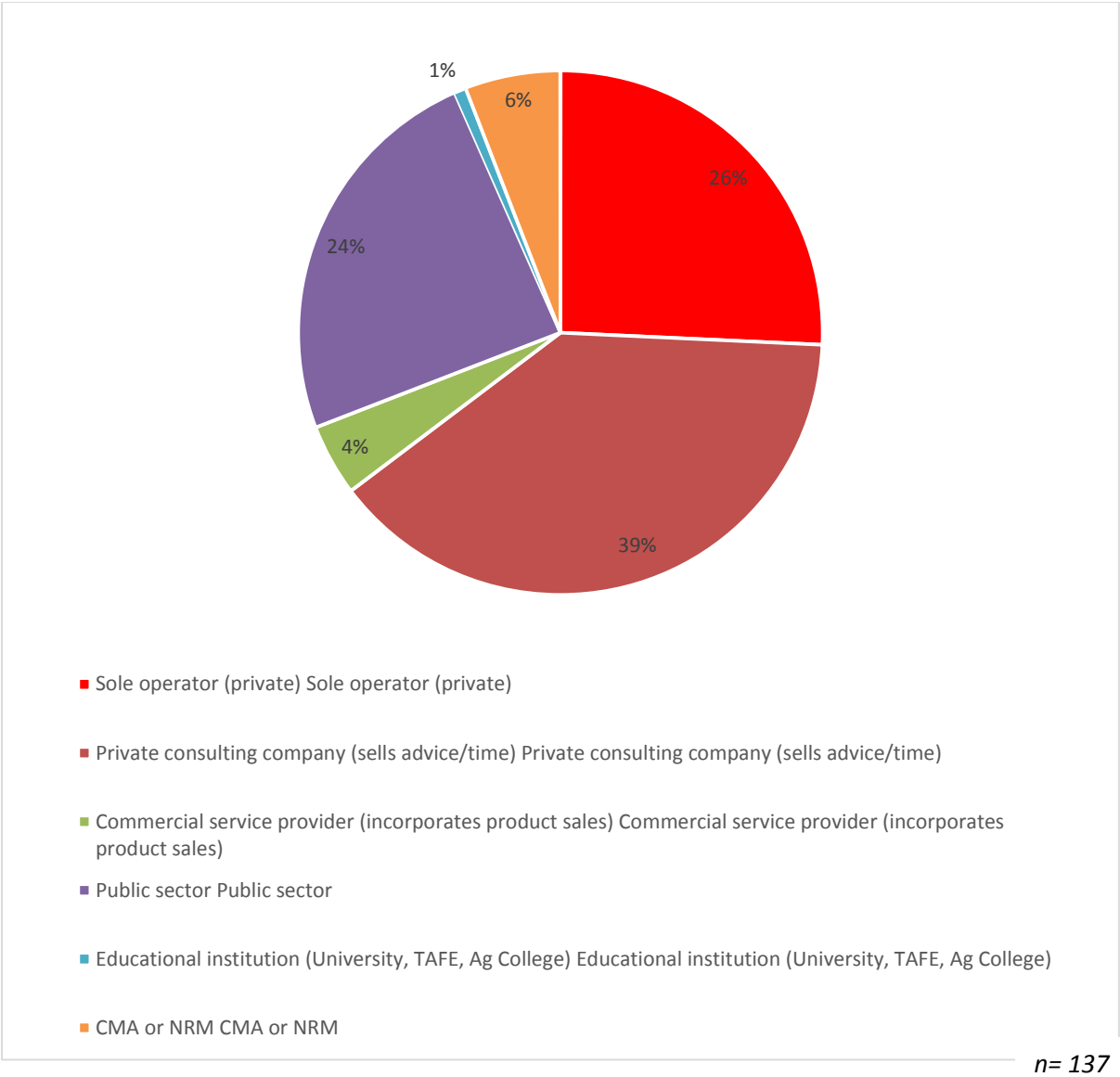
***Table 2: Interactions between enterprises worked with***

| | Beef | Sheep | Sheep Wool | Goat | Dairy Cattle | Cropping |
|---|---|---|---|---|---|---|
| Beef producers | | 73% | 65% | 8% | 25% | 35% |
| Sheep | | | 84% | 10% | 16% | 42% |
| Sheep Wool | | | | 11% | 16% | 44% |
| Goat | | | | | 27% | 45% |
| Dairy Cattle | | | | | | 67% |
| Cropping | | | | | | |




*n= 145*

***Figure 5: Years' experience working as a livestock industry advisor***




*n= 137*

***Figure 6: Type of organisation (sector) worked for***

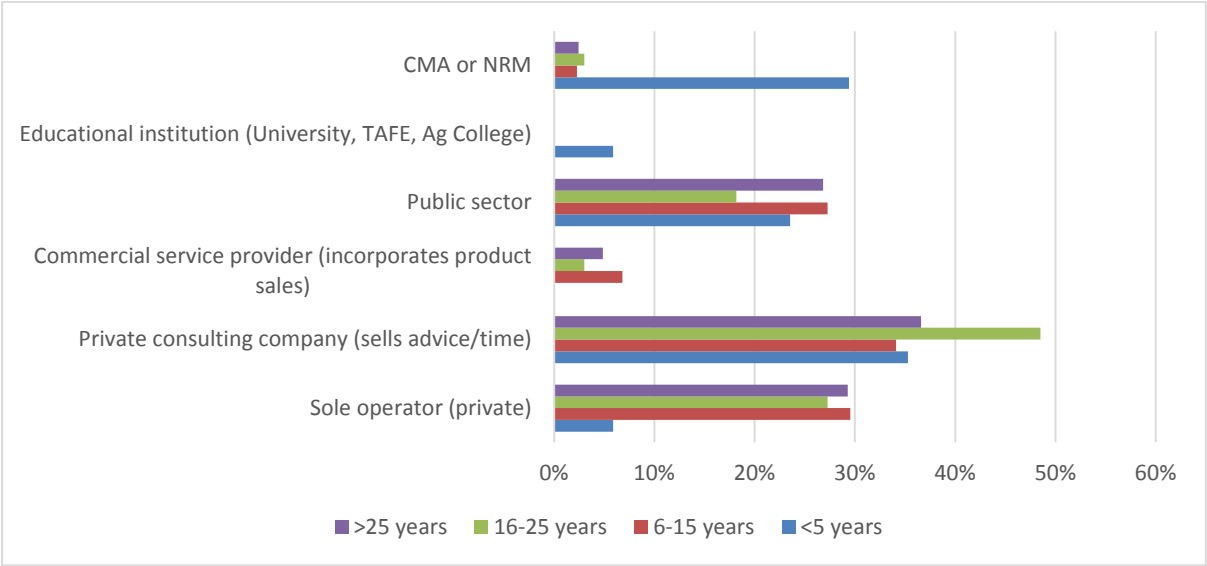
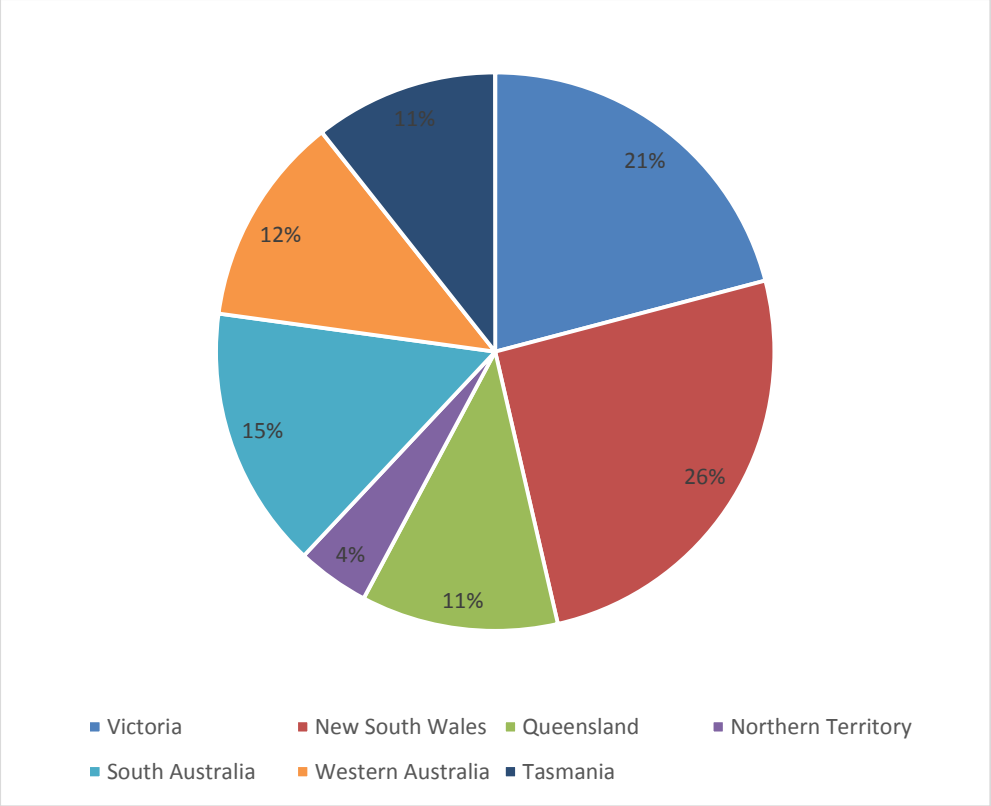



***Figure 7: Interaction between type of organisation worked for and age of respondent***




*n= 146*

***Figure 8: States in which service providers operate***

***Table 3: Percent of respondents working across state boundaries***

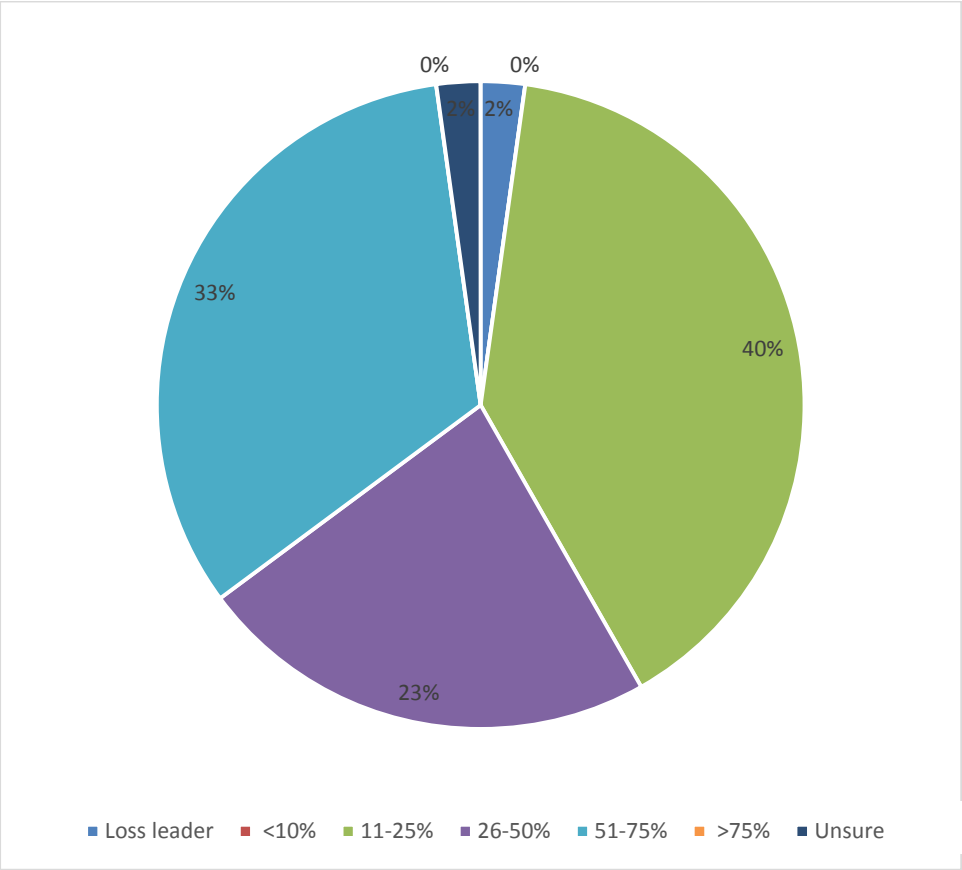
| Number of states worked in | % respondents |
|---|---|
| 1 | 72 |
| 2 | 13 |
| 3 | 10 |
| 4 | 5 |

***Table 4: Interactions between states***

| | Victoria | New South Wales | Queensland | Northern Territory | South Australia | Western Australia | Tasmania |
|---|---|---|---|---|---|---|---|
| Victoria | | 56% | 25% | 5% | 36% | 20% | 35% |
| New South Wales | | | 30% | 10% | 22% | 18% | 25% |
| Queensland | | | | 27% | 30% | 40% | 37% |
| Northern Territory | | | | | 18% | 55% | 27% |
| South Australia | | | | | | 20% | 35% |
| Western Australia | | | | | | | 28% |

*Table 5: Percent of sole providers in each state*

| State | % sole providers |
|---|---|
| Victoria | 23% |
| New South Wales | 27% |
| Queensland | 11% |
| Northern Territory | 4% |
| South Australia | 13% |
| Western Australia | 16% |
| Tasmania | 7% |




*n= 127*

*Figure 9: Proportion of annual activity delivering group extension/training activities*

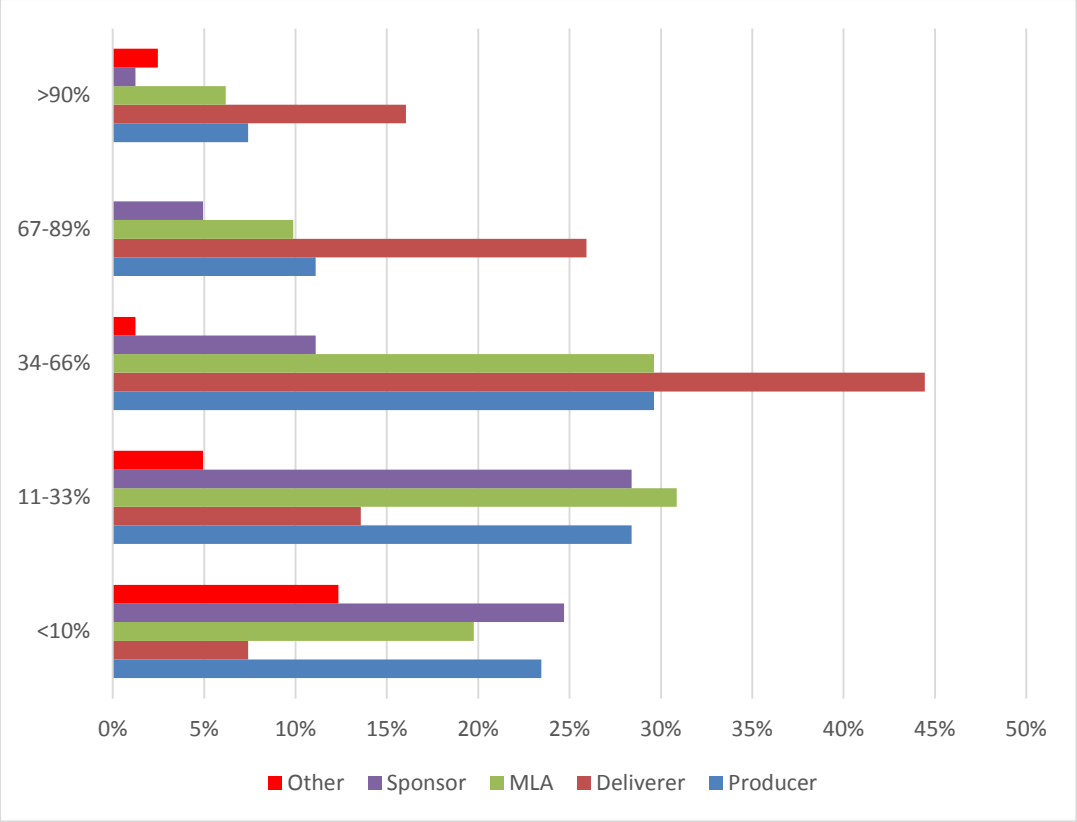



*Figure 10: Benefit from professional development and training for deliverers*

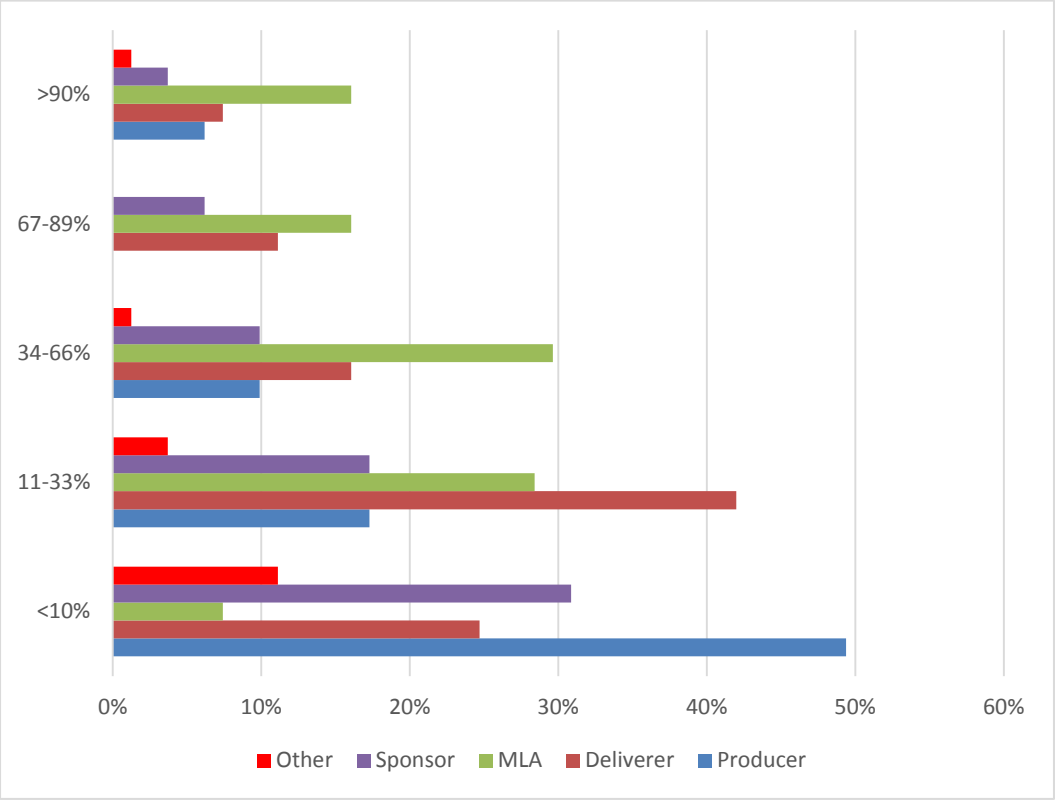



*Figure 11: Benefit from project management and administration*

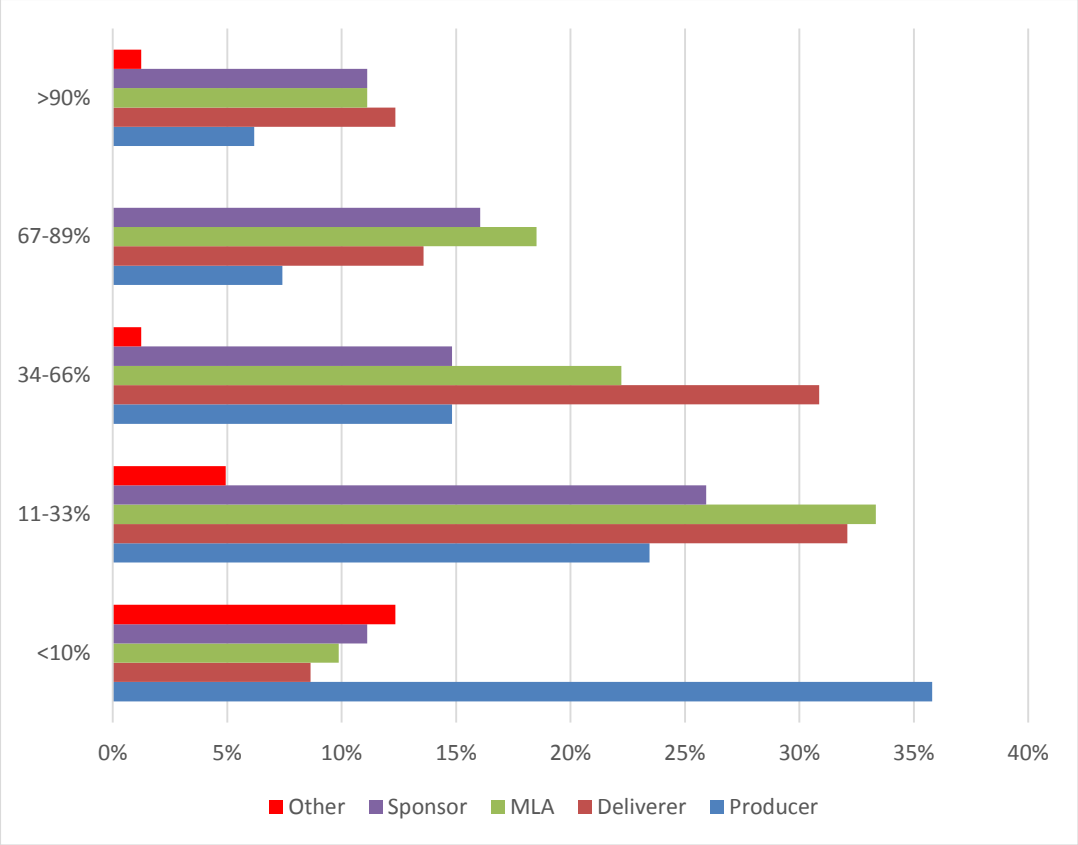



*Figure 12: Benefit from event promotion and recruitment*

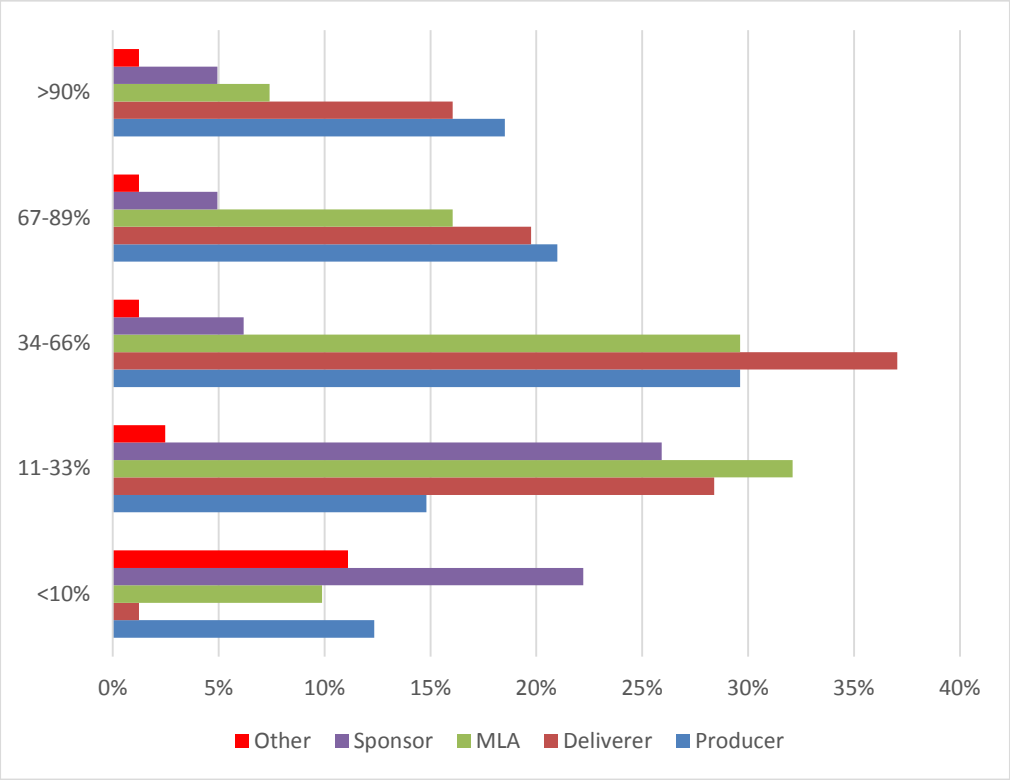



*Figure 13: Benefit from development of technical content and resources for delivery*

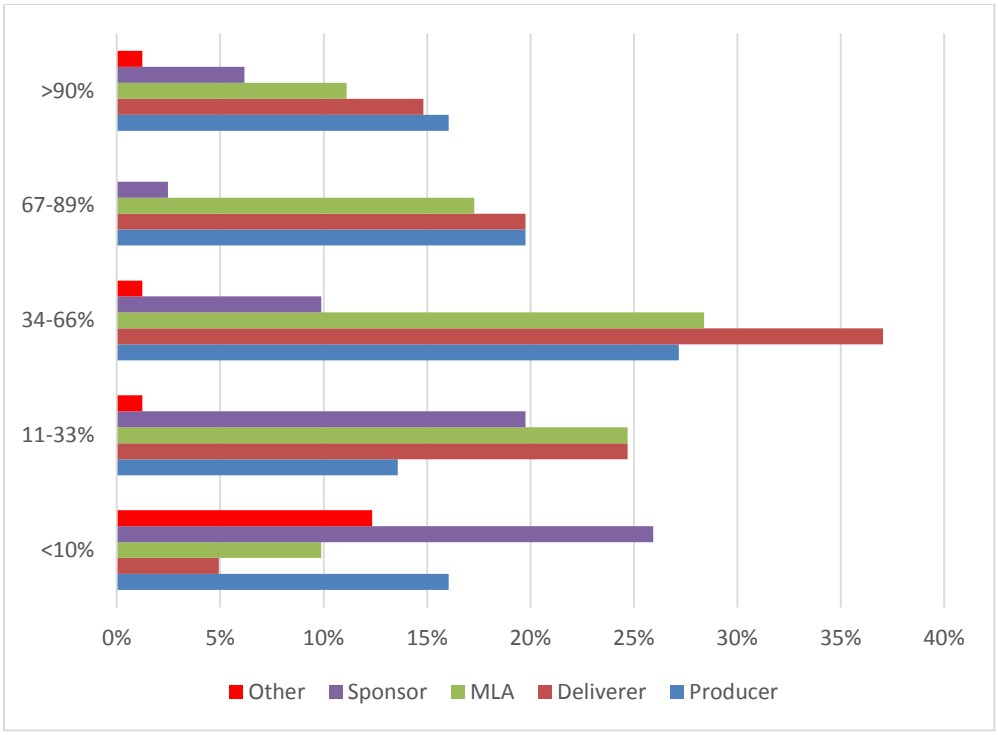



*Figure 14: Benefit from production of course resources*

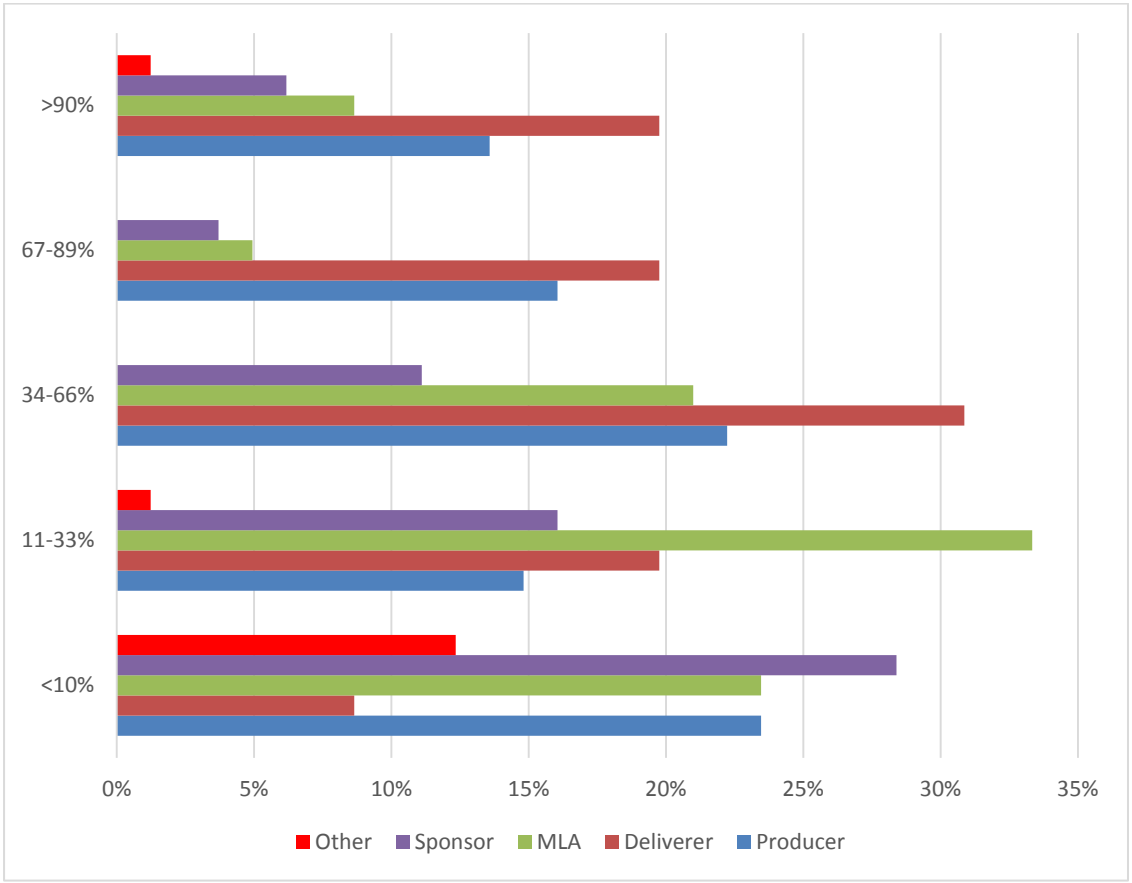



*Figure 15: Benefit from event facilitation (time and travel)*

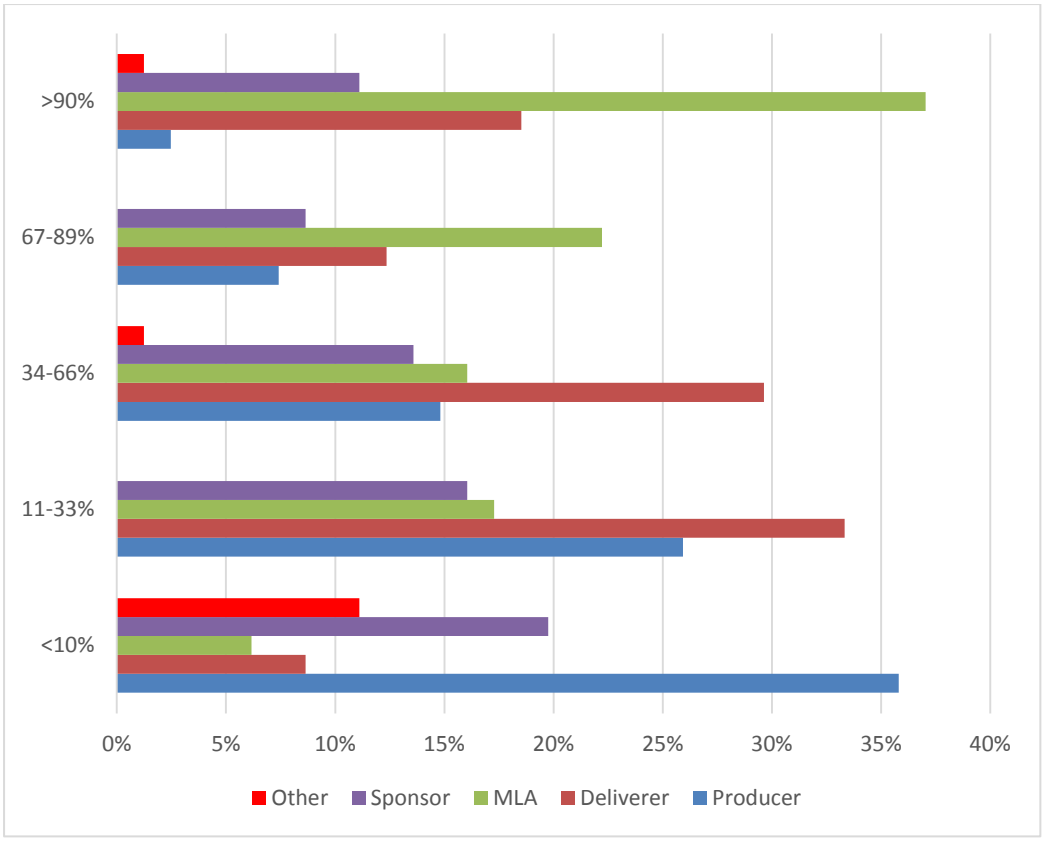



*Figure 16: Benefit from event monitoring and evaluation*

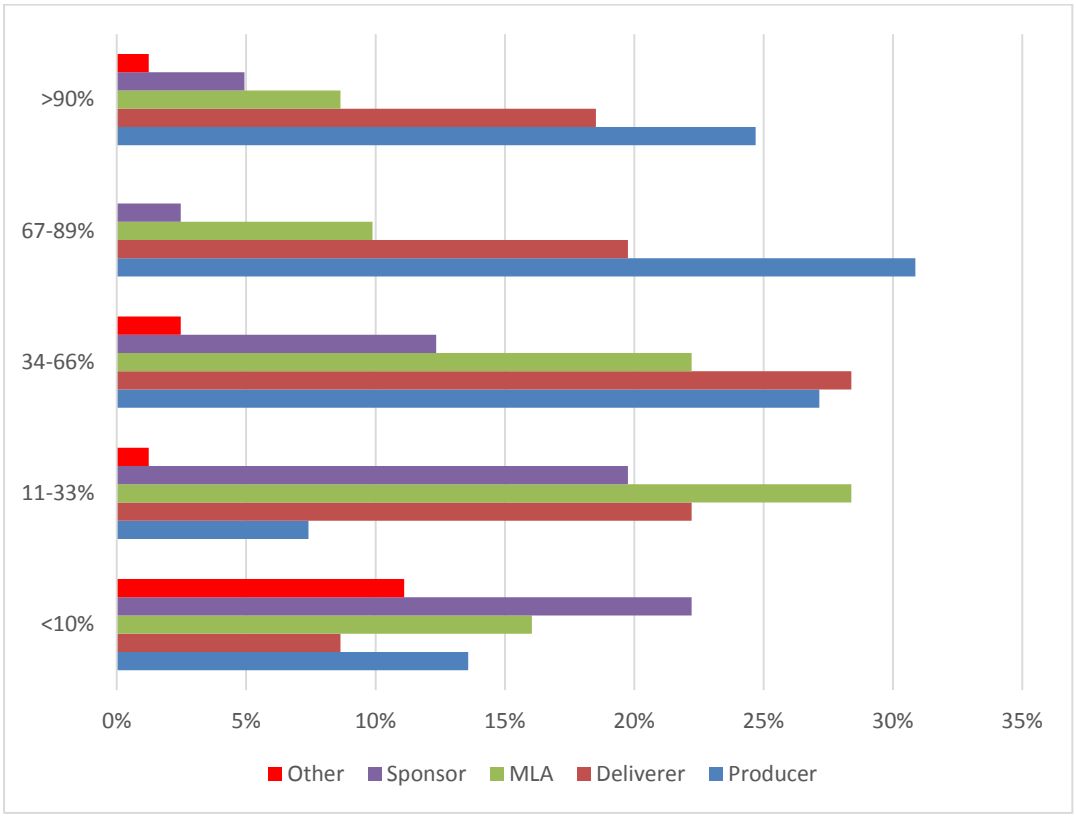
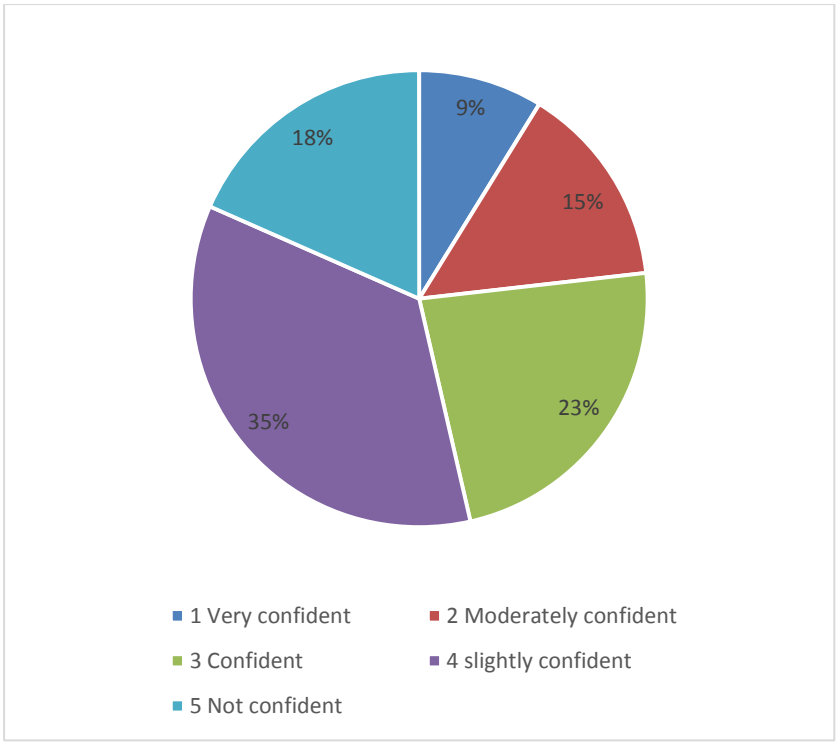



*Figure 17: Benefit from delivery of technical material (including deliverer time and travel)*




*n= 125*

***Figure 18: Confidence in being able to recruit participants willing to pay true cost of delivery for extension services***

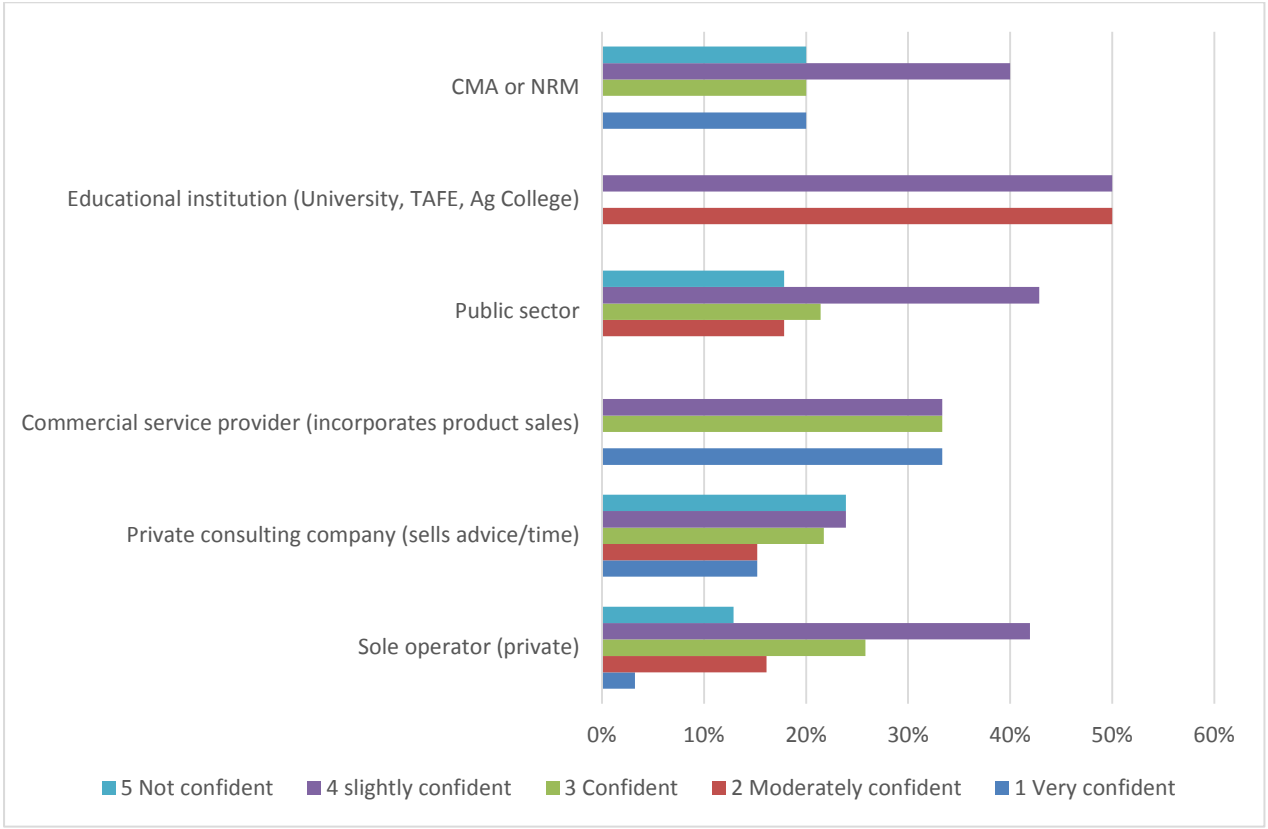



***Figure 19: Interaction between organisation type and confidence in recruiting participants willing to pay true cost of delivery***

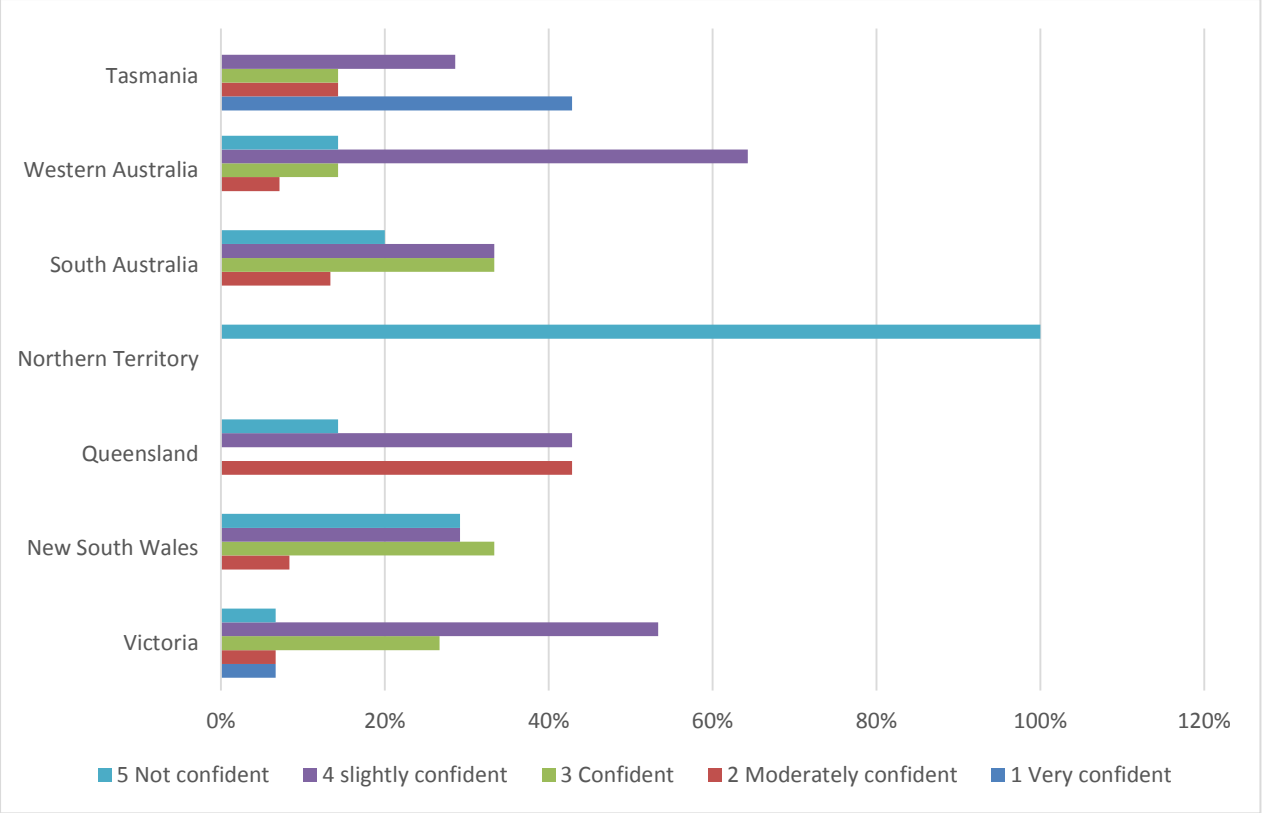



***Figure 20: Interaction between state and confidence in recruiting participants willing to pay true cost of delivery***

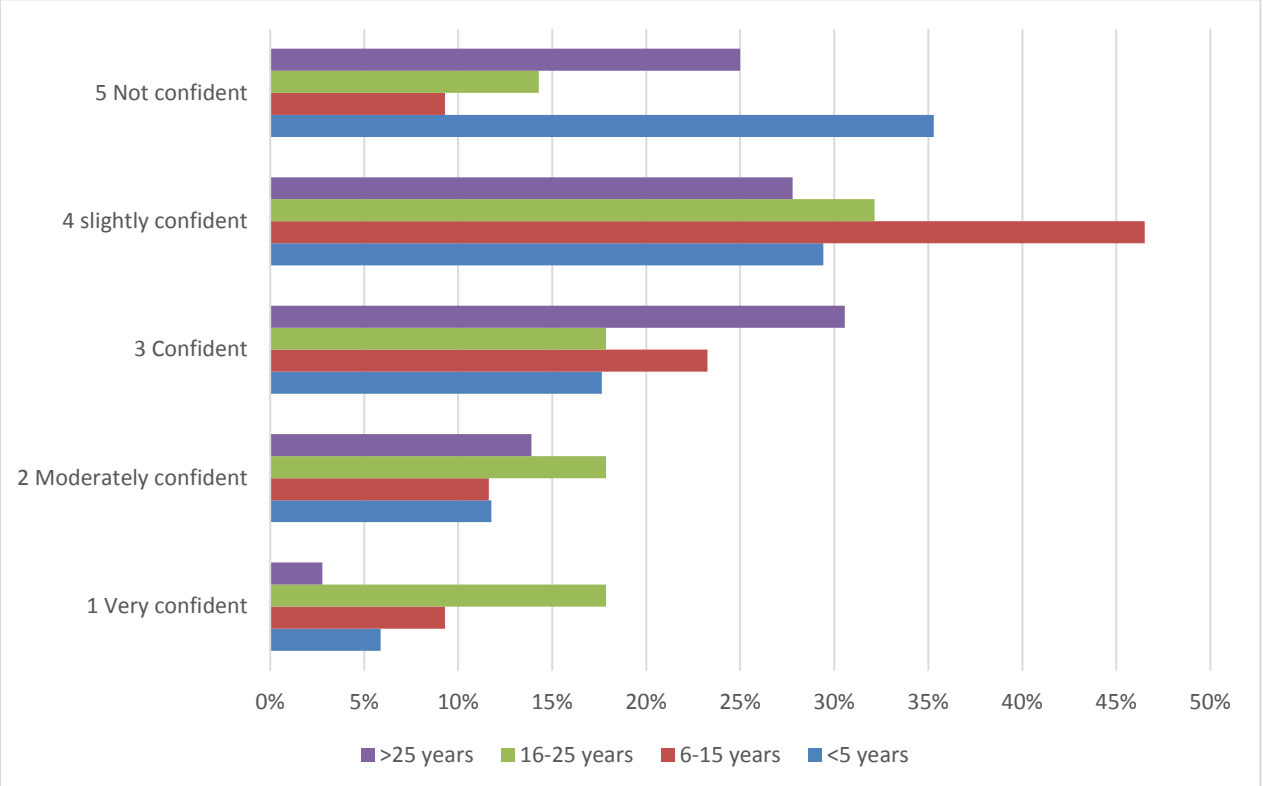



***Figure 21: Interaction between years' experience and confidence in recruiting participants willing to pay true cost of delivery***

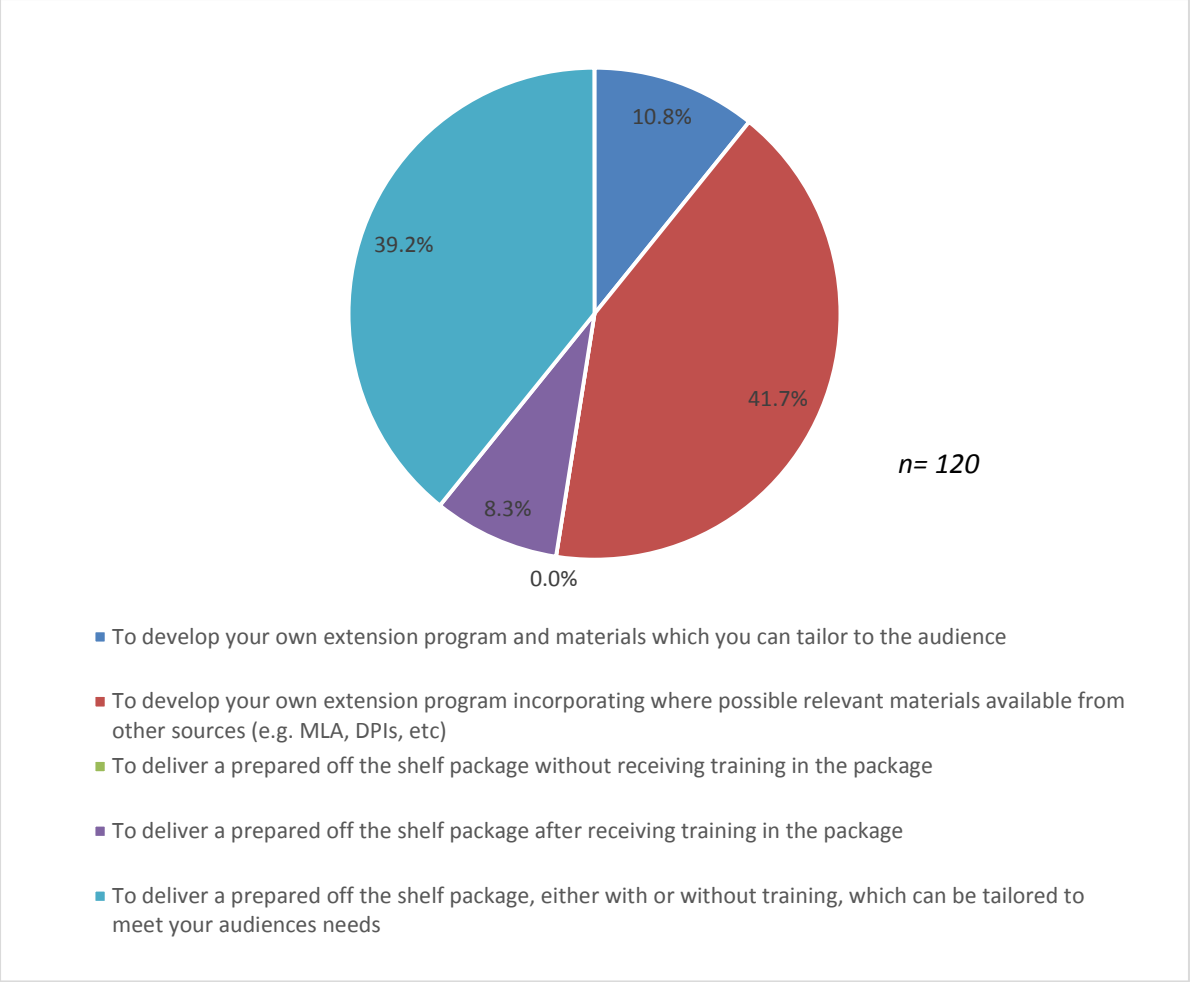



***Figure 22: Preferred approach to developing and delivering extension programs***

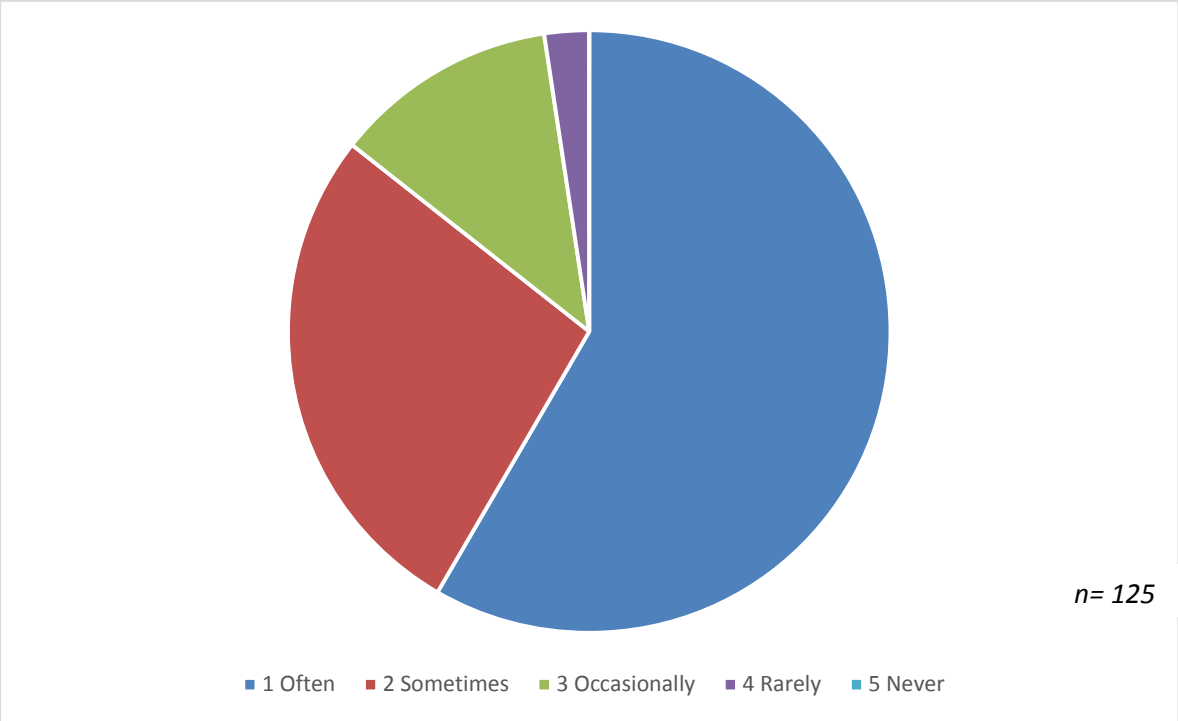



***Figure 23: Frequency of collaboration with other service providers***

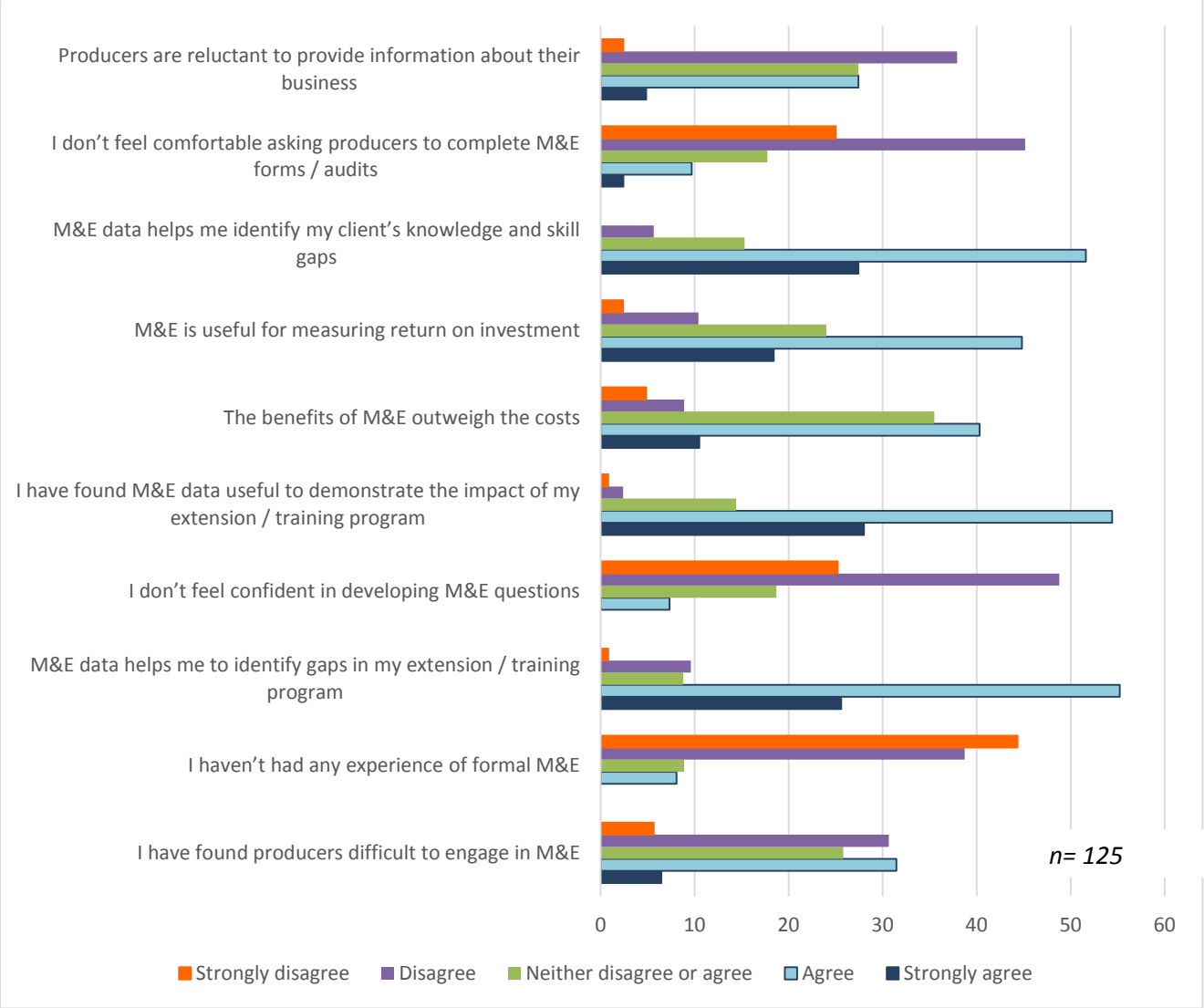



***Figure 24: Attitudes to monitoring and evaluation***

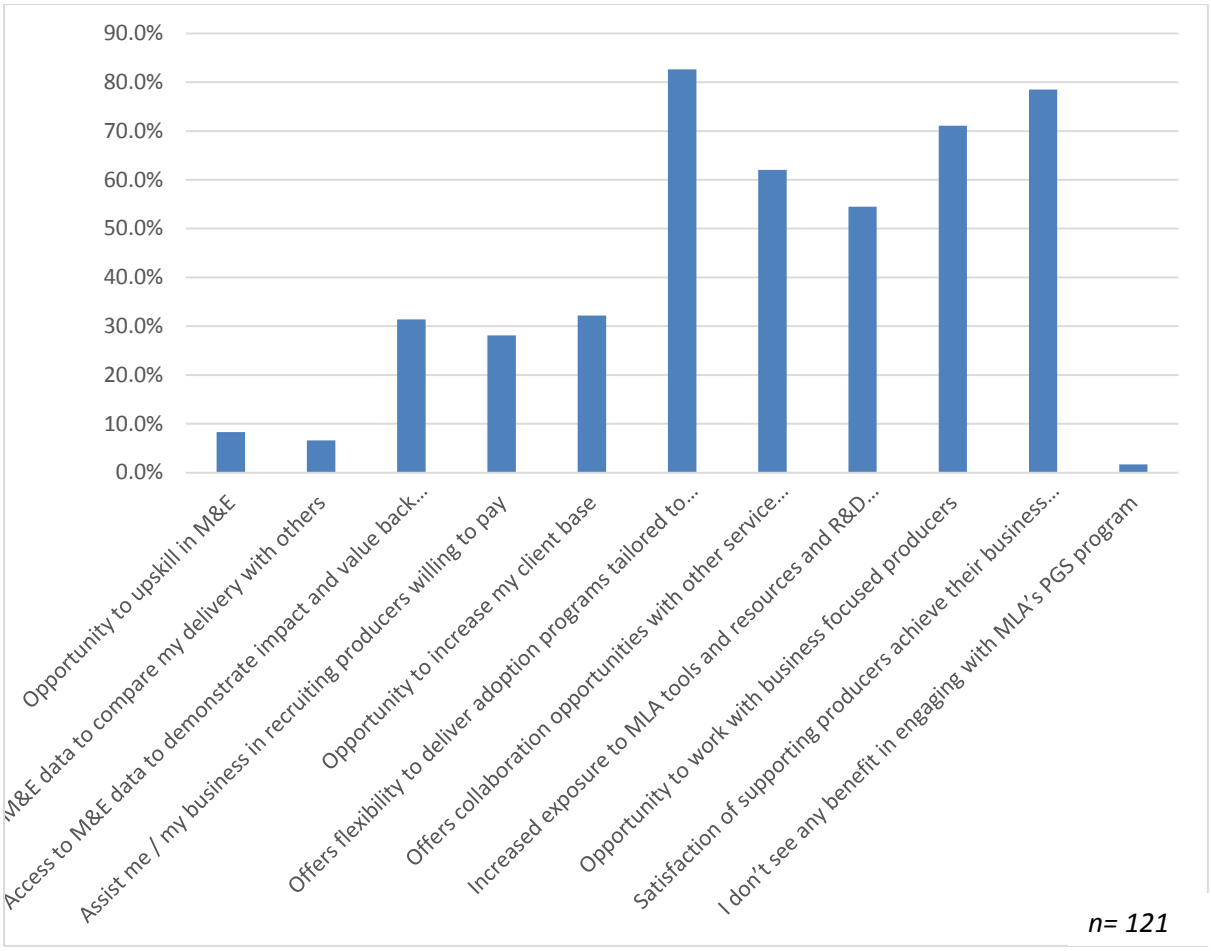



***Figure 25: The top five benefits of engaging with PGS***

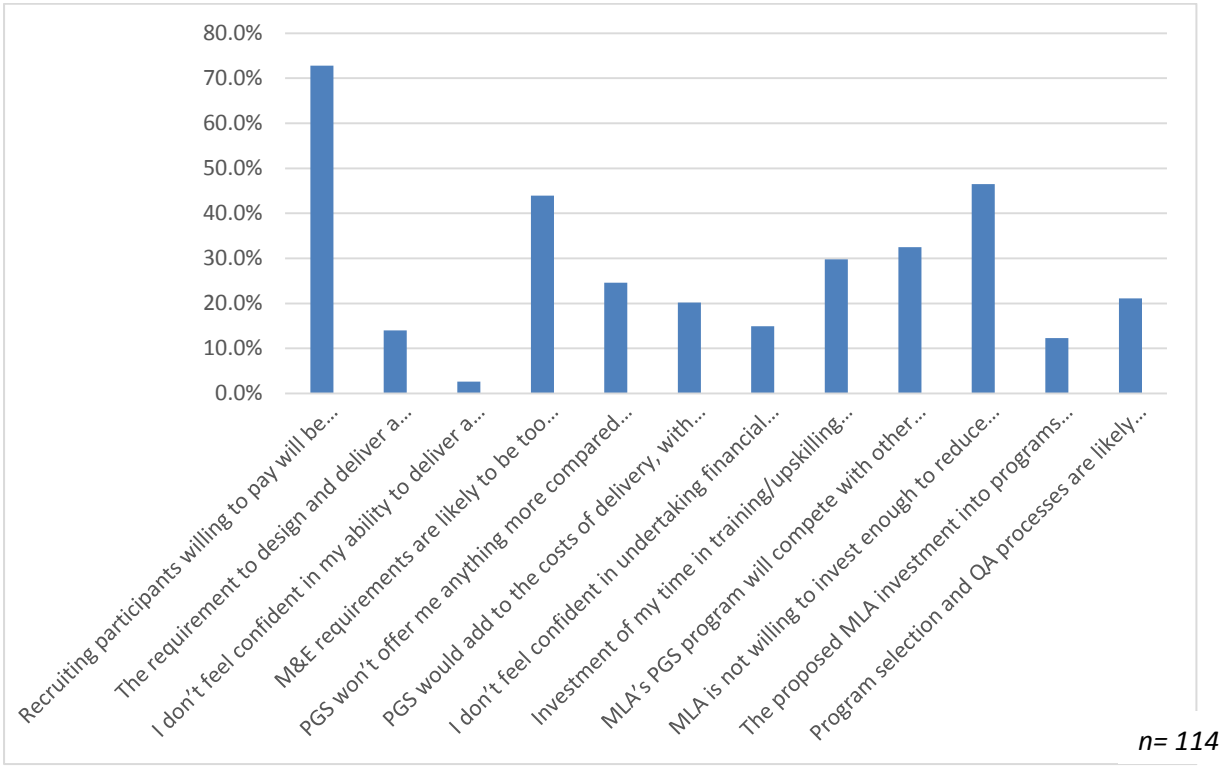



***Figure 26: The top five barriers that would prevent engagement with PGS***

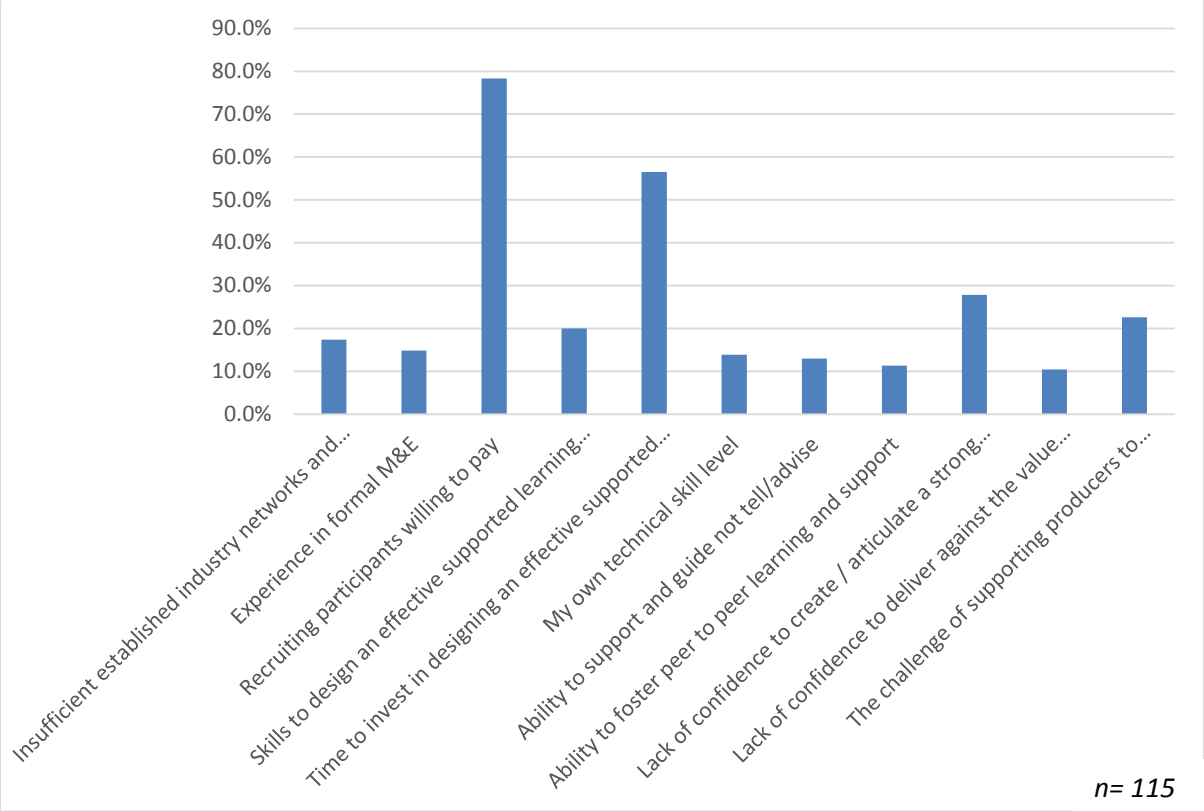



***Figure 27: Potential issues that could limit effective delivery of Profitable Grazing Systems***

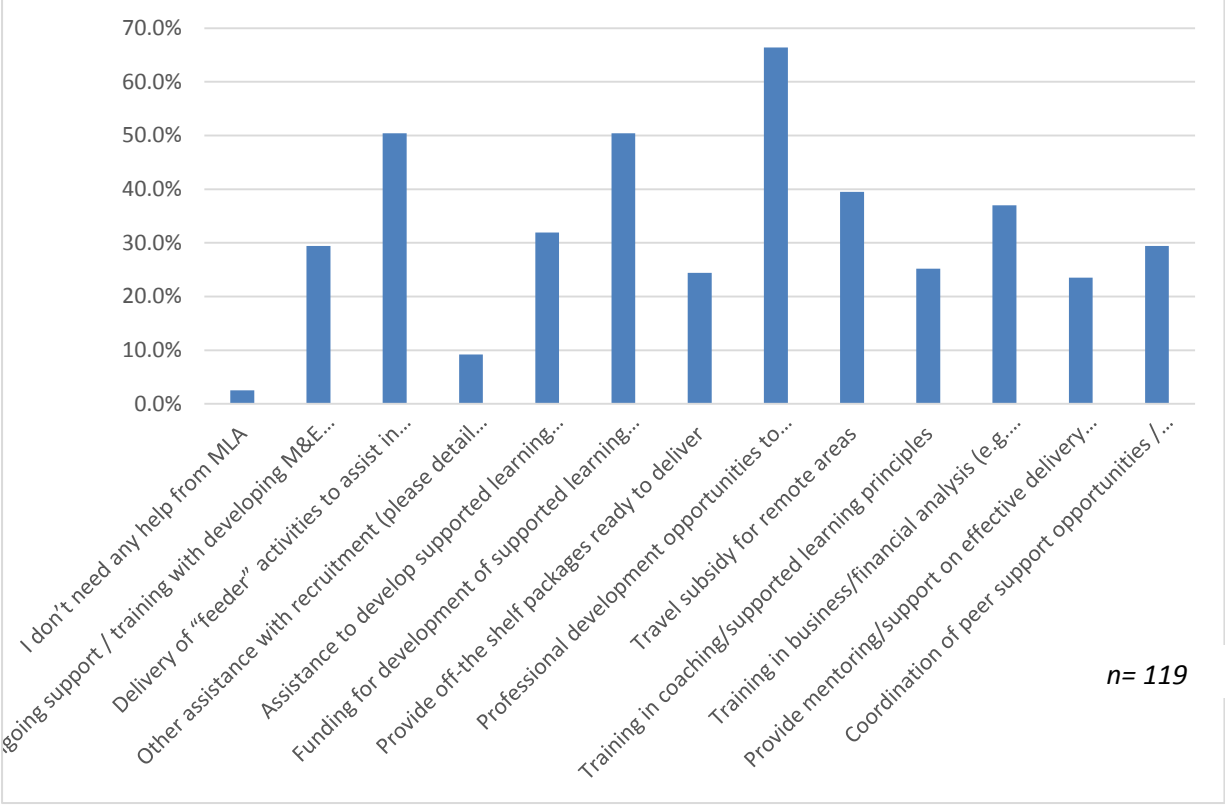



***Figure 28: The top five things that MLA could do to support deliverers to effectively deliver supported learning programs***

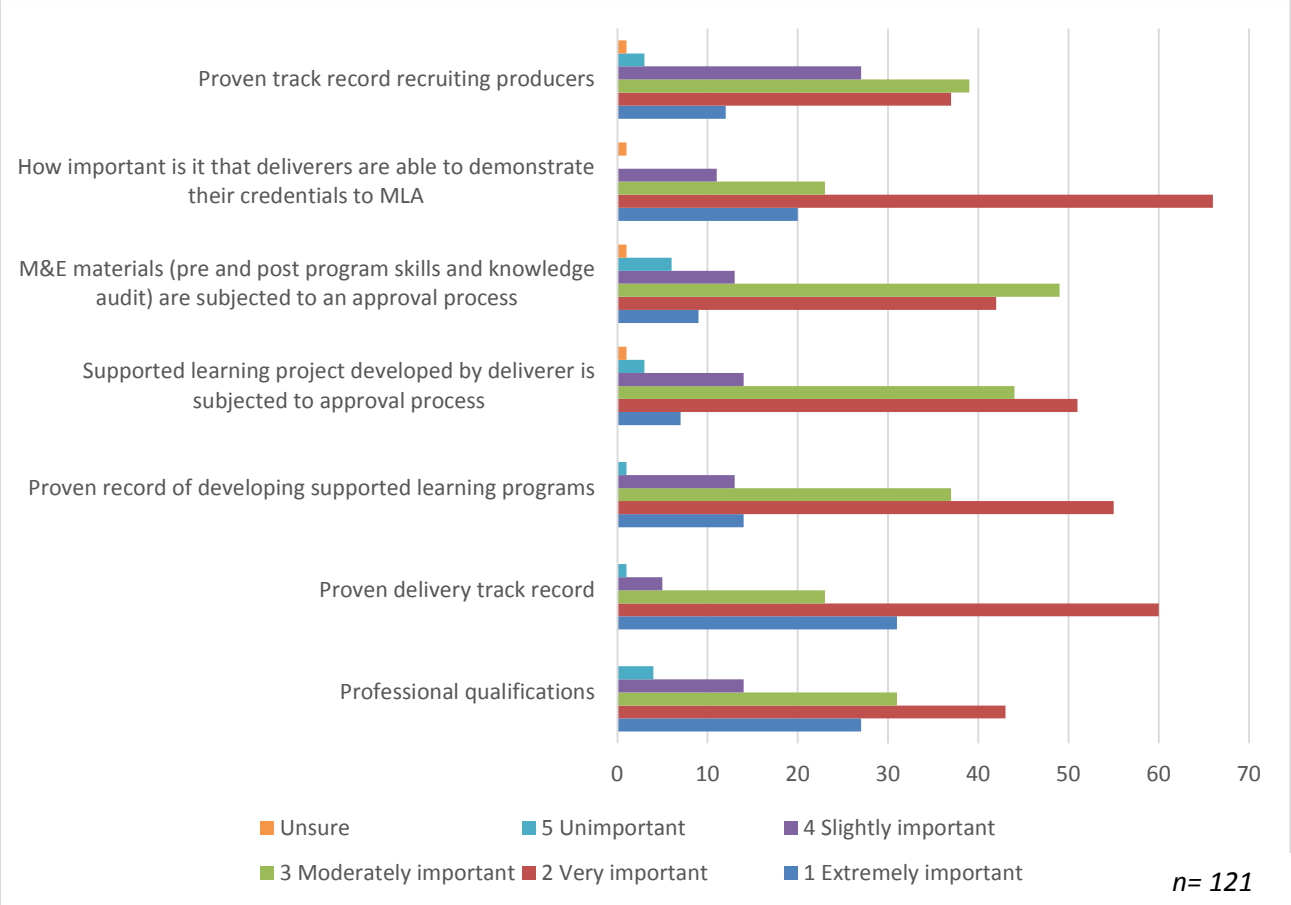



***Figure 29: How potential deliverers of Profitable Grazing Systems demonstrate their credentials***

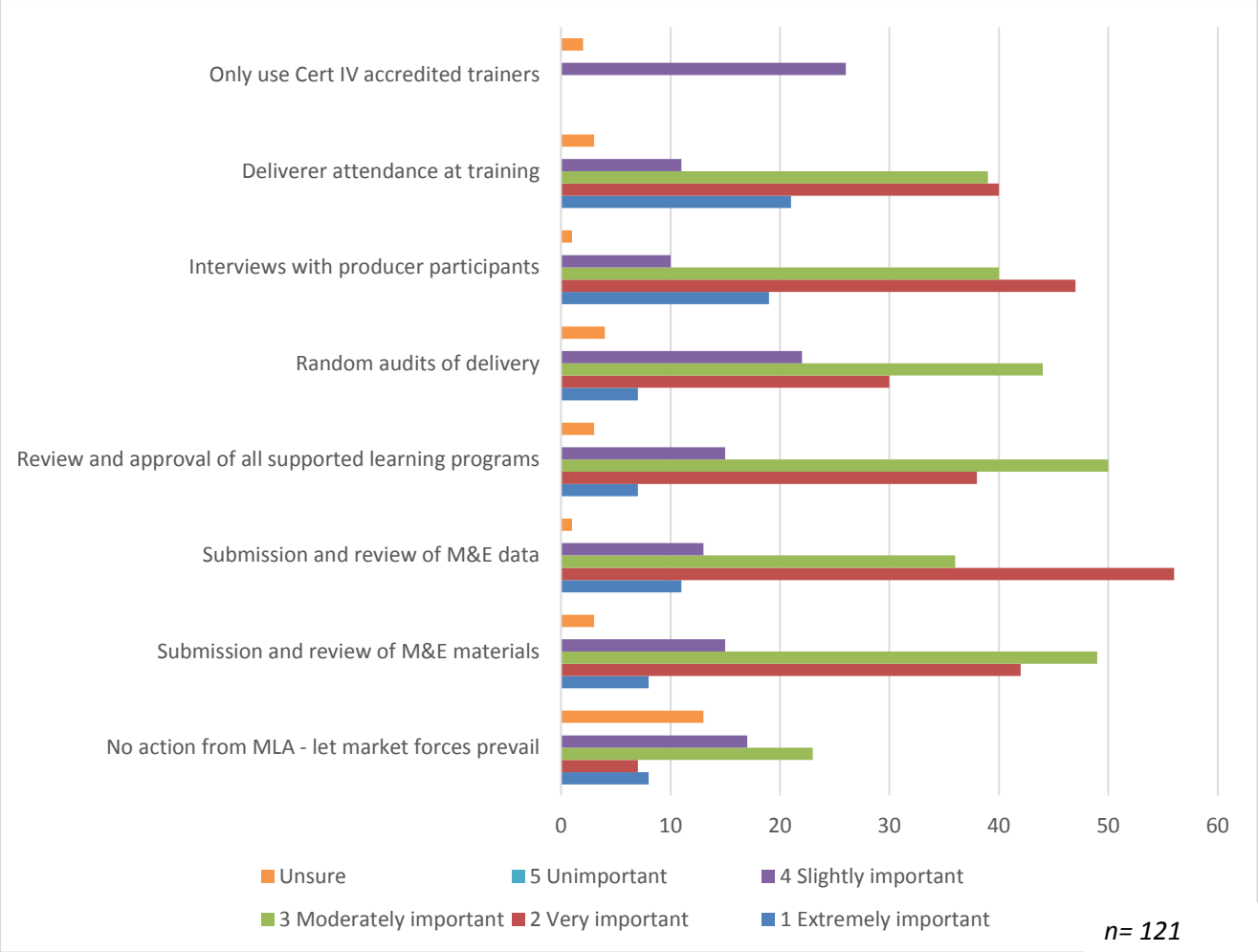



***Figure 30: How MLA can ensure that Profitable Grazing Systems is being delivered consistently and to a high quality***

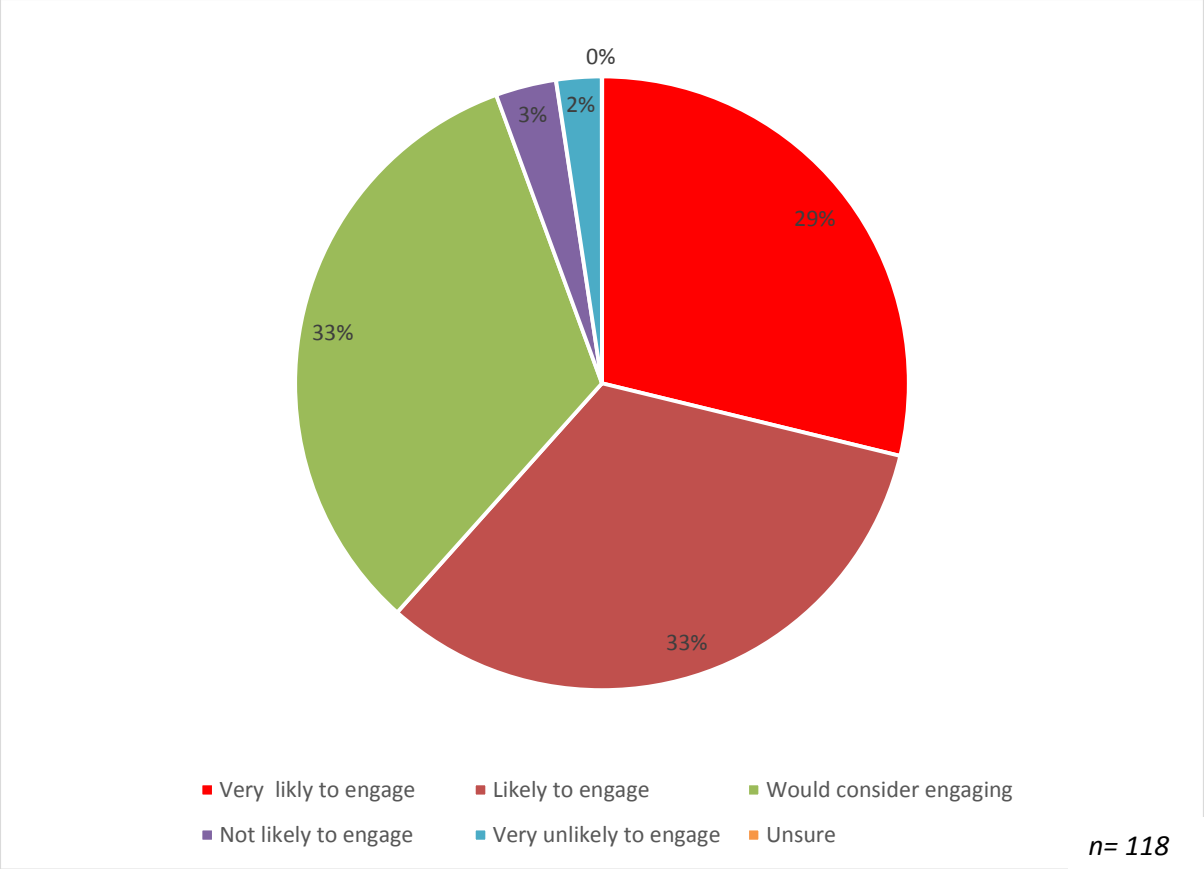



***Figure 31: The likelihood of engaging with Profitable Grazing Systems as a deliverer in the future***

Summary of themes of the open ended comments made by respondents:

- Demand for packages and resources which can be regionally tailored
- Two comments about taking into account differences between northern and southern Australia
- Integration of livestock with cropping (and whole of business approach)
- Consistency (or inconsistency) in approach between RDCs, CMAs, govt, LSS, etc.
    - Potential competition, mixed messages to producers
- Concern about market distortion from MLA subsidising, but could see a positive to MLA investment, which is if PGS can lift the quality of delivery (and outcomes) it has potential grow the market (i.e. only a small % of audience currently are prepared to pay)
- The more producers pay the more critical they will be, resulting in a higher standard of delivery
- Need to stick at it to see results (i.e. 10 years)

- Good packages needed to create exceptional value
    - Lots of offerings to producers so need to do a great job of promoting value
- Delivers want support, training and guidance
- Need to stick at it to see results (ie 10 yrs)
- M&E critical
    - Improve from current
    - Phone interviews with participating producers
    - M&E coordinator in MLA
    - Need to understand long term impact
    - Focus on measuring actual practice change
- Build on MMfS/MBfP brands (don't reinvent and start from scratch)
- Can existing producer networks be used as a platform to connect producers with PGS?
- How are individual (as opposed to group) needs really identified and worked on? How will it enable producers to move between groups/activities to meet their individual needs?
- Expand delivery network
- What is the development approach for young deliverers
- Pricing – need to have recommended pricing (or at least max and min)
- To manage competition from other groups (e.g. LSS) need to disallow funds from these sources in addition to MLA funds
- Equal numbers of comments about anti-competitive vs transitioning to user pays (as much for service providers, as producers)
- MLA should invest 80% and producers 20%
- Want 1 on 1 delivery covered by MLA