Final Report

AMPC
AUSTRALIAN MEAT PROCESSOR CORPORATION

Assessment of Blue Trace and SCL small stock EID hardware and software

Project code
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1.0 Abstract

Mandatory scanning of eID sheep and goats became mandatory throughout Australian processing plants over the past 18 months. The initiative aims to enhance biosecurity, improve livestock traceability, and support market access by linking each animal to its property of origin via the NLIS system.

Each processing plant is a complex and unique system making a 'one size fits all' approach to having traceability through a processing plant not feasible. Previous studies outlined that more work needs to be done to fully understand and provide solutions to key issues regarding scanning of eID animals in smallstock processing plants.

This project evaluated the potential benefits and aimed to increase industry knowledge on the use of BlueTrace and SCL RFID scanning technology across four processors in NSW and Western Australia as an alternative to Allflex which was previously assessed.

The project plan and objectives were developed with AMPC and the four processing plants. A phone meeting with each processor was conducted to discuss their current systems, project focus areas, timelines and a potential date for a site visit from a NSW DPIRD representative. A phone meeting or face to face meeting was also conducted with BlueTrace and SCL personnel to gain an insight into the technology being installed as well as the barriers and challenges throughout the installation and trialling of the systems.

Site visits to each processing plant enabled trials to be conducted on the installed technology as well as outlining the systems implemented, performance, effectiveness, what could be done differently or improved and other key benefits. Trial results highlight the potential of both BlueTrace and SCL technology to deliver industry-leading read rates and compliance results with current eID requirements.

Individual evaluation reports that endeavoured to enhance industry knowledge and understanding of these alternative technologies were developed for each processing plant while highlighting several key learnings and recommendations for industry in this report.

2.0 Executive summary

Mandatory scanning of eID tags in Australian sheep and goat processors took place between June 2024 and July 2025 depending on each individual state. Each state government provided funding and guidance towards the implementation of RFID scanning technology and updating of software.

In 2021 AMIC received funding from the Australian Government, through the Traceability Grants Program. The Grant was successfully leveraged by industry co-funding from Australian Meat Processor Corporation (AMPC). The aim of these pilot studies was to examine the benefits of electronic Radio Frequency Identification Device (RFID) readers in sheep processing plants, outside of Victoria. Five processors from NSW, SA and WA participated in these pilot studies. Allflex was the only RFID technology provider used for these studies. It was recommended from this study that alternate RFID providers be reviewed to gain a better understanding of RFID scanning technology in processing plants.

The objective of this project was to monitor and evaluate the installation of BlueTrace and SCL RFID scanning technology and software at four participating processors and enhance industry knowledge and understanding of the alternative technologies to Allflex. These trials also aimed to streamline compliance, improve data accuracy and enhance traceability across the livestock industry.

BlueTrace or SCL RFID scanning technology was installed across four processors in NSW and Western Australia including and will be labelled 1, 2, 3 and for this project

The project methodology consisted of:

- Development of project plan and objectives with AMPC.
- Phone meeting with each processor to discuss current systems, project focus areas, timelines and potential date for site visit from a NSW DPIRD representative.
- Phone meeting or face to face meeting with BlueTrace and SCL provider.
- Site visit to meet with processor management to discuss project focus areas, systems implemented, performance, effectiveness, what could be done differently or to improved and other benefits.
- Development of Evaluation summary report for each participating processor and Final Report

There have been several key learnings and recommendations outlined in this final report and detailed in the individual reports. Read rate issues continue to impact the read rate and performance of the scanning technology. Major factors include:

- Tag quality and brand variability were confirmed as major factors influencing read rates.
- Damaged tags due to producers using old visual tag applicators or incorrect eID tag applicators
- Body position and movement of animals during scanning affected detection success.
- Environmental conditions (noise, moisture, metal) required tailored solutions at each site.
- Supplier involvement was critical - both BlueTrace and SCL demonstrated outstanding service and technical support.

There is an opportunity for more education and knowledge sharing platforms for industry, producers and processors to improve readability of eID tags in the complex processing environment. Feedback and regular monitoring of uploaded data and read rates provides processors a tool to improve their current system and in turn improving traceability. Continued monitoring and trialling of the Allflex, BlueTrace and SCL RFID reader technology is recommended to improve readability and performance within processing plants.

BlueTrace and SCL both demonstrated strong service and support during project evaluations, with tailored integration, high read rate accuracy, and responsive technical assistance. BlueTrace and SCL technologies have demonstrated strong potential in meeting and exceeding current RFID mandatory scanning.

State governments have the opportunity to develop and enforce consistent industry-wide read rate standards and comprehensive guidelines for the capture and uploading of eID data in processing plants. Regular monitoring of uploaded data and accurate feedback are necessary to drive continuous system improvement.

3.0 Introduction

From January 2025, Sheep and farmed goats born on or after 1 January 2025 must be identified with an NLIS-accredited eID tag before leaving their property of birth. All Australian Processors must scan sheep and farmed goats identified with eID tags and record individual movements on the NLIS database. Each state government provided funding towards the implementation of eID scanning technology and recommendation of potential suppliers. Previous research and reporting on the use of RFID readers in processing plants is limited resulting in an opportunity to investigate and develop tools and resources to improve the implementation of mandatory scanning.

The AMPC final report 2022-1139 examined the benefits of electronic RFID readers in four smallstock processing plants using Allflex RFID scanning technology. It was recommended that alternate RFID providers be reviewed to gain a better understanding of RFID scanning technology in processing plants.

O'Halloran (2021) and Lamb (2023) outlined in previous studies that more work needs to be done to fully understand RFID technology and provide solutions to key issues regarding scanning of eID animals in smallstock processing plants. There is a reader solution available for all sheep processing plants, however space constraints and electromagnetic interference (noise) can limit the available options in some plants.

The objective of this project was to monitor and evaluate the installation of BlueTrace and SCL RFID scanning technology and software at four participating processors and enhance industry knowledge and understanding of the alternative technologies to Allflex. The project aimed to develop recommendations about the possible advantages and disadvantages of the two technologies. Investigation of plant environments where each might be suited or not suited, and the issues that may need to be addressed by plants, depending on the technology selected, such as technology availability, provider ongoing support, and suitability of the software to integrate with the plant's IT system.

4.0 Project objectives

4.1 Monitor and evaluate the installation of BlueTrace and SCL technology and software.

4.2 Enhance industry knowledge and understanding of these technologies.

5.0 Methodology

- Development of project plan and objectives with AMPC.
- Phone meetings with each processor to discuss current systems, project focus areas, timelines and a potential date for site visit from a NSW DPIRD representative.
- Phone meeting or face to face meeting with BlueTrace and SCL provider.
- Site visits to meet with processor management to discuss project focus areas, systems implemented, performance, effectiveness, what could be done differently or to improved and other benefits. Where applicable a trial was conducted to test each RFID reader
- Development of Evaluation summary report for each participating processor and final report

6.0 Project Outcomes

6.1 Monitor and evaluate the installation of BlueTrace and SCL technology and software.

Four processing plants completed the required installation of RFID readers, equipment and required software upgrades as part of this project. Processors were engaged via phone meetings and email correspondence during the installation and progress of the project. Onsite visits were conducted once installation of the new technology was complete at each of the four processing plants.

As part of the onsite visit a read rate trial was conducted. Due to minimal numbers of eID sheep at some of the trials the read rate trial consisted of EID tags attached to a peg being placed on the animal's ear. A stick reader was used to capture data on each tag that didn't read to establish if the tag was a valid no read or a damaged or missing tag.

Detailed trial data is captured from each of the four participating smallstock processing plants in appendixes 1 to 4. Table 1 outlines a summary of the trial data captured.

Table 1 Summary of trial data from the four participating processing plants.

Appendix	Processing Plant Technology provider	Read Rate Performance	Key Observations	Challenges Identified
Appendix 1	BlueTrace	Trials ranged from 66 to 98%	Read rate affected by changes to the panel reader Read rate effected by faulty tags, position of the tag on the animals ear and body position.	Communication within the processing plant. Large variety of lamb and sheep being processed at a fast speed. More testing required once BlueTrace make adjustments
Appendix 2	BlueTrace	In house trial resulted in an average read rate of 98.36% with one consignment at 100%	Comparative tag brand testing varying 96 and 100% in trial Tag quality, no tags, brand variety and body positioning reducing read rates Remote access critical for monitoring and timely solutions to issues. High quality, timely service provided	Tag quality and standards Reader placement critical to success due to noise interference Damaged eID tags from using old visual ear tag applicators
Appendix 3	SCL	Trial 1 & 2 ranged from 88.5 – 90% Trial 3 & 4 ranged from 96 to 98.4%	Trial 1 results affected by noise interference. Trial 2 Body positioning and tag quality affecting read rates Maintained high availability and responsiveness, with minor issues resolved promptly.	Reader interference from noise effecting serial port. Body position due to shackling procedure Poor tag quality in consignment
Appendix 4	SCL	Trials ranged from 98.7% to 99.3%	Body position, tag quality and no eID tags reduced readability Excellent communication, timely service provided Extensive knowledge from SCL	Swinging of carcasses from human activity just prior to reader has potential to reduce read rate Faulty tags identified

To gain a better understanding of the installation each processing plant were asked similar questions; however interviews were allowed to flow naturally to allow different opinions between processors to be expressed.

Site visit survey questions were based on the following:

1. What was installed as part of this project?
2. What have been the main benefits/advantages of what has been installed?
3. What were the issues and difficulties during and after installation?
4. Are you happy with their products, service and communication? What could be improved?
5. With the implementation of mandatory EID's for sheep and goats across Australia and the mandatory scanning of these animals required for all processors, do you see other opportunities? (i.e. Full hoof tracking)
6. Read rate test results

Individual reports were developed as part of this report (see Appendix 1 - 4) with several key learnings and industry recommendations outlined:

- **Read rate issues and no reads resulted from:**
  - Poor eID tag quality and age of tag, tag size and orientation
  - eID tag brand, varying read rate percentages depending on tag brand
  - Damaged eID tags resulting from producers using the wrong applicator to apply the eID tag.
  - Positioning of the eID ear tag on the animal's ear affected the ability of the scanner to read.
  - Amount of wool on the sheep preventing clear view to reader
  - The way the animals throat is cut affecting the tilt of the head and the positioning of ear to scanner
  - Amount of blood covering eID tag
  - Body positioning when going past reader. When animal is not shackled correctly the carcass is not in the correct position reducing readability in some animals. When only one leg is hung correctly the animals body tends to turn the wrong way not allowing the scanner to read the eID tag.
  - Swinging carcasses past the reader due to procedures in the bleed tunnel prior to the RFID reader reduces the read rate as the animal is not in the correct position. The faster the chain speed the less chance of it being read.
  - Distance from reader to the animal. Re-positioning the panel closer to the animal's head.
  - Interference from the serial port connected to the reader.
  - Power surges from frequent thunderstorms have impacted the eID reader. Investigating changes to reduce impact but may increase noise interference.

- More trial work needs to be conducted to fully validate all four system. With the increase supply of eID tagged lambs being consigned to Australian processes currently more testing needs to be conducted to test the RFID readers.

- **Upgraded Software:**
  - There is a need to incorporate software that can assess all data from both RFID readers to reduce manual checking of data.
  - Issue in the translation of information between the panel reader output and how this information is reflected in the plant software system.
  - Challenges in getting software providers to make changes to the existing system can be complex and difficult to navigate. For example, at one processing plant the current software cannot split consignments over two days, therefore not recording the required information on the second day. It is important for software companies to be able to adapt to the relevant industry needs and NLIS requirements.
  - Communication between the processing plant and the hardware and software providers is critical to the success of this work. Good planning and goals from the outset are important. BlueTrace and SCL have established strong partnerships with software and hardware providers in the traceability and compliance space.
- Lack of eID sheep at some trials limited the ability to validate and test the system.
- The installation of the readers has now provided the ability to work towards full hook tracking at two of the participating processing plants.
- Innovation manager/supply chain officer - Appropriate personnel manage and coordinate the project. This benefited the project and kept it moving forward as well dealing with any issues. The processing plants involved in this project that had a dedicated person to implementing and testing the technology can continually monitor read rates and work with the technology provider.
- One participating processor is currently installing additional technology that involves counting of animals as they come off the truck as well as reading of eID tags to improve accuracy within animal counts at the plant.
- Two participating processors have implemented a second reader to capture the animals eID as it comes off the truck at the unloading area. In time this can be used as a backup reader for capturing animals eID. These records have not been integrated with the software but intime will be.

BlueTrace and SCL both demonstrated strong service and support throughout the project evaluations, providing tailored system integration, high read rate accuracy, and responsive technical assistance. These technologies have shown strong potential to meet and exceed the current requirements for mandatory RFID scanning.

6.2 Enhance industry knowledge and understanding of these technologies.

Both SCL and BlueTrace were asked a series of questions to gain a better understanding of what was installed and any observations and recommendations. Detailed responses are presented in individual processor reports in appendixes 1 – 4. Table 2 summarizes what was installed, modifications made and recommendations to the individual processing plant from the technology provider.

Questions asked as part of the project:

1. What was installed at each processing plant?
2. What modification were made at the installation?
3. What complications/ issues during installation and testing and what changes were made?
4. Recommendations for the plant to improve the system?
5. Benefits/differences in your technology compared to other providers?
6. What other technology do you provide for processors?
7. Any industry recommendations? Tag quality etc?

Table 2 – Summary of technology installed and key observations by BlueTrace and SCL

Appendix	**Processing Plant** Technology provider	**Technology installed**	**Modifications**	**Recommendations for processing plant**
Appendix 1	BlueTrace	Single Pole, 2 panel RFID Reader Lot number change buttons for changing the lot number as the cutout goes past and including this in the log file. Body sensors for body synchronization Industrial PC with display for tag storage and remote support Interface to their chain PLC to monitor a PLC tag to change the Lot number automatically.	Body sensors had to be moved a couple of times to get the correct window as the chain speed was very fast. Panel adjustments in and out	Fix the hock holders and train staff to correct incorrectly hung or bodies the jump out of the holder before the RFID reader to allow panels to be closer Move the body sensors closer and from the other direction to not get floor boys as bodies as they clean under the change. Look at using PLC change synchronisation rather than body sensors for the open and close window

Appendix 2	BlueTrace	Single Pole, 3 panel small stock kill floor RFID Reader Kill floor Serial connection to onsite grading software Body sensors for body synchronization Industrial PC with display for tag storage and remote support Laneway readers: 2 antennas per lane to allow both ears to be read AI stock count camera connected to RFID reader to give tag list, tag count, AI Count. Send tags and counts to the onsite Lairage delivery terminals. Store footage and sessions with tags on the server for playback and download to give to suppliers or staff on request	Kill floor – No changes Lane way On the 3 way the lanes were installed at 500mm apart. This was too large and allowed 2 animals in constantly. 2 lanes reduced to 450mm and one left at 500mm for larger animals. Barricades need to be installed around the lane readers to prevent stock already in the pen from standing next to the antennas, stopping them from reading.	Kill floor Fix bodies hanging by 1 leg (may not be possible given the height) or put in a rubbing bar to turn bodies around to the correct orientation to the reader. Laneways Train operators on livestock flow. This did improve over time. Ensure testing of data flow is working before unloading. This is more around starting sessions in their own software then the readers themselves. Implement some type of funnelling to get the animals in single file before the readers to make flow easier and faster for the drover.
Appendix 3	SCL	Slaughter Board EID System Indicators: Green (ready) / Red (scanning). UI: Touchscreen showing body number, PIC, vendor, and counts in real time Single-lane multi-reader raceway Hook Tracking System- Tracks carcasses from Bleed → Gambrel Up → Grading → Boning Room.	Minor modification narrowing raceway to improve read rate. Industrial interference managed via SCL RF expertise. Future integration planned with ProTrace (on floor software provider) for full traceability loop closure.	Maintain RFID skid health monitoring. Develop custom reporting tools to improve traceability insights. Training of staff to hang animal body correctly to improve readability rates.

		RFID readers on gambrels, skids, and grading stations. Web-based dashboard displays live data on body flow and chain speed/status.		
Appendix 4	SCL	Slaughter board eID system Indicators: Green (ready) / Blue (scanning). Interface: Direct interface to Triton with optional CSV output tool available for manual NLIS upload. No direct UI - Indicator lights signal system Three-way dual lane multi reader race way in yards	Minor fencing adjustments and shielding required to prevent cross-reads from adjacent pens. Industrial noise mitigated using SCL RF diagnostic tools. Seamless integration with Bluesync (yards) and Triton (slaughterboard).	Consider long-term integration with plant monitoring systems for real-time alerts. Maintain minimum EID tag quality standards.

SCL observations and recommendations

Overview

SCL's RFID systems demonstrated strong technical performance across all trial sites, achieving read rates up to 99% and maintaining stability in high-noise processing environments. Installations were completed with minimal disruption to plant operations and were tailored to each site's layout and workflow.

SCL's ability to custom design and integrate solutions for both small and large processors — rather than relying on a one-size-fits-all approach — was a major differentiator noted by plant managers.

Key Benefits of Working with SCL

- Proven Expertise: Over 20 years' experience in RFID tracking, automation, and data integration.
- Deep expertise in freezer and chiller control systems, including sort chiller programming and management.
- Competitive advantage through tracking solutions across multiple industries — from meat processing to airport baggage handling, industrial laundry, and manufacturing.
- A "can-do" attitude at every level — from on-floor operators to senior management — ensuring projects are delivered correctly, collaboratively, and with practical problem-solving at the core.

SCL Product Range

- RFID-based animal and carcass tracking systems – from receival to boning room.
- Carton chilling, freezing, and sort chiller automation – full control of post-slaughter cooling systems.
- Data acquisition, traceability, and reporting platforms – integration with third-party systems such as Triton, Bluesync, and Protrace for seamless NLIS data flow.

Industry-wide recommendations

- Tag Quality: Minimum tag standards should be enforced nationally. Tag variability remains the largest single factor affecting read accuracy and system reliability.
- Data Integration: Linking EID scanning data with plant-wide information systems ensures full traceability, faster troubleshooting, and more efficient NLIS reporting.
- Continuous Improvement: Ongoing read rate monitoring, combined with staff training and data feedback loops, enhances performance and long-term compliance.

SCL's contribution to the AMPC trials demonstrates that locally engineered, site-specific RFID systems can achieve world-class performance in challenging industrial environments. Their adaptability, technical capability, and deep understanding of plant operations position SCL as a key partner for processors seeking reliable EID compliance and traceability beyond the current regulatory baseline.

BlueTrace observations and recommendations

Key Benefits of working with BlueTrace

- BlueTrace technology is flexible, given that they can modify the software to perform other functions and integrate with other on plant software and devices through things like ethernet, serial, Modbus etc.
- The software has been enhanced to exclude a list of tag ranges, such as those used in knife tracking so they are not accidentally read while a worker walks past.
- Tags can be queued if they are read before the reader and there is still a body in the reading window. This can happen when a body hangs by one leg and two heads are close together.
- BlueTrace use smaller antennas to reduce the effect of noise and can have multiple antennas on each side to cover the whole read area
- We make the antennas in house so they can be customised to suit different applications.
- The kill floor model has flexible antennas to allow them to move it hit. This allows us to get very close to the tag if required.
- Each panel can be moved in and out individually. This allows you to have the top panels close for smaller sheep and the bottom further out for Rams and Ewes.
- Ability for remote support by BlueTrace support staff or by on site IT if connected to the network.

- BlueTrace use off the shelf components that are readily available making support easier and quicker.

BlueTrace product range

- 2 and 3 way lane readers
- Small abattoir panels to where the tag is removed from the ear and waved past a panel to read. For slower, smaller processors. Cost effective.
- Wand readers through Shearwell
- Stock AI counting cameras that can be interfaced to readers or on site livestock receival software.

Through Bluesync we provide a full suite of abattoir processing software including:

- Livestock booking, receivals, costing
- Kill floor processing with ID, Animal health and grading stations
- Chiller assessment and into boning room stations
- Carton labelling stations
- Inventory and sales system including sales order management, inventory and warehouse scanning and reporting

Industry-wide recommendations

- Use larger tag size, perhaps MLA could specify a minimum RFID size to improve readability throughout the supply chain. Something like the 22mm model, not the 13mm.
- Fund more for smaller processors to enable them to afford proper information systems and reliable rugged computers for their kill floors.

7.0 Discussion

Each processing plant has had their own barriers, challenges, and success with the implementation of the RFID scanners. The information gained from this project and the Smallstock Traceability Pilot Study Evaluation AMPC final report 2022-1139, highlights the scanning of eID devices is still a challenging process and there is no one size fits all. In processing plants, especially those with heavy machinery, metal surfaces, and electrical equipment, electromagnetic interference can significantly affect RFID performance. The use of low frequency tags in processing plants can be a complex issue.

BlueTrace and SCL conducted site-specific electromagnetic interference assessments before installation at each processing plant to identify hotspots and tailor solutions to the plant's unique layout and equipment. Advanced signal processing techniques are used to filter out background noise and isolate RFID signals, improving read accuracy even in high noise areas. Supply companies are actively advancing their technology to meet the growing demands of mandatory eID implementation and to overcome the environmental challenges of processing plants. The trial data clearly showed that all four processors RFID read rates regularly exceeded the 96 - 98% threshold, which is considered an industry benchmark for reliable performance in smallstock processing.

This project clearly demonstrated that tag quality, tag application, brand variability, non-tagged animals and positioning of the carcass are among the most significant factors affecting RFID read rates in

smallstock processing plants. The long-term success of RFID technology in processing plants hinges not just on hardware and software, but on industry-wide standards, education, and training for the whole of industry.

A shortage of industry specialists in this area and the possibility of long-distance travel required from some of the hardware and software suppliers has been noted as a potential concern for processors as we move to all sheep and lambs required to have an eID tag from 2027. As part of this trial both BlueTrace and SCL have shown exceptional commitment to the installation process, monitoring and improving RFID read rates in a range of processing environments. They continue to maintain high availability and responsiveness, with minor issues resolved promptly.

Each state government should establish and enforce industry-wide read rate standards, along with clear guidelines for data capture and uploading of eID information by processors. Uploaded data should be regularly monitored, with timely feedback provided to each processing plant to support continuous improvement. Reporting must accurately reflect each processor's own data and read rate assessments should be based on animals carrying eID tags rather than total kill numbers for the day. Achieving high and consistent read rates is essential to ensure accurate livestock traceability, strengthen biosecurity, and maintain compliance with NLIS requirements. These standards, supported by regular audits and feedback, will help processors sustain strong system performance and reliable data capture.

8.0 Recommendations

As Australia moves toward mandatory eID tagging for all sheep and lambs by 2027, future research and extension activities will be critical to ensure RFID scanning systems are effective, scalable, and inclusive across the entire smallstock processing sector. There are several recommendations for future research and extension activities to improve and benefit RFID scanning in smallstock processing plants for the whole of industry:

- **Further testing** - Additional testing of the readability and performance of the Allflex, BlueTrace, and SCL RFID reader systems is recommended. As the number of sheep and lambs carrying RFID tags continues to increase within processing plants, it is essential that processors develop a stronger understanding of their RFID systems and enhance their capacity to effectively monitor reader performance.
- **Tag quality and readability** – Across all four processing plants, issues were identified relating to the quality and readability of eID tags. Although all tags undergo rigorous testing for suitability and retention before approval for sale, further investigation is recommended to assess tag performance under typical processor conditions, including exposure to moisture, heat, and metal surfaces. Establishing and enforcing minimum performance standards would help improve tag reliability and overall system performance.
- **Enhance tag quality control** – Opportunity to work with suppliers to ensure consistent tag standards. Tag quality plays a critical role in the performance of RFID readers and further investigation of tag quality is recommended.
- **NLIS reporting and monitoring** – Opportunity for state governments and regulatory bodies to collaborate and establish national standards and protocols for the mandatory scanning of eID tags

in processing plants, ensuring consistent implementation and optimizing the performance and delivery of RFID technology. Since the implementation of mandatory scanning under this project, some processors have received limited feedback on read rate performance. The introduction of weekly reports supports processors in developing a clearer understanding of system efficiency and read rates. Consistent feedback and monitoring of uploaded data provide a mechanism for continuous improvement, contributing to enhanced system performance and strengthened traceability outcomes.

- **A dedicated innovation manager or supply chain officer** - would support the successful installation, validation, and ongoing monitoring of RFID readers. Onsite personnel can actively manage system performance and address any operational issues or variations in read rates as they arise.
- **Webinar series** - Opportunity for individual state or industry bodies to conduct webinars for all processors to come together and talk systems implemented, current issues affecting readability and possible outcomes to improving readability of eID's within processing plants.
- **Education** – Processors - An opportunity for state or industry bodies to host webinars bringing processors together to discuss implemented systems, current issues affecting readability, and potential solutions for improving eID readability within processing plants.
- **Education** – Producers – Outlining the correct method of application and appropriate equipment required for the tagging lambs/sheep/goats with eID tags with the aim of reducing lost or damaged tags.
- **Train staff in plants on best practices** – Read rate was reduced in all four processing plants due to the positioning of the animal body as it passed the reader. Training, education and standard operating procedures (SOPs) for all staff on the use of the RFID readers with the aim of minimising human interference and improving the positioning of the animal body resulting in more accurate read rates.
- **Alternatives to current RFID technology** – Investigate if the use of ultra-high frequency tags could improve readability in processing plants.
- **Saleyard RFID scanning** – To strengthen traceability, all sheep and lambs sold through saleyards must be scanned by an RFID reader before sale, with eID data forwarded to both the purchasing processor and the NLIS database in a timely manner. Instances have been noted where animals arriving at processing plants had no recorded eID data from the saleyard. Ongoing monitoring and verification of saleyard scanning compliance are essential to maintain data integrity and transparency across the supply chain.

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10.0 Appendices

10.1 Appendix 1

Department of Primary Industries and Regional Development

Processor 1 – Evaluation of BlueTrace smallstock eID technology

Focus Areas

Processor 1 installed BlueTrace RFID panels on the slaughter floor to improve the accuracy of scanning eID tags. The focus was to test how well the readers performed at high chain speed, identify sources of interference, assess tag performance, and understand how carcass position affected readability. They also aimed to integrate scanned data into their current production systems.

Technology Installed

BlueTrace installed a two-panel single-pole RFID reader with body sensors for timing, a control screen, and the ability to remotely support and adjust the system. During commissioning, the body sensors and panel positions needed several adjustments due to high chain speed and plant layout.

Performance of the new system

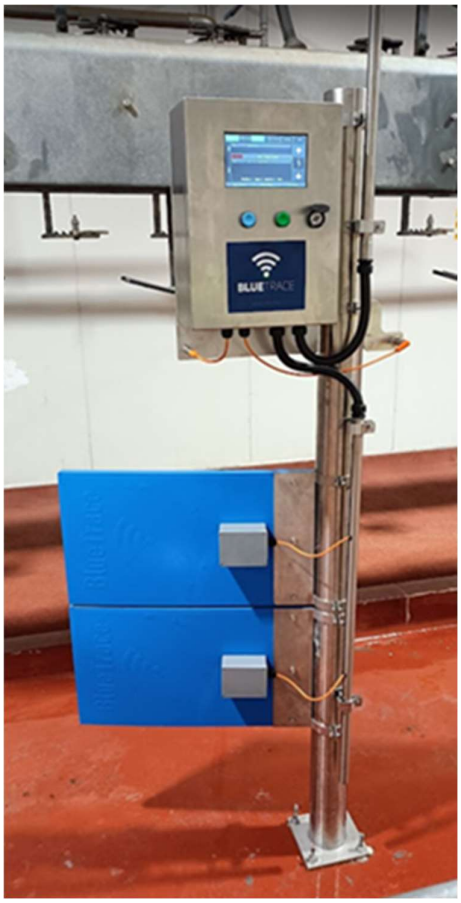
Several site visits were conducted with mixed results. Early trials ranged widely, from high accuracy (95–98%) to significant drops (59–66%). Investigation found that after installation, QA staff had repositioned the panels to avoid contamination, which severely affected read rates. Once the panels were repositioned, the results stabilised, generally falling between 81–95%, depending on carcass position, chain speed and tag quality.

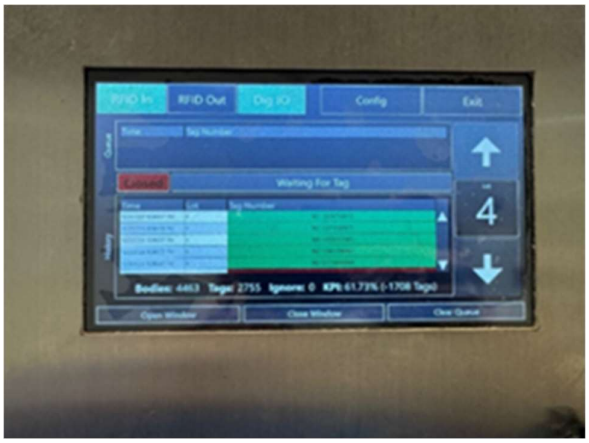
Lessons learnt

- Tag quality and damaged tags reduced readability.
- Tags placed too close to the ear base, wool cover, or angled inward affected performance.
- Deep neck cuts altered the head position, reducing read range.
- Incorrectly hung carcasses or bodies swinging on the chain led to missed reads.
- Internal communication at the plant needs improvement so equipment is not moved without coordination.

Recommendations

- This processor has raised concerns about saleyards not uploading eID data reliably.
- They also seek clarity on how read rate performance will be monitored and audited.
- BlueTrace recommended improving hock holders, adjusting body sensors, and moving to PLC-based synchronisation rather than relying on sensors.
- Ongoing work is needed to fine-tune panel placement and maintain correct carcass positioning.





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10.2 Appendix 2

Department of Primary Industries and Regional Development

Processor 2 – Evaluation of BlueTrace smallstock eID technology

Focus Areas

Processor 2 trialled BlueTrace technology both in the receival yards and on the kill floor. Their goals were to test reader performance at different speeds, assess tag brand differences, optimise yard layout, evaluate the StockCount camera system, and integrate the data into their production software.

Technology Installed

BlueTrace installed a three panel kill floor reader, yard raceway readers with multiple antennas and integrated AI stock count cameras. Data was linked to the plants grading software and yard delivery terminals. Footage and tag lists could be stored and replayed for auditing.

Performance of the new system

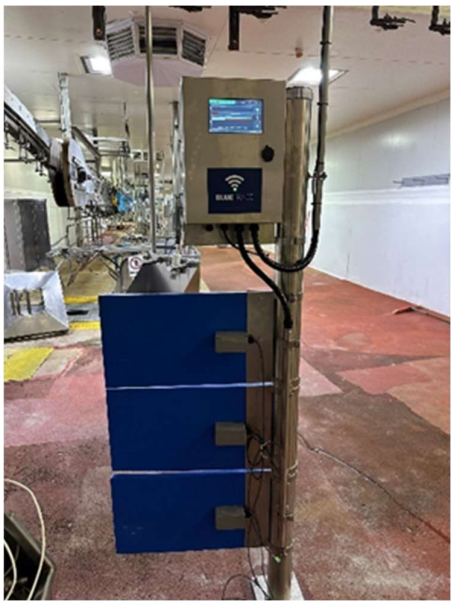
Installation delays meant only one NSW DPIRD site visit could be conducted. Visual read rates observed during the visit were high (98–100%).
WAMMCO's own assessments showed strong results across many consignments, typically between **94–100%**, though some lower results (84–87%) occurred when tags were missing or unreadable.
A final controlled trial comparing wand reads and panel reads showed a consistent read rate between **96–100%**, depending on tag brand.

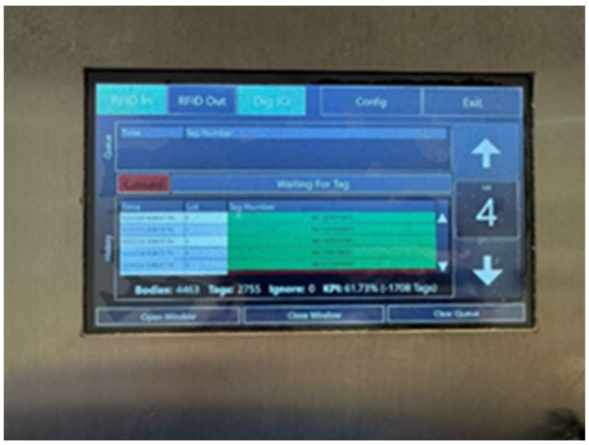
Lessons learnt

- Reader positioning on the kill floor was crucial to avoid noise from the restrainer.
- Software limitations affected data handling, particularly consignments processed over two days.
- Tag quality and brand differences had a major impact: In house trials recorded variation from ~92% to ~98.5% between brands.
- Power surges during electrical storms interrupted data recording, prompting installation of a UPS.
- Incorrect shackling or swinging carcasses reduced read rates.

Recommendations

- Producers need guidance on correct eID tag applicators to avoid damaging chips.
- Staff training is required to ensure consistent carcass positioning.
- Processor 1 recommends national benchmarking, better information sharing between processors, and stronger guidance on acceptable read rate standards.
- They report high satisfaction with BlueTrace's service and technical support.





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10.3 Appendix 3

Department of Primary Industries and Regional Development

Processor 3 – Evaluation of SCL smallstock eID technology

Focus Areas

Processor 3 trialled SCL RFID technology from receival through to the slaughter floor to test whether a custom system could meet the 2025 eID requirements and integrate with their existing production workflow.

Technology Installed

SCL fitted a custom-designed system including:

- A single-lane multi-reader unit in the receival area.
- A full tracking system through the slaughter floor using readers, sensors and encoders.
- A user-friendly interface for NLIS submission.
- Custom modifications to align the system to plants workflow and throughput speed.

Performance of the new system

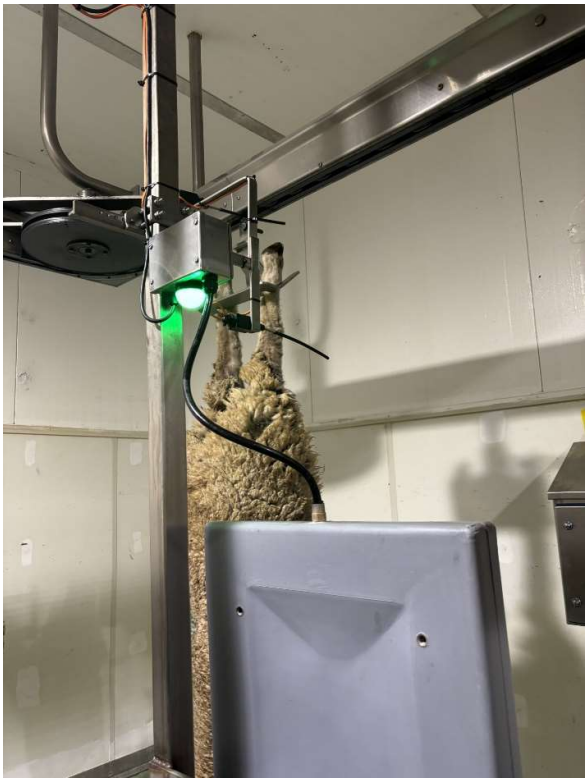
During the first visit, interference was detected, reducing read rates to around **88–90%**. SCL investigated and found the noise originated from the serial port, which was corrected promptly.
A second visit produced significantly stronger results, with read rates rising to **96–98.4%**, affected mainly by poor tag quality and carcasses not being hung correctly.
In-house testing produced high read rates of **98–100%**, both at receival and on the slaughter floor.

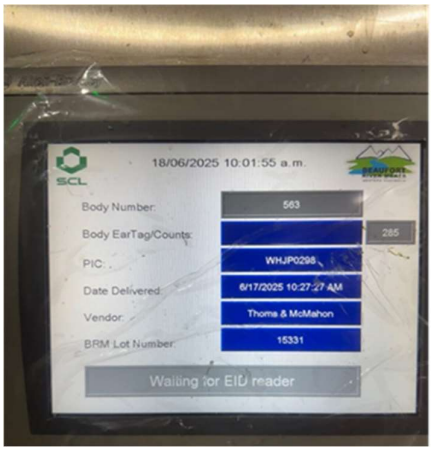
Lessons learnt

- Noise interference can significantly reduce performance but was quickly resolved by SCL's RF diagnostics.
- Some tags were found to be faulty or degraded, irrespective of brand.
- Incorrect shackling caused carcasses to angle away from the reader, reducing readability.
- A small number of tags were discovered to contain no functional transponder at all.

Recommendations

- Staff training in correct shackling techniques will improve consistency and accuracy.
- Anti-jump hooks could reduce animals bypassing the reader at receival.
- National benchmarking across different system suppliers would help the industry understand performance standards.
- Greater extension work is encouraged to raise awareness of alternatives to off-the-shelf solutions, such as custom SCL systems.





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10.4 Appendix 4

Department of Primary Industries and Regional Development

Processor 4 – Evaluation of SCL smallstock eID technology

Focus Areas

Processor 4 trialled SCL EID readers both in the receival yards and at the slaughter board. The aim was to accurately capture eID tag information under real operating speed, integrate with Triton software, and assess tag readability under different conditions.

Technology Installed

SCL installed:

- Three dual-lane multi-reader raceways in the receival area, custom-fabricated to fit existing infrastructure.
- A slaughter-board RFID reader system activated as animals moved past.
- Indicator lights (green = ready, blue = active read) instead of a full interface.
- Direct integration with Triton and Bluesync for data capture and NLIS recording.

Performance of the new system

Trials showed consistently high read rates.

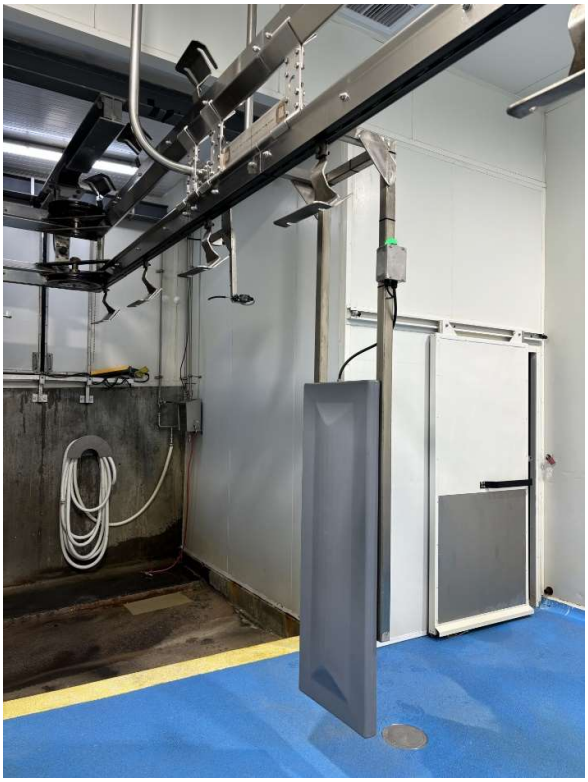
- Trial results ranged from **98.7% to 99.3%** depending on consignment.
- Some animals lacked eID tags and were given temporary peg tags.
- Black tags and some older RFID tags were identified as unreadable by both the SCL system and handheld readers.
- Swinging carcasses caused a small number of no-reads due to a procedure occurring just before the reader.

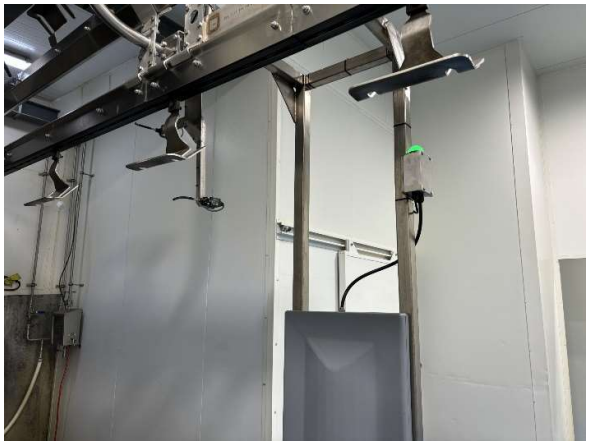
Lessons learnt

- Tag quality remains one of the biggest drivers of reduced read rates.
- Industrial noise was minimal at this site due to careful RF assessment by SCL.
- Carcass movement prior to the reader can affect the positioning window.
- Tag colour and age (e.g., black tags or older tags) reduced readability.

Recommendations

- SCL recommended long-term integration with plant monitoring systems to enable real-time performance alerts.
- Maintaining minimum tag-quality standards is essential to support high read rate performance.
- Further testing with larger volumes would continue to refine system performance and confirm long term reliability.





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