



final report

Project code: P.PIP.0475

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Resources

Date published: 5 July 2017

PUBLISHED BY
Meat and Livestock Australia Limited
Locked Bag 1961
NORTH SYDNEY NSW 2059

JBS Beef Value Chain Producer Group Engagement

This is an MLA Donor Company funded project.

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government and contributions from the Australian Meat Processor Corporation to support the research and development detailed in this publication.

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Abstract

The South East Australian beef industry is well placed to capitalise on the growing consumer demand for pasture finished beef that provides a high-quality eating experience and is derived from production systems that consider welfare, ethics and sustainability as important elements of the enterprise. This project aimed to use a value chain approach to increase the continuity of supply and ability of producers to consistently meet a pasture finished target market. JBS, through their Farm Assurance (FA) program, was the focus market for this project. Focus groups were established in southern New South Wales and in Tasmania and met four times per year with a goal of improving their grazing management, pasture and livestock production. The two main benefits to the suppliers and JBS were an improvement in compliance to FA specifications, and increased procurement spread across the year. Industry benefits include a more informed and skilled producer base contributing to the overall beef industry. Case studies and data analysis were produced to demonstrate the outcomes of this project.

Executive summary

The South East Australian beef industry is well placed to capitalise on the growing consumer demand for pasture finished beef that provides a high-quality eating experience and is derived from production systems that consider welfare, ethics and sustainability as important elements of the enterprise. This project built on the established Pasture Fed Beef three-year project 2014-16, where DEDJTR Victoria and JBS coordinated three pilot producer groups in Victoria and adopted a value chain approach to the consistent supply and improved targeted compliance of beef into a premium pasture fed branded product.

This project aimed to use a value chain approach to increase the continuity of supply and ability of producers to consistently meet a pasture finished target market. JBS, through their Farm Assurance program and the 'Great Southern' beef brand was the focus market for this project.

The project intended to assist producers to increase their understanding of all components of the value chain and work closely with each segment throughout the chain to improve production efficiency and profitability. JBS intended to provide clear market intelligence, carcass feedback and pricing signals providing confidence to enter into a supply arrangement to address out of season supply.

Focus groups were coordinated by Pear Consulting and NSW DPI and supported by JBS and DEDJTR. DEDJTR provided overall project management and linkages to the broader Victorian based project and groups. Groups met four times per year with a specific goal of developing their grazing systems through adoption of known technologies to improve their grazing management, pasture and livestock production. On farm enterprise economic analysis was completed to assess profitability and sustainability of production systems, reported in case studies. Additionally, an analysis of processor and producer data determined the effects of using a value chain approach and market signals on variation in supply and certainty and security in pricing. Documented case studies were developed and included an analysis of the cost of production for the supplier.

Both the Tasmanian and NSW Riverina groups established successfully within their regions, with suitable numbers of suppliers interested in joining the groups and working on the project objectives of improving continuity of supply and compliance to FA specifications. Both the Tasmanian and Riverina suppliers involved have embraced the opportunity to engage with JBS through the development of a functioning value chain. The two main benefits to the suppliers and JBS were an improvement in compliance to FA specifications, and increased procurement spread across the year.

Interaction between JBS buyers and suppliers through the groups improved relationships and built trust along with skill development for both buyers and producers. Buyers are now engaging with producers on production and management issues in relation to securing supply, particularly around MSA and nutritional requirements, skills learnt from involvement in the groups and improved confidence. Clear two-way communication enabled producers to improve their understanding of JBS procurement and strategic supply needs, including price scheduling and other influencing factors, both domestically and globally. JBS meanwhile have continued to adapt and work with suppliers on the issues affecting their production and profitability that impact their ability to supply JBS. This is evidenced by JBS working to improve supply arrangements through agistment contracts in Tasmania, working with producers to supply small consignments of cattle and offering kill space in advance over spring, without commitment.

The skills learnt by producers involved in the project are transferrable to supplying other markets and have whole-of-farm benefits in relation to pastures and grazing management and livestock marketing. Cattle selection skills and preparation pre-slaughter to maximise compliance results has been critical for suppliers working towards optimising their profitability. Industry benefits include a more informed and skilled producer base contributing to the overall beef industry.

One objective, the development and pilot of an e-dec, did not occur due to the processor requesting to postpone this component. This was discussed and agreed to by MLA and did not impact the rest of the project.

A series of case studies were prepared, which examined different options producers have carried out to enable supply of cattle into the JBS FA program out of season and be paid at a premium price for cattle meeting specifications. A common theme occurring throughout the case studies is the suppliers' intentions to increase the number of cattle turning off into the FA program to maximise opportunities to gain price premiums. The case studies have provided examples of how adjustments have been made to existing production systems such as grazing winter wheats or new initiatives undertaken such as taking on agistment to complement current systems whilst still operating within the confines of the FA program and utilising eligible pastures or feeds.

Overall the producers involved in the case studies have demonstrated positive results through their management of new initiatives on farm to meet the needs of the FA program and receive the premium pricing accorded by JBS. The case studies also highlight the options existing for suppliers to produce cattle utilising the eligible feeds available, whilst meeting specifications and continuity of supply needs.

These case studies have been extended through JBS's FA supplier program, and will be extended throughout Agriculture Victoria's BetterBeef network, with both producers and group coordinators. The case studies will also be available for MLA extension purposes.

Data analysis comparing processing plants at Longford and at Brooklyn showed that there were differences between the operations, including in the hot standard carcass weight (HSCW), Meat Standards Australia (MSA) Index, ossification scores, and non-compliance levels and costs. Key themes from the analysis included the impact of seasonal variation on compliance to a range of measures and the high MSA Index of cattle supplied to the FA market in both locations.

This project demonstrated that a value chain approach, using groups of suppliers to a specific target market, can be used to address continuity of supply and improving compliance to market specifications. Producers increased their understanding of the value chain and worked towards improving production efficiency and profitability. The processor, JBS, provided clear market signals including carcass feedback which led to suppliers in the project having increased confidence in supplying the brand with compliant product at different times of the year. The outputs of an analysis of compliance and a series of case studies show the benefits of a value chain approach as demonstrated in this project.

Opportunities for further work

- Further work needs to be carried out to determine the influence of finishing nutrition and producer management through to finish which results in lower fats, lower carcass weights and higher pH_u.
- Further communication to producers regarding opportunity with differentiated products based on carcass traits or MSA Index, should be provided to engage producers in supplying higher quality product.
- CumSum analysis with appropriate 'flags' may provide a means for 'same time' follow up, closer to the processing event, to understand the influence of supply areas (conditions), specific suppliers or buyers with higher levels of non-compliance.
- Based on 'same time' follow up, work with supply chain managers and producers to identify the constraints and pressure points in their segment of the supply chain to determine resulting impacts on carcass attributes and meat quality.
- Ensure eating quality traits are not ignored as more objective carcass data becomes available with an emphasis on lean meat yield. Continue to work within the supply chain on providing suppliers with relevant pricing signals and building of supply relationships to ensure compliance is maintained, and where necessary improved.

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1 Background

The South East Australian beef industry is well placed to capitalise on the growing consumer demand for pasture finished beef that provides a high-quality eating experience and is derived from production systems that consider welfare, ethics and sustainability as important elements of the enterprise.

This project built on the established Pasture Fed Beef three-year project 2014-16, where DEDJTR Victoria and JBS coordinated three pilot producer groups in Victoria, and adopted a value chain approach to the consistent supply and improved targeted compliance of beef into a premium pasture fed branded product. The Producer Demonstration Sites PDS funded producer groups were coordinated by DEDJTR. The groups were supported by a web based and printed resource document on the production of pasture fed beef. The initial project was supported by JBS Australia, MLA, McDonalds and Victorian DEDJTR. The resource document was launched at a producer annual forum in early 2016. MLA is working to place the resource document on its website with links to partner sites.

The Pasture Fed Beef project worked within the JBS Farm Assurance program for project producers, supplying beef into their premium Great Southern brand. McDonalds Australia also invested as outcomes were closely aligned with their commitment to utilise verified sustainable beef throughout their supply chain.

The three regional Victorian JBS farm assurance producer groups met regularly, 3-4 times per year. Groups addressed issues such as supplementary feeding options for winter finishing, subsequent nutritional requirements for growing stock on winter pasture, interpretation of carcass feedback and development of strategies for improving compliance.

During autumn 2014 JBS released forward contracts for farm assurance members to supply over winter. A price incentive was offered along with conditions to alter the contracts if required on the number of head consigned. JBS procurement staff worked with the group coordinators to provide information to suppliers on meeting the target specifications and carcass feedback.

This project intended to demonstrate benefits of improving compliance to target specifications for both the beef producer and processors through determining cost of compliance and the drivers to make on farm practice change. For the processor, the benefit was expected to be in analysis of their market signals and effectiveness of evening out the annual supply curve to improve supply and compliance. The project also intended to evaluate the benefits of collecting and storing data through one information system, and how it would be used to support product claims and assist in maintaining market access. This project aimed to partner with and utilise other industry projects such as Livestock Datalink, e-dec and collaborate with software service providers.

2 Project objectives

This project intends to add to a current work in Victoria where JBS Australia and Department of Economic Development, Jobs, Transport and Resources (DEDJTR) looks to address the continuity of supply and meeting market specifications for Pasture Fed beef. JBS Australia, DEDJTR, NSW Department of Primary Industries (DPI) and Pear Consulting will establish a further two pilot focus groups of selected beef producers (one in Tasmania and one in the Riverina), with the aim of using a value chain approach to increase the continuity of supply and ability of producers to consistently meet a pasture finished target market. JBS, through their Farm Assurance program, has developed the 'Great Southern' beef brand and will be the focus market for this project.

Producers will increase their understanding of all components of the value chain and work closely with each segment throughout the chain to improve production efficiency and profitability. JBS will provide clear market intelligence, carcass feedback and pricing signals providing confidence to enter into a supply arrangement to address out of season supply.

Focus groups will be coordinated by Pear Consulting and NSW DPI and supported by JBS and DEDJTR. DEDJTR will provide overall project management and linkages to the broader Victorian based project and groups. Groups will meet four times per year with a specific goal of developing their grazing systems through adoption of known technologies to improve their grazing management, pasture and livestock production. On farm enterprise economic analysis will be completed to assess profitability and sustainability of production systems.

On top of group coordination these additional outcomes will be achieved. An analysis of processor and producer data to determine the effect of using a value chain approach and market signals on variation in supply and certainty and security in pricing. Documented case studies will be developed and will include an analysis of the cost of production for the supplier, these case studies will be used as a tool for distribution to the whole Farm Assurance program and the wider industry.

To assist in verifying product claims and management of data, information management systems will be investigated and developed to enable producer, carcass and animal health data, including e-decs to be captured together in one information management system.

2.1 Milestones

Table 1: Milestone objectives and deliverables

Objective	Deliverable
1. Establish pilot pasture fed beef groups in Tasmania and southern NSW.	Confirmation of the participants for each of the pilot groups received and accepted.
2. Deliver four meetings per group by December 2015.	Agenda, meeting minutes and actions received and accepted by MLA.
3. Deliver four meetings per group by December 2016.	Agenda, meeting minutes and actions received and accepted by MLA.
4. Develop and pilot e-dec targeting these value chains.	Milestone report received and accepted on the success of the pilot.

5. Develop six case studies on the cost of non-compliance and meetings with producer groups.	Non-compliance case studies received and accepted by MLA
6. Complete analysis of the impact of market signals and non-compliance.	Milestone report received and accepted on the analysis of the impact of market signals and the cost of non-compliance.
7. Final Report is prepared and presented.	Delivery and acceptance of final report.

3 Methodology

3.1 Establishment and running of groups (M1-3)

- Project team to engage two providers to establish and coordinate groups (Pear Consulting and NSW DPI).
- Working with the processor, identify and contact potential producers to engage in groups.
- Conduct an initial, introductory group session for each of the two groups. Ensure that representatives from the processor and project team are present and involved in the meeting.
- Service providers to continue to engage with their respective groups to form a schedule of regular meetings.
- Conduct a further three meetings for each group in year 1 of the project.
- Conduct four meetings for each group in year 2 of the project.

3.2 E-decs (M4)

- Consult with processor and key industry collaborators to identify required and desired components of the e-declaration suitable for the processor's supply chain.
- Engage a technology service provider to develop a prototype of the e-declaration program.
- Develop a pilot of the technology.
- Using the producer groups (M1-3), run a pilot of the technology.
- Conduct an evaluation of the success of the pilot, incorporating the user experience, processor satisfaction, compliance to industry standards and technological capacity of the program.

3.3 Case studies (M5)

- Working with the service providers, identify producers in the groups whose experiences may be appropriate for case studies. Approach and engage at least 6 (3 per group) identified producers.
- Service providers work with the engaged case study producer to examine:
 - Compliance to specifications
 - Measures that the producer is undertaking to better meet compliance
 - Key factors arising from the producer groups that the producer has adopted.
- Write case studies about each case study producer, seeking appropriate approvals prior to publishing.
- Extend case studies through the processor's supply chain network, along with making them available for industry extension.

3.4 Compliance and market signals data analysis (M6)

- Source compliance information from the processor.
- Using statistical analysis tools, conduct an analysis of the compliance and response to market signals.

- Prepare a report on the analysis.

3.5 Final report (M7)

- Summarise and evaluate outputs of the project's activities in a final report format.
- Present final report.

4 Results

4.1 Establishment and running of groups (M1-3)

4.1.1 Tasmanian Group 2015-16 (M1 and M2)

Table 2: Meeting dates, topics and presenters for the Tasmanian Group 2015-16

Meeting Date	Topics	Presenters
13 Apr 15	Pasture Fed Beef project information meeting	Sophie Folder, Mat Bosworth, Jose Webb
28 May 15	Meeting market specifications, Meat quality & carcass grading	Mat Bosworth, Sophie Folder, Maria Crawford, John Simmonds
31 Aug 15	Supplementary feeding for pasture fed beef	Sophie Folder, Mat Bosworth, Peter Lowrey, Gary Lindsay
15 Jan 16	PFB Discussion group planning meeting	Sophie Folder, Mat Bosworth, Mark Inglis

The first official meeting after the introductory session was held at the end of May 2015 and attracted sixty-one JBS FA suppliers. Heading into Winter the topics covered in this meeting included an update from Matt Bosworth (JBS) on the FA winter contracts, providing pricing signals and confidence for producers to work on supplying into the program over winter when the season is most challenging. Understanding the JBS FA grid was also discussed, ensuring suppliers fully understood where the premium prices were and when discounts applied. Understanding meat eating quality and factors influencing it was presented by Sophie Folder, whilst a carcass grading demonstration was provided by John Simmonds from Meat Standards Australia. The day was completed by a session on finishing cattle to meet market specifications by Maria Crawford. The day highlighted the importance of the interaction and relationship building between JBS and the FA suppliers and the need to provide a forum for information sharing in producing cattle within the Farm Assurance program.

The Tasmanian group came together for another successful meeting in August, resulting in them coming together as a group that prepared to share experiences and knowledge, 31 producers attended. The group focus for this meeting was around identifying challenges in winter pasture production, particularly around energy, protein and fibre requirements and their interactions. Supplementary feeding was also discussed with Peter Lowrey from Irwin Stockfeeds providing information about eligible supplements that may be used within the FA program and how to use the supplements with cattle on a pasture base. The group also visited the property of one of the group to look first hand at how supplementary feeding had been integrated into finishing cattle for the JBS FA program over winter. Livestock procurement staff from JBS also attended the group meeting as they do across all the groups in the project, providing an update on the market and supply requirements for the program.

The third meeting of the Tasmanian group was again well attended with 35 Farm Assurance producers attending covering topics, relevant to supplying into the Farm Assurance program over summer. Mark Inglis and Mat Bosworth (company cattle buyer) provided an update on the JBS Farm Assurance program and how supply is tracking.

Aidin Larke from Tas Stockfeed Services presented information on supplementary feeding in dry times. Corey Hogarth, TP Jones provided information on planning ahead for autumn and winter

forage, particularly important to those producers planning a program for turning off suitable cattle over the winter period. Emma Egan from RMCG then talked to the group about opportunities to be involved in a collaborative trial utilising forage crops in winter finishing systems. The program finished with a visit to the property of Malcolm Cresswell examining pastures and continuing the discussion on autumn finishing programs using forage crops and suitable pasture species.

A small group of eleven selected suppliers has been set up as a sub group to work more closely with the coordinator to identify issues and more closely monitor on farm practice change enabling improved out of season supply and compliance to FA specifications. The first meeting of this group was held prior to the larger group gathering and focused on brainstorming of topics of interest for the group as well as introductions of each other and their production system in relation to supplying into JBS.

Tasmanian JBS FA Producer of the Year forum

On the 26th November 2015 the annual JBS FA Producer of the year awards event was held in Tasmania. Over 120 FA suppliers attended the forum. This event provided an opportunity for JBS to engage with their supply base and recognise their producers as a significant contribution to the program. Suppliers were also able to hear preliminary research outcomes from trial work conducted by Dr Peter McGilchrist on dark cutting in beef. Sophie Folder, Tasmanian group coordinator for the Pasture Fed Beef project provided an update on the progress of the project to date in Tasmania and outcomes from the Victorian project over the previous two years. Feedback from the event was extremely positive and will influence issues covered by the project over the coming year in Tasmania.

4.1.2 Tasmanian group 2016-17 (M3)

Table 3: Meeting dates, topics and presenters for the Tasmanian Group 2016-17

Meeting Date	Topics	Presenters
18 Mar 16	LDL Training and JBS Farm Assurance update	Sophie Folder, Mat Bosworth, Mark Inglis
02 Jun 16	Pastures, clover and forages for winter finishing	George Shae (Lyndall), Tom Brown (Serve Ag), Matt Bosworth, Sophie Folder
24 Jun 16	Retailing of Great Southern Beef in the USA, producer day with H-E-B Grocery Texas	Sophie Folder, Mark Inglis and representatives of HEB from the USA
12 Jan 17	Forage options for maximising weight gains	Sophie Folder, Mat Bosworth, Corey Hogath (TP Jones), Rob Winter (Heritage Seeds), Emma Egan (RMCG)
5 Apr 17	Live animal assessment	Sophie Folder, Mark Inglis, Tim Hollier

Following the start of the project in 2015, the JBS FA producers participating in the project have continued to build their skills and knowledge towards meeting the project objectives of improving their compliance to FA specifications and improving their ability to supply out of season. Over the course of the project a small group of FA suppliers were selected to participate in a discussion group, which through the group coordinator worked on particular issues pertinent to supplying the FA

program at a higher, more involved level. This group then drove the topic selection for the wider group of FA suppliers that attended the meetings. The meeting dates continued into 2017 as a result of the project starting later and seasonal considerations for suppliers.

The Tasmanian group is made up of FA suppliers predominately based in the north of Tasmania, with two to three spread across the rest of the state. There is a mix of breeders and traders amongst the group, operating large commercial enterprises, often with a mix of cropping and irrigation. Irrigation is widely utilised across the group to maximise pasture growth and for forage crops for winter supply. Tables 1 and 2 detail the meetings held with the Tasmanian group and who the presenters or technical specialists were at each of the meetings.

The Livestock Data Link (LDL) training session was split between the discussion group and the larger general group of FA suppliers participating in the project. Two sessions were run. Suppliers were able to access their own LDL accounts, build their FA grid and assess their carcass performance against company specifications, MSA and attribute their lost opportunity cost to specific cattle or consignments.

The early June meeting focused on the suppliers' plans for extending their numbers of finished cattle into the winter season. Options were presented from local agronomists regarding viable winter forage options for feeding to finish, including fodder beet and various brassicas. The property where the meeting was held is participating in a project case study demonstrating the use of Colossus oats and Adrenalin annual ryegrass. The final results of the case study were written up for all FA suppliers. Figures 1 and 2 demonstrate the growth and change in composition over time.



Figure 1: Lyndall ryegrass demonstration

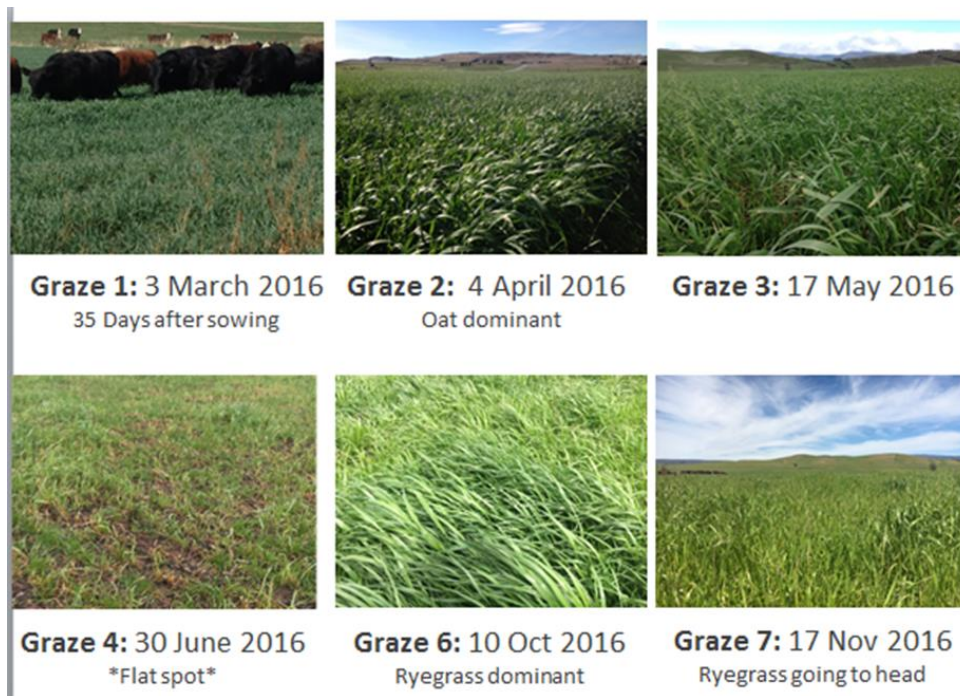


Figure 2: Lyndall oats and ryegrass growth from March to November 2016

An opportunity to engage with a major export market such as H-E-B Supermarkets, Texas was the focus of the group meeting in late June. Representatives from H-E-B were able to provide a valuable insight into customer trends and where they are headed into the future along with the scale and diversity of the red meat market as it currently exists in the United States.

The issues receiving attention in the United States as provided by H-E-B emphasised the following points

- Over 50% of customers now spend more on food away from home
- Millennials vs. Boomers and Gen X in between
- More ethnic diversity, driven by Hispanic growth
- Social factors more important today than ever in meat (health, animal welfare, sustainability, poverty, education/job skills training).
- The availability of information is more than ever, and customers are basing buying decision on this information

The ability to engage with the end market at such a personal level reinforces the value chain approach being taken by JBS and put into practise through the Pasture Fed beef project. Feedback from the session was all positive, as suppliers were able to more fully understand why what they do within the FA program matters further down the value chain.



Figure 3 H-E-B representative speaking to the Tasmanian JBS FA group of suppliers

The meeting in early January 2017 provided more information to suppliers around utilising forage crops for weight gain to achieve supply into the FA program out of season. The session also provided an opportunity to review the case studies outcomes and conclusions being completed by three suppliers.

The opportunities for agistment within the JBS FA program were also presented and discussed amongst the group and with JBS representatives.

The final session held in April 2017 focused on selecting the most appropriate animal for meeting target market specifications. Producers were taken through the theory and practical demonstrations by Tim Hollier covering the influence of growth stage, muscle and fat distribution and scoring, breed selection for target markets and their ability to meet FA specifications.

An update on the FA program from the supply chain manager and comments on supply by procurement were also part of the day's programs. Twenty-eight suppliers attended the meeting.



Figure 4 Livestock assessment session

4.1.3 NSW Riverina group 2015-16 (M1 and M2)

The Riverina group is made up of FA suppliers spread over a large area of NSW, with producers from West Wyalong to Albury. Due to the spread of producers, the production systems and turnoff times vary considerably. Enterprise scale also varies significantly with some producers finishing less than 100 cattle into the FA program annually compared to some turning off in the range of 500 plus head per year. The Riverina group consists of breeders and traders all with a common goal to maximise opportunities through gaining an improved understanding of the JBS FA value chain and extending their own profitability through higher compliance and supply.

Table 4: Meeting dates, topics and presenters for the New South Wales Group 2015-16

Meeting Date	Topics	Presenters
04 Jun 15	Pasture Fed Beef project information meeting	Maria Crawford, Mark Inglis, Steve Exton
21 Oct 15	JBS Grids and carcass feedback	Mark Inglis, Maria Crawford, Steve Exton
17 Feb 16	Supplementary feeding and feed quality	Mark Inglis, Rob Wyld, Geraldine Perkins, Frank Coorey, John Piltz, Ed Clayton

The NSW group met at Holbrook in October 2015 for the second time with fourteen suppliers attending. This meeting attracted suppliers enthusiastic about coming together with JBS and the project team to work on improving their supply into the market and building their relationship with JBS. Mark Inglis provided the update on the program, including the continuing breadth of the market for the FA product and sharing the success of the program with the JBS suppliers. Understanding grids and feedback were the chosen topic for information sharing at this meeting. The other groups within the project had initially demonstrated skills and knowledge in this particular area required

improvement. Understanding the complexities of the grid and how to interpret feedback is an essential part of maximising the potential production and profitability of supplying into the FA program.

The group provided positive feedback and are encouraged by the communication and transparency provided by JBS and their enthusiasm to fully engage with their suppliers through a group such as this.

The summer meeting in February was particularly focused around supplementing feeding within pasture fed programs and measuring feed quality and quantity. Fifteen Farm Assurance producers attended. Two stockfeed companies (Rivalea and Conquer Milling) were present to discuss the eligible supplements available relevant to southern NSW and their role in a finishing diet on pasture whilst maintaining the integrity of the JBS program. John Piltz (DPI NSW) lead an engaging discussion on the use and quality of silage as a finishing supplement on pasture. Silage is a viable option for producers in that catchment area as seasonal conditions are very conducive to quality silage production, making it an economical alternative. Rob Wyld from Sapien Technology also presented to the group the new smart phone app that the FA program is trialling as a way to capture information for ease of recording quality assurance information for auditing purposes. A number of producers within the group are taking up the trial offer.

4.1.4 NSW Riverina group 2016-2017

Table 5: Meeting dates, topics and presenters for the New South Wales Group 2016-17

Meeting Date	Topics	Presenters
05 & 06 Apr 16	LDL producer training (2 sessions)	Patricia O’Keeffe, Verity Gilbertson, Laura Wishart (JBS)
24 Aug 16	Pasture improvement for greater livestock gains	Bryan Ward, Peter Steer (JBS), Neale Flanagan, Helen Burns, Maria Crawford
15 Nov 16	Live animal assessment and BeefSpecs	Patricia O’Keeffe, Lachie Snow, Todd Andrews (NSW DPI), Maria Crawford
16 Jun 17	Matching feed demand with supply using pasture and improved grazing management	Patricia O’Keeffe, Jo-Ann Strong, Toby Hammond (JBS), Ed Clayton
6 Sept 17	LDL refresher	Patricia O’Keeffe, Mark Inglis (JBS), Greg Ferrier, Demi Lolbeck (MLA)
10 Oct 17	Tour of JBS Brooklyn plant	Mark Inglis, Steve Chapman, Patricia O’Keeffe

Two Livestock Data Link training sessions were held in April 2016 at Cowra and Corryong. Producers were able to access their own LDL accounts, develop their reference grid and assess their own cattle performance against the specifications set. Twenty-two suppliers attended these practical sessions.

In August the topic for the meeting was pastures and maximising live weight gain. The meeting was held with a supplier who regularly turns off steers over winter and achieves high compliance rates. The property has also undertaken significant revegetation activities while Bryan, the owner, monitors pasture growth and quality on a regular basis. Figure 5 shows the farm profile and revegetated areas on Bryan's farm. Peter Steer from JBS also provided an assessment of the steers ready for consignment the following week for the group (Figure 6)



Figure 5 Map of Bryan Ward's property highlighting pasture and revegetation improvements



Figure 6 Peter Steer from JBS discussing cattle selection for the farm assurance program

Live animal assessment and using the Beef Specs tool was the topic for the meeting in November 2016. Todd Andrews from NSW DPI presented a practical session in the yards on selecting the most suitable animals for the FA program and demonstrated the use of the Beef Specs program to assist in determining whether cattle will meet the specifications at the proposed time of turn off. Fifteen producers attended this session.

The following meeting was held in June 2017 and continued to focus on pasture based finishing systems, particularly matching demand with supply using pastures and grazing management. Discussion centred on winter pasture management and optimising cattle growth through this period to meet supply shortfalls towards the end of winter. A producer case study was completed based on the property hosting this meeting.

In early October 2017, the LDL refresher meeting was held providing an opportunity for those producers interested in progressing their skills with LDL. Twenty-five producers attended the meeting.

The final group meeting involved a visit to the JBS Brooklyn processing plant providing suppliers with a tour of the facility to view and ask questions on all aspects of the FA processing chain. The producers attending experienced MSA grading demonstrations in the chiller, viewed the kill floor and were informed about the procedure implemented for maintaining traceability through the plant. The lairage and stock yards were also toured, providing an insight into the livestock receivals process. After a tour of the plant, the group were able to hear from the marketing team charged with selling the FA product domestically and internationally. Mark Inglis, the JBS Supply Chain and Farm Assurance Manager also provided an update on the program and supply.



Figure 7 NSW Riverina group visiting JBS Brooklyn

4.2 E-decs (M4)

The development and pilot of an e-declaration specific to this value chain did not occur. The project team were unable to complete the development and pilot due to the decision by the processor not to proceed, linked to market conditions and the availability of appropriate technology systems within the timeframe of this project. This decision was made following consultation and agreement with MLA. The processor will look to working with e-decs further in the future.

4.3 Case studies (M5)

Over the course of the project five case studies have been completed three from the Tasmanian group and two from the Riverina group. Out of the Riverina group two case studies have been submitted, as the coordinator of the group was unable to complete the third case study with a collaborating producer prior to the project ending. Case studies have been completed featuring JBS suppliers across each of the two producer groups, Tasmania and in the Riverina area of NSW. The case studies focus on what change suppliers have implemented within their production systems to achieve improved compliance while altering their system to allow turnoff of finished cattle later into autumn and winter, filling winter supply gaps whilst positioning their enterprise to take advantage of premium pricing incentives from JBS. The case studies also focus on the economic outcomes for the producers implementing change to enable supply into the JBS FA program.

4.3.1 Julian and Annabel von Bibra 'Beaufront' Maximising weaner growth from winter wheat and irrigation

Revenue wheat was grown at Beaufront in 2016 under two pivot irrigators. The two crops were used to grow out the weaner calves through autumn and winter. Revenue wheat is sown at Beaufront for its dual-purpose nature, enabling it to be grazed during winter and then harvested for grain production in the summer. (see appendix 1 for completed case study)

4.3.2 Tony and Mark Wadley ‘Green Hills’ Deloraine Tasmania, Grazing winter wheat to maximise winter liveweight gain for JBS agistment

Green Hills operates as part of their overall farming business a thirty head breeding herd and opportunistic beef trading enterprise based on feed availability. Approximately 40 cattle are turned off annually to the JBS Farm Assurance program. In 2016 an additional 150 cattle were agisted on farm, on a live weight gain basis. The agistment provided cash flow during a time when the other farming enterprises are slow. The agistment enabled Tony and Mark to graze an existing surplus of feed without the capital outlay of trading stock during a time of high cattle prices. The winter wheat crop (Revenue) provided 6 weeks of high quality grazing and increased ADG during winter. (See appendix 2 for completed case study)

4.3.3 George and Galina Shea ‘Lyndal’ Derwent Valley Tasmania, Forage for successful winter finishing

George and Galina Shea run a beef finishing enterprise on their Lyndall property in the Derwent Valley of Tasmania. In recent years they have changed their beef operation from grain feeding for the domestic supermarket trade to pasture fed, solely supplying the JBS Farm Assurance program. Weaners are purchased from the Tasmanian store sales throughout the summer and autumn. Cattle are grown out and finished on forage crops, improved pastures and approved supplements before being consigned over the hooks into the JBS Farm Assurance program between May and December. George has sown new forage varieties to increase his winter feed base. This has enabled him to fatten cattle out season, and capitalise on the price premiums offered by JBS over the winter period. The fast time from sowing to grazing and the longevity that the dual variety crop provides allows improved management options for finishing the cattle over winter. Compliance to specification at Lyndall over the case study period was excellent with only 5 non-compliant cattle out of 116 consigned or an average of 6.3% non-compliance. This figure is low as dark cutting rates through winter in Tasmania can be as high as 10-15%. (See appendix 3 for completed case study)

4.3.4 Jo-Ann and David Strong, ‘Tiana Park’ Jugiong NSW, Pasture and grazing management to match feed demand with supply for successful pasture fed beef production

This case study outlines the pasture and grazing management strategies employed by Jo-Ann and David to improve the growth rates and compliance of animals destined for the JBS FA program and, at the same time, accommodate the feed demand of pasture fed animals in their overall operation. In comparing the costs associated with pasture improvement inputs with the potential cost of supplementary feeding if steers were to graze native pastures at ‘Tiana Park’, the case study results indicate that the most profitable option for the operation is to undertake pasture improvement to obtain the grass fed premium through the FA program. (See appendix 4 for completed case study)

4.3.5 Bryan Ward, ‘Illawong’ Bowna NSW, Using nutrition and genetics to meet market specifications

Bryan operates a pasture-fed trade steer enterprise on his property “Illawong” located at Bowna, in southern NSW. All steers are supplied into the JBS Farm Assurance (FA) program and consistently achieve high rates of compliance to the FA specifications. Up to 100 trade steers are finished and

supplied into the JBS FA program annually, although the number of animals varies depending on the season. Typically, Angus steers are sourced as three different groups of cattle of three distinct genetic lines, purchased from Barnawartha, to make up the annual herd.

Using Livestock Data Link (LDL) Bryan assesses carcass performance in order to gain an understanding of where adjustments may be needed to refine his system. This enables him to determine whether animals from a particular source have achieved the goals of the operation and allows decisions to be made about the purchase of animals and genetic lines for the following year. The carcass performance results accessed via LDL are assessed against the JBS FA grid they were consigned to. (See appendix 5 for completed case study)

4.4 Compliance and market signals data analysis

The characteristics of two Farm Assured pasture-fed supply chains were examined to determine the difference and change within and between them over two years. The impact of market signals can be seen along with the change in non-compliance rates over time as a result of JBS initiating closer relationships and improving supplier skills through FA producer groups.

Through Livestock Data Link (LDL), carcass data with meat quality attributes were sourced from the Brooklyn and Longford supply chains for carcasses processed between 1 May 2015 and 31 May 2017. The particular specifications look at, were carcass weights and P8 fat ranges of 220-359kg and 5-22mm respectively with pHu<5.71. Data also included kill date, grading date, animal NLIS number, carcass and meat quality measures. Supplier location and breeder location were determined from PIC codes associated with NLIS and NVD information.

Table 6 shows original data from Brooklyn and Longford comprised information from 143,702 and 57,519 carcasses respectively. Missing data were omitted from analysis.

Table 6 Numbers of carcasses from Brooklyn and Longford works 1 May 2015 to 31 May 2017

	Brooklyn	Longford	Total
Heifers	34,631	27,758	62,389
Steers	109,071	29,761	138,832
Total	143,702	57,519	201,221

Data, sourced as csv files, were compiled and examined through Excel analysis. The Genstat statistical program (18th Edition) was used to assess differences in supply chain characteristics based on an Unbalanced Analyses of Variance.

Lean Meat Yield was estimated by adapting formulae developed by Gardner *et al* for feedlot-finished cattle (Jeff House, pers. comm.)

Table 7 Overall average carcass attributes from Brooklyn (BK) and Longford (LF) works and yearly average across both plants, 1 May 2015 to 31 May 2017

	Brooklyn	Longford	2015 BK & LF	2016 BK & LF	2017 BK & LF
HSCW (kg)	316.7	278.8	298.7	307.0	315.0
P8 fat (mm)	10.9	10.5	10.6	10.8	11.2
Rib fat (mm)	7.8	8.0	7.6	7.9	8.4
Ossification	153.4	165.2	159.9	154.4	154.7

MSA marbling	337.0	339.3	334.0	330.9	358.6
pH	5.55	5.60	5.58	5.55	5.57
EMA (cm ²)	69.4	74.6	72.4	70.9	68.6
MSA Index	60.8	60.3	60.5	60.6	61.1

Table 8 Yearly average carcass attributes from Brooklyn and Longford works 1 May 2015 to 31 May 2017

	Brooklyn			Longford		
	2015	2016	2017	2015	2016	2017
HSCW (kg)	308.7	317.9	325.6	273.8	279.8	288.5
P8 fat (mm)	10.6	10.9	11.3	10.5	10.4	10.7
Rib fat (mm)	7.7	7.7	8.4	7.5	8.3	8.5
Ossification	152.8	153.5	154.2	178.1	156.7	156.0
MSA marbling	335.7	326.7	359.7	329.7	341.8	355.8
pH _u	5.57	5.53	5.55	5.60	5.60	5.62
EMA (cm ²)	71.9	69.4	65.9	73.8	75.0	75.7
MSA Index	60.8	60.6	61.2	59.8	60.5	60.8

Table 9 Average carcass attributes for heifers and steers from Brooklyn and Longford works, 1 May 2015 to 31 May 2017

	Brooklyn		Longford	
	Heifers	Steers	Heifers	Steers
HSCW (kg)	266.5	332.6	254.4	301.6
P8 fat (mm)	11.5	10.7	11.1	9.9
Rib fat (mm)	7.3	8.0	8.1	7.9
Ossification	169.7	148.3	189.3	143.2
MSA marbling	330.0	339.2	338.1	340.3
pH _u	5.55	5.54	5.59	5.61
EMA (cm ²)	66.9	70.2	74.2	75.0
MSA Index	59.6	61.2	59.3	61.2

Table 10 Average monthly heifer carcass attributes from Brooklyn works, 1 May 2015 to 31 May 2017

Brooklyn	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HSCW (kg)	265.1	264.1	260.2	265.2	263.7	257.1	263.8	276.6	273.5	270.6	269.6	273.9
P8 fat (mm)	12.1	11.3	10.4	11.3	11.4	10.6	11.4	12.5	12.3	11.9	11.5	11.9
Rib fat (mm)	7.3	7.1	6.9	7.0	7.2	6.7	6.8	7.6	7.6	8.0	7.6	7.7
Ossification	167.2	174.8	167.4	176.9	169.4	169.1	171.2	175.4	170.1	168.9	166.5	165.6
MSA marbling	339.6	328.2	323.6	315.5	333.5	322.2	325.4	319.8	335.8	336.2	331.9	336.8
pH _u	5.54	5.53	5.53	5.54	5.56	5.56	5.54	5.57	5.56	5.56	5.57	5.54
EMA (cm ²)	65.2	64.6	64.1	65.8	66.8	69.9	69.9	69.1	68.0	68.0	67.3	65.1
MSA Index	59.7	59.3	59.4	59.2	59.7	59.4	59.4	59.5	59.8	59.9	59.8	60.0

Table 11 Average monthly heifer carcass attributes from Longford works, 1 May 2015 to 31 May 2017

Longford	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HSCW (kg)	249.7	257.9	251.4	254.1	257.3	248.3	257.2	248.0	251.9	261.9	258.0	251.8
P8 fat (mm)	10.9	11.7	11.4	10.8	11.4	10.8	11.5	10.2	10.5	12.0	10.9	10.8
Rib fat (mm)	7.6	7.8	8.3	7.8	8.5	8.1	8.4	8.0	7.4	8.5	8.2	7.8
Ossification	169.3	176.2	172.7	167.9	198.5	186.9	206.7	189.9	171.1	226.6	196.3	165.3
MSA marbling	334.0	349.3	353.4	342.5	345.5	332.9	344.0	327.0	328.7	334.4	333.4	329.3
pH _u	5.59	5.61	5.61	5.58	5.60	5.60	5.60	5.59	5.59	5.60	5.58	5.58
EMA (cm ²)	73.1	73.7	74.0	74.6	74.6	73.9	74.3	74.8	74.1	74.5	74.1	73.5
MSA Index	59.6	59.6	59.9	59.7	59.1	59.2	59.0	59.0	59.5	58.3	59.1	59.8

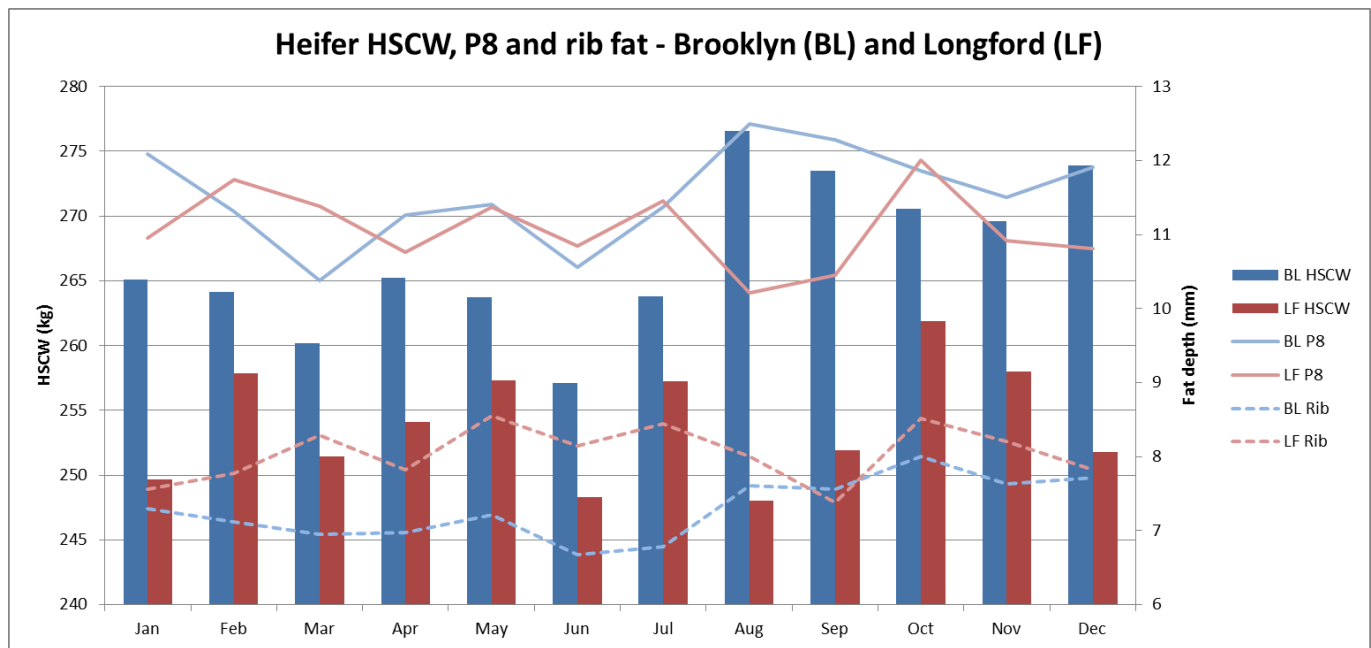


Figure 8 Average monthly heifer carcass weight (HSCW), P8 and rib fat depths at Brooklyn (BL) and Longford (LF)

Figure 8 shows average monthly carcass weight, P8 and rib fat depths for heifers supplied into the Brooklyn and Longford supply chains. Carcasses from heifers at Brooklyn and Longford had overall average carcass weights of 266.5kg and 254.4kg respectively. Overall average P8 (rib fat) depths were 11.5mm (7.3mm) and 11.1mm (8.1mm) for the Brooklyn and Longford supply chains.

Heifer carcasses at Longford had greater rib fat from February to August and October-November.

Table 12 Average monthly steer carcass attributes from Brooklyn works, 1 May 2015 to 31 May 2017

Brooklyn	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HSCW (kg)	332.6	331.5	330.5	324.7	324.5	320.2	327.9	329.7	338.4	340.1	340.7	337.9
P8 fat (mm)	11.3	10.5	10.2	10.2	10.5	9.8	10.5	10.3	10.9	11.2	11.2	11.3
Rib fat (mm)	8.0	8.0	8.0	7.7	7.8	7.2	7.0	7.5	8.0	8.4	8.4	8.4
Ossification	148.2	150.7	150.9	148.6	147.0	143.9	147.7	147.3	148.9	147.9	148.3	145.6
MSA marbling	342.3	336.7	345.4	325.1	346.2	323.4	322.5	317.7	340.1	345.5	344.9	343.2
pH _u	5.54	5.54	5.54	5.54	5.58	5.54	5.56	5.54	5.55	5.54	5.55	5.53
EMA (cm ²)	69.0	68.5	68.0	69.1	70.6	72.6	73.3	71.5	72.1	71.9	70.7	70.2
MSA Index	61.2	60.9	61.1	60.8	61.3	61.0	60.7	60.9	61.1	61.4	61.4	61.5

Table 13 Average monthly steer carcass attributes from Longford works, 1 May 2015 to 31 May 2017

Longford	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HSCW (kg)	304.1	308.5	307.9	304.2	294.9	295.0	295.4	289.3	299.3	303.2	306.8	312.9
P8 fat (mm)	9.9	10.3	10.5	10.4	9.7	10.1	9.2	9.1	9.3	9.7	10.1	10.2
Rib fat (mm)	7.5	7.6	8.2	8.3	8.1	8.1	7.7	7.8	6.7	7.7	8.4	8.2
Ossification	144.3	145.9	144.7	141.9	140.1	142.6	142.2	141.3	145.6	144.3	143.0	145.8
MSA marbling	332.6	347.7	356.9	351.8	338.3	339.9	335.6	322.9	327.7	323.5	342.6	346.6
pH _u	5.59	5.62	5.62	5.62	5.62	5.61	5.61	5.60	5.60	5.61	5.60	5.59
EMA (cm ²)	74.3	74.1	75.5	75.1	75.4	75.0	74.8	75.5	74.7	75.3	75.2	74.8
MSA Index	61.0	61.2	61.4	61.5	61.4	61.3	61.2	61.0	60.8	60.9	61.4	61.3

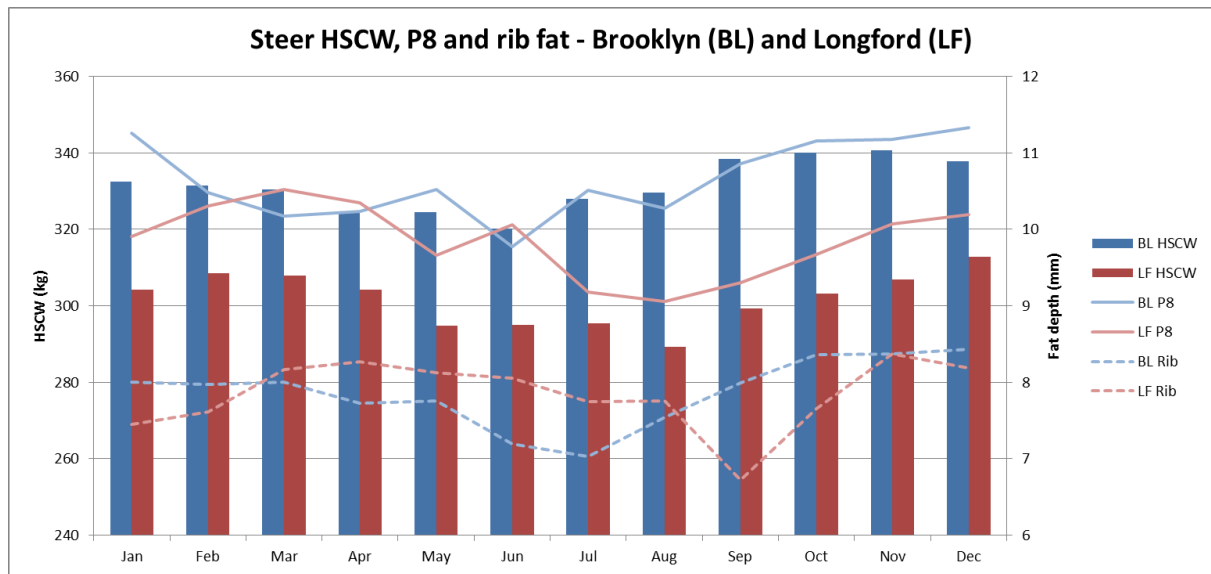


Figure 9 Average monthly steer carcass weight (HSCW), P8 and rib fat depths at Brooklyn (BL) and Longford (LF)

Figure 9 shows average monthly carcass weight, P8 and rib fat depths for steers supplied into the Brooklyn and Longford supply chains. Carcasses from steers at Brooklyn and Longford had overall average carcass weights of 332.6kg and 301.6kg respectively. Overall average P8 (rib fat) depths were 10.7mm (8.0mm) and 9.9mm (7.9mm) for the Brooklyn and Longford supply chains.

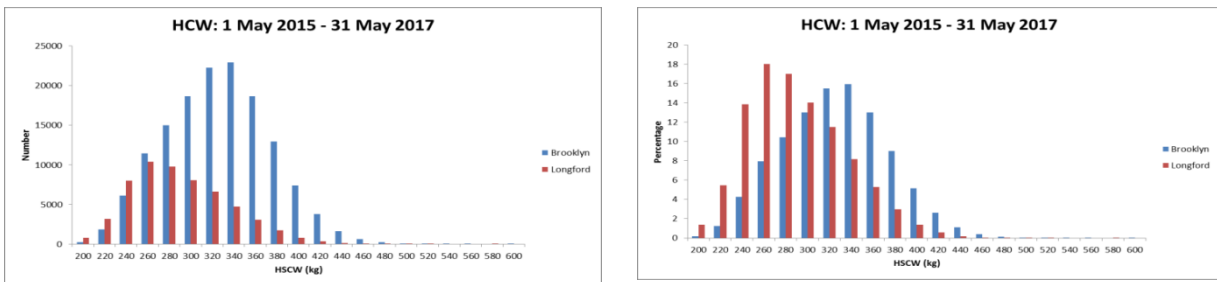


Figure 10 Distribution of hot carcass weights (HCW) at Brooklyn and Longford

Figure 10 shows the Brooklyn supply chain is supplied with higher percentage of heavier weight carcasses with an overall average weight of 317kg compared to the Longford supply chain with an overall average of 279kg. The Brooklyn supply was supplied with a greater proportion of ≥ 320 kg carcasses compared to the Longford supply chain with a greater proportion of carcasses from 200-319kg.

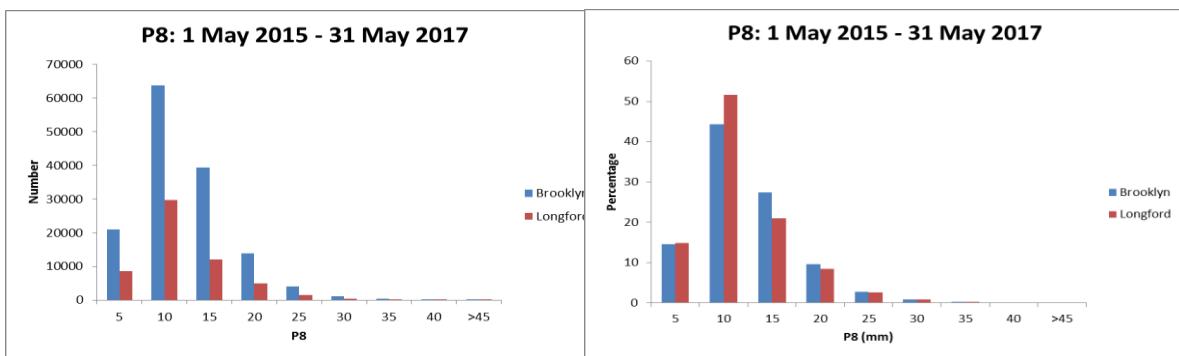


Figure 11 Distribution of P8 fat depths from the Brooklyn and Longford supply chains

Through 1 May 2015 to 31 May 2017, the Brooklyn supply chain was provided with a higher proportion of animals with P8 fat depths ≥ 15 mm compared to the Longford supply chain. Over the study period the Brooklyn supply chain had an average P8 fat depth of 10.9mm compared to Longford supply chain average of 10.3mm.

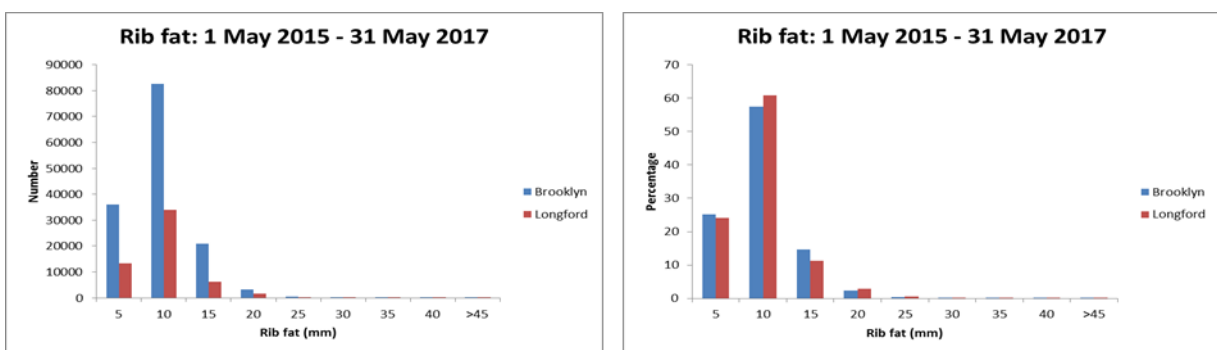


Figure 12 Distribution of rib fat depths from the Brooklyn and Longford supply chains

Average rib fat depth over the study period in the Brooklyn supply chain was 7.8mm compared to 8.0mm in the Longford supply chain. The Longford supply chain had a higher proportion of 10-15mm and 20-30mm rib fat depths.

Eye muscle area (EMA)

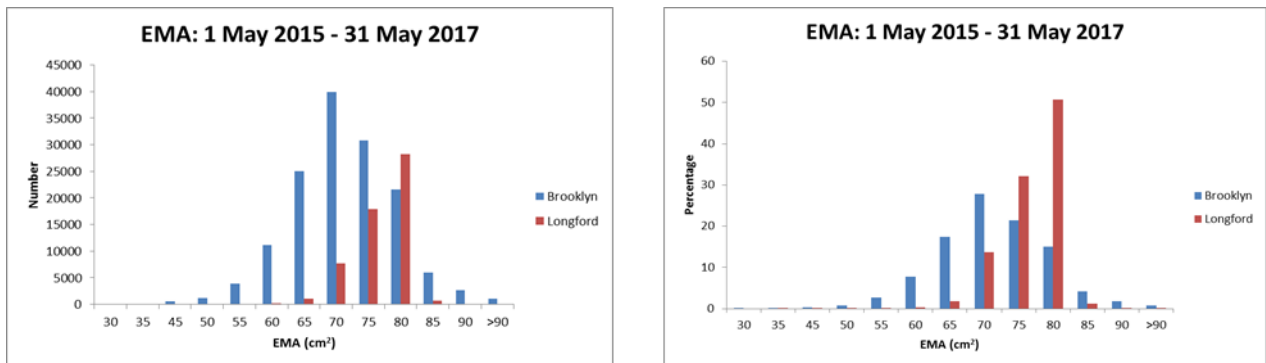


Figure 13 Distribution of eye muscle area (EMA) from the Brooklyn and Longford supply chains

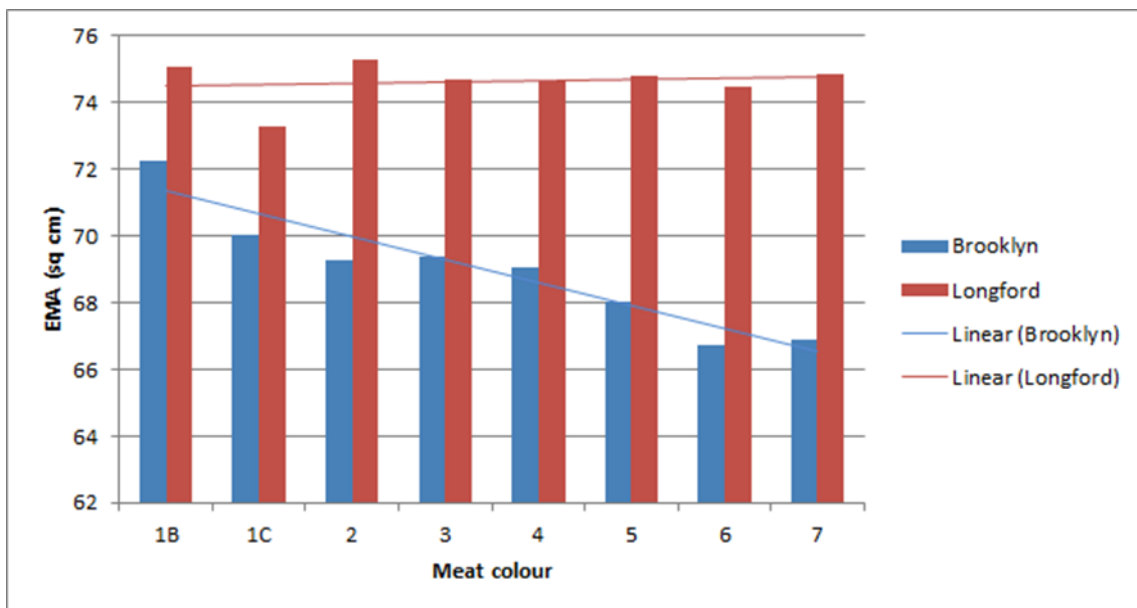


Figure 14 Relationship between eye muscle area (EMA) and meat colour in carcasses from the Brooklyn and Longford supply chains

On average EMA's were 69.4cm² and 74.6cm² for the Brooklyn and Longford supply chains respectively. The Brooklyn supply chain had a higher proportion of carcasses with 50-74cm² EMAs while the Longford supply chain exhibited a higher percentage of carcasses with 75-84cm² EMAs.

Figure 14 shows the relationship between EMA and meat colour in carcasses from the Brooklyn and Longford supply chains across the study period. Carcasses from the Brooklyn supply chain showed an increasing meat colour as EMA decreased from >70cm² to approximately 67cm². In contrast carcasses from the Longford supply chain showed a consistent average 74 cm² across all meat colour groups.

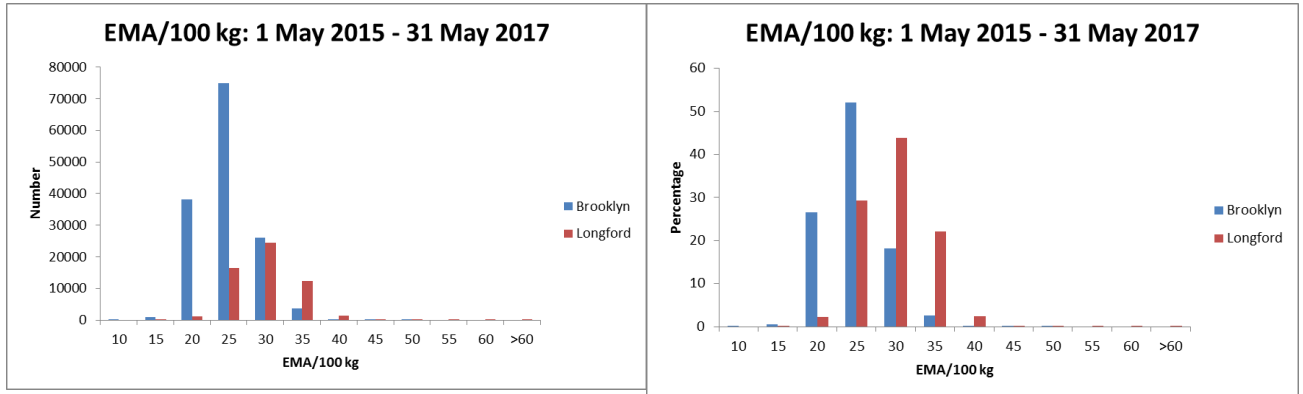


Figure 15 Distribution of eye muscle area (EMA) per 100kg carcase weight from the Brooklyn and Longford supply chains

The Longford supply chain provided a greater proportion of carcasses with higher indices of EMA/100 kg CWT. A greater proportion of 30-39 EMA/100 kg CWT were observed in the Longford supply chain compared to 20-29 EMA/100 kg CWT in the Brooklyn supply chain.

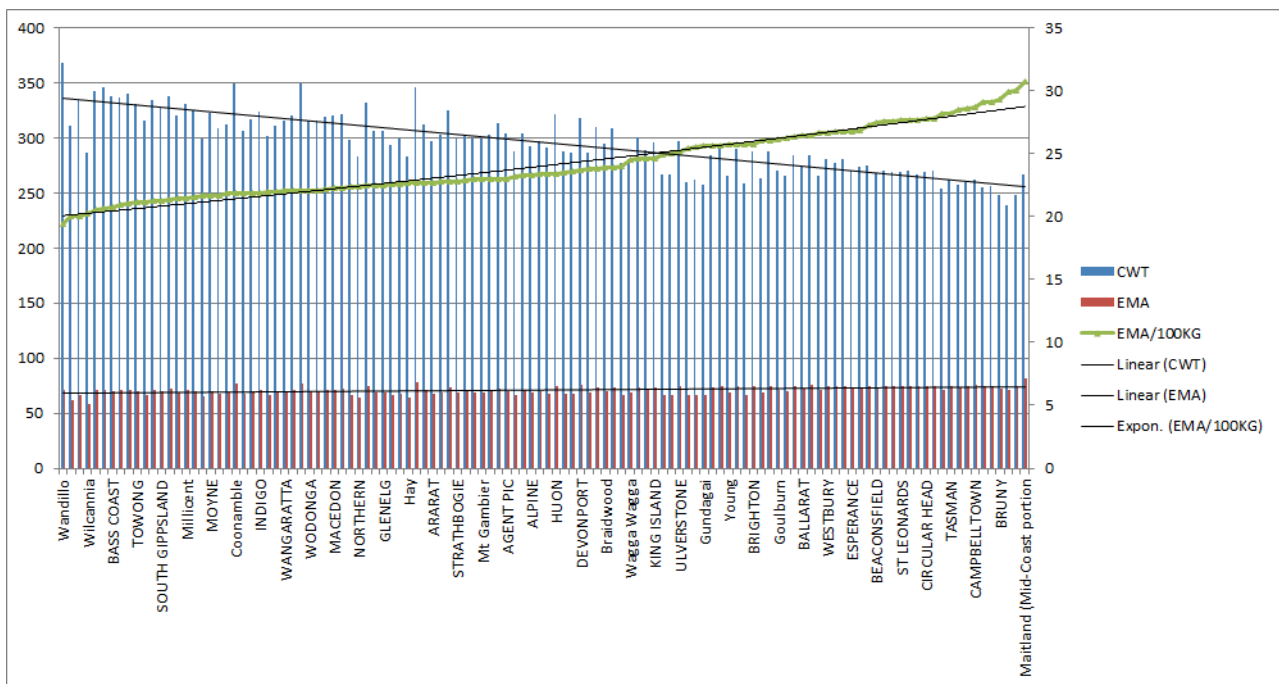


Figure 16 : Carcase weight (CWT), eye muscle area (EMA) and EMA/100kg CWT by supplier area

Over the study period carcase weight (CWT), eye muscle area (EMA) and EMA/100kg CWT were examined in relation to the supplier’s local government area. Figure 16 shows that carcasses with the highest EMA/100kg indices were sourced more typically from Tasmanian suppliers while those with lower indices were sourced from Victorian and South Australian suppliers. Victorian and South

Australian suppliers tended to supply carcasses with CWT ≥ 300 kg while those of approximately 250kg were sourced from Tasmanian suppliers.

Ultimate pH (pH_u)

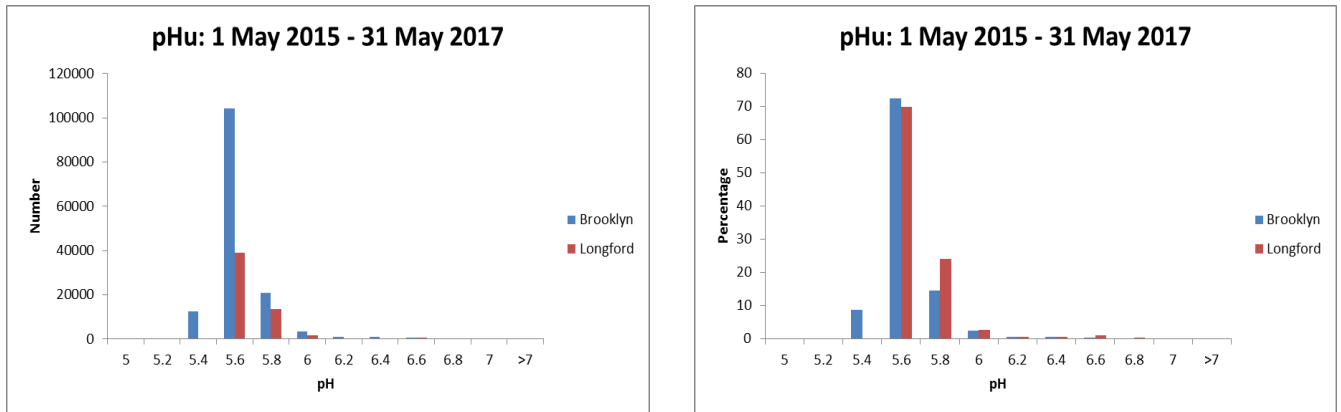


Figure 17 Distribution of carcass ultimate pH u from the Brooklyn and Longford supply chains

Over the study period the Longford supply chain provided a higher incidence of pH_u ≥ 5.8 . In contrast the Brooklyn supply chain provided carcasses with higher incidence of pH_u < 5.8 . Overall average pH_u for the Brooklyn and Longford supply chains were 5.55 and 5.60 respectively. (Figure 17)

Ossification

Table 14 Average monthly ossification scores, 1 May 2015 to 31 May 2017

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Brooklyn	151.4	155.6	154.5	154.9	153.1	153.1	159.4	154.6	154.8	154.3	152.4	150.3
Longford	155.0	157.3	156.3	152.4	166.9	161.3	175.4	169.1	159.6	193.0	173.8	154.5
Overall	151.8	155.8	154.7	154.6	154.9	154.1	160.9	156.0	155.4	159.3	155.1	150.8

Table 14 shows that the Longford supply chain provided carcasses with higher ossification scores throughout the year, apart from in May. For the study period, overall average ossification scores for the Brooklyn and Longford supply chains were 154.0 and 164.5 respectively.

MSA Index

The average yearly MSA Indices of carcasses from the Brooklyn and Longford supply chains were examined in comparison to the National MSA Grass finished MSA Indices (as reported in Meat Standards Australia Outcome Report 2016-2017 Source: https://www.mla.com.au/globalassets/mla-corporate/marketing-beef-and-lamb/documents/meat-standards-australia/msa-aor-2016_2017-lr.pdf)

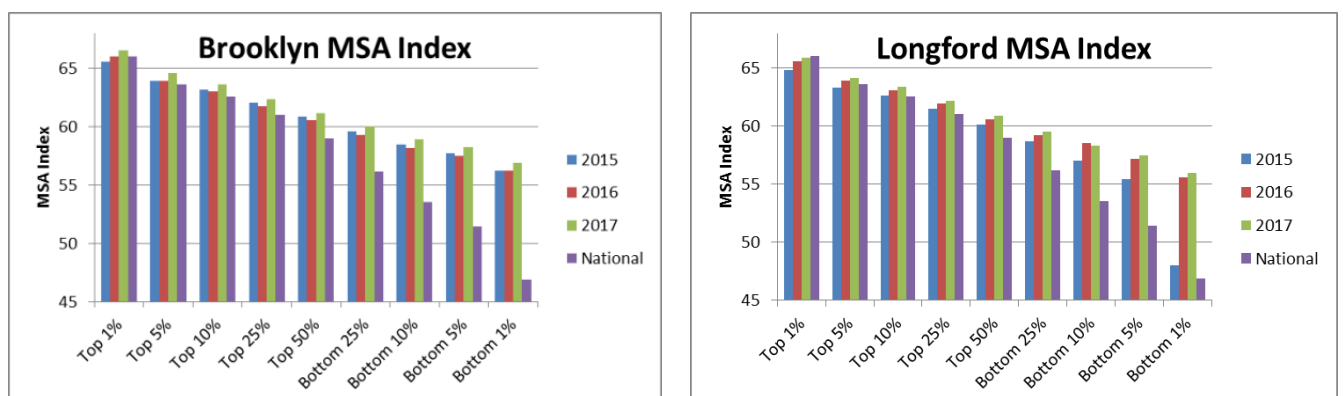


Figure 18 MSA Index percentiles from the Brooklyn and Longford supply chains compared to National reporting (2016-17)

Figure 18 shows that carcasses from both the Brooklyn and Longford supply chains generally ‘outperformed’ the National deciles across the study period. Of note is that both supply chains provided carcasses which markedly ‘outperformed’ the National percentiles from the 50% to the 1% range.

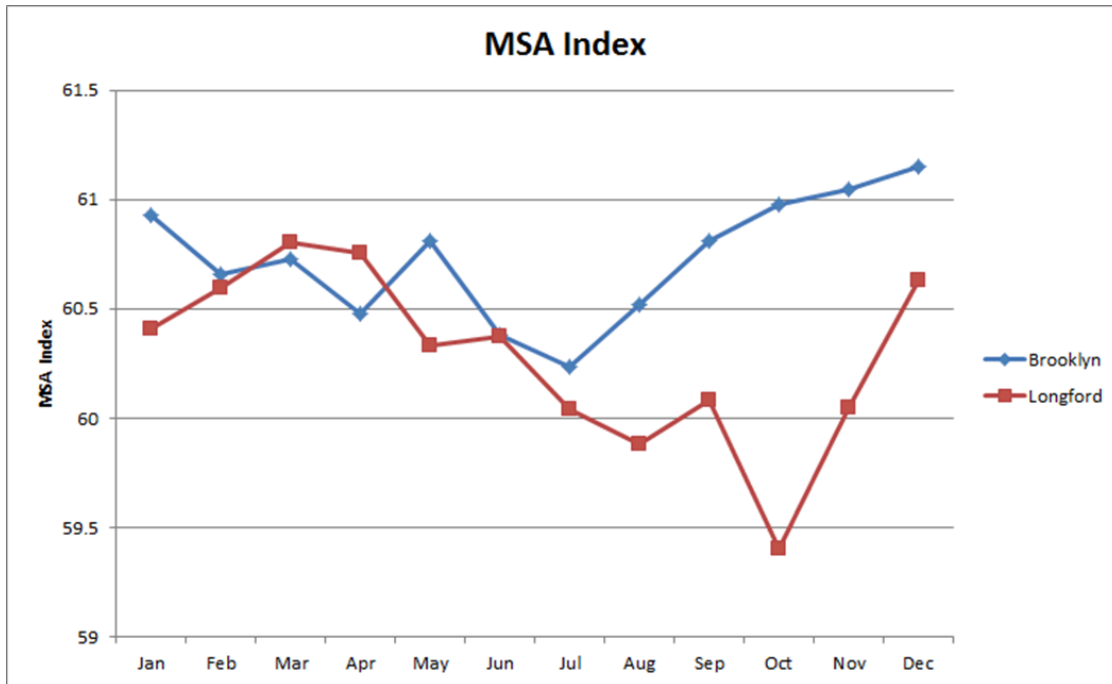


Figure 19 Average monthly MSA Index from the Brooklyn and Longford supply chains

The MSA Index of carcasses from the Brooklyn supply chain was found to be relatively consistent across the year apart from a small drop in July. In contrast, carcasses from the Longford supply chain showed, on average, a decrease in MSA Index through the months from July to November (Figure 19)

Non-compliance costs

Table 15 Non-compliance costs by supply chain and sex, 1 May 2015 to 31 May 2017

	n	% carcasses supplied non-compliant	Min \$	Max \$	Average \$	Total \$	% non-compliant cost incurred
Brooklyn	22,675	15.8	20.00	885.15	141.48	3,208,158	61.8
Longford	14,914	25.9	20.00	949.41	132.76	1,979,968	38.2
Heifer	14,487	23.2	20.00	949.41	126.84	1,837,503	35.4
Steer	23,102	16.6	20.00	811.28	145.03	3,350,562	64.6
Brooklyn - heifer	5,707	16.5	20.15	885.15	108.38	618,648	19.3
Brooklyn - steer	16,368	20.7	20.00	811.28	152.62	2,589,610	80.7
Longford - heifer	8,780	31.6	20.00	949.41	138.83	1,218,956	61.6
Longford - steer	6,134	20.7	20.00	729.50	124.06	760,952	38.4

The Brooklyn supply chain showed an incidence of 15.8% of non-compliant carcasses compared to 25.9% in the Longford supply chain however the Brooklyn supply chain incurred 61.8% of the costs of non-compliance. Over the two supply chains, steers incurred a greater non-compliance cost

compared to heifers with average costs of \$145 compared to \$127 respectively and contributing 64.6% of non-compliance costs (Table 15).

Table 15 shows the average for steers and heifers from each supply chain. Brooklyn non-compliant steers comprised 20.7% of the steer supply with an average non-compliance cost of \$153 compared to non-compliant heifers comprising 16.5% of the heifer supply with an average non-compliance cost of \$108.

In contrast, Longford non-compliant steers comprised 20.7% of the steer supply incurring an average cost of \$124 while non-compliant heifers, comprising 31.6% of the heifer supply incurred an average cost of \$139.

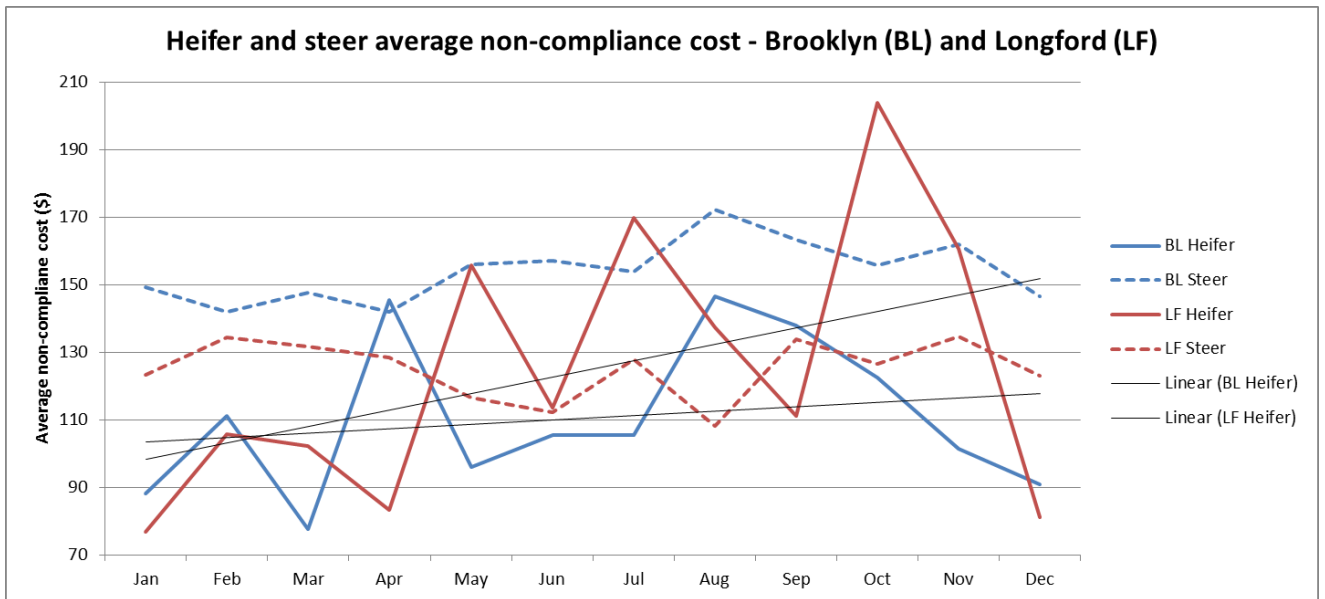


Figure 20 Average monthly non-compliance cost from the Brooklyn (BL) and Longford (LF) supply chains

Figure 20 shows the average monthly non-compliance costs for heifers and steers in the Brooklyn and Longford supply chains. Both steer supply chains showed a relatively consistent monthly non-compliance cost of \$150 and \$125 for Brooklyn and Longford respectively. In contrast, heifer average non-compliance costs showed a tendency to increase across the year in both supply chains.

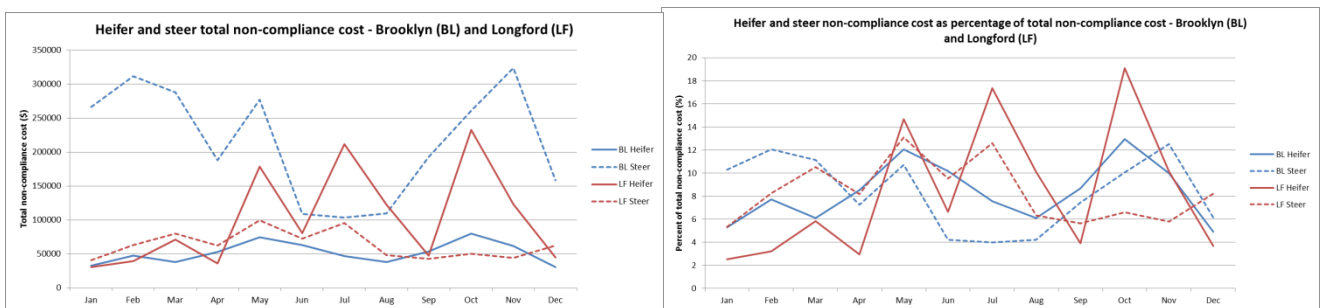


Figure 21 (a) Total monthly non-compliance cost and (b) cost as a percentage of total cost from the Brooklyn (BL) and Longford (LF) supply chains

Greatest total non-compliance costs were incurred by the Brooklyn steer supply between January and June and from September to November. The Brooklyn heifer and Longford steer total costs of

con-compliance were lower than the Brooklyn steer and Longford heifers for most of a year. The Longford heifer supply showed total non-compliance cost peaks in May, July and October (Figure 21a and 21b).

Monthly cost of non-compliance was explored by determining the area of the supplier (finisher) and examining the ten highest in overall average of cost of non-compliance. The top ten ranged, on average, from \$151 to \$255. The areas (average cost of non-compliance) included Richmond (\$254.8), Bothwell (\$242.60), Huon (\$180.20), King Island (\$159.70), East Gippsland (\$158.30), Evandale (\$157.40), Towong (\$152.20), Cardinia (\$151.60), South Gippsland (\$151.60), Colac-Otway (\$151.20) and Bass Coast (\$150.80)

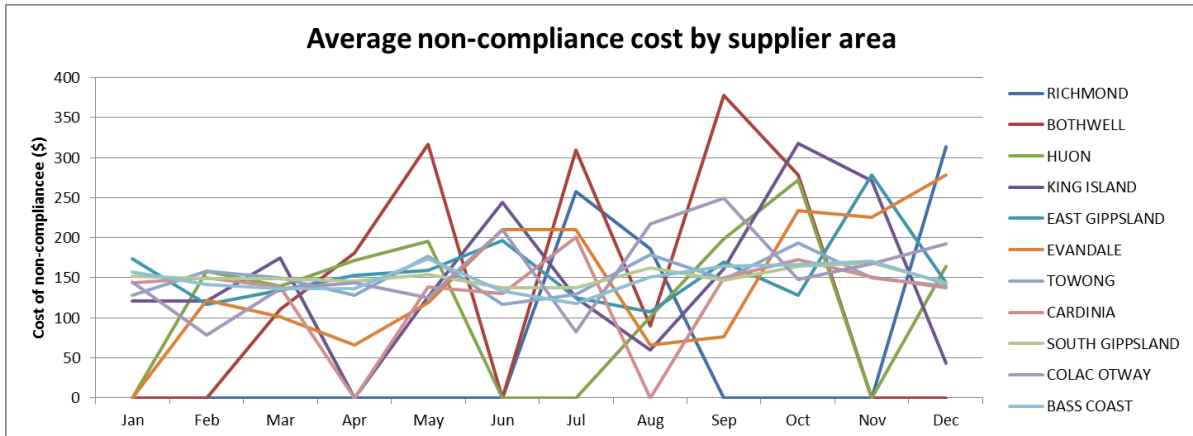


Figure 22 Average monthly non-compliance cost for the ten highest supply areas into the Brooklyn and Longford supply chains.

Figure 22 shows the ten highest non-compliance cost supply areas. Stock supplied from Bothwell showed distinct increase in non-compliance cost between April to May, July and September. Supply from King Island showed distinct peaks in March, June and September to November. Evandale showed peaks around June to July and from October to December.

In contrast, supply from areas such as South Gippsland, East Gippsland, Towong and Cardinia showed relatively consistent cost of non-compliance of approximately \$125-150 across the year.

Estimated Lean Meat Yield (LMY%)

Lean Meat Yield (LMY%) was estimated using predictors sourced from Murdoch University (House, pers comm.). For steers, estimated LMY = $62.1109 + (0.5 \times \text{HSCW} \times -0.09244) + (\text{EMA} \times 0.1645) + (\text{Rib fat} \times -0.4936)$ and for heifers, estimated LMY = $59.3974 + (0.5 \times \text{HSCW} \times -0.09244) + (\text{EMA} \times 0.1645) + (\text{Rib fat} \times -0.4936)$

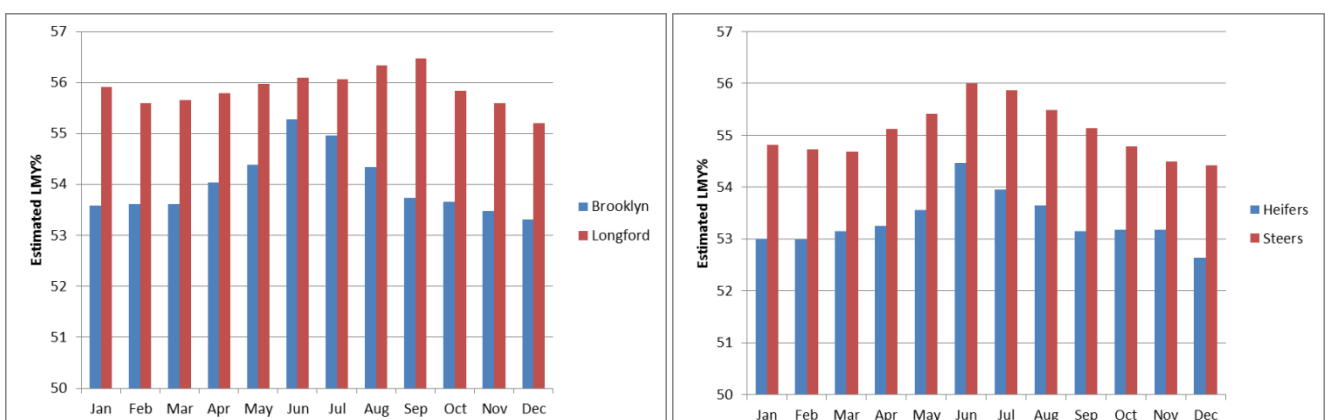


Figure 23 Average monthly estimated Lean Meat Yield (LMY%) from the Brooklyn and Longford supply chains and of heifers and steers supplied

On average, the Longford supply chain provided higher (estimated) LMY% each month compared to the Brooklyn supply chain. The overall average of estimated LMY% for each supply chain was 54.0% and 55.5% for Brooklyn and Longford respectively. In the Brooklyn supply chain there was a seasonal increase in LMY% between May and August (Figure 23)

On average, overall, carcasses of steers provided a higher LMY% of 54.8% compared to heifers at 53.6%. In both sexes, a seasonal increase in LMY% was observed between May and August.

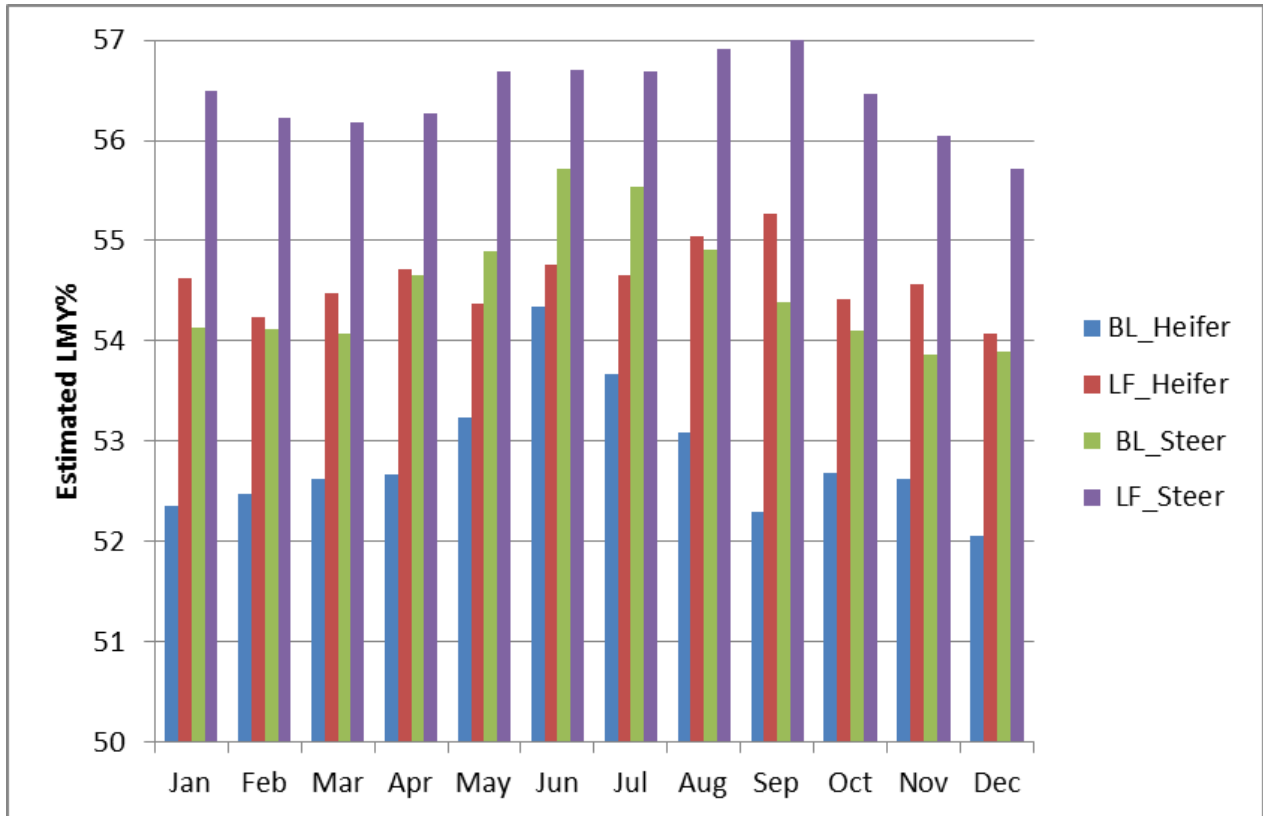


Figure 24 Average monthly estimated Lean Meat Yield (LMY%) of heifers and steers from the Brooklyn (BL) and Longford (LF) supply chains

On average, across the year, the Longford supply chain provided carcasses with more consistent (estimated) LMY% in both heifers and steers compared to the Brooklyn supply chain. In contrast the Brooklyn supply chain exhibited ‘seasonal’ fluctuations with increased LMY% in both sexes between May and August. (Figure 24)

Table 16 Average estimated Lean Meat Yield (LMY%) for heifers and steers, 1 May 2015 to 31 May 2017

	Heifers	Steers
Brooklyn	52.8	54.4
Longford	54.6	56.4

Table 16 shows the average estimated LMY% for heifers and steers. The seasonal increase in LMY% noted for the Brooklyn supply chain (Figure 24) was up to >1 percentage point higher in both heifers and steers.

Cumulative Sum (CumSum) analysis

As a means to explore 'process control' CumSum analysis was applied to one day's consignment to the Longford works. Analysis was considered relative to maximum (Cia), mean (Cib) and minimum (Cic) carcass weights of 340kg, 310kg and 280kg respectively.

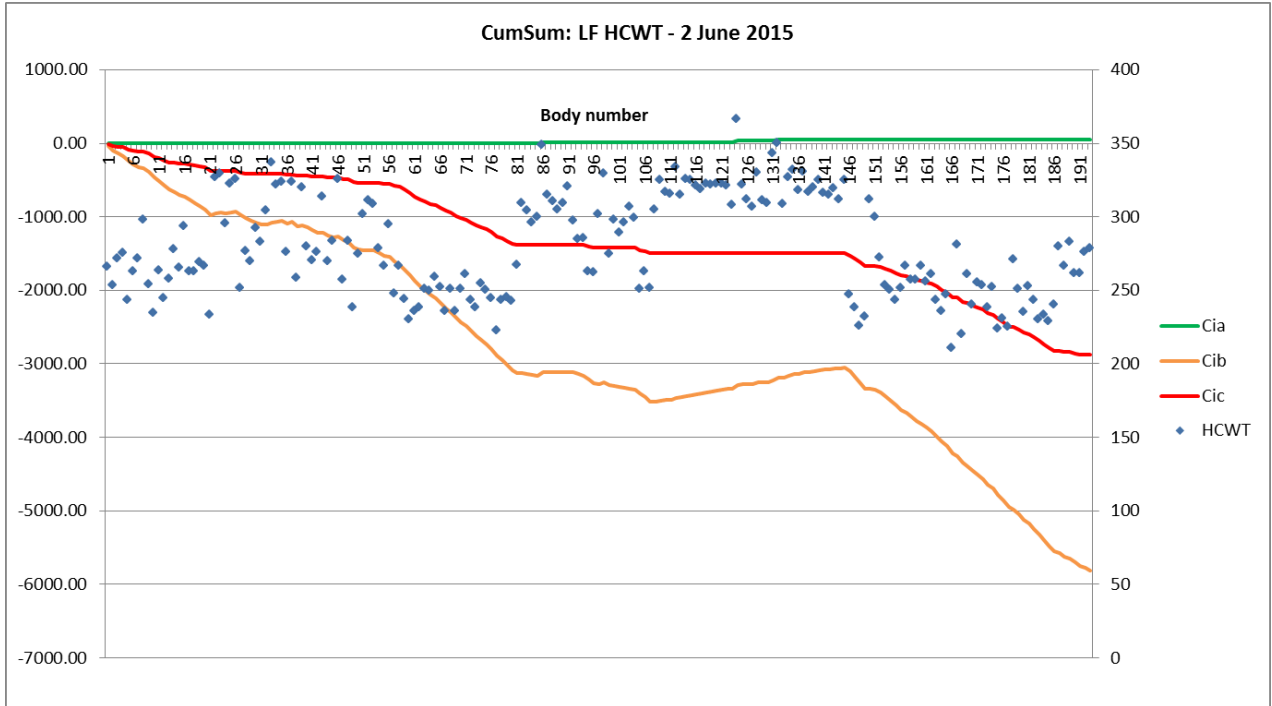


Figure 25 Cumulative Sum (CumSum) analysis of hot carcass weights (HCWT) of one day supply to the Longford works (Cia; Upper limit = 340kg, Cib; Mid-range = 210kg and Cic; Lower limit = 280kg)

In this analysis of data from the 2 June 2015 supply, two consignments on the day were noted to contribute to substantial shift in 'process control' leading to consistent lower carcass weights on the day. Tracing back from body number the supplier of the consignment could be identified.

5 Discussion

5.1 Establishment and running of groups (M1-3)

Objective 1: Establish pilot pasture fed beef groups in Tasmania and southern NSW.

Objective 2: Deliver four meetings per group by December 2015.

Objective 3: Deliver four meetings per group by December 2016.

Both the Tasmanian and NSW Southern groups established successfully within their regions, with suitable numbers of suppliers interested in joining the groups and working on the project objectives of improving continuity of supply and compliance to FA specifications.

As with the Victorian project, the opportunity to build a relationship with JBS through these groups has been very positively received by the suppliers. Some of the learnings from the Victorian project have been able to be implemented into the delivery of these two new groups, such as where the important skills and knowledge gaps are and what producers want to achieve through the delivery of these coordinated groups. Established resources could be used along with appropriate people or service providers who could also assist with technical information sharing and understand the purpose of the groups through previous interactions.

Producers were interested and intent on improving compliance performance and exploring options for making changes within their beef production system. The initial emphasis was on supplying out of season and maximise returns, after allowing for additional costs. Local JBS buyers and members from the livestock team attend the meetings, providing supply requirement information and engaging with the process producers undertake to improve their overall performance within the FA program. As with the Victorian project it is clearly evident that the engagement of JBS within these meetings is contributing to an improved two-way communication flow for the benefit of both the suppliers and processor which should result in improved value chain performance.

Supplier involvement in the project through the development of JBS FA specific groups has been incredibly positive. Both the Tasmanian and Riverina suppliers involved have embraced the opportunity to engage with JBS through the development of a functioning value chain. The two main benefits to the suppliers and JBS have been; an improvement in compliance to FA specifications, and increased procurement spread across the year. Figure 26 demonstrates an improvement in carcass compliance for a Riverina group producer over two years, Group 2 being consignments over 2015 while Group 1 demonstrates an improvement in compliance for cattle consigned in 2016. These results are similar across both groups as both seasonal conditions and improved knowledge especially around pre- slaughter consignment and MSA impacted results.

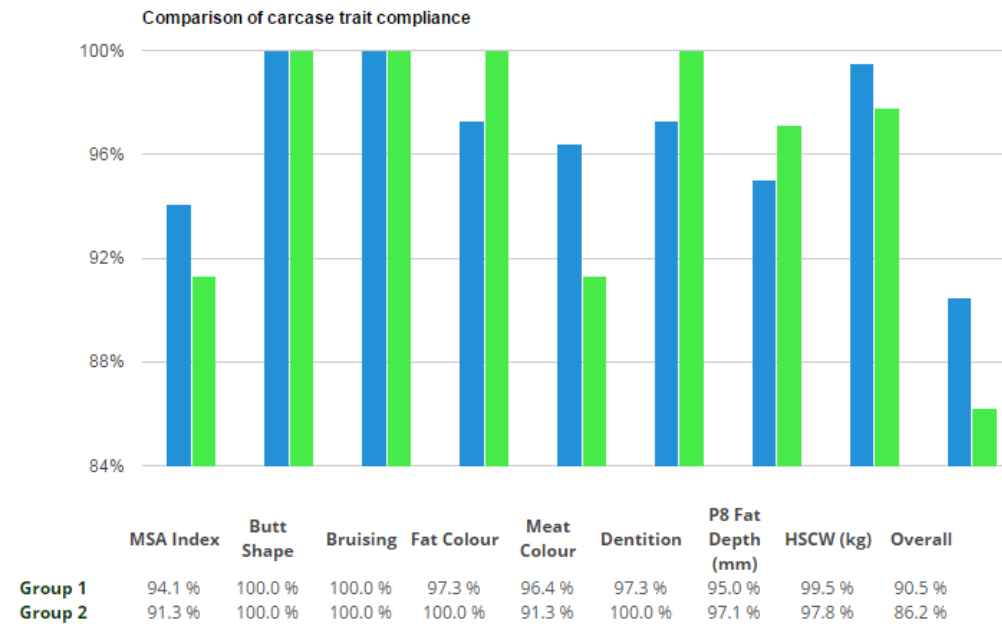


Figure 26 Compliance comparison for a Riverina group supplier between years 2015 (Group 2) and 2016 (Group 1)

Interaction between JBS buyers and suppliers through the groups has improved relationships and built trust along with skill development for both buyers and producers. Buyers are now engaging with producers on production and management issues in relation to securing supply, particularly around MSA and nutritional requirements, skills learnt from involvement in the groups and improved confidence. Clear two-way communication has enabled producers to improve their understanding of JBS procurement and strategic supply needs, including price scheduling and influencing factors, both domestically and globally. JBS meanwhile have continued to adapt and work with suppliers on the issues affecting their production and profitability that impact their ability to supply JBS. This is evidenced by JBS working to improve supply arrangements through agistment contracts in Tasmania, working with producers to supply small consignments of cattle and offering kill space in advance over spring, without commitment.

The skills learnt by producers involved in the project are transferrable to supplying other markets and have whole-of-farm benefits in relation to pastures and grazing management and livestock marketing. Cattle selection skills and preparation pre- slaughter to maximise compliance results has been critical for suppliers working towards optimising their profitability. Industry benefits include a more informed and skilled producer base contributing to the overall beef industry.

These objectives have been met in full by the project.

5.2 E-decs (M4)

Objective 4: Develop and pilot e-dec targeting these value chains.

As noted in the results, the development and pilot of an e-dec did not occur due to the processor requesting to postpone this component. This did not impact the rest of the project.

This objective was not met.

5.3 Case studies (M5)

Objective 5: Develop six case studies on the cost of non-compliance and meetings with producer groups.

The case studies have examined a number of different options producers have carried out to enable supply of cattle into the JBS FA program out of season and be paid at a premium price for cattle meeting specifications. A common theme occurring throughout the case studies is the suppliers' intentions to increase the number of cattle turning off into the FA program to maximise opportunities to gain price premiums. The case studies have provided examples of how adjustments have been made to existing production systems such as grazing winter wheats or new initiatives undertaken such as taking on agistment to complement current systems whilst still operating within the confines of the FA program and utilising eligible pastures or feeds.

The use of winter wheat for growing out weaners has demonstrated continual growth post weaning with no check and higher finishing weights is achievable. Where weight for age influences exist to maximise profitability in higher input systems and to maximise eating quality, faster high growth systems utilising eligible pasture fed feeds are most desirable. In the Beaufront case study a gross margin of \$1800 per hectare was achievable, using this strategy.

JBS have continually sought to provide certainty and production options to suppliers involved in the FA program, the option to take on agistment cattle for the program during 2016/17 was provided to Tasmanian suppliers as a way to achieve supply certainty over winter. The Wadley case study demonstrated how agistment was able to provide additional cash flow, with minimal expenses, whilst operating their normal enterprise mix.

Livestock Data Link (LDL) has also been utilised throughout the case studies, showing how the use of comprehensive feedback is able to assist in making improved production and marketing decisions. Bryan Ward at Bowna has utilised LDL to better inform him of the differences in the genetic lines of the cattle he purchases through the Barnawatha livestock exchange. Analysing the information within LDL along with monitoring animal growth performance provides Bryan with knowledge of which cattle to purchase again and which ones perform the best within his production system.

Overall the producers involved in the case studies have demonstrated positive results through their management of new initiatives on farm to meet the needs of the FA program and receive the premium pricing accorded by JBS. The case studies also highlight the options existing for suppliers to produce cattle utilising the eligible feeds available, whilst meeting specifications and continuity of supply needs.

Unfortunately, the Riverina group coordinator was only able to provide two producer case studies over the course of the project resulting in five completed case studies.

This project objective was met by the Tasmanian group and Pear Consulting and partly met by the Riverina group and NSW DPI.

5.3.1 Case studies for extension purposes

Of the five completed case studies, two have been selected to extend to the broader industry network. The two selected case studies are Tiana Park in NSW, which focuses on pasture and grazing management strategies, and Lyndall in Tasmania, which looks at targeting the winter premium market, including grazing forage crops. These case studies reflect the range of strategies present in the suite of case studies and contain valuable lessons as extension tools.

These case studies have been extended through JBS's FA supplier program, and will be extended throughout Agriculture Victoria's BetterBeef network, with both producers and group coordinators. The case studies will also be available for MLA extension purposes.

5.4 Compliance and market signals data analysis

Objective 6: Complete analysis of the impact of market signals and non-compliance.

For both supply chains, HSCW has generally increased resulting in a 38kg difference between Longford and Brooklyn in carcass weights over the two years. This may reflect a strategy to source and supply heavier liveweight cattle into each of the supply chains or, may reflect improved seasonal finishing conditions over the two years. Overall heavier carcass weights into the Brooklyn supply chain likely reflects a broader catchment of producers in a range of areas offering better finishing conditions for consignments into this processor.

The analysis shows distinctive characteristics of each supply chain reflected in various carcass attributes including carcass weight, fats (Rib and P8) pH_u and ossification. The overall impact on resulting MSA Index and non-compliance costs were shown based on data sourced through LDL.

Across both supply chains heifers provided the greatest proportion of carcasses, 23.2% of carcasses, contributed to non-compliance costs with 31.6% of carcasses from heifers being non-compliant at Longford compared to 16.5% of heifer carcasses at Brooklyn. Longford heifer non-compliance tended to peak in spring and over a year there appeared to be more seasonal influences. In contrast 16.6% of steer carcasses contributed to non-compliance over both supply chains.

Of non-compliance costs across both supply chains 64.6% was attributable to steers with 80.7% of non-compliance costs at Brooklyn and 28.4% at Longford being attributable to steers.

Ossification scores at Longford tended to be higher in most months. This may reflect the influence of cows being processed or other factors such as the maturity of animals at slaughter as a result of poorer finishing conditions.

MSA index was more consistent across the Brooklyn supply chain compared to Longford. Longford supply chain showed a sharp decline in MSA Index between August and October, in contrast the Brooklyn supply chain showed an increase from July to December. The decline in MSA Index in the Longford supply chain may reflect the drop in P8 fats at Longford dropping between June and September influencing carcass pH_u.

Across both supply chains the MSA Index was consistently better than the national average for grass fed cattle. The high MSA Index supply provides opportunities allowing for further differentiation

within supply chains based on potential eating quality (eg JBS 'Little Joe' and Farm Assured Hereford branding). This is likely to be a result of improved cattle selection and production by producers in a farm assured program.

The Longford supply chain showed characteristics which showed it to be more 'fragile' causing seasonal peaks with non-compliance costs. Lower carcass weights and higher pH_u were likely to be the main contributors.

Within supply chains, there were substantial and variable differences in costs of non-compliance between areas of supply. Seasonal finishing conditions and the demand to meet supply needs may influence these differences.

Cumulative Sum (CumSum) analysis provided a means to identify when consignments within a day's supply to a plant contributed significantly to loss in 'process control'. In the example provided from the Longford supply chain, individual consignments on June 2, 2015 were able to be identified as contributing to low carcass weights on that day.

While this study showed seasonal and yearly differences in carcass attributes, MSA Index and costs of non-compliance, the work did not explore the influence of the producer and supply chain procurement in their relative contributions to the variations found. For example, is a producer in a position where stock are required to be consigned off poorer finishing systems or, as another scenario, is a supply chain manager under pressure to meet supply numbers to a plant and hence sources under-finished' stock.

This objective was met in full by the project.

5.5 Cost of compliance and animal health feedback tools

The project made use of the Livestock Data Link (LDL) program, which facilitates the feedback of information from JBS to the supplier. This information includes compliance data, which when combined with a pricing grid structure inputted by the producer, enables a cost of compliance to be calculated. This tool was used by the producers involved in the groups and case studies and formed a basis for the statistical analysis of supply above.

While the project was not able to trial the provision of animal health feedback due to technological delays affecting data collection at the processor, the feedback program LDL has been updated to include parameters for animal health feedback. JBS are working towards providing animal health information for the beef chain into the LDL system, which will enable feedback of this information through to the suppliers.

6 Conclusions/recommendations

This project demonstrated that a value chain approach, using groups of suppliers to a specific target market, can be used to address continuity of supply and improving compliance to market specifications. Producers increased their understanding of the value chain and worked towards improving production efficiency and profitability. The processor, JBS, provided clear market signals including carcass feedback which led to suppliers in the project having increased confidence in supplying the brand with compliant product at different times of the year. The project outputs of an analysis of compliance and a series of case studies show the benefits of a value chain approach as demonstrated in this project.

Recommendations

- Further work needs to be carried out to determine the influence of finishing nutrition and producer management through to finish which results in lower fats, lower carcass weights and higher pH_u.
- Further communication to producers regarding opportunity with differentiated products based on carcass traits or MSA Index, should be provided to engage producers in supplying higher quality product.
- Opportunity to utilise and distil products such as case studies and the resource document out of this project in extension messages to pasture fed beef value chains participants across South East Australia.
- CumSum analysis with appropriate 'flags' may provide a means for 'same time' follow up, closer to the processing event, to understand the influence of supply areas (conditions), specific suppliers or buyers with higher levels of non-compliance.
- Based on 'same time' follow up, work with supply chain managers and producers to identify the constraints and pressure points in their segment of the supply chain to determine resulting impacts on carcass attributes and meat quality.
- Ensure eating quality traits are not ignored as more objective carcass data becomes available with an emphasis on lean meat yield. Continue to work within the supply chain on providing suppliers with relevant pricing signals and building of supply relationships to ensure compliance is maintained, and where necessary improved.

7 Key messages

- Engagement in a value chain can be of benefit to all parties involved.
- Improved communication and relationships can lead to increased ability to meet customer specifications, in quantity, quality and time of supply.
- Providing feedback to supplying producers is an important tool in improving the compliance to product specifications.
- For producers, accessing, interpreting and utilising feedback is a worthwhile activity, as it can lead to an improved ability to meet a purchaser's target market grid.
- Providing strong and clear market signals, in terms of pricing signals as well as information, allow analysis to influence decision making and can increase confidence by suppliers to try to meet target markets outside their usual season of production (for example, early winter).

8 Appendix

8.1 Case studies



Beaufront case study.pdf



Green Hills case study.pdf



Illawong case study.pdf



Lyndall case study.pdf



Tiana Park case study.pdf