

final report

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eID Case Study and Benefit Cost Analysis Development

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Executive summary

The course titled “Using eID (electronic identification) in beef management” was developed for beef producers to increase their understanding of the technology, data collection and analysis to attain productivity gains in their business. The course currently lacks real case studies to assist producers attending how to analyse the extent of the value of the costs and benefits of eID technology in their businesses. This project aimed to supply case studies demonstrating the extent of the costs and benefits and the factors that result in adequate returns on investment in the technology.

A review of the course was conducted followed by an assessment of the costs of investment in eID technology and the extent of the possible benefits. Approximately twenty commercial beef producers and a number of others including technology suppliers, processors and feedlot operators were contacted to establish their views on the technology, how it was implemented and how they perceived that it may add value to a farm business.

Five case studies have been developed outlining the extent of the costs and benefits of eID when integrated with other technology on farm. The aim was to identify commercial beef producers as the primary targets for conducting the case studies with two from northern Australia and three from southern Australia. Seed stock operators were avoided as the business case for investment in eID differs between seed stock operators and commercial operators. This is mainly due to the differences in labour intensity and necessity to record objective individual animal performance data.

The case studies assist in identifying some of the key issues that require addressing prior to investment in eID technology if the primary aim is to generate a return on investment exceeding fifteen percent.

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1 Background

The MLA developed course titled “Using eID in beef management” aimed to increase beef producers’ understanding of eID technology, data collection and analysis to attain productivity gains in their business. The course, in its existing form, lacks case studies to assist producers to assess the extent of the value of the costs and benefits of eID technology in their businesses. This project delivers case studies demonstrating the extent of the costs and benefits and the factors that result in adequate returns on investment in the technology.

The industry benefits will be an increase in the level of business skills of beef producers and potentially an increase in the number of beef producers investing in the technology only where the economic benefits are adequate.

The project will add value to the eID course by building farm manager skills in financial analysis and providing examples of business cases for investment into the technology. The case studies clearly demonstrate the factors that are necessary in order to provide an assessment of the level of net benefit provided by investment in eID technology.

A review of the course was conducted followed by an assessment of the costs of the technology and the extent of the possible benefits. Approximately twenty commercial beef producers and a number of others including technology suppliers, processors and feedlot operators were contacted to establish their views on the technology, how it was implemented and how they perceived that it may add value to a farm business.

The aim of the project is to provide a range of case studies that can be used to demonstrate the extent of the difference in potential financial outcomes from investment in eID technology for management purposes.

Case study farms differ based on locality, operational scale, management systems and target market. The aim of the case studies is to demonstrate how the extent of the costs and benefits can differ depending on pre-existing circumstances, the intended use of the technology and beef production system.

These project outcomes and findings from P.PSH.0677 A Supply Chain Approach to supporting sustainable beef production, which explored on farm data capture, management and analysis to support the sustainability of the Australian beef industry complement each other. Producers and service providers interested using in eID in their management practices would benefit from reading both final reports.

2 Project objectives

1. Develop a spreadsheet-based tool quantifying the extent of the marginal cost (ie the cost relative to the status quo) of investment in eID for management in commercial (non-stud) beef enterprises.
 - The tool will include the ability to sensitise inputs which will demonstrate the impact of scale (cattle numbers) on the annual cost of investment in eID per livestock unit
 - The tool will allow for users to understand the extent to which the benefits need to accrue to meet a pre-determined return on investment or to break even on the investment.

2. Deliver 3 southern Australian case studies and 2 northern Australian case studies on farms with differing production systems to demonstrate:

- the level of variation in use of the technology,
- the difference in marginal cost of investment depending on existing technology
- the extent of the differences in perceived and actual marginal benefit.

3. Integration of the case study and BCA material into the eID manual

4. Deliver key recommendations based on research and case study findings.

Recommendations will be specific to those who have already invested in eID technology and are looking to maximise value from the technology and those who are considering investing in the technology in the future.

3 Methodology

Case study methodology

Interviews were conducted with over twenty beef enterprise managers and additional industry representatives including technology suppliers, processors and feedlot operators. These interviews were conducted to draw information regarding:

- the technology,
- why the technology has been adopted
- how the technology is being used commercially,
- the costs of implementing the technology
- the benefits of the technology
- the value of the benefits of the technology
- the value of any decisions that may have been made as a result of the technology adoption.

A cost benefit analysis was conducted after this information was collated.

The case studies were conducted after identifying a subset of suitable beef producers in northern and southern Australia from a larger cohort. Approximately twenty farm business managers in northern and southern Australia were identified as possible case study contributors. These managers were then interviewed to establish their potential suitability as case studies. Managers were classified as suitable case study contributors if they:

1. Had adopted eID technology beyond that required for compliance (NLIS)
2. Had integrated eID technology and data capture on farm
3. Were commercial beef producers
4. Could demonstrate their use of eID and the data in decision making.

Cost benefit analysis methodology

The outcome of the cost benefit analysis into eID is highly dependent on the input variables which include:

- The extent of investment in the eID technology
- The extent of investment in existing data recording and management technology
- The average cost of labour

- The number of livestock and the number of individual identification readings required per annum
- The depreciation rate on the technology
- The efficiency of physical identification in the absence of eID.

A spreadsheet tool has been developed to allow for a financial analysis of investment in eID based on the specific circumstances of most beef operators.

4 Results

See appendices for cost benefit analysis and case studies.

5 Discussion

1. Develop a spreadsheet-based tool quantifying the extent of the marginal cost (ie the cost relative to the status quo) of investment in eID for management in commercial (non-stud) beef enterprises.

- The tool will include the ability to sensitise inputs which will demonstrate the impact of scale (cattle numbers) on the annual cost of investment in eID per livestock unit
- The tool will allow for users to understand the extent to which the benefits need to accrue to meet a pre-determined return on investment or to break even on the investment.

A spreadsheet based tool has been developed which delivers a return on investment calculation based on variables including:

- Class of livestock
- Number of eID readings per year
- Operational efficiency (work rate)
- Labour cost
- Reduction in auditing preparation time
- eID equipment cost
- eID equipment life
- Analysis period

2. Deliver 3 southern Australian case studies and 2 northern Australian case studies on farms with differing production systems to demonstrate:

- the level of variation in use of the technology,
- the difference in marginal cost of investment depending on existing technology
- the extent of the differences in perceived and actual marginal benefit.

Three southern Australian and two northern Australian case studies have been developed across a range of different production systems and geographical locations. The case studies outline variations in the investment in eID and the extent of the benefit for each case study.

3. Integration of the case study and BCA material into the eID manual.

Case studies have been developed using a consistent process so that they can be easily integrated into the eID manual.

4. Deliver key recommendations based on research and case study findings.

Key recommendations are delivered in the Conclusions/recommendations section of this report.

6 Conclusions/recommendations

If greater than \$3,500 is to be invested in eID readers, data recording, data transfer and data management then scale of over 800 cows with over 5 readings per calf prior to sale is necessary to generate a return of approximately 25 percent. This suggests that smaller cow herds are unlikely to generate economic returns from investment in eID technology.

The eID investment analysis tool allows for the running of any number of scenarios to establish the likely level of return on investment from any time frame up to 10 years. I recommend the inclusion of this spreadsheet tool and a demonstration on how to use it into the eID course to assist in running scenarios to demonstrate how to extract value from eID.

7 Key messages

The key benefit afforded by eID technology is labour efficiency. This can be valued by comparing the time taken to generate data and recordings with eID technology against that taken without eID.

Returns on investment from eID are dependent on the cost of the investment in eID technology relative to the benefit. As the benefit is limited to small gains in labour efficiency it is important to keep costs low. Using a single hand held reader between multiple properties and using a refurbished Toughbook computer that doubles as the eID reader and second office computer were practical means of reducing capital costs.

Delay upgrading to new systems until the value of the data collection has been proven and there is clarity surrounding the technology that will provide the greatest benefit.

Many of the integrated weight and eID data capture, transfer and management systems and their associated software have a high degree of functionality with large improvements in interface intuition. The cost of these systems is increasing so generating economic value from the level of functionality is a key challenge for producers. Improved functionality does not always equate to useful application with positive economic outputs.

Try not to invest more than \$3,000 unless scale exceeds 800 breeders with smaller scale than the northern case study producers used low cost means

Several producers who were interviewed, but did not end up as case studies, invested in data management and software systems that were complex and difficult to use. These producers stated that they should have spent more time thinking about the things that matter to them and comparing functionality for their own particular circumstances.

Careful consideration should be given to the value of the data collected. Many producers who have implemented eID have spent additional time collecting data which is yet to generate any value. It is possible that this historical data may be of value in the future however it appears to be of limited economic value currently. Consideration should be given to how the collection of data, particularly individual animal data, will generate economic value. Just because it is possible to make an additional data recording or measurement doesn't mean it should be taken.

When asked the critical question: “what have you changed as a result of collecting the individual animal data?” some producers stated that nothing had changed. Thus this seems a reasonable question to ask prior to introducing eID, particularly for individual animal management.

8 Appendix

See attached case studies and excel tool.