# MLA Extension Program Monitoring and Evaluation Framework for Measuring Attributable Adoption and Economic Impact
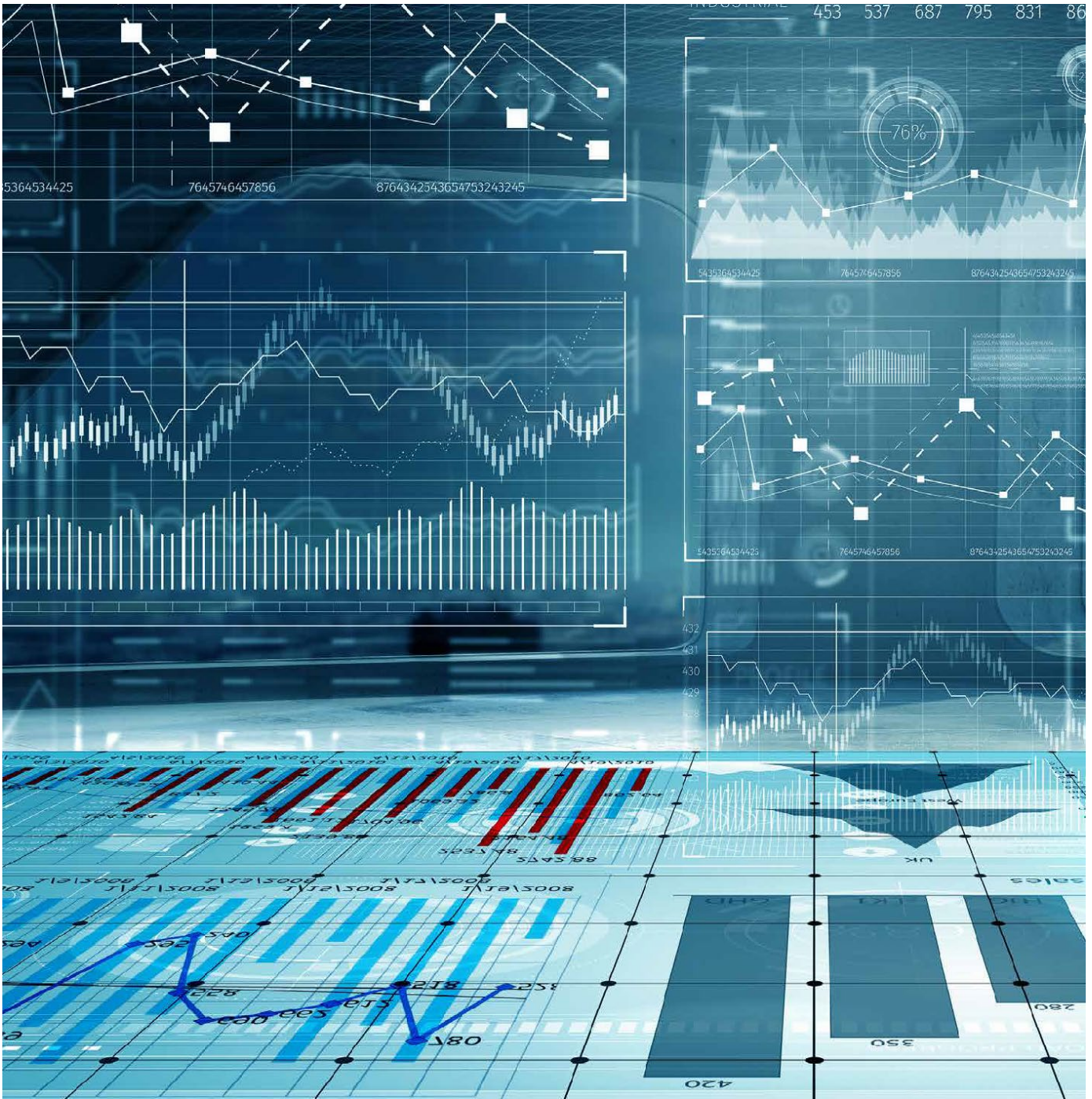
# Purpose

The purpose of this framework is to provide detailed guidelines for identifying data collection requirements for measuring attributable adoption and on farm economic impact resulting from MLA investment in producer extension programs, or those R&D projects that contain a significant extension component and where producer adoption is a project objective.

The framework assumes that an evaluation plan for producer adoption has been developed for this investment. If this is not the case, refer to the document Developing an Evaluation Plan for MLA Extension Investments for assistance.

For each extension project you should have identified practice change areas (with their relevant production and profitability KPIs) that the project aims to improve among participants. In some cases, it may not be realistic or achievable to collect the required data for measuring performance against these KPIs from every participant.

An alternative is to collect data from a sample of participants, to develop practice change case studies using a small number of participants, or to use non-participant sources of data for some variables, including industry survey data (e.g. ABS, ABARES, MLA sheep/beef survey), farm benchmarking data (e.g. Livestock Farm Monitor Project), available research data or modelling tools such as AusFarm or APSIM.

Further information regarding the overall evaluation approach taken by MLA for measuring economic, social and environmental impacts of MLA's investments is available on the MLA web site at Evaluation | Meat & Livestock Australia (mla.com.au).

# Exclusions

This framework does not apply for projects where the objective is solely to develop and test tools/enablers such as decision support tools or the development of extension materials, as these will not have directly attributable economic impact.

Furthermore, this framework does not cover measurement of non-economic impacts such as environmental or social benefits. MLA's Triple Bottom Line Evaluation Framework and associated Triple Bottom Line Evaluation Framework Guidelines provides further information on measuring social or environmental benefits.

Note that these guidelines also do not apply to projects aimed at raising awareness and/or increasing producer/advisor skills and knowledge on a topic without a specific objective of achieving significant practice change adoption and resulting economic impacts among participants.

The framework does not assist with measuring the delivery effectiveness of an extension program in engaging the target audience and delivering contracted or agreed program objectives. To measure program effectiveness, additional data collection is required that is separate from the adoption and impact data collection identified in this framework (e.g. engagement of target audience, participant satisfaction/enjoyment, changes in participant KASA, deliverer effectiveness).
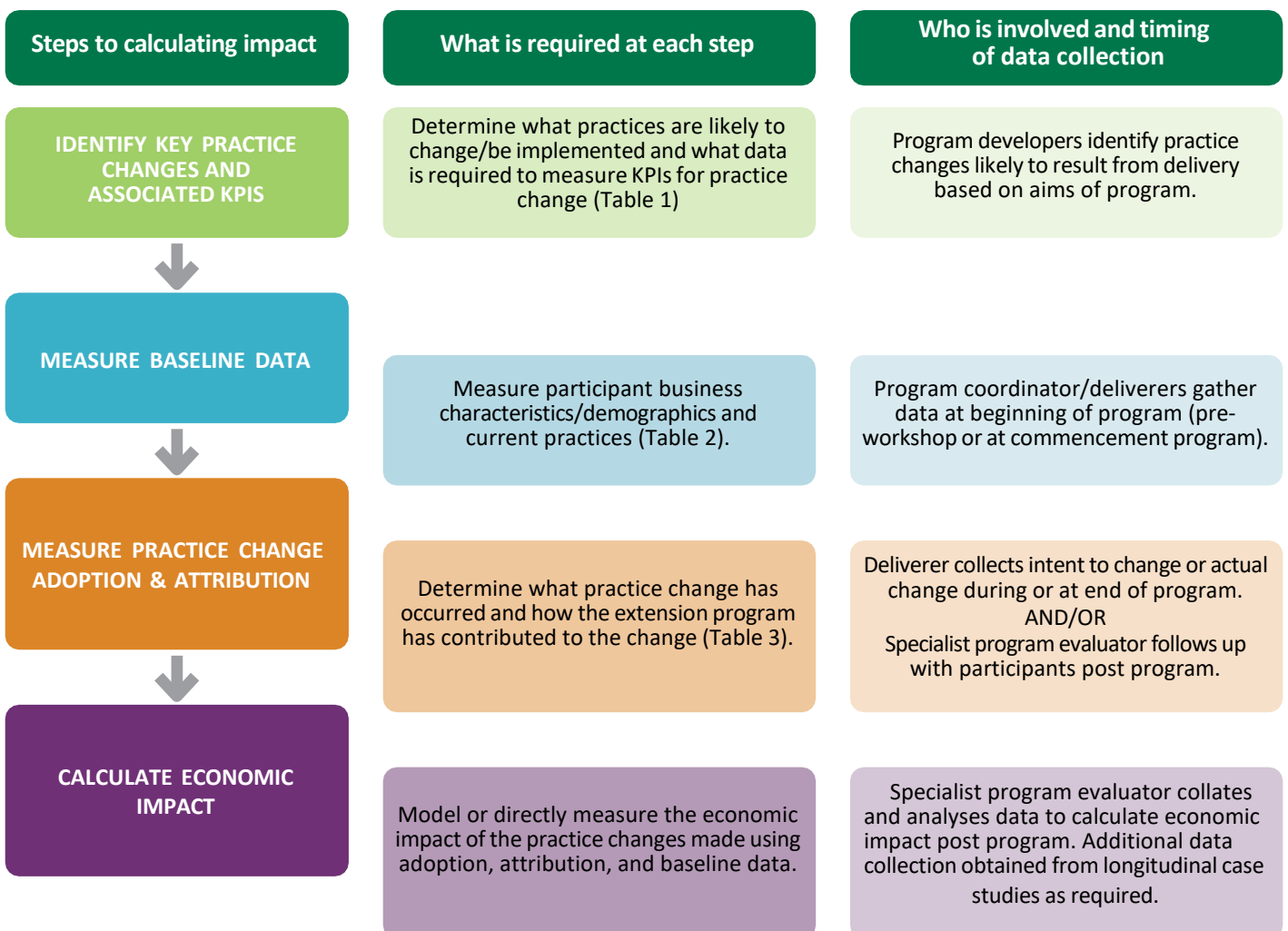
# Overview of the Framework

The Framework consists of four components:

1. Identification of key practice change area/s and related productivity and economic KPIs that need to be measured to assess impact, along with associated data requirements (Table 1).
2. Collection of baseline data from participants (Table 2).
3. Measurement of adoption and attribution of practice changes made by participants (Table 3).
4. Guidelines for who collects the data, when, how often and using what methods (Table 4).

Appendix 1 provides an example of how the framework is applied to an extension project, Appendix 2 provides an example of an impact M&E plan which is aligned to the M&E Framework, Appendix 3 details the relationship between current MLA extension related products and their key practice change areas and Appendix 4 outlines suggestions for how data collection can be built into delivery of extension projects.

Figure 1 details the flow of information from identification of practice change KPIs to calculation of program impact.

**Figure 1: Steps to calculating extension product economic impact**

| Steps to calculating impact | What is required at each step | Who is involved and timing of data collection |
|---|---|---|
| **IDENTIFY KEY PRACTICE CHANGES AND ASSOCIATED KPIS** | Determine what practices are likely to change/be implemented and what data is required to measure KPIs for practice change (Table 1) | Program developers identify practice changes likely to result from delivery based on aims of program. |
| **MEASURE BASELINE DATA** | Measure participant business characteristics/demographics and current practices (Table 2). | Program coordinator/deliverers gather data at beginning of program (pre-workshop or at commencement program). |
| **MEASURE PRACTICE CHANGE ADOPTION & ATTRIBUTION** | Determine what practice change has occurred and how the extension program has contributed to the change (Table 3). | Deliverer collects intent to change or actual change during or at end of program. AND/OR Specialist program evaluator follows up with participants post program. |
| **CALCULATE ECONOMIC IMPACT** | Model or directly measure the economic impact of the practice changes made using adoption, attribution, and baseline data. | Specialist program evaluator collates and analyses data to calculate economic impact post program. Additional data collection obtained from longitudinal case studies as required. |

# Framework Components

## 1.     Identify Measures of Economic Impact

The first step in assessing the impact of an extension project/program is to identify the most likely practice changes that will be adopted by participants (begin with the end in mind). Table 1 assists project/program leaders to identify the key practice change area/s and related productivity and economic KPIs that will need to be measured to assess project/program impact. The table then identifies what data is required to measure success against these KPIs. The practice change areas identified in Table 1 relate to measuring on farm economic impacts only. Impacts of changes in on farm environmental and social variables are evaluated separately as part of the MLA triple bottom line evaluation framework.

**Table 1: Productivity and economic impact data requirements by practice change area**

| Practice Change Area | Practice Change Types | Productivity KPIs | Data Required to Measure Productivity KPIs | Economic Impact KPIs | Data Required to Measure Economic Impact KPIs |
|---|---|---|---|---|---|
| **Sheep reproductive efficiency** | ▪ Ewe nutrition (supplements) ▪ Ewe CS management ▪ Ewe pre-joining/joining management ▪ Lambing management ▪ Weaning management ▪ Ewe culling strategy ▪ Lambing date ▪ Ram fertility management | Conception rate (%) | ▪ Number of ewes/ewe lambs joined ▪ No. ewes/ewe lambs scanned in lamb i.e. W/D scanning percentage | Additional net profit: ▪ $/Ewe ▪ $/Ewe Lam | ▪ Net value of additional lambs weaned for a single, twin and triplet lamb. This will require costing of additional ewe energy requirements and management costs of additional lambs to weaning. ▪ Net value per head of reduced ewe mortality. ▪ Costs saved e.g. labour, supplementary feed. ▪ Annualised implementation costs for the practice change over the life of the investment e.g. new fencing/water infrastructure, capital cost of new equipment/ technology ▪ Additional annual ongoing utilisation costs associated with the practice change e.g. pregnancy scanning, labour, supplements/fodder. |
| | | Scanning percentage (%) | ▪ No. foetuses scanned/ewes joined ▪ % ewes with singles, twins and triplets if that data is available | | |
| | | Embryo loss (%) | ▪ No. of foetuses scanned ▪ Number of lambs born dead and alive. | | |
| | | Lamb survival rate (%) | ▪ No. of foetuses scanned ▪ Depending on how it is measured, no. lambs marked or no. lambs weaned. | | |
| | | Lamb marking and/or weaning rate (%) | ▪ Number of ewes/ewe lambs joined. ▪ Number of lambs marked or weaned. | | |
| | | Ewe mortality (%) | ▪ Total number of ewes joined ▪ Annual number of ewes deaths between joining and weaning/ total annual ewe deaths. | | |

| Practice Change Area | Practice Change Types | Productivity KPIs | Data Required to Measure Productivity KPIs | Economic Impact KPIs | Data Required to Measure Economic Impact KPIs |
|---|---|---|---|---|---|
| **Beef reproductive efficiency** | ▪ Breeder nutrition (supplements)<br>▪ Breeder CS management<br>▪ Pre-joining/joining management<br>▪ Calving management<br>▪ Weaning management<br>▪ Breeder culling strategy<br>▪ Calving date<br>▪ Bull fertility management | Conception rate (%) | ▪ No. cows/heifers joined<br>▪ No. cows/heifers preg. tested in calf (PTIC) | Additional net profit:<br>▪ $/Cow<br>▪ $/Heifer | ▪ Net value of additional calves weaned. This will require costing of additional cow energy requirements and management costs of additional calves to weaning.<br>▪ Net value per head of reduced breeder mortality.<br>▪ Costs saved e.g. labour, supplementary feed.<br>▪ Annualised implementation costs for the practice change over the life of the investment e.g. new fencing/water infrastructure, capital cost of new equipment/ technology<br>▪ Additional annual ongoing utilisation costs associated with the practice change e.g. pregnancy testing, labour, supplements/fodder. |
| | | Calf mortality rate (%) or Calf survival rate (%) | ▪ PTIC rate as above<br>▪ Depending on how it is measured, no. calves marked or no. calves weaned. | | |
| | | Calf marking and/or weaning rate (%) | ▪ Number of cows/heifers joined<br>▪ Number of calves marked or weaned. | | |
| | | Breeder mortality (%) | ▪ Total number of cows/heifers joined<br>▪ Annual number of cow/heifer deaths between joining and weaning/total annual cow/heifer deaths | | |
| **Feedbase** | ▪ Pasture production<br>▪ Weed management<br>▪ Pest and disease control<br>▪ Grazing management<br>▪ Fodder crops | Stocking rate (DSE/ha, Adult Equivalent (AE)/ha, AE/km$^2$) | ▪ Area impacted by practice change in ha or km$^2$<br>▪ DSE or AE impacted by practice change.<br>▪ DSE or AE rating per head for relevant livestock categories impacted. | Additional net profit:<br>▪ $/Hd<br>▪ $/Ha or km$^2$ | ▪ Additional net income due to increased fodder production.<br>▪ Costs saved e.g. fertiliser, chemicals.<br>▪ Annualised implementation costs for the practice change over the life of the investment e.g. new fencing/water infrastructure, pasture sowing costs, capital cost of new equipment/technology.<br>▪ Additional annual ongoing utilisation costs associated with the practice change e.g. fertiliser, labour, chemicals. |
| | | Kg/hd/day | ▪ Start and end weight/hd (kg LW)<br>▪ No. days between start and end weighings. | | |
| | | Kg/hd | ▪ Average turnoff weight per head (kg LW or DW) | | |
| | | Kg /Ha or km$^2$ | ▪ Total kilograms produced (LW or DW)<br>▪ Area grazed (ha or km2) | | |
| | | T DM/Ha (conserved fodder) | ▪ Tonnes dry matter produced<br>▪ Area harvested (Ha) | | |
| **Animal wellbeing** | ▪ Disease management<br>▪ Internal/external parasites<br>▪ Predation<br>▪ Stock handling practices | Mortality rate (%) | ▪ Total head of livestock<br>▪ No. annual livestock deaths due to health/welfare issue | Additional net profit:<br>▪ $/Hd<br>▪ $/ha or km$^2$ | ▪ Additional net income due to increased livestock production.<br>▪ Net value per head of reduced livestock mortality.<br>▪ Costs saved e.g. labour, animal health treatments.<br>▪ Annualised implementation costs for the practice change over the life of the investment e.g. new livestock handling infrastructure, capital cost of new equipment/ technology.<br>▪ Additional annual ongoing utilisation costs associated with the practice change e.g. animal health treatments, labour. |
| | | Lost productivity (kg/hd, kg/ha or km$^2$) | ▪ Lost production due to health/welfare issue (kg LW)<br>▪ No head or area (ha or km$^2$) impacted. | | |

| Practice Change Area | Practice Change Types | Productivity KPIs | Data Required to Measure Productivity KPIs | Economic Impact KPIs | Data Required to Measure Economic Impact KPIs |
|---|---|---|---|---|---|
| **Marketing** | ▪ Target markets<br>▪ Selling time | Market (% turnoff to target markets) | ▪ Total turnoff (kg LW or DW)<br>▪ Kg sold into specific target markets (kg LW or DW) | Additional net profit:<br>▪ $/kg<br>▪ $/Hd | ▪ Additional average price per kilogram due to practice change.<br>▪ Costs saved e.g. labour, transport, selling costs.<br>▪ Annualised implementation costs for the practice change over the life of the investment e.g. capital cost of new equipment/ technology.<br>▪ Additional annual ongoing utilisation costs associated with the practice change e.g. selling costs, feed costs, transport, labour. |
| | | Product quality parameters vs market specs (% compliance to spec) | ▪ Total kg sold into specific target markets<br>▪ Total kilograms complying with specs for specific target markets | | |
| | | Selling time (% turnoff at specific times) | ▪ Total kgs sold annually<br>▪ Total kgs sold at specific times (e.g. seasonal turnoff) | | |
| **Genetics** | ▪ Setting a breeding objective<br>▪ Using EBVs/ASBVs (including growth, yield, reproductive efficiency, carcase/eating quality and animal health related traits)<br>▪ Using selection indexes | Product quality parameters vs market specs (% compliance to spec) | ▪ Total kg sold into specific target markets<br>▪ Total kilograms complying with specs for specific target markets | Additional net profit:<br>▪ $/kg<br>▪ $/Hd<br>▪ $/Ewe or Ewe lamb<br>▪ $/Cow or Heifer<br>▪ $/Ha or km2 | ▪ Additional average price per kilogram due to practice change.<br>▪ Additional net income due to increased livestock production.<br>▪ Costs saved e.g. animal health costs, feed costs.<br>▪ Annualised implementation costs for the practice change over the life of the investment e.g. capital cost of new equipment/ technology.<br>▪ Additional annual ongoing utilisation costs associated with the practice change e.g. labour, genetic testing, genetics purchase costs. |
| | | Kg/Hd/day | ▪ Start and end weight/hd (kg LW)<br>▪ No. days between start and end weighings. | | |
| | | Kg/Hd | ▪ Average turnoff weight per head (kg LW or DW) | | |
| | | Lamb weaning rate (%) | ▪ Number of ewes/ewe lambs joined.<br>▪ Number of lambs weaned. | | |
| | | Calf marking or weaning rate (%) | ▪ Number of cows/heifers joined<br>▪ Number of calves marked or weaned. | | |
| | | Conception rate (%) | ▪ Number of breeders (ewes/ewe lambs or cows/heifers) joined<br>▪ No. breeders scanned/preg. tested in lamb or in calf. | | |
| **Business management** | ▪ Decision making/change management<br>▪ Risk management<br>▪ Labour efficiency/labour management<br>▪ OH & S | Labour efficiency (DSE/FTE, AE/FTE, Ha or km2/FTE) | ▪ No. full time equivalents (FTEs)<br>▪ Total livestock units (DSE/AE)<br>▪ Total farm area (Ha/km2) | Additional net profit:<br>▪ $/Ha or km2<br>▪ $/business | ▪ Owner/operator labour allowance per FTE (manager versus unpaid family labour)<br>▪ Costs saved e.g. improved OH&S, reduced staff turnover, labour.<br>▪ Value of reduced risk due to practice change (i.e. change in probability by change in likely $ impact if risk eventuates) |
| | | Staff retention rate | ▪ No. annual staff turnover as percentage of total number of staff. | | |
| | | OH&S incident rate | ▪ Number of OH&S incidents per year. | | |
| | | Risk exposure and impact | ▪ Probability of risk occurrence (%)<br>▪ Likely impact if risk eventuates ($) | | |

# 2. Baseline Demographic Data

Once practice change productivity and economic KPIs have been identified, the next step is to collect baseline demographic data from all extension projects/programs (once only for projects/programs with multiple events).

The general demographic data in Table 2 should be collected from all events. Additional data on beef and sheep enterprises should be collected where the project/program aims to achieve practice change adoption for these enterprises.

Baseline data on current management practices is useful where a project has a specific aim to increase adoption or effectiveness of a particular management practice (e.g. ewe pregnancy scanning, phosphorus supplementation, measuring soil moisture) to determine if and how participants are already undertaking these practices. This type of specific targeted practice change would not apply for all projects/events. PDS projects is one example where it would be relevant.

Data from non-producer participants would only need to be collected if these participants are a target audience for the project/program.

**Table 2: Baseline demographic data**

| Demographic data | Data collection requirements |
|---|---|
| **General** | Participants complete data collection as a business i.e. if multiple people from the same business are attending, only one form is completed for the business.<br>▪ Business name<br>▪ No. participants per business attending<br>▪ Property address/es<br>▪ Email address/es (for each business participant)<br>▪ Phone number/s (mobile vs landline for each business participant)<br>▪ Property size (Ha or km2)<br>▪ Area grazed (Ha or km2)<br>▪ Total cattle at date (e.g. 30th June) (Hd)<br>▪ No. cows (Hd)<br>▪ Total sheep at date (e.g. 30th June) (Hd)<br>▪ No. ewes (Hd)<br>▪ Permission to contact participants for follow-up evaluation |
| **Beef enterprise** | ▪ No. cattle turned off per year (Hd)<br>▪ Calving start date/s (DD/MM)<br>▪ % cattle Bos indicus/tropical breeds e.g. Brahman<br>▪ % cattle Bos taurus/British Breeds e.g Angus<br>▪ % cattle Bos taurus-Bos indicus crosses e.g. Brangus |
| **Sheep enterprise** | ▪ No. lambs turned off per year (Hd)<br>▪ Lambing start date/s (DD/MM)<br>▪ % lambs Merino<br>▪ % lambs Merino cross<br>▪ % lambs Non-Merino |
| **Management practices** | ▪ Where a project aims to increase the adoption of a specific practice (e.g. ewe pregnancy scanning, phosphorus supplementation of cattle, measuring soil moisture) it is useful to assess baseline levels of current practice, including scale, frequency, methods and timing (e.g. PDS projects on specific topics).<br>▪ This type of data collection would not be relevant for all projects/events. |

| Demographic data | Data collection requirements |
|---|---|
| **Non-producer participants i.e. consultants, product reps, agents, agronomists etc** | • Business name/organisation represented<br>• Contact details (phone and email)<br>• Geographical area serviced (region e.g. South West Victoria)<br>• Nature of service provided to industry (e.g. pasture, animal health, reproduction, financial services etc)<br>• No. producers serviced annually<br>• % clients with sheep<br>• % clients with beef<br>• Permission to contact for follow-up evaluation |

# 3.  Measuring Attributable Adoption

The next stage in the process of measuring impact is for project/program leaders to identify what information is required from participants (producers and producer advisors) in order to measure adoption, and then to attribute that adoption to their participation in the project/program (Table 3). An alternative to collecting this information directly from participants is to estimate adoption, though this is much more difficult and much less accurate.

Assessing attribution is about determining what the participant would likely have done anyway in relation to the practice change if they had not participated in the project/program. In many cases participants were planning to make a particular change anyway and report this as an intent to make a change in post event surveys. In these cases, assessment of attribution therefore assists to determine if their participation in the project/program was a catalyst for making the change sooner, and/or achievement of better results, and what other sources of information were also used in making the decision to implement change.

**Table 3: Information required for measuring attributable adoption**

| Adoption | Attribution of Adoption |
|---|---|
| Producers | |
| ▪ Intent to make a practice change/s (no. of producers)<br>▪ Proportion of intentions that eventuate (%)<br>▪ Actual practice change/s made (No. of producers)<br>▪ Type of practice change/s made (description)<br>▪ Scale of practice change made (i.e. No. livestock/area impacted)<br>▪ Dis-adoption of practice changes over time (%)<br>▪ Timing of dis-adoption (year)<br>▪ Timing of impacts commencing (year)<br>▪ Time to peak impacts (years post adoption)<br>▪ Timing of impacts declining (year)<br>▪ Decline in impacts over time (%) | ▪ Would the same change have been at the same time anyway regardless of participation in the event/program (Probability)<br>▪ Would the same change have been made at a later time anyway regardless of participation in the event/program (How much later)<br>▪ Would the same change have been made on the same scale anyway (difference in scale with participation compared to without)<br>▪ Would the outcome of the change have been the same without participation in the event/program (difference in profit)<br>▪ Were other sources of information/support required to make the change (Proportion of required info/skills to make the change obtained from event/program) |
| Producer Advisors (e.g. consultants, agronomists, stock agents, vets, banks, accountants) | |
| ▪ -How many clients is the information provided through the event/program relevant for?<br>▪ How many clients have made or intend to make a practice change based directly on advice provided by producer advisor that was obtained from this event/workshop.<br>▪ Type of practice change/s made (description)<br>▪ Scale of practice change/s made (i.e. no. livestock/area impacted)<br>▪ Dis-adoption and timing of impacts information required as above | ▪ Would the same change have been made at a later time anyway regardless of advisor advice (How much later)<br>▪ Would the outcome of the change have been the same without advisor advice (difference in profit)<br>▪ Would the same change have been made on the same scale without advisor advice (difference in scale with participation compared to without)<br>▪ Were other sources of information/support required by the advisor to support the client to make the change (Proportion of required info/skills to make the change obtained from event/program) |

Measuring producer adoption and attribution due to producer advisor participation in extension programs is more difficult than directly measuring adoption and attribution for producer participants, however it is likely to represent quite a significant benefit to industry, particularly for projects where advisors are a target audience. Advisor benefits have typically been measured by estimating flow on producer adoption via advisors as a percentage of direct producer participant adoption. Measured or estimated participant on-farm economic impacts from changes made are then extrapolated across this estimated flow on adoption via advisors.

This M&E framework suggests a process for attempting to capture more accurate impact and adoption data due to producer advisor involvement and attendance at extension events. Given that collecting evaluation data from advisors is a relatively new area of focus, it is recommended that a pilot approach be taken to trialling the timing, method and types of information collected to assess the willingness and ability of advisors to provide data and information for evaluation purposes. At the very least, capturing baseline data from producer advisors around the potential application of any new information gained among their client base provides a more accurate basis for estimating flow on adoption. Data around assessing attribution of adoption and impact among advisor clients is much more difficult to capture second-hand and may not be worth pursuing. It is suggested that most advisors would have a reasonable idea of the productivity impacts of practice changes made by clients but may have less insight into the economic impact of those changes.

# 4    Data Collection Logistics

The final step in the evaluation process is to identify from Tables 4 to 7 the logistics of data collection for different types of events. These events are categorised by MLA as follows:

## Category A: Awareness

Category A activities form the initial stage of the learning pathway by seeking to engage producers at an activity level. These activities could include field days, forums / expos, seminars, and farm walks. Generally, the cost is minimal or free for producers to attend.

This category measures satisfaction and value of activities, and intent to change.

## Category B: Actions to build knowledge, skills and confidence

Category B seeks to provide the second stage in the learning pathway for producers. At this level, knowledge, skills and confidence will be the primary outcomes measured. These activities provide participants with more in-depth information, including problem-solving activities and a focus on skill development. A facilitator will usually manage group discussion and interaction.

## Category C: Supporting adoption and practice change

Category C seeks to measure practice change (adoption), along with shifts in knowledge and skills, to assess 'how well' producers understand and can subsequently implement what they have learned.

Each category of event requires slightly different data collection logistics ranging from fairly simple for Category A events to more complex for Category C projects.

**Table 4: Timing of data collection by event category**

| EVENT CATEGORY | Impact Data | | Attributable Adoption Data | | |
|---|---|---|---|---|---|
| | Baseline Data | Post Change Data | Intent | Actual Adoption | Attribution |
| TIMING OF DATA COLLECTION | | | | | |
| Cat A | At the event/pre-event registration | Post event follow-up | At end of event | Post event follow-up | |
| Cat B | At the event/pre-event or beginning of program where there are multiple events over time | Post event follow-up and during extension activity where there are multiple events | At end of event and during extension activity where there are multiple events | Post event follow-up and during extension activity where there are multiple events | |
| Cat C | Beginning of program | During extension activity and post extension follow-up | During extension activity | During extension activity and post extension follow-up | |
| Producer Advisors | As above for each event category | Post event follow-up | | | |

**Table 5: Frequency of data collection by event category**

| EVENT CATEGORY | Impact Data | | Attributable Adoption Data | | |
|---|---|---|---|---|---|
| | Baseline Data | Post Change Data | Intent | Actual Adoption | Attribution |
| FREQUENCY OF DATA COLLECTION | | | | | |
| Cat A | Once only | | Once only, ideally 6-12 months post event depending on practice change areas of focus – may be longer for longer term changes e.g. feedbase. | | |

| EVENT CATEGORY | Impact Data | | Attributable Adoption Data | | |
|---|---|---|---|---|---|
| | Baseline Data | Post Change Data | Intent | Actual Adoption | Attribution |
| Cat B | Once only | Once only or annually (depending on length of project) at appropriate times (e.g. reproduction KPIs after lambing/calving) or seasonally (e.g. feedbase KPIs) depending on type of practice change | At the end of each event for projects with multiple events | At the end of each event for projects with multiple events (excl. 1st event). Once only post event, ideally 6-12 months post event depending on practice change areas of focus – may be longer for longer term changes e.g. feedbase. | Once only, ideally 6-12 months post event depending on practice change areas of focus – may be longer for longer term changes e.g. feedbase. |
| Cat C | Once only | Annually at appropriate times (e.g. reproduction KPIs after lambing/calving) or seasonally (e.g. feedbase KPIs) depending on type of practice change during program delivery. Once only post event, ideally 12– 24 months post event depending on practice change areas of focus – may be longer for longer term changes e.g. feedbase. | At the end of each event for projects with multiple events | At the end of each event for projects with multiple events (excl. 1st event). Once only post project, ideally 12– 24 months post last event depending on practice change areas of focus – may be longer for longer term changes e.g. feedbase. | Once only post project, ideally 12-24 months post last event depending on practice change areas of focus – may be longer for longer term changes e.g. feedbase. |
| Producer Advisors | Once only | | | | |

**Table 6: Method of data collection by event category**

| EVENT CATEGORY | Impact Data | | Attributable Adoption Data | | |
|---|---|---|---|---|---|
| | Baseline Data | Post Change Data | Intent | Actual Adoption | Attribution |
| | METHOD OF DATA COLLECTION | | | | |
| Cat A | Participant survey at event or pre-event registration | Phone and/or online surveys/case studies | Participant survey at end of event | Phone and/or online surveys/case studies | |
| Cat B | | Participant surveys during program and phone surveys, online surveys and/or in person (e.g. case studies) post program | | Participant surveys during program and phone surveys, online surveys and/or in person (e.g. case studies) post program | |
| Cat C | | Participant surveys during program and phone surveys, online surveys and/or in person (e.g. case studies) post program | | Participant surveys during program and phone surveys, online surveys and/or in person (e.g. case studies) post program | |
| Producer Advisors | | Phone and/or online survey | | | |

In terms of collecting the required data around on-farm productivity impacts associated with adoption, for projects which involve an R&D or demonstration component, the required data will be captured for core producers during project delivery. These results can then either be extrapolated to observer participants, perhaps with some discount if considered appropriate depending on the type of practice change made, or if resources and time allow, observer productivity impacts can be collected via follow-up phone/online surveys. For activities with no R&D or demonstration component i.e. training events, follow-up surveys with participants will be required to capture this information.

In terms of collecting the required data to assign an economic value to productivity impacts, for projects which involve an R&D or demonstration component, this information is often collected for core producers as part of the project delivery process e.g. PDS projects. The economic values assigned to key productivity impacts for core producers can then be extrapolated to observer producers adopting the same management change. For activities with no R&D or demonstration component i.e. training events, follow-up surveys with participants can be used to capture this information, however data quality is often poor unless it is collected in person and/or actual farm financial records are used, and producers are often reticent to provide this kind of information. Alternatives are to use existing data sources (e.g. ABARES, benchmarking data) or modelling tools to assign economic values to productivity changes or to develop example economic case studies which represent the key types of practice changes being made by participants. These methods of collecting economic information may require specific expertise in economics which needs to be sourced outside of project delivery resources.

**Table 7: Who collects the data by event category**

| EVENT CATEGORY | Impact Data | | Attributable Adoption Data | | |
|---|---|---|---|---|---|
| | Baseline Data | Post Change Data | Intent | Actual Adoption | Attribution |
| WHO COLLECTS THE DATA | | | | | |
| Cat A | Participant data collected by deliverer/co-ordinator. | Post program data collected by deliverer/ co-ordinator or independent evaluator. | Participant data collected by deliverer/co-ordinator. | Post program data collected by deliverer/ co-ordinator or independent evaluator. | |
| Cat B | | Participant data collected by deliverer/co-ordinator during program. Post program data collected by deliverer/co-ordinator or independent evaluator. | | Participant data collected by deliverer/co-ordinator during program. Post program data collected by deliverer/co-ordinator or independent evaluator. | |
| Cat C | | Participant data collected by deliverer/co-ordinator during program. Post program data collected by deliverer/co-ordinator or independent evaluator. | | Participant data collected by deliverer/co-ordinator during program. Post program data collected by deliverer/co-ordinator or independent evaluator. | |
| Producer Advisors | | Deliverer/co-ordinator or independent evaluator. | | | |

Depending on the number of participants involved, the method of data collection and available budget for data collection, post event data could be collected from all participants (e.g. smaller, more intensive projects) or from a subset of participants. For participant subsets, where data is collected remotely via phone or online surveys, ideally a statistically valid sample size should be used where time and budget allow. Alternatively, where more intensive data collection is required over a period of time, a case study approach might be best suited using a smaller number of participants selected to represent the range of practice changes made and key locations of participant businesses.

# Appendix 1: User Guide for the M&E Framework

The following 9 steps provide a user guide for this framework, along with an example of the Profitable Grazing Systems (PGS) Lifting Lamb Survival learning package for each step. Appendix 4 provides further information and suggestions around how to implement the framework.

**Step 1** – Identify intended outcome of the project/program in terms of on-farm impact for producers. Is significant producer practice change adoption an objective of the project/program? Can the impact of practice changes made be captured in economic terms? If not, this framework will not apply.

> **Example: PGS Lifting Lamb Survival**
> - Lifting Lamb Survival's target outcome is to lift lamb survival by X percentage points across all participants by 20XX

**Step 2** – Align extension project/program to the relevant MLA extension product (Appendix 3) and practice change area (Table 1). If you are unable to link the extension project/program to an existing product, the MLA evaluation team will assist in adding an appropriate product to allow tracking of adoption and impact.

> **Example: PGS Lifting Lamb Survival**
> - This project aligns with the Profitable Grazing Systems product and the practice change area of 'sheep reproductive efficiency'

**Step 3** – Select which practice change types from Table 1 align best with target outcome and practice change area/s.

> **Example: PGS Lifting Lamb Survival**
> - Best aligns with Ewe nutrition (supplements), Ewe CS management and Lambing management practice change types'

**Step 4** – Select which productivity KPIs from Table 1 align best with target outcome and practice change area/types.

> **Example: PGS Lifting Lamb Survival**
> - Best aligns with 'lamb survival rate %' productivity KPI

**Step 5** – Select which economic impact KPI from Table 1 aligns best with target outcome and practice change area/types.

> **Example: PGS Lifting Lamb Survival**
> - Best aligns with '$/ewe' economic impact KPI

**Step 6** - Identify the applicable baseline data requirements from Table 2, taking into consideration if farm advisors may be part of the target audience.

> ### Example: PGS Lifting Lamb Survival
>
> - Requires collection of 'general' and 'sheep enterprise' baseline data (Table 2).
> - No requirement for non-producer participant data collection as this program does not identify them as a target audience.

**Step 7** - Identify other data collection requirements to demonstrate progress against project/program KPI/s from Tables 1 and 3.

> ### Example: PGS Lifting Lamb Survival requires collection of the following additional data
>
> - Lamb survival % (Table 1) - No. of foetuses scanned & depending on how it is measured, no. lambs marked or no. lambs weaned.
> - $/ewe requires the data outlined in Table 1 'data required to measure Economic Impact KPI' column
> - Table 3 producer Adoption data (No. of participants making change and scale of change etc)
> - Table 3 producer Attribution data (% of change and impact attributed to project)

**Step 8** – Plan how data will be collected, how often it will be collected, who will collect it and how it will be collated and stored (Table 4). Consider:

- Frequency of data collection i.e. beginning of program, during program, end of program, post-program.
- How it will be collected i.e. participant surveys within program, activities within the program, on-line portals, online surveys, telephone interviews, in person etc.
- How data will be verified for validity/accuracy.
- How data will be stored, collated, analysed and reported.
- How practice change (adoption) and attribution information will be captured.
- Who is responsible for data capture, storage, collation and reporting.

> ### Example: PGS Lifting Lamb Survival requires data to be collected
>
> - At the commencement of the program by deliverer (baseline demographic data and baseline lamb survival figures) for all participants via participant survey in workshop.
> - At the end of the program by deliverer (intention to change or actual change and resultant or expected impact on lamb survival outcomes) for all participants via participant survey in workshop.
> - Post program by deliverer or independent evaluator from a sub-set of participants (adoption, attribution, actual change in lamb survival figures over multiple seasons and economic costs and benefits of practice change implementation) – data collected by phone survey or online survey 12-24 months post program.
>
> This raw data would be recorded in the PGS evaluation template by the deliverer/independent evaluator and submitted to the PGS coordinator for collation, verification and reporting.

**Step 9** - Data analysis and reporting of adoption and impact.

- Raw participant data on productivity and economic impacts for relevant KPI/s is used to calculate a net dollar benefit per adoption unit along with identification of number of adoption units by financial year.
- Adjustment of net dollar benefit/adoption unit and number of adoption units by financial year according to attribution data collected.
- Final net dollar benefit/adoption unit and number of adoption units by financial year will be utilised within the broader MLA monitoring and evaluation framework to assess return on investment in the product area over the relevant assessment period (e.g. 25 years 2020/21-2045/46).

To assist with this analysis, modelling tools such as the recently updated Rendell McGuckian model may be used. This estimates the individual farm as well as industry-wide economic benefits of on-farm practice changes.

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### Example: PGS Lifting Lamb Survival requires

- Calculation of average additional net profit per ewe for producers adopting a practice change, including accounting for attribution of impact to project participation.
- Identification of total number of ewes impacted by practice change adoption by financial year over the evaluation period (e.g. 25 year period), including accounting for attribution of adoption units by year of adoption to participation in the project.

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# Appendix 2: Example of Impact M&E Plan for 'BeefUP' Aligned to the M&E Framework

| Impact Criteria | What data needs to be collected and from whom | How data is collected | When data is collected | Who is responsible | Data storage |
|---|---|---|---|---|---|
| **Baseline Data** | Participant demographics (all participants)<br>▪ business contact details<br>▪ # ha<br>▪ # hd (breeders and total)<br>▪ # participants per business<br>▪ # non-producer participants | Online registration form via MLA CRM | Before event as part of registration process | Event organiser | MLA's CRM |
| | Baseline for key practice changes (all participants)<br>▪ # businesses that preg test and CS breeders<br>▪ Current pregnancy testing rates<br>▪ # businesses that measure cow mortality<br>▪ Current cow mortality<br>▪ Current calf marking rates<br>▪ # businesses that use supplements to manage CS in breeders | Online registration form via MLA CRM | Before event as part of registration process | Event organiser | MLA's CRM |
| **Key Practice Changes & KPIs** | **Beef Reproductive Efficiency** (as one example):<br><br>**1.** Use of pregnancy testing<br>▪ # businesses preg. testing before and after 'BeefUP'<br>▪ Preg. testing rates before and after 'BeefUP' (conception rate %*)<br>**2.** Use of supplements to improve CS for joining and calving<br>▪ # businesses changing supplement use following 'BeefUP'<br>▪ # businesses CS cows before and after 'BeefUP'<br><br>▪ Calf survival before and after 'BeefUP'<br>▪ Calf marking %* before and after 'BeefUP'<br>▪ Breeder mortality (%) before and after 'BeefUP'<br><br>Collect intent to change from all participants<br><br>Collect actual adoption from a statistically valid sub-sample size<br>*All % to be calculated from raw data | Baseline collected via online registration form via MLA CRM<br><br>Intent to make change collected as part of end of event paper-based evaluation after facilitated ORID<br><br>Actual changes collected via post event follow up 6-12 months later (phone calls) | Baseline collected before event as per above<br><br>Intent to make changes collected at end of event<br><br>Actual change collected after event as part of follow up | Event organiser<br><br>Event organiser<br><br>Evaluation manager oversees survey team | MLA's CRM or data downloaded from CRM to spreadsheet with additional data added |
| **Adoption & Attribution** | Practice changes and KPIs above form the basis of a post-event follow up process to measure adoption and attribution.<br><br>Key questions include:<br>▪ Has any of the following <insert KPIs above i.e. calf survival %> changed since you attended 'BeefUP'?<br>▪ If so, do you attribute the change to information/skills gained at 'BeefUP'?<br>▪ If yes, how important was 'BeefUP' <insert multiple options that grade the importance of 'BeefUP' to the change> | Actual changes collected via post event follow up 6-12 months later as phone interviews<br><br>with structured questions. | Actual change collected after event as part of follow up | Evaluation manager oversees survey team | MLA's CRM or data downloaded from CRM to spreadsheet with additional data added |

| Impact Criteria | What data needs to be collected and from whom | How data is collected | When data is collected | Who is responsible | Data storage |
|---|---|---|---|---|---|
| **Impact** | Data to be collected from participants that identify having made a change from post-event follow up in the form of a case study:<br>▪ Productivity benefit of change relative to KPIs above i.e. change in conception rates, calf survival/marking rates and breeder mortality.<br>▪ Costs of making the change<br>▪ $ and other benefits of making the change<br>▪ Timing of implementation<br>▪ Estimates of time taken to realise full benefits<br>▪ Scale of change<br>▪ Any other relevant data | In depth case study | 6-12 months post event | Evaluation manager oversees evaluation specialist to construct case study | Participation in case study noted against record in MLA's CRM or project spreadsheet.<br><br>Case study data recorded in separate file. |

# Appendix 3: Current MLA extension related products and their key practice change areas (additional products to be added as required)

| Product Code | Product Name | Practice Change Area Product Code | Practice Change Area |
|---|---|---|---|
| p00308 | Producer Demonstration Sites (PDS) | p00308f | PDS - Feedbase (2021-25) |
| | | p00308g | PDS - Sheep reproductive efficiency (2021-25) |
| | | p00308h | PDS - Beef reproductive efficiency (2021-25) |
| | | p00308i | PDS - Animal wellbeing (2021-25) |
| | | p00308j | PDS - Marketing (2021-25) |
| | | p00308k | PDS - Business Management (2021-25) |
| | | p00308m | PDS - Genetics (2021-25) |
| | | p00308n | PDS - Emissions reduction (2021-25) |
| | | | |
| | | | |
| p00567 | BeefUP forums | p00567e | BeefUP forums - Business management (2021-25) |
| | | p00567f | BeefUP forums - Feedbase (2021-25) |
| | | p00567g | BeefUP forums - Beef reproductive efficiency (2021-25) |
| | | p00567h | BeefUP forums - Animal wellbeing (2021-25) |
| | | p00567i | BeefUP forums - Marketing (2021-25) |
| | | p00567j | BeefUP forums - Genetics (2021-25) |
| p00637 | MeatUP forums | p00637a | MeatUP forums – Business management (2021-25) |
| | | p00637b | MeatUP forums - Feedbase (2021-25) |
| | | p00637c | MeatUP forums – Beef reproductive efficiency (2021-25) |
| | | p00637d | MeatUP forums – Sheep reproductive efficiency (2021-25) |
| | | p00637e | MeatUP forums - Animal wellbeing (2021-25) |
| | | p00637f | MeatUP forums - Genetics (2021-25) |
| | | p00637g | MeatUP forums - Marketing (2021-25) |
| p00655 | 'Back to Business' bushfire recovery program (completed) | N/A | ▪ Sheep reproductive efficiency<br>▪ Beef reproductive efficiency<br>▪ Feedbase<br>▪ Genetics<br>▪ Marketing<br>▪ Animal wellbeing<br>▪ Business management |
| p00650 | BESTWOOL/BESTLAMB & BETTERBEEF extension program | N/A | ▪ Beef reproductive efficiency<br>▪ Feedbase<br>▪ Genetics<br>▪ Animal wellbeing |
| p00386 | BredWell FedWell - Southern Beef Course | p00386c | Beef reproductive efficiency (2021-25) |
| | BredWell FedWell - Sheep Course | p00386d | Sheep reproductive efficiency (2021-25) |
| p01158 | Dieback management & extension program | N/A | Business management |
| | | | |

| Product Code | Product Name | Practice Change Area Product Code | Practice Change Area |
|---|---|---|---|
| p00138 | EDGEnetwork® producer extension courses & workshops - Southern Business (2021-25) | p00138d | Business management |
| | EDGEnetwork® producer extension courses & workshops - Northern Business (2021-25) | p00138e | Business management |
| | EDGEnetwork® producer extension courses & workshops - Northern Breeding (2021-25) | p00138f | Beef reproductive efficiency |
| | EDGEnetwork® producer extension courses & workshops - Northern Nutrition (2021-25) | p00138g | Nutrition |
| | EDGEnetwork® producer extension courses & workshops – Grazing land management | ? | Feedbase |
| | EDGEnetwork® producer extension courses & workshops – Grazing fundamentals | ? | ▪ Sheep reproductive efficiency<br>▪ Feedbase<br>▪ Genetics<br>▪ Animal wellbeing<br>▪ Business management |
| p00634 | Northern Beeflink productivity & extension program | N/A | ▪ Beef reproductive efficiency<br>▪ Feedbase<br>▪ Marketing<br>▪ Genetics |
| p00405 | Profitable Grazing Systems | p00405fs | PGS - Business Management South (2021-25) |
| | | p00405gs | PGS - Feedbase South (2021-25) |
| | | p00405h | PGS - Sheep reproductive efficiency (2021-25) |
| | | p00405is | PGS - Marketing South (2021-25) |
| | | | |
| p00339 | Producer research sites (participatory R&D) | p00339a | PRS - Feedbase |
| | | p00339b | PRS – Phosphorus supplementation |
| | | p00339c | PRS – Northern pain relief |
| p00681 | Northern Breeding (NB2) | N/A | Beef reproductive efficiency |
| p00443 | Northern Australia Climate Program (NACP) | N/A | ▪ Feedbase<br>▪ Beef reproductive efficiency<br>▪ Animal wellbeing<br>▪ Marketing |
| p00517 | Lamb Survival/Weaning Productivity Tools and Practices | N/A | Sheep reproductive efficiency |
| p01269 | NSW Rangelands Living Skin research & extension program | N/A | Feedbase |
| p00330 | ParaBoss (integrated parasite management) web resources & extension | N/A | Animal wellbeing |
| p00564 | Model for forecasting of extreme climate events | N/A | Adapting to climate change – economic impacts from:<br>▪ Feedbase<br>▪ Beef reproductive efficiency<br>▪ Sheep reproductive efficiency<br>▪ Animal wellbeing<br>▪ Marketing |
| p01268 | Wambiana grazing trials/ strategy program | N/A | Preserving natural capital – economic impacts from:<br>▪ Feedbase<br>▪ Business management (stocking rates etc) |

# Appendix 4: Critical Success Factors for Implementing the Evaluation Framework

Implementing the MLA extension M&E framework requires a change in approach and mindset about the way evaluation is implemented within an extension project. Evaluation processes are often viewed by deliverers as 'add-on' activities to the project/event. For example, most evaluation is presented as a one page 'happy sheet' at the end of an event/project when many participants have slipped out early or are tired and rushed to get away at the end of the session. The result is not quality data collection, nor is it useful data collection, often not enabling collection of crucial information. Answers may be guessed or rushed, or some questions not completed at all. For evaluation to be useful and meaningful to both the collector and participant, a different approach is needed. Here are some examples of how data can be collected as a start for discussion:

## 1. Baseline data (demographics and current practice)

Most baseline data can be collected pre-event/project as part of a registration and initial engagement process. When collected pre-event/project, this data can be valuable for planning as it allows the deliverers an insight into who the audience is and what their needs are as well as what they currently do. Online participant registration platforms can be designed to include simple data collection, or at least link registration details to previous participation lists (where data already exists) so that follow up baseline data collection only needs to take place with new participants.

Even if online registration is not used, pre-event/project registration can allow organisers to communicate with participants and collect verbally or via online forms relevant data such as baseline demographics, what they want to get out of the event/project and what their current practices are.

## 2. At event data collection (short event)

If pre-event data collection occurs, 'at event' data collection is minimised. If an event is something that is a proven tested format, there is little need to ask if participants 'liked' the event or sessions or if they would recommend it to others (note this is different if it is a pilot). Data collection 'at event' becomes targeted to 'what did they learn that was useful to them' and 'what they intend to do with this information/skills post event'. This works for short (1/2 day or full day events).

## 3. At event/during project delivery data collection (multiple days)

If the event/project involves a series of workshop days/field days, evaluation of KASA, intent to change and actual practice change needs to be built into the content and process so that it is collected as part of the event delivery process at different stages. For example, if the activity is designed to improve lamb survival, then day 1 would involve data collection as a group activity of current lamb survival and discussion about where producer issues are, with the deliverer recording the results. As the activity is rolled out over multiple days, the deliverer would facilitate discussion amongst participants about what changes they are going to make and record these for future reference. By the time the workshop is on its final day, participants are primed to report back on any new lamb survival data generated during the program's timeframe which can then be recorded by the deliverer. The final day would involve a process where participants are encouraged to articulate verbally or on paper what other changes they intend to make, and these are recorded for follow up at a later date.

Other approaches include having participants set themselves tasks or projects that relate to practice change and then having them report back at the next session to the group. The crucial part is that the deliverer records this information in some format for future reference and then follows up. This is a process used in many formal

leadership or business development training programs where participants are encouraged to implement as they go their new knowledge and skills and complete 'projects'. The challenge is for the deliverer/program evaluator to record practice change progress for each participant to monitor progress and impact. It is not difficult but does require a conscious change in the way events are designed and run. To ensure data collection is done, templates are required to enable it to happen effectively and efficiently.

## 4. Post event/project data collection

Development of follow-up data collection to monitor whether intent to change resulted in actual change and to assess the impact of the change is crucial for measuring impact over time. This can be done several ways, such as follow up phone interviews, follow-up day where participants report back to the group on changes made, and longitudinal case studies. These are all processes that keep participants engaged in making change and provide event deliverers valuable information regarding the changes participants are making and what the challenges are.

## Who should do the data collection?

Ideally the deliverer/facilitator of the program if it is a multi-day event, mainly because it keeps them engaged with their participants and gives the deliverer/facilitator valuable insights into what participants have taken from the event/activity.

For short events, the follow-up can be done by the deliverer/facilitator or by an independent evaluator who has knowledge of the event to context the data collection.

## What happens with the data collected?

Not only should the data be collated, impacts calculated and reported to the funding organisation/s, but evaluation data should also be collated and reported to the deliverer/co-ordinator. In some cases (for longer programs) it can also be shared with the participants so they can see the impact of their practice changes and how their data is used for evaluation purposes. Deliverers and participants are often sceptical about what happens to their data with good cause, as it is rarely shared with them after collection, so they never know what happens to it, how it is used and what it means. To change this perception, evaluators need to report back and get feedback from deliverers and participants to ensure data reported is accurate and relevant to the program being evaluated.

## The theory supporting this approach

Modern coaching theory, neurolinguistic programming and neuroscience support the practice of having participants think and then articulate to their peers, the changes they intend to make. This process helps to imbed change in the mind of the participant as well as providing opportunities for feedback from peers and on-going evaluation of adoption and impact. Holding participants to account for the changes they have articulated is very successful at ensuring they take action, and if they come up against issues or challenges with implementation, this process gives them an audience to discuss these difficulties to assist with finding solutions. Again, this can be used to evaluate the success of the program as well as evaluate impact, adoption and attribution.

Making practice change and problem solving a focus of delivery, as opposed to awareness, knowledge and skill acquisition (which is the focus of most current extension programs), not only improves the likelihood participants are supported to make change but makes it much easier to determine adoption, attribution and impact of a program. It does not take much to 'tweak' an existing program to incorporate evaluation for impact into delivery. All it takes is a change of focus on the outcome of the extension event to incorporate simple ways to develop data collection for evaluation that enhances practice change outcomes as well as the ability to measure impact.