final report

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PDS Quantifying and demonstrating the management benefits enabled through NLIS technology – Central Queensland

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Abstract

The three year PDS in the Biloela and Ubobo districts highlighted how NLIS technology could be used in a small beef enterprise. It demonstrated there were many advantages in using the technology; however the business production and marketing situation of this site did not allow a detailed economic assessment of NLIS technology. The technology offered the following benefits to the enterprise;

- Monitoring of animals' live weight performance – from weaning to slaughter;
- Improving visual assessment and decision making confidence by matching carcase data to individual animal data;
- Identifying differences in performance between classes of animals (sex and age) and the ability to provide crush side information to inform on-the-spot decision making; and
- Improved knowledge of herd performance overall to provide confidence in management decisions.

This PDS has also identified areas of concern that limit the uptake of NLIS technology. These include:

- Cost of equipment and software.
- Obsolescence of equipment and software.
- Compatibility issues between equipment and equipment with software.
- Format of abattoir data and compatibility with software packages.
- Suitability of software for different enterprises e.g. breeding and finishing versus trading.
- Availability of training to use the equipment and NLIS database.

Technology cost and obsolesce are particular problems for small enterprises.

Recommendations from this report are focused on identifying training opportunities, improving the format of abattoir feedback data and the development of user friendly and compatible software.

Executive summary

Members of the Biloela CQ BEEF group undertook a comprehensive business and situation analyses to identify opportunities for improvement in their businesses. The group consisted of nine small to medium sized beef businesses, which included breeding, finishing and trading enterprises. A common theme from the business analysis was the need to increase turnover, and as a result a range of options and strategies were developed. The key drivers to be assessed in this Producer Demonstration Site (PDS) included:

1. animal reproductive and growth performance;
2. performance of specific breeds and individual animals within the herd; and
3. the ability to predict which animals were unlikely to meet market specifications.

This PDS aimed to quantify the benefits of adopting NLIS as a tool to improve herd management and profitability. It also aimed to demonstrate to producers in the Fitzroy catchment how this technology could be practically integrated into a commercial beef enterprise.

The project operated on two properties, Cooinda and Gavnya, in the Ubobo and Biloela districts respectively. Cooinda is jointly owned by the Muller and Ross families and Gavnya is owned solely by the Muller family. Cooinda is a breeding property with animals destined for the EU market relocated at weaning to Gavnya for finishing. Mr Gavin Muller was the main co-operator in the PDS. Technical guidance and operational support was provided by Mr Don Menzies of Outcross Performance Pty Ltd.

It was anticipated that breeding herd data would be recorded twice over the three-year life of the PDS. While a significant number of breeders were entered into the database, mustering difficulties related to wet winters and the owners' decision not to pregnancy test all cows meant that there was inadequate data to assess breeder herd performance as part of this PDS.

All weaners were inducted into the database at weaning, and monitored through to slaughter. Variables recorded included breed, sex, year drop, estimated birth date and paddock of origin. Animals were weighed periodically through to sale. Individual carcase data was obtained from the meatworks and incorporated into the AgInfoLink database. This information was used to evaluate market compliance.

Generally, the wand and scale reader equipment and software to record individual animal data using the National Livestock Identification System (NLIS) technology worked well. Data was collected with no impact on the cattle work being undertaken (e.g. in the stockyards). There were few occasions of equipment failure at the site of data collection, except for a problem associated with interference from a generator and a failure in a cable/lead.

This PDS demonstrated that whilst the NLIS data capture technology was useful in the stockyards when making management and marketing decisions, to fully utilise the technology Mr Muller would need to purchase software to collate and then analyse his animal and carcase data. The costs and time needed to become competent with the database analysis could not be justified in Mr Muller's business. Instead Mr Muller has opted to monitor weight gains and continue to improve visual assessment skills with a wand and scale reader, without software packages. Abattoir data will continue to be monitored, but not linked to live animal data.

These results were presented to the Biloela CQ BEEF group. Of the nine businesses in the group (including Mr Muller's business), five have adopted the use of a scale reader and wand to monitor weight gain in the cattle yards and make on the spot decisions. Only one business

has opted to take the next step using software to record and manage the whole-of-life data of individual animals. Only three of the businesses have breeding enterprises and at present they did not see a role for NLIS technology for whole-of-life performance assessment.

Economic analysis

The costs of implementing NLIS technology were examined by comparing three options for hardware and software ownership and data management for the breeding and finishing enterprise structure. The wand and recording equipment was assumed to last 10 years with a software upgrade required after 5 years.

Scenario 1
Property purchases hardware and software and conducts data collection and analysis. Cost of this option over 10 years ranges from $8,000-$10,000 depending on the equipment purchased and whether a wand or panel reader is used.

Scenario 2 Property uses a contract service for data recording and analysis. Based on an estimated three days work per year plus 100 km travel per day this equates to a cost of approximately $13,000 over 10 years.

Scenario 3
Property purchases hardware for data recording and uses a contractor for data analysis. Based on two days data analysis per year (no travel required) this equates to a cost of approximately $12,000 over 10 years.

The economics of identifying and culling low growth animals was analysed, but no advantage was found as the producer in this case was able to finish all animals. However, if all animals had not been finished in an appropriate time, then there would have been an advantage in removing the poor performing animals. The difficulty with replacement of poor performing animals is that transaction costs are incurred and there is no guarantee that the replacements will perform any better.

Project findings and recommendations

A key finding was the difficulty of using abattoir data. Being able to integrate property recorded animal data and meatworks carcase data is essential if data is to be analysed and used for management decisions with various software packages. There is no standard format for abattoir data and it even varies between works within the same company. This PDS demonstrated that the variety of formats and styles carcase data that is provided (.txt, .xls etc) makes it very hard to use and this is a major issue for landholders.

This PDS has also identified areas of concern that limit the uptake of NLIS technology. These include:

- Cost of equipment and software;
- Obsolescence of equipment and software;
- Compatibility issues between equipment and equipment with software;
- Format of abattoir data and compatibility with software packages;
- Suitability of software for different enterprises e.g. breeding and finishing versus trading; and
- Availability of training to use the equipment and NLIS database.

Technology cost and software obsolesce are particular problems for small enterprises.

Key recommendations of this report are:

- Identifying training opportunities for producers in using herd management software and data collection systems;
- A process to improve the consistency and format of abattoir data; and
- Industry working with software developers to ensure better usability and compatibility.

Overall the project was a success at demonstrating NLIS technology for a small beef business, identifying the benefits, problems and presenting the findings to other producers. It has provided opportunities for producers to collectively review the role of NLIS technology and herd recording generally in their businesses. A multi pronged communication strategy employed by the project has delivered key findings to the wider industry.

Contents

1 Background

Members of the Biloela CQ BEEF group (Appendix 1) completed a comprehensive business and situation analyses to identify opportunities for improvement in their businesses. The group consisted of nine small to medium sized beef businesses, which included breeding, finishing and some trading enterprises.

A common theme among producers was the need to increase turnover and as a result a range of options and strategies were developed. A key area for increasing turnover was managing herd performance for optimum efficiency and improved compliance with market specifications. The key drivers which were to be assessed in this PDS included reproductive and growth performance, performance of specific breeds and individual animals, and the ability to predict which animals were not likely to meet target market specifications.

The perception of the group was that the potential management benefits of NLIS and associated technologies are often discussed, but only relatively small proportions of beef producers are actually harnessing this potential. This PDS aimed to quantify the benefits of using NLIS in Biloela CQ Beef enterprises and communicate to other producers how these benefits could be practically realised.

Key Research Areas of the Northern Beef Program identified for examination in this PDS included:

- Enterprise Efficiency – through describing and quantifying the herd management and economic benefits of NLIS and associated technologies.
- Producer Capacity – the PDS provided members of the Biloela CQ BEEF project group with an opportunity to evaluate the use of NLIS technology and assess its potential role in their enterprises.
- Access to Information – communication of findings to wider industry through meetings, field days and media.

2 Project objectives

By the year 2010, in conjunction with the members of the Biloela CQ BEEF project group this PDS aimed to:

1. Quantify the benefits of adopting NLIS as a tool to improve herd management and profitability.
2. Demonstrate to producers in the Fitzroy catchment how NLIS technology can be practically integrated into a commercial beef enterprise.

Planned outcomes were:

1. Improved knowledge, skills, and understanding of how to utilise NLIS technology for practical management benefits.
2. Improved profitability of participating businesses.

3 Methodology

The project operated on two properties, Cooinda and Gavnya, in the Ubobo and Biloela districts respectively. Cooinda is jointly owned by the Muller and Ross families and Gavnya is owned solely by the Muller family. Cooinda is a breeding property with animals destined for the EU market relocated at weaning to Gavnya for finishing. Mr Gavin Muller was the main co-operator in the PDS.

Technical guidance and operational support for this PDS was provided by Mr Don Menzies of Outcross Performance Pty Ltd. The advantages of this arrangement were:

- Mr Menzies provided equipment not owned by the co-operators or others within the group, including a rugged laptop running AgInfoLink software suite; a handheld or panel RFID reader; a customised data entry device to simplify recording and a 12 volt power supply.
- Mr Menzies was present at data collections to provide technical support for operation of equipment and train group members in its effective use.
- Mr Menzies participated when required in group activities around the project, including interpretation and discussion of results. Importantly he brought with him significant commercial experience in data recording and analysis in research and commercial herds.
- Mr Menzies also supported the group in the conduction of field days associated with the project.

3.1 Sequence of activities

The Muller's had historically recorded weights on their growing animals using management tags. At the beginning of the PDS some of the 2007 calf drop previously collected by Mr Muller manually was incorporated into the AgInfoLink database so that cattle being finished for the EU market during the PDS could be monitored. Information on the next two calf drops were recorded from weaning with the 2008 calf drop monitored through to slaughter. Variables recorded included breed, sex, year drop, estimated birth date and paddock of origin. Animals were reweighed periodically in conjunction with Mr Muller's management activities.

Carcase data was collected electronically from abattoirs and incorporated into the AgInfoLink database and used to analyse compliance with EU market specifications and returns.

Data was collected for some breeders in 2008 and 2009. This comprised breed, origin, age, weight, condition score, lactation status and pregnancy status (Pregnant or Empty).

Table 1 summarises the activities undertaken.

Table 1: Project activity schedule for B.NBP.0483 - PDS Quantifying and demonstrating the management benefits enabled through NLIS technology – central Queensland

	Project Activity	Due Date	Date Completed	Comments
1	Organisation between AgInfoLink & producers		Nov-07	
2	Collection of base animal data - Pregnancy test cows	Dec-07	n/a	Due to dry weather cows were not pregnancy tested in 2007
3	Signing of Contract	1-Feb-08	17-Mar-08	
4	Collection of No 8 weaner records	May-08	11-May-08	All weaner data collected and entered. Weaner data report prepared by Don Menzies.
5	**Milestone 1 Report**	**1-Feb-08**	**Jun-08**	**Delayed due to no pregnancy testing data being collected in 2007**
6	Collection and entry of weight data for No 7 animals & first post weaning weighing of No 8 weaners (Gavyna)	Jul-08	2-Jul-08	Weighing of weaners 1 month after weaning and database entry of No 7 animals at Gavyna. CQ BEEF members inspect data collection.
7	2008 Cooinda pregnancy test	Aug-08	12-Aug-08	Just pregnancy tested dry cows

	Project Activity	Due Date	Date Completed	Comments
	data collection			
8	Break of season weighing of No 7 heifers and steers and No 8 weaners at Gavyna		12-Nov-08	Demonstration day for industry to view data collection
9	**Milestone 2 Report Due**	**31-Oct-08**	**22-Dec-08**	
	Reweigh of No 7 and 8 animals		Mar 09	Data collected by Gavin Muller and entered by Don Menzies.
10	Collection of No 9 weaner records	May-09	30-May-09	All weaner data collected and entered. Weaner data report prepared by Don Menzies.
11	End of growing season weighing of No 7, 8 and 9 animals	Jun-09	N/A	Due to very dry conditions, animals were not weighed. Weighing will be undertaken when season breaks.
12	2009 Cooinda pregnancy test data collection	Jun-09	Jul-09	Majority of remaining breeders entered in database and report compiled by Don Menzies
	Reports compiled of 2009 sale animals		13-Nov-09	Don Menzies compiled reports of sale animals sold to various abattoirs in 2009
	NLIS PDS mid-term review and plan for the finish		13-Nov-09	Biloela CQ BEEF group reviewed PDS data and planned 2010 activities
13	**Milestone 3 Report Due**	**31-Oct-09**	**23-Dec-09**	
14	Collection of final records	May-10	May-10	Final induction of weaners occurred at Cooinda
15	Final Field Day	15-Jul-10	15 Jul 10	"All Things NLIS" Field day was held.
16	Reports Complied		Jul-10	All final reports including economic assessment completed and presented at Field day
17	**Milestone 4 Report Due**	**20-Sept-10**		

4 Results and discussion

The equipment and software used worked well and data was collected with no impact on the cattle work being undertaken. There were very few occasions of equipment failure at the point of data collection. One was a problem associated with interference from a generator and the other was a failure in a cable/lead.

The purchase of the Tru-Test XR3000 indicator during the course of this PDS enabled Gavin Muller to undertake the use of the equipment without the assistance of Don Menzies or DEEDI officer Lindy Symes. Mr Muller had purchased an original Tru-Test indicator in the year 2000, but during the course of the PDS found the technology had become outdated and was not NLIS/EID enabled. Mr Muller found the ability of the new indicator to provide information for on the spot decision making in the cattle yards very valuable. Mr Muller did not have to replace his wand reader, as the new XR3000 was compatible with his old wand reader.

Once animals were inducted into the database it was easy to enter additional weights and monitor performance at an individual or mob level. Data for the No 7 animals collected by Mr Muller prior to the PDS was also entered into the database.

Timely and efficient reporting is the key to being able to effectively use the data for management decisions. Mr Don Menzies generated reports which provided both individual data and mob summaries. Appendices 2 to 5 are examples of a weaning summary report, liveweight data report, pregnancy test report and carcass data report respectively that were generated from the AgInfoLink software.

4.1 Growing Cattle

All weaners were inducted into the PDS database on the day the animals were weaned at Cooinda. Due to the breeding property being a partnership, the weaners were drafted visually with each partner receiving half the cohort. The Muller family's weaners were monitored at Gavnya. The other half of weaners were sent to the partner's property and thus were not assessed in the PDS. Mr Muller's business strategy is to market all growing animals to the EU market, and maintain the Cooinda breeding herd with purchased pregnancy tested in calf (PTIC) cows.

4.1.1 Steer data

The data shows big variations in $/kg, $/head and compliance to specifications across the variables of origin and breed within a year but they weren't always comparable over year drops (Table 2 and Table 3). The 2007 drop steers slaughtered in 2010 were the last of that year drop. This is reflected in the compliance rate of 84% compared to 91% for the 2007 drop steers slaughtered in 2009 (Appendix 5). Major non-compliance issue in 2009 was dentition whilst in 2010 it was dentition, fat depth and weight.

Table 2: Carcase data for 2007 Drop NLIS PDS steers slaughtered in 2010

2007 Drop Steers		**No. of cattle**	**C Wt (Kg)**	**P8 Fat (mm)**	**$/kg**	**$/hd**	**Compliant (%)**
	Totals	80	272	11.8	3.00	815.42	84
Origin							
	Cooinda	67	273	11.7	3.01	821.60	88
	Gavyna	11	266	10.5	2.93	780.99	73
Breed							
	Brahman	30	270	11.4	3.00	810.38	87
	Brahman X	23	271	12.3	2.99	809.87	87
	Brangus	17	275	11.9	3.06	841.05	94
	Charbray	3	287	8.0	2.90	830.24	67
	Droughtmaster X	5	271	9.2	2.89	782.20	60

Table 3: Carcase data for 2008 Drop NLIS PDS steers slaughtered in 2010

2008 Drop Steers		No. of cattle	C Wt (Kg)	P8 Fat (mm)	$/kg	$/hd	Compliant (%)
	Totals	50	318	15.0	3.49	1111.69	94
Origin							
	Cooinda	27	312	16.6	3.50	1090.48	89
	Gavyna	23	325	13.2	3.49	1136.58	100
Breed							
	Brahman	19	308.0	15.00	3.52	1084.9	100
	Brahman X	11	314.0	17.40	3.49	1095.46	82
	Brangus	4	323.0	16.50	3.43	1106.11	75
	Charbray	3	320.0	14.30	3.43	1098.45	100
	Droughtmaster X	13	333.0	12.80	3.50	1169.35	100

The No 8 drop steers slaughtered up to July 2010 had a compliance of 94%. These were the top of the drop, with the remaining No 8 steers to be slaughtered late in 2010 and early 2011. Non-compliance in the 2008 steers was due to dentition and fat depth.

4.1.2 Heifer data

Throughout the duration of this PDS, the Biloela and Ubobo districts suffered very low levels of rainfall. This led Mr Muller to sell No 7 drop and No 8 drop heifers earlier than anticipated, in order to lighten stocking rates so he could finish his steers properly.

In 2010, the No 8 heifers achieved higher returns due to much better prices and slightly higher carcase weights (Table 4) than the No 7 heifers slaughtered in the same year and at the same time. As with the steer results, the heifers showed differences between breeds, but the results were not consistent across years. Therefore, no clear conclusions can be drawn about breed differences for heifers and Mr Muller has chosen not to make any breed changes.

Table 4: Carcase data for 2007 and 2008 drop NLIS PDS heifers slaughtered in 2010

Heifers		**No. of cattle**	**C Wt (Kg)**	**P8 Fat (mm)**	**$/kg**	**$/hd**
	Totals	156	232	11.4	2.77	645.22
Origin						
	Cooinda	123	230	11.5	2.73	631.66
	Gavyna	33	236	11.1	2.94	695.76
Breed						
	Brahman	39	228	10.9	2.79	639.11
	Brahman X	61	235	11.3	2.77	654.59
	Brangus	20	233	12.7	2.80	653.03
	Charbray	12	222	11.4	2.74	611.24
	Droughtmaster X	22	223	11.7	2.72	638.61
Year Drop						
	No. 07 Drop	122	230	11.4	2.69	621.13
	No. 08 Drop	34	236	11.6	3.09	731.64

4.2 Breeding Animals

The breeding property Cooinda is generally difficult to muster due to coastal terrain landscape. Despite several musters in 2008 and 2009, a complete muster was not achieved at the time when Mr Menzies was available to collect the NLIS data. This meant a lot of animals were not entered into the database. As a consequence the NLIS technology could not be implemented in the Cooinda breeding enterprise. The technology is not applicable where complete musters are not achieved and not all animals are pregnancy tested.

The average weaning weight of weaners at Cooinda in 2008 was 188 kg (steers 196 kg, heifers 181 kg) and the average weight in 2009 was 203 kg (steers 208 kg, heifers 199 kg), whilst average weaning weight in 2010 was 193 kg (steers 197 kg, heifers 189 kg). No conclusion can be drawn from this as calving patterns were in relation to weather patterns and weaning occurred at various times in May, but not at the same time. This data demonstrates that over time patterns maybe observed in weaning weight. Weaning weights were not being collected prior to this PDS. Mr Muller has indicated that he will continue to monitor weaning weights as one indicator of his breeding herd.

4.3 Discussion

The NLIS technology has enabled Mr Muller to compare some breed differences within his herd. Breed differences in this PDS was a visual assessment of type, rather than a quantified indicator of a breed. For instance, all weaners were sired by Brahman bulls, but depending on animal characteristics the progeny were deemed a particular breed, which could have been demonstrated by the dam. The PDS results should not be used as a true indicator of differences within breeds.

Steers consigned to Borthwicks Mackay abattoir achieved a higher compliance rate compared to Teys, Rockhampton (Appendix 6). Mr Muller said that animals sent to Borthwicks were more carefully selected than those sent to Teys. This was because Teys, Rockhampton was closer to the property and it was better to spend less on freight with animals that were less likely to meet specifications. The high compliance rate 94% (2008 drop) demonstrates Mr Muller's visual assessment skills and intuition are very good.

This PDS demonstrated that whilst the basic NLIS technology is useful in the stockyards when making management and marketing decisions, in order for Mr Muller to fully utilise the technology he would have to purchase software to collate and analyse his animal and carcass data. The costs and time needed to learn the technology could not be justified in Mr Muller's business. Mr Muller has opted to monitor weight gains and continue to improve visual assessment skills with a wand and scale reader, without software packages. Abattoir data will continue to be monitored, but not linked to live animal data.

These results were presented to the Biloela CQ BEEF group. Of the nine businesses in the group (including Muller's), five have adopted the use of a scale reader and wand to monitor weight gain in the cattle yards and make on the spot decisions. Only one business has opted to take the next step and use software to manage the whole-of-life data of individual animals. This business has chosen to use Microsoft Excel spreadsheets with DEEDI providing assistance. This particular small trading enterprise was not able to find a software program cheap enough to monitor all required data including costs associated with individual animals. Of the seven businesses in the Biloela CQ BEEF group, only three have breeding enterprises and all suggested that at this stage NLIS technology has no application in their commercial breeding business at this time.

One of the key issues identified in this PDS was the difficulty in using carcase data from abattoirs. Being able to integrate property recorded animal data and meatworks carcase data into various software packages is essential if data is to be analysed and used for management decisions. There is no standard format for abattoir data and it even varies between abattoirs within the same company. This PDS demonstrated that the variety of formats and styles carcase data is received (.txt, .xls etc) and it makes it very hard to use. This poses a major issue for adoption in an industry where computer literacy overall is limited. Appendix 7 demonstrates the various forms and formats that electronic slaughter data is received.

Mr Menzies spent considerable time accessing data files from the abattoirs and getting the data into a consistent format and style in order to import into the AgInfoLink data base. Most producers do not have the skills and or time to do this.

4.4 Economic analysis

An economic analysis was conducted Rebecca Gowen (DEEDI Rockhampton) to examine the cost/benefit of implementing an individual animal recording system. The costs were examined by comparing three options for ownership and operation of hardware and software systems. The hardware was assumed to last 10 years with the software assumed to require an upgrade or replacement every five years. These assumptions may be generous given the rapid change in computer technology and more frequent upgrades would increase the cost to producers of owning the equipment themselves. Costs are indicative only and based on the hardware and software used in the Biloela PDS.

Scenario 1
Property purchases their own hardware and software and conducts all data recording, management and analysis. The cost[1] of this set-up over 10 years ranges from $8,000-$10,000

[1] Cost = Net Present Value of costs over 10 years using a 7% discount rate.

depending on the brand of equipment purchased and whether a wand or panel reader is used. These costs assume that the property currently has no recording equipment on-hand.

Scenario 2
Property does not own any hardware or software for data collection and management and uses a contract service for all data recording, management and analysis. Based on an estimated three days work per year plus 100 km travel per day this equates to a cost of approximately $13,000 over 10 years.

Scenario 3
Property owns the data recording equipment and collects data, which is sent to a contractor for data management and analysis. Based on two days data analysis per year (no travel required) this equates to a cost of approximately $12,000 over 10 years.

These costs are indicative only and are based on the hardware and software used in the Biloela PDS. The hardware was assumed to last 10 years with the software assumed to require an upgrade or replacement every five years. These assumptions may be generous given the rapid change in computer technology and more frequent upgrades would increase the cost to producers of owning the equipment themselves.

Liveweight and carcase data for cohorts of animals monitored in the PDS were studied to quantify the benefits of collecting and tracking individual animal liveweight gains and carcase performance. A case study based on the 2007 drop heifers showed that the heifers in the bottom 10 per cent for post-weaning growth rate returned $70 per head (gross margin) less than the balance of the mob. To further the analysis, gross margins were also calculated for: 2008 heifers, 2007 steers and 2008 steers.

These gross margins were based on the additional gross margin received beyond a decision point (second weighing) to the date animals were slaughtered. The value of the animal had it been sold at the decision point was used as the purchase value. This value was subtracted from the final carcase value and adjusted to account for days to slaughter to obtain a gross margin per head.

The bottom 10 per cent of each group (based on average daily gain from first to second weighing) was then separated and the calculation repeated based on the two sub-groups. For both age groups of steers the low average daily gain (ADG) group returned a higher gross margin than the ‘high ADG’ group. This is most likely due to the fact that the low ADG group received a higher carcase price per kilogram dressed weight as an unintentional consequence of being marketed at different times. Low ADG animals were favoured in the analysis because they were lighter and consequently of lower value at the decision point (2nd weighing) resulting in a lower initial capital cost.

In the heifer groups the high ADG group returned a better gross margin than the low ADG group and also received significantly higher prices per kilogram carcase weight.

The next part of the analysis compared the gross margin which was actually received, to that which would have been received had the low ADG group been sold at the second weighing. For all but the 2008 steers, the producer would have been better off keeping all the animals rather than selling the low ADG ones earlier. While the 2008 steers showed that identification and early sale of slower growing animals may be profitable, the results may have been biased by variations in weighing dates across the group.

Identifying the economic benefit of using NLIS technology to monitor individual animal performance is difficult as the potential benefits and costs are extremely difficult to quantify. Examples include, the potential impact that reducing stocking rate by selling low ADG animals

may have on the performance of retained animals and; the costs (including labour) of setting up and maintaining a useful individual herd recording system which are based largely on the experience and proficiency of the operator and are likely to vary significantly.

Results from this PDS do not indicate significant economic gain for commercial producers in having access to individual live animal performance data. The nature of recording and data analysis within an operational structure may preclude a positive economic benefit. Therefore it is not recommended that a 'Fact Sheet' be produced based on the costs and benefits of using NLIS technology in this way.

5 Success in achieving objectives

The property owner in this PDS was happy with the findings of the PDS and was pleased with his experience. He commented that he has learnt a lot and was happy sharing his finding with other's which was evident at the final field day held on 15 July 2010.

The Biloela CQ BEEF group was involved in the management of this PDS and were updated at regular group meetings and members attended data collection days at convenient times.

The PDS has identified the positives and the negatives of the technology, with all members adopting the technology in an intermediate form. Weighing and decision-making at the stockyards was a clear benefit to the producers.

Success of this PDS can be measured by the number of events and activities that took place, combined with the multiple media releases (Table 5) that were utilised throughout this PDS. Appendix 9 lists the agenda for the final field day and Appendix 10 demonstrates the positive feedback received from the field day indicating that there was still more to do in terms of NLIS technology adoption and capturing and interpreting herd data to benefit individual enterprises.

5.1 Communication activities

Table 5 indicates all the communication activities that occurred as a result of this PDS. It clearly demonstrates that a wide range of media was utilised, to attempt to achieve maximum coverage to landholders within range of this PDS.

Table 5: Biloela NLIS PDS communication activities

Date	Activity	Attendance	Details
Activities			
12 Nov 08	Field Day	15	Mid Project Field day
15 Jul 10	Field Day	52	Final field day. Feedback result indicated 5.6 satisfaction out of 7.
Media			
17 Nov 08	Press Release		DPI&F media release on the 12/11/08 NLIS Demonstration day and the PDS
18 Nov 08	Online		Farmonline article about NLIS PDS
20 Nov 08	Media		Queensland Country Life Article on NLIS PDS
21 Nov 08	Media		Central Queensland Rural Weekly article on NLIS PDS
11 Feb 10	Press Release		Update on NLIS PDS results to date
18 Feb 10	Media		Queensland Country Life Article
22 Feb 10	Online		Get Farming website report on NLIS PDS results to date

Date	Activity	Attendance	Details
22 Feb 10	Online		Farming Online website article on CQ BEEF Biloela NLIS results to date
29 Jun 10	Media		Upcoming CQ BEEF Biloela NLIS demonstration site field day 15/7/10
1 Jul 10	Media		Queensland Country Life article on upcoming Biloela NLIS PDS field day 15/7/10
2 Jul 10	Media		Central Queensland Rural Weekly-Central Edition article on upcoming Biloela NLIS PDS field day 15/7/10
13 Jul 10	Radio		Announcement on ABC Radio Capricornia about All things NLIS Field day. 6.24 am
23 Jul 10	Press Release		CQ BEEF Biloela NLIS demonstration site field day 15/7/10
27 Jul 10	Online		Farming Online website article on CQ BEEF Biloela NLIS demonstration site field day 15/7/10
29 Jul 10	Media		Central Queensland Rural Weekly-Central Edition article on Biloela NLIS PDS field day 15/7/10
30 Jul 10	Media		Gladstone Observer article on Biloela NLIS PDS field day 15/7/10

Appendix 9 and Appendix 10 outline the agenda and feedback results respectively for the NLIS PDS field day titled 'All things NLIS Field Day'. The theme of the day was to provide information to the district about the results of this PDS, but also an update from Biosecurity QLD about current legislation requirements for NLIS. The day was attended by all the various technology equipment representatives to assist landholders in developing their knowledge of the day. Fifty-two people attended the field day with an overall feedback rating of 5.6 on a 1 to 7 scale.

6 Recommendations and Conclusions

Overall the PDS project was regarded as a success for demonstrating NLIS technology to a small beef business and presenting the findings to other producers. PDS co-operator had a positive experience hosting the project across his breeding and finishing operation and viewed the interaction with other producers and industry advisors worthwhile. A list of recommendations (Table 6) has been prepared based on the findings from this PDS that could help increase adoption of this technology.

6.1 Issues and recommendations

This PDS has identified a number of issues which will restrict the adoption of NLIS technology (Table 6).

Table 6: Issues affecting effective use of NLIS technology and possible solutions

Issue	Description	Possible solutions
Cost of equipment and software	• Particular problem for small operators as this technology is a classic "indivisible asset" i.e. you need same gear for 500 or 5000 cattle	• Limited options as the market for this technology are relatively small.
Obsolescence of equipment and software	• Rapid changes in technology result in software and hardware being	• MLA could encourage dialogue between suppliers

Issue	Description	Possible solutions
	continuously upgraded • Changes in software can render systems obsolete • If a piece of hardware has to be replaced the new equipment may not talk to existing hardware or software	on the issue
Compatibility issues between equipment and equipment with software	• Some brands will not talk to another brand, particularly between load bars and weigh scales and then sometimes between readers.	• MLA could encourage inter-operatibility between equipment and software suppliers.
Format of abattoir data and compatibility with software packages	• Data comes in different formats from abattoirs. This makes it hard to link live animal and carcase data	• This should be a priority issue for industry as it has been talked about since late 1980s with no progress
Suitability of software for different enterprises e.g. breeding and finishing versus trading	• Only the more expensive equipment can provide the "in the yard" data for on the spot decisions i.e. culling and market selection • Producers want easy to use software that allows economic analysis of individual animals and mobs and this software normally is the most expensive. • Experts with a broad knowledge of software that are not driven by sales numbers is limited	• Mechanism to document producer's experiences with software. • Support for Kondinin group to conduct on-going objective evaluations
Availability of training to use the equipment and NLIS database	• Currently there are no training workshops or programs available to landholders	• Short courses through AACC or another training body i.e. AgForward • Regional training and refresher workshops

6.2 Conclusions

Overall the three year PDS in the Biloela and Ubobo districts highlighted how NLIS technology could be used in a small beef enterprise. The PDS demonstrated that the technology can improve the monitoring of growing cattle and their carcase performance. However, the production and marketing system at the site was such that the technology could not deliver higher returns.

The technology offered the following benefits to the enterprise;

- Monitoring of animals' live weight performance – from weaning to slaughter
- Improving visual assessment and decision making confidence by matching carcase data to individual animal data
- Identifying differences in performance between classes of animals (sex and age) and the ability to provide crush side information to inform on-the-spot decision making
- Improved knowledge of herd performance overall to provide confidence in management decisions.

This PDS has also identified areas of concern that limit the uptake of NLIS technology. These include:

- Cost of equipment and software
- Obsolescence of equipment and software
- Compatibility issues between equipment and equipment with software
- Format of abattoir data and compatibility with software packages

- Suitability of software for different enterprises e.g. breeding and finishing versus trading
- Availability of training to use the equipment and NLIS database.

Technology cost and obsolescence are particular problems for small enterprises.

Key recommendations of this report are:
- Identifying training opportunities
- Starting a process to improve the format of abattoir data
- Industry working with software developers to ensure usability and compatibility.

Overall the project was a success at demonstrating NLIS technology for a small beef business, identifying the benefits, problems and presenting the findings to other producers. It has provided opportunities for producers to meet review and discuss the role of NLIS technology and herd recording in their businesses. Project media and field days have presented these issues to the wider industry.

7 Appendices

7.1 Appendix 1 – Members of Biloela CQ BEEF Group

Name	Property	Location
Janice & Ian Creed	"Youlambie"	Biloela
David & Bridget Corr	"New Stoneleigh"	Biloela
Tom Carige	"Rosewood"	Biloela
Ann & Ron Carige	"Boyne Lea"	Munduberra
Col Burnett	"Biella", "Attunga-Nardie"	Biloela
Wayne & Judy Moxham-Price	"Pindari" & "Mrs Smiths"	Biloela
Stuart Barrett	"Drumburle"	Biloela
Gavin & Megan Muller	"Gavnya", "Cooinda" & "Nova"	Biloela, Ubobo
Scott & Judy Smith	"Glenlivet "	Thangool

7.2 Appendix 2 – Weaning summary report – No 10 drop weaners

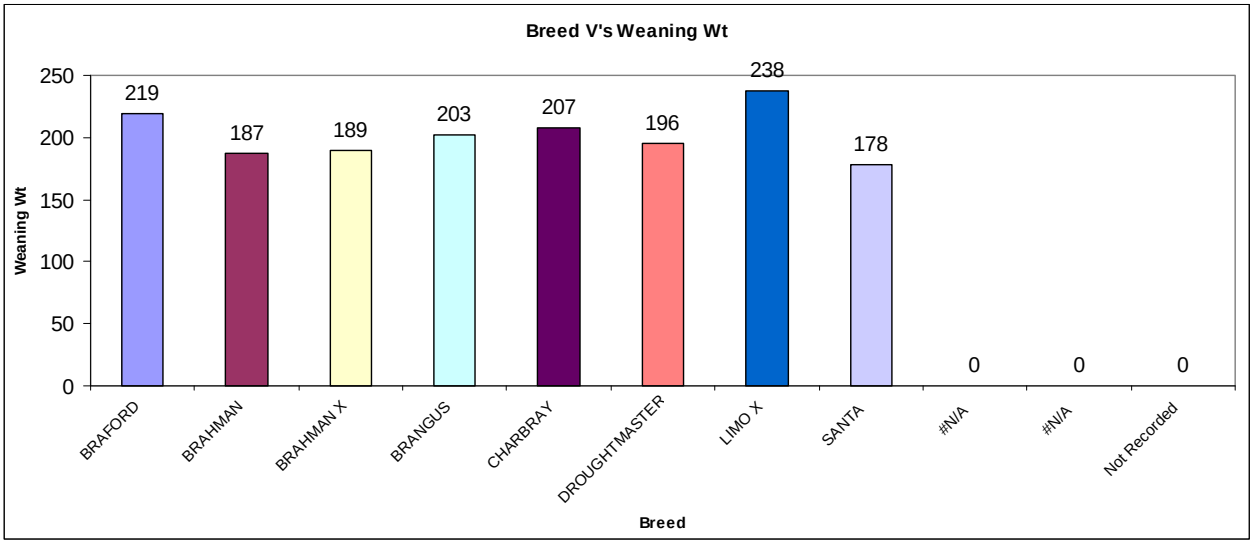
Weaning Report

Location:	**COOINDA**
Year Drop:	**NO. 10 DROP**
No. Head:	**176**
Last Wean Date:	**12-May-10**

Price (c/kg Live)	Av Price per head	Total Value
180	$ 346.66	$ 61,012.80

Weight Summary	
Av WT	193
Min WT	107
Max WT	287
Total WT	33896

	Total		Steer		Female		Bull		Stag	
	No. Head	Av. Wt	No. Head	Av. Wt	No. Head	Av. Wt	No. Head	Av. Wt	No. Head	Av. Wt
	176	193	81	197	95	189	0		0	
ORIGIN										
COOINDA	176	193	81	197	95	189				
Not Recorded										
BREED										
BRAFORD	17	219	9	237	8	199				
BRAHMAN	57	187	34	184	23	193				
BRAHMAN X	65	189	23	198	42	184				
BRANGUS	7	203	5	208	2	190				
CHARBRAY	9	207	3	225	6	199				
DROUGHTMASTER	7	196	1	243	6	188				
LIMO X	1	238			1	238				
SANTA	13	178	6	180	7	176				
Not Recorded										
PADDOCK-FROM										
COOINDA	176	193	81	197	95	189				



7.3 Appendix 3 – Weight data report – No 8 Drop

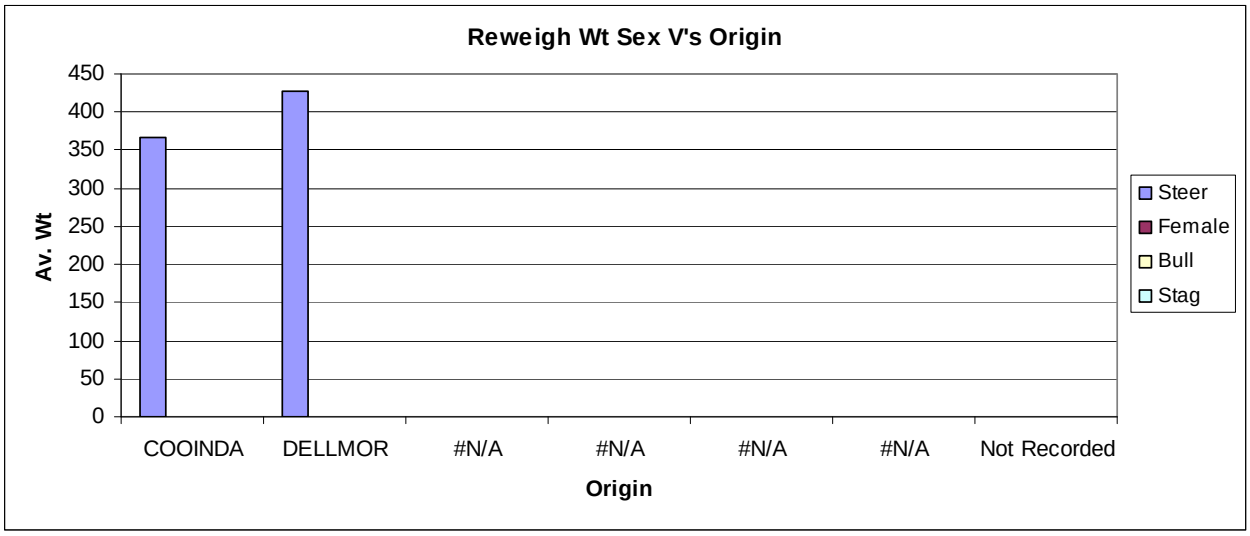
Reweigh Report

Location:	DELLMOR
Group:	NO. 08 DROP
No. Head:	102
Reweigh Date:	25-May-09
Av. days since Wean	378

Price (c/kg	Av Price per head		Total Value
180	$ 691.54		$ 70,536.60

Weight Summary	
Av WT	384
Min WT	290
Max WT	510
Total WT	39187

	Total				Steer				Female				Bull				Stag			
	No. Head	Av. Wt	Rew ADG	WOL ADG	No. Head	Av. Wt	Rew ADG	WOL ADG	No. Head	Av. Wt	Rew ADG	WOL ADG	No. Head	Av. Wt	Rew ADG	WOL ADG	No. Head	Av. Wt	Rew ADG	WOL ADG
	102	384	0.51	0.45	102	384	0.51	0.45	0				0				0			
ORIGIN																				
COOINDA	72	366	0.50	0.45	72	366	0.50	0.45												
DELLMOR	30	427	0.52		30	427	0.52													
Not Recorded																				
BREED																				
BRAHMAN	43	369	0.52	0.44	43	369	0.52	0.44												
BRAHMAN X	29	376	0.49	0.47	29	376	0.49	0.47												
BRANGUS	10	376	0.46	0.43	10	376	0.46	0.43												
CHARBRAY	6	422	0.53	0.44	6	422	0.53	0.44												
DROUGHTMASTER	13	444	0.51	0.45	13	444	0.51	0.45												
SANTA	1	352	0.62	0.54	1	352	0.62	0.54												
Not Recorded																				
YEAR DROP																				
NO. 08 DROP	102	384	0.51	0.45	102	384	0.51	0.45												
Not Recorded																				
PASTURE																				
Not Recorded	102	384	0.51	0.45	102	384	0.51	0.45												
SUPPLEMENT																				
COPRAMEAL	31	360	0.56	0.48	31	360	0.56	0.48												
Not Recorded	71	395	0.47	0.43	71	395	0.47	0.43												
PADDOCK-FROM																				
FORAGE PADDOCK	102	384	0.51	0.45	102	384	0.51	0.45												



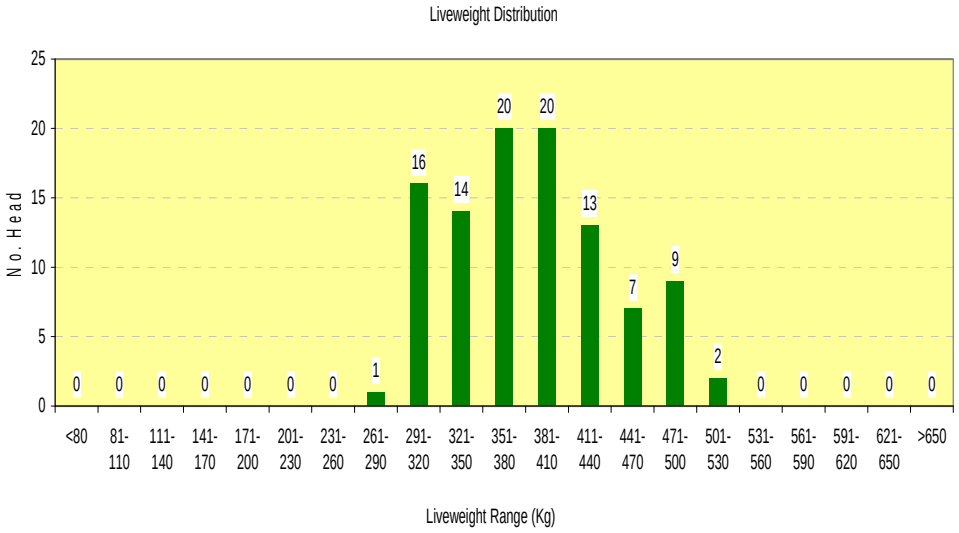
Group: **NO. 08 DROP**

Liveweight Distribution:

		ALL		STEER		FEMALE	
Wt Range	**No. Head**	**%**	**Av. WT**	**No. Hd**	**Av. WT**	**No. Hd**	**Av. WT**
<80							
81-110							
111-140							
141-170							
171-200							
201-230							
231-260							
261-290	1	1.0	290	1	290		
291-320	16	15.7	306	16	306		
321-350	14	13.7	337	14	337		
351-380	20	19.6	368	20	368		
381-410	20	19.6	394	20	394		
411-440	13	12.7	424	13	424		
441-470	7	6.9	454	7	454		
471-500	9	8.8	483	9	483		
501-530	2	2.0	509	2	509		
531-560							
561-590							
591-620							
621-650							
>650							
Total	**102**	100.0	384	**102**	384		

To alter the weight ranges - change the Min and Max valu
You will also need to change the graph labels

Wt Range		
Min	**Max**	**Graph Labels**
30	80	<80
81	110	81-110
111	140	111-140
141	170	141-170
171	200	171-200
201	230	201-230
231	260	231-260
261	290	261-290
291	320	291-320
321	350	321-350
351	380	351-380
381	410	381-410
411	440	411-440
441	470	441-470
471	500	471-500
501	530	501-530
531	560	531-560
561	590	561-590
591	620	591-620
621	650	621-650
651	1000	>650



7.4 Appendix 4 – Preg test data report – August 2009

Pregnancy Test Report Summary Page 1

Property Code: **COOINDA**
No. Head: **449**

	No. of Head	PTIC %	PTE %	Preg Test Wt	BCS	EMC	Calving Interval
TOTALS	**449**	**86.41%**	**13.59%**		**2.6**		
ORIGIN							
COLLINSVILLE	3	100%			3.0		
COOINDA	270	91%	9%		2.7		
DELLMOR	74	76%	24%		2.4		
FLORADALE	33	85%	15%		2.6		
GALLOWAY PLAINS	11	64%	36%		2.0		
MORNISH	35	86%	14%		2.5		
PURCHASED	9	78%	22%		2.2		
THANGOOL	14	86%	14%		3.2		
Not Recorded							
BREED							
BELMONT RED	29	97%	3%		2.7		
BRAFORD	9	100%			2.5		
BRAHMAN	100	85%	15%		2.8		
BRAHMAN X	135	90%	10%		2.7		
BRANGUS	56	89%	11%		2.5		
CHARBRAY	29	93%	7%		2.6		
DROUGHTMASTER	44	80%	20%		2.6		
EURO X	14	50%	50%		2.3		
LIMO X	15	73%	27%		2.7		
SANTA	18	78%	22%		2.2		
Not Recorded							
YEAR DROP							
NO. 00 DROP	88	89%	11%		2.5		
NO. 01 DROP	61	87%	13%		2.6		
NO. 02 DROP	102	86%	14%		2.7		
NO. 03 DROP	19	79%	21%		2.9		
NO. 04 DROP	28	79%	21%		2.5		
NO. 05 DROP	98	89%	11%		2.8		
NO. 97 DROP	2	50%	50%		2.0		
NO. 98 DROP	17	88%	12%		2.5		
NO. 99 DROP	34	85%	15%		2.7		
Not Recorded							
COMMENT							
BOTTLE TEATS	3		100%		2.7		
CYST	1	100%			3.5		
DRIED UP	119	61%	39%		2.2		
JAW ABSCESS	1	100%			1.5		
DOG BITE	1	100%			4.0		
NO PREG TESTED	1		100%		2.0		
TAG WON"T READ	1	100%			2.0		
Not Recorded	322	97%	3%		2.8		

7.5 Appendix 5 – Carcass data report – No 7 & No 8 Drop

Sales Report - Summary

Location: **NOVA**
Year Drop: **NO. 07 DROP**
Sex: **STEER**
No. Head: **77**
Reweigh Date: **10-Nov-09**
Destination: **Swift - Dinmore & Teys Rockhampton**

Target Carcase Specifications		
Trait	Min	Max
Dentition	0	4
HSCW	240	420
P8 Fat	6	22
Bruising	0	0
Butt Shape	A	C
Fat Colour	0	4
Meat Colour	1A	4

NB: FC & MC are only supplied if carcases don't comply

	No. of Head	Age (mths)	Exit Wt	Carcase Wt	Dress %	Dent	P8 Fat (mm)	$/kg	$/hd	Bruise %	Compliant %	Wean wt	WOL ADG	Rewigh Wt	Days Rew to Exit	ADG Rew to Exit
TOTALS	77	22.1	546	311	57.24%	4	14.5	$ 3.40	$ 1,061.03	0.00%	83%	227	0.49	493	54	1.25
ORIGIN																
COOINDA	47	22.1	541	307	56.92%	3	15.8	$ 3.40	$ 1,047.26		81%	217	0.52	482	58	1.30
DELLMOR	30		553	318	57.76%	4	12.4	$ 3.40	$ 1,082.61		87%	243	0.45	509	49	1.17
Not Recorded	0															
BREED																
BRAHMAN	27	22.2	529	304	57.56%	3	13.8	$ 3.38	$ 1,028.73		85%	222	0.47	477	62	1.14
BRAHMAN X	20	21.3	547	311	57.13%	4	16.2	$ 3.39	$ 1,057.00		75%	219	0.53	489	47	1.38
BRANGUS	6	22.5	547	307	56.32%	4	16.7	$ 3.35	$ 1,031.76		67%	226	0.47	492	37	1.48
CHARBRAY	5	23.2	554	312	56.69%	3	14.2	$ 3.41	$ 1,065.20		100%	211	0.52	491	93	0.95
DROUGHTMASTER	19	22.5	568	324	57.35%	3	13.1	$ 3.44	$ 1,119.33		89%	247	0.49	519	46	1.28
Not Recorded	0															
SEX																
STEER	77	22.1	546	311	57.24%	4	14.5	$ 3.40	$ 1,061.03		83%	227	0.49	493	54	1.25
Not Recorded	0															
YEAR DROP																
NO. 07 DROP	27		516	299	58.42%	4	13.5	$ 3.22	$ 967.23		63%	201	0.55	452	60	1.39
NO. 08 DROP	50	22.1	562	318	56.61%	3	15.0	$ 3.49	$ 1,111.69		94%	241	0.46	515	51	1.18
Not Recorded	0															
ABATTOIR																
Swift - Dinmore	64	22.0	542	313	57.92%	4	14.4	$ 3.42	$ 1,073.56		83%	219	0.50	488	54	1.26
Bros - Rockhampton	13	22.5	566	303	53.90%	3	14.8	$ 3.28	$ 999.35		85%	266	0.46	518	53	1.19
Not Recorded																

7.6 Appendix 6 – Comparison of two meatworks for steers slaughtered

Sales Report - Summary

Target Carcase Specifications		
Trait	Min	Max
Dentition	0	4
HSCW	240	420
P8 Fat	5	25
Bruising	0	4
Meat Colour	1A	4
Fat Colour	0	4
Shape	A	C

Sex: **Steer**
No. Head: **144**
Destination: **Nippon & Teys Combined Data**

	No. of Head	Age (mths)	Exit Wt	Carcase Wt	Dress %	Dent	P8 Fat (mm)	$/kg	$/hd	Bruise %	Compliant %	Eartlest wt	WOL ADG	Rew Wt	Days Rew to Exit	ADG Rew to Exit	Price at Induction ($/hd)	Net Profit ($/hd)	Return on Investment	Annualised ROI
TOTALS	144	28.6	528	277	53.54%	3	10.6	$ 3.09	$ 857.47	0.00%	91%	192	0.53	479	48	0.92	$ 383.59	$157.15	23.45%	13.54%
ORIGIN																				
COOINDA	95	28.4	526	281	53.66%	3	11.2	$ 3.04	$ 856.00		92%	186	0.54	476	47	0.99	$ 372.98	$ 168.15	25%	15%
DELLMOR	18	29.3	540	284	52.92%	4	8.7	$ 3.04	$ 866.06		89%	221	0.50	497	49	0.60	$ 442.78	$ 103.98	15%	8%
Not Recorded	31			262		3	9.8	$ 3.26	$ 856.99		90%									
BREED																				
BRAFORD	1	26.1	612	307	50.08%	2	8.0	$ 3.20	$ 980.80		100%	188	0.67	552	49	1.22	$ 376.00	$ 288.80	42%	24%
BRAHMAN	39	28.7	518	278	53.58%	3	11.2	$ 3.02	$ 837.51		90%	191	0.51	472	45	1.03	$ 381.59	$ 137.89	21%	12%
BRAHMAN X	41	28.1	541	284	52.75%	3	10.9	$ 3.06	$ 869.86		90%	189	0.55	494	45	0.85	$ 378.87	$ 170.50	26%	15%
BRANGUS	18	28.6	492	277	56.56%	3	11.8	$ 3.07	$ 848.10		100%	180	0.53	427	65	0.97	$ 360.88	$ 196.63	31%	19%
CHARBRAY	4	28.7	550	290	52.73%	3	8.5	$ 2.96	$ 858.15		75%	194	0.54	513	27	0.96	$ 388.25	$ 137.90	19%	11%
DROUGHTMASTER	9	29.6	556	291	52.44%	4	8.1	$ 3.03	$ 884.91		89%	228	0.50	505	54	0.80	$ 456.56	$ 105.13	14%	8%
EURO X	1	29.3	604	298	49.34%	2	5.0	$ 3.15	$ 938.71		100%	238	0.54	606	14	-0.14	$ 476.00	$ 124.71	15%	8%
Not Recorded	31			262		3	9.8	$ 3.26	$ 856.99		90%									
YEAR DROP																				
NO. 06 DROP	1		706	356	50.35%	6	10.0	$ 2.85	$ 1,013.18		0%			660	49	0.94				
NO. 07 DROP	112	28.6	527	281	53.57%	3	10.8	$ 3.04	$ 856.22		92%	192	0.53	477	48	0.92	$ 384.72	$ 157.15	23%	14%
Not Recorded	31			262		3	9.8	$ 3.26	$ 856.99		90%									
CARCASE SEX																				
M	144	28.6	528	277	53.54%	3	10.6	$ 3.09	$ 857.47		91%	192	0.53	479	48	0.92	$ 384.72	$ 157.15	23%	14%
KILL DATE																				
11/06/2008	27			260		3	8.9	$ 3.29	$ 857.53		89%									
31/03/2009	15	26.4	603	295	49.17%	3	9.7	$ 3.13	$ 923.65		93%	198	0.63	537	56	1.16	$ 396.00	$ 204.28	29%	17%
21/05/2009	12	28.5	523	281	53.22%	4	9.6	$ 2.87	$ 806.20		75%	212	0.51	449	66	0.90	$ 423.03	$ 79.49	12%	8%
25/05/2009	22	29.0	598	307	51.39%	4	8.7	$ 3.14	$ 965.19		91%	222	0.55	602	14	-0.24	$ 444.32	$ 180.15	24%	13%
2/07/2009	68	28.8	491	270	55.19%	3	12.2	$ 3.02	$ 817.05		94%	177	0.51	432	54	1.28	$ 353.56	$ 154.35	24%	14%
ABATTOIR																				
Teys Bros - Rockhai	80	28.7	495	272	54.91%	3	11.8	$ 3.00	$ 815.42		91%	183	0.51	435	56	1.22	$ 365.32	$ 142.92	22%	13%
Thomas Borthwick &	64	28.1	600	284	50.57%	3	9.0	$ 3.20	$ 910.04		91%	214	0.58	578	29	0.28	$ 428.21	$ 188.19	26%	14%

7.7 Appendix 7 – Examples of electronic kill sheet data

Teys Biloela

KillDate	Side	Sex	Dentition	Shape	Bruise	ExtraType	FatDepth	Grading	WeightKg	Price	Value	RFID	VisId
26/11/2008	203L	F	8	C	0		3	C2	92.4	2.4	221.76		
26/11/2008	203R	F	8	C	0		3	C2	93.8	2.4	225.12		
26/11/2008	204L	F	8	C	0		6	C2	113.4	2.7	306.18		

Teys Rockhampton

KillDate	Body	Sex	Denti	Sha	FatDepth	RFID	VisId	TotWeight	TotValue	LBruise	LGra	LWeightKg	LPrice	LValue	RBruise	RGra	RWeightKg	RPrice	RValue
2/07/2009	3	M	0	C	8	982 000085707197	2034	259.5	785.03	0	EAX	130.5	3.05	398.03	0	EAX	129	3	387
2/07/2009	4	M	0	C	10	982 000085707345	1787	252	756	0	EAX	126	3	378	0	EAX	126	3	378
2/07/2009	5	M	0	C	10	982 000085707716	2065	293	908.3	0	EAX	146.5	3.1	454.15	0	EAX	146.5	3.1	454.15
2/07/2009	6	M	0	C	18	982 000085707573	2028	264.5	806.73	0	EAX	132	3.05	402.6	0	EAX	132.5	3.05	404.13
2/07/2009	7	M	0	C	11	982 000085707030	2002	243	729	0	EAX	121.5	3	364.5	0	EAX	121.5	3	364.5

Swift Dinmore

Kill Date: 29/09/2008 6 Head

								<----------Left Side---------->				<----------Right Side---------->				<-----Body---->	
Body	RFID/NLIS		Cat	Fat	MS	MC	FC	Bru	$/Kg	Comments		Bru	$/Kg	Comments		HotWt	Grs Val
		Den	Butt						HotWt	Grd			HotWt	Grd		(GST exc)	
0504	982 000004883928	F	8	17	D	2	3	114.0	N	3.25		113.5	N	3.25		227.5	$739.38
0505	982 000103653416	F	8	5	C	3	3	139.5	1 M	3.40		139.0	M	3.40		278.5	$946.90
0506	982 000022615827	F	8	16	D	2	3	102.0	N	3.15		102.5	N	3.15		204.5	$644.18
												---------		---------			
											Total for Kill Date 29/09/08	1437.5					$4701.13

Borthwicks Mackay

Lot No	Body No		Dentition	Fat	Hot Weight	Cost	Marbling	Meat Color	Fat Color	Kill Date	Bruise R	Bruise L
	Grade	RFID	Sex									
2600	73	4	5	328	1,066.00	2	2	25-MAY-2009		EU	982 000056111005	M
2600	74	4	6	305	976.00	1C	2	25-MAY-2009		EU	982 000085706916	M
2600	75	6	7	302.5	801.63			25-MAY-2009		J6	982 000085706955	M
2600	76	2	5	316.5	1,012.80	1 1C	1	25-MAY-2009		EU	982 000085707447	M
2600	77	2	5	298	938.71	1C	1	25-MAY-2009		EU	982 000085707406	M

7.8 Appendix 8 – Economic calculation spreadsheet

Biloela NLIS PDS Weight data

	2008 Steers				2007 Steers				2008 Heifers				2007 Heifers			
	Low ADG	High ADG	Whole Group	Difference high - low	Low ADG	High ADG	Whole Group	Difference high - low	Low ADG	High ADG	Whole Group	Difference high - low	Low ADG	High ADG	Whole Group	Difference high - low
No head	10	97	107		8	81	89		15	72	87		12	124	136	
Start date	12-Nov-08	12-Nov-08	12-Nov-08		2-Jul-08	2-Jul-08	2-Jul-08		12-Nov-08	12-Nov-08	12-Nov-08		2-Jul-08	2-Jul-08	2-Jul-08	
Purchase weight (kg)	253	259	258	6	365	377	376	12	250	222	226	-28	323	345	343	22
Purchase price/kg landed	$1.77	$1.77	$1.77	$0.00	$1.66	$1.66	$1.66	$0.00	$1.47	$1.47	$1.47	$0.00	$1.53	$1.53	$1.53	$0.00
Purchase price/hd landed	$448	$458	$457	$10	$606	$626	$624	$20	$368	$326	$332	-$42	$494	$528	$525	$34
Final weight date	25-Mar-10	25-Mar-10	25-Mar-10		12-Nov-08	12-Nov-08	12-Nov-08		12-Feb-10	12-Feb-10	12-Feb-10		12-Nov-08	12-Nov-08	12-Nov-08	
Kill date	8-Jun-10	21-May-10	23-May-10	-18	12-Jun-09	9-Jun-09	9-Jun-09	-3	8-Feb-10	23-May-10	8-Apr-10	104	8-May-09	1-May-09	1-May-09	-7
Sale weight live (kg)	594	600	598	6	535	535	535	0	455	480	470	25	430	460	460	30
Sale weight dressed (kg)	315	318	317	3	284	284	284	0	228	240	235	12	215	230	230	15
Dressing %	53%	53%	53%		53%	53%	53%		50%	50%	50%		50%	50%	50%	
Sale price/kg dressed	$3.55	$3.49	$3.49	-$0.06	$3.03	$3.04	$3.04	$0.01	$2.96	$3.14	$3.06	$0.18	$2.48	$2.70	$2.69	$0.22
Sale price/kg liveweight	$1.88	$1.85	$1.85	-$0.03	$1.61	$1.61	$1.61	$0.01	$1.48	$1.57	$1.53	$0.09	$1.24	$1.35	$1.35	$0.11
Sale price/hd net	$1,118	$1,110	$1,106	-$8	$859	$862	$862	$3.00	$673	$754	$719	$81	$533	$621	$619	$88
Calculated AE rating	1.46	1.44	1.44	-0.02	0.93	0.94	0.94	0.01	0.96	1.18	1.07	0.22	0.7	0.73	0.73	0.03
Days on forage	573	555	557	-18	345	342	342	-3	453	557	512	104	310	303	303	-7
Average daily gain (kg/hd/day)	0.60	0.61	0.61	0.01	0.49	0.46	0.46	-0.03	0.45	0.46	0.48	0.01	0.35	0.38	0.39	0.03
Gross margin/beast purchased	$658.62	$640.29	$638.40	-$18.33	$244.66	$227.55	$229.21	-$17.11	$299.17	$419.72	$379.69	$120.55	$33.68	$86.94	$87.72	$53.26
Gross margin per AE/yr	$450.75	$446.09	$444.73	-$4.66	$261.72	$242.32	$244.36	-$19.40	$311.14	$356.54	$353.90	$45.40	$47.92	$118.39	$119.75	$70.47
GM/herd	$6,586	$62,108	$68,309	**$1,721**	$1,957	$18,432	$20,400		$4,488	$30,220	$33,033		$404	$10,781	$11,930	
GM/AE/yr after interest	$367.26	$363.61	$362.25	-$3.65	$188.09	$168.53	$170.56	-$19.56	$244.40	$287.03	$285.64	$42.63	-$13.84	$55.39	$50.12	$69.23 0
Return on investment % per yr	54.0%	54.1%	53.9%	0.1%	35.9%	32.8%	33.0%	-3.1%	46.6%	51.3%	51.9%	4.7%	7.8%	18.6%	17.8%	10.8%
	Purchase prices based on 220-280 kg steers Roma 18/11/08 minus 10c				*Purchase prices based on 350-400 kg steers Roma 8/7/08 minus 10c*				*Purchase prices based on 220-280 kg heifers Roma 18/11/08 minus 10c*				*Purchase prices based on 280-350 kg heifers Roma 8/7/08 minus 10c*			

GM/herd difference calculated as GM Whole Herd - (GM low ADG at purchase + GM High ADG herd)

Kill date	Kill numbers		
	Low ADG	High ADG	Whole Group
30/03/2010		11	11
8/06/2010	5	34	39
Total	5	45	50
Weighted mean kill date	8-Jun-10	21-May-10	23-May-10

Kill date	Kill numbers		
	Low ADG	High ADG	Whole Group
31/03/2009		10	10
21/05/2009	3	11	14
25/05/2009		19	19
2/07/2009	3	29	32
18/08/2009		8	8
Total	6	77	83
Weighted mean kill date	11-Jun-09	9-Jun-09	9-Jun-09

Kill date	Kill numbers		
	Low ADG	High ADG	Whole Group
31/03/2009	3	55	58
21/05/2009	5	54	59
2/07/2009	1	4	5
Total	9	113	122
Weighted mean kill date	8-May-09	27-Apr-09	28-Apr-09

7.9 Appendix 9 – Agenda for 'All things NLIS Field Day'

Agenda

All things NLIS Field Day
Biloela CQ BEEF group
MLA funded PDS site

15/07/2010
9.30 AM to 3:00 PM
Gavin and Megan Muller's property Dellmor

	Agenda Topics	
9.30 – 10.00 am	***Arrive for Cuppa / Morning tea***	
10:00 am 20 mins	Welcome and Introduction ▪ Outline of the day / housekeeping ▪ Guest speakers & others ▪ Introduction to MLA funded NLIS PDS	Lindy Symes
10:20 am 10 mins	▪ Gavin to give a brief outline about the property and then talk about his experience with the PDS, what has happened, what he liked, what he didn't like. Welcome everyone	Gavin Muller
10:30 am 20 mins	Session on NLIS equipment technology • Broad outline of types of equipment available to landholders, what they can be used for etc • Pro's and con's, do's and don'ts	Michael Lancaster
10:50 am 30 mins	Introduction to herd monitoring side of the project ▪ Lindy to introduce PDS project (5mins) and Don Menzies ▪ Don to introduce his business in more detail if he wishes ▪ Don to discuss the process of collection of data, what has been learnt, what has been achieved • Some interim results & Prelude into equipment used	Lindy Symes / Don Menzies
11:20 am 70 mins	Demonstration of equipment in the yards • Move everyone from shed to yards • Demo of equipment over a number of different classes of animals and induction levels	Don Menzies
12:30 am 45 mins	***LUNCH***	Joe O'Reagain
1:15 pm 45 mins	PDS Outcomes in both the fattening and the breeding herd.	Don Menzies
2:00 pm 30 mins	Economic results of the PDS	Rebecca Gowen
2:30 pm 15 mins	Brief outline of various software packages that enable the use of the data collected by equipment	Lindy Symes
2:45 pm 30 mins	The in's and outs of the NLIS database • A brief overview of how to use the NLIS database and also some tips. What are legal obligations of landholders in regards to the database.	Michael Lancaster
3:15pm 15 mins	Final Touches & Close ▪ Meeting evaluation / feedback sheets	Lindy Symes
3:30 pm	***Meeting Close***	
OTHER:	Please allow time within your talks for questions.	

7.10 Appendix 10 – Feedback results for NLIS PDS field day

CQ BEEF Project Summary Feedback Sheet

Event **All things NLIS Field Day**

Date ***15 July 2010***

Location **Muller Family Property, Davis Road, Biloela**

Attendance **43** **Producers (21 new to CQ BEEF activities)**
6 **DEEDI staff**
3 **Guest Speakers**

20 **Feedback sheets received**

1. How would you rate the following aspects of the workshop?

	Not at all	Of little use	Some use	Useful	Quite useful	Very useful	Extremely useful	Mean
	1	2	3	4	5	6	7	
The usefulness of the field day overall				2	6	12		5.5
The information provided				2	6	11	1	5.6
The delivery of information				1	6	12	1	5.7

1.a. Why did you give this rating?

- Speakers explained well.
- Some explanations could have been presented differently more effectively.
- Good body of general information from experienced presenters.
- Relevant information to industry
- Good information – unfortunately some equipment didn't work.
- Speakers excellent all presentations well organised and presentation Gavin did, excellent job.
- The possibilities of the information are in the direction that beef industry has to move towards.
- Was an overall good information session.
- Good day overall.
- Because it all made sense.
- I learnt a lot and enjoyed the demonstrations.
- Good presentations.
- Don was a little sketchy at times.
- I needed to know more about feedback.
- Very informative.
- Excellent day for the unintellectual. Pity about the tech issues.

2. How could this workshop have been modified to make the day more useful or of more interest to you?

- BBQ Lunch
- Would have liked to have seen in action what equipment is available to your average producer
- Break down of the GM and financial to show how this information (wt gain data) can be used to make early management decisions.
- Well run, leave as is.

- A follow up workshop to interpret data.
- Brief presentations from the equipment companies. More years' data from the Muller's to learn what the longer term management benefits might/could be. Local B.Q. officers to be on hand for local contact.
- Learn from any mistakes you have made.
- Accurate working crush side recording.
- Better preparation for practical demo's.
- See that technology worked before presentation (stand still, don't pace around so much)
- Probably data available not relevant or new to me.
- No.
- Gets the technology working better.

3. What is the key take-home message that you have heard today?

- Weigh and record your cattle
- Understand your needs & requirements
- Embrace the technology and use it for your best advantage
- What is the information you want to keep.
- Uses of technology to more easily identify strengths and weaknesses and information to help productivity and profitability.
- NLIS information
- Practical data interpretation.
- The importance of MLA database tracking weight gain / performance info.
- NLIS useful for herd management and traceability.
- More access to relevant 'experts' and other sources of information.
- Understand your product first.
- Quality gear, no headaches.
- Watch out for the final report, technology is still expensive and unreliable.
- More background on the software available and its practicability.
- Expense and may save time.
- Check NLIS database more.
- Improved her management using NLIS, selling poor performing cattle early.

4. Are there any topics from today that you feel required more time/information?

- No
- Longer presentation from reps about some of the products and their capabilities. Economic Analysis of time.
- NLIS
- Interpretation, cattle assessment at Liveweight to improve meeting weight targets.
- Economic of NLIS, buying equipment etc.
- Economic ways to cope with the responsibilities of the producer.
- Everything was pretty well covered.
- Software.
- No.

5. What new knowledge or skills have you learnt/gained from your participation?

- How to set a NLIS reader up in a crush.
- More about the database and tag replacement
- Costs of new technology and application.
- Using NLIS to improve management
- NLIS clarification and obligations, cattle management via weight gains.
- More information about using NLIS database.

- How easy it is to scan cattle and record data. NLIS database knowledge. Tag requirements when tags are lost etc.
- Upgrade of existing knowledge.
- Range of software available.
- Up to date on NLIS equipment and benefits.
- The NLIS database reports etc. Some functionality on readers and so on.
- Software and its use.
- NLIS database.
- Heaps.

6. Please make any other comment or statement about this event or the project in general.

- Every producer should record info from their reader in regard to NLIS and running a property.
- A big thanks to everyone for organising the event.
- Very informative.
- Thanks for the opportunity to attend field day and the information provided.
- Very good day. Thanks Gavin & Megan and also Lindy
- Enjoyed the summaries of data crunching by Don & Rebecca. Well organised day, punctual, good catering, well run trial, with measurable outcomes. A trial worth conducting.
- Catering very good. Organisation / facilitation was very good.
- Thanks for your input into a worthwhile industry keeping it about producers.
- Good catering and venue. This will be worthwhile if only to steer me away from more technology that needs further advancement.
- Great to see the info explained.