

final report

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Bladestop demonstration at BEEF Australia 2018

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Executive summary

BladeStop has been developed by Scott Automation and Robotics (SAR) in partnership with Meat and Livestock Australia (MLA). The technology is designed to monitor operator interaction with bandsaws and stop the saw blade before there is opportunity for significant harm to the operator. The technology implements a layer of safety to the dangerous bandsaw tasks performed in processing plants and butcher shops throughout Australia and the rest of the world.

SAR and MLA actively seek to promote the technology to improve awareness and facilitate adoption with an aim to return maximum benefit to the red meat industry. During the week of the 6-12th May 2018 Beef Australia held its national beef expo at the showground arena in Rockhampton, QLD which it holds every 3 years. The showground was setup with a trade fare featuring a wide range of beef industry representative bodies and service providers able to display / showcase information and products relevant to the beef production chain. Bladestop being an important technology for the beef industry as well as a showcase of successful MLA investment was selected as a technology to be live demonstrated to Beef Australia attendee's.

The BladeStop was setup at site to be able to demonstrate the functionality and response of the Bladestop sensing and stopping mechanism. It gave industry participants an opportunity to see the size, arrangement and function of the BladeStop so that they could form an understanding of its application and importance to the beef production value chain.

The saw ran successfully and a number of live demonstrations were performed during the event. A number of processors, producers and industry dignitaries viewed and gave feedback on the technology, re-enforcing its importance to the safety and viability of the industry and its employees.

It is proposed that the event and the BladeStop demonstrations were both beneficial and successful and it is recommended that this is a worthwhile excessive for similar future events.

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1 Background

1.1 BladeStop

In 2004 Machinery Automation and Robotics (Now Scott Automation and Robotics) embarked on an ambitious exercise to improve the safety of bandsaw operation. This was arguably the most dangerous task both in red meat as well as many other industries. Bandsaws have been a necessary part of modern red meat production as we know it today and are still the only production capable method of manually processing many of the bone in carcass dis-assembly tasks. In 2013 SAR and MLA embarked on commercialising the first of the BladeStop systems with key industry partners with an aim of introducing a new era of safety to the industry.

The first generation of machine relied on a pinch clamp mechanism that while very successful in stopping the saw blade and protecting operators from injury meant that each time the saw was triggered the blade would become damaged and production would halt until the blade had been replaced. This first generation of saw relied on body sensing by monitoring electrical signals through an operator's tether. This meant that an operator would be exposed to attaining a minor flesh wound rather than a significant cut or amputation. This development was successful and in 2012 the first commercial saws were manufactured and delivered to processing plants in Australia.

The saw was highly successful and initial adoption was extremely high. It has been shown that the number of human injuries prevented since this system was first rolled out has been substantial.

To address the shortcomings of the first commercial machine where the operator was still exposed to contacting the blade and attaining a scratch, an additional sensing mechanism was developed that used a combination of the body contact sensing as well as a "GloveCheck" camera system that monitored the proximity of the operator to the blade in real-time and if it is seen to come within a pre-defined distance of the saw blade it would cause the saw to stop before the operator's body is able to come into contact with the blade. This meant that the operator could be prevented from any contact with the saw blade and hence the blade penetrating the operator's glove and causing a scratch and requiring first aid.

The next generation of the BladeStop (BladeStop Series II) was developed that addressed the blade damage, production disruption and blade contact trigger from the pinch jaw mechanism. This new generation of machine used a flat jaw to clamp the blade in a manner that was both faster than the original design and also meant that the operator was able to clear the workspace and re-start the saw immediately (thus reducing downtime)

1.2 Beef Australia

Beef Australia held its (3 yearly) national beef expo at the showgrounds in Rockhampton in Queensland on the 6-12th May 2018.

Since the event began in 1988, the Expo has grown from its roots as a Bi-centennial celebration of the Queensland cattle industry to an internationally recognised event with major industry, trade and regional community outcomes and is now rated as one of the world's great beef cattle events.

The event regularly attracts well over 90,000 visitors from over 40 countries worldwide.

The 2018 Beef Australia Expo focused on four key areas:

1. Showcasing the Beef Industry – through national stud, carcass and commercial cattle competitions with over 4500 entries and over 500 trade sites;
2. Consumer Awareness - engaging the general public in beef as a product and the importance of the industry to the Australian economy;
3. Extension and Education (R & D)
 - a. - acting as a conduit for information to flow between research bodies and producers;
 - b. – facilitating adoption of research outcomes and driving real productivity growth and at the Expo through the symposium, seminars and property tours;
4. Facilitating Trade - working closely with Trade and Investment Queensland, Austrade, MLA and our Stakeholders to target increased international visitation and more trade outcomes through the “Handshakes” programme.



Figure 1 – Expo entrance held at Rockhampton showgrounds

1.3 MLA Trade show stand

MLA hosted a trade stand to showcase MLA initiatives, industry technologies and key activities that are emerging in the red meat industry. Among the displays were technologies for on-farm, processing and for paddock to plate consumer connectivity.

The BladeStop system was plumbed, connected to power and was live demonstrated as a focal piece on the stand that MLA had constructed.

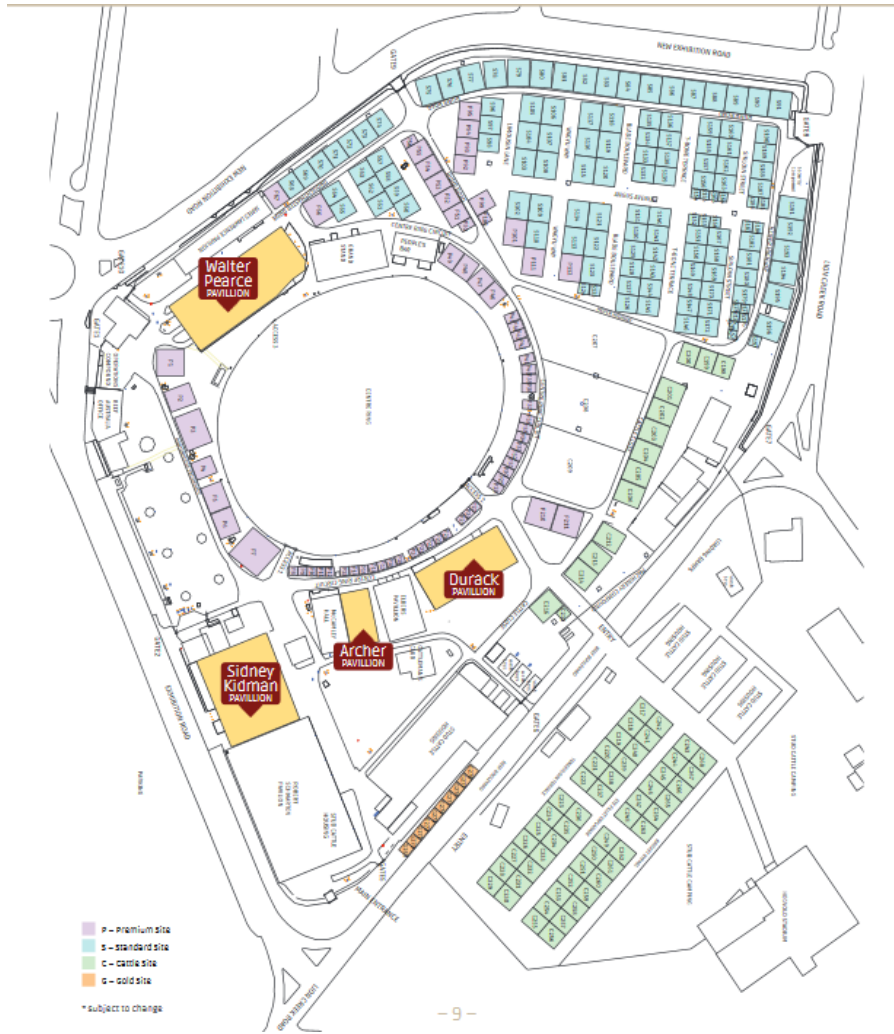


Figure 2 – Trade Show layout with MLA in the Kidman Pavilion



Figure 3 – Expo attracted visitors and dignitaries at all levels

2 Project objectives

The objectives for this project were for Scott to have:

1. Delivered a BladeStop to Rockhampton, QLD.
2. Plumb/wire and train an MLA representative for live demonstrations for attendees and participants to allow a showcase of Scott/MLA technologies that have been developed in partnership.
3. Return the BladeStop back to the Scott factory for re-deployment into the field.

3 Methodology

The project methodology was as follows:

1. A Scott LH 400T BladeStop with a fixed table and GloveCheck option was shipped to Rockhampton and put into place
2. Portable instrument air and 3 phase power adaption was acquired and services run to the system to allow demonstration.
3. The saw was setup and tested.
4. An MLA representative was trained in the use of the saw and subsequently the saw was demonstrated successfully and feedback received from a wide range of industry participants.
5. On conclusion the saw was packed and shipped back to Scott for further re-deployment



Figure 4 - Phase power adaption was required to enable the saw to run



Figure 5 – An MLA representative was trained in the use of the BladeStop for successful demonstration

4 Results

4.1 General Feedback

Operation of the saw was conducted at regular intervals during the trade show. The saw operated without fault and reliably. The location of the saw was such that participants had a good view of the saw and how it is operated.

There was a great deal of interest in the saw and the demonstration experience was made available to all registered attendees of the Beef Australia Expo.

There was a great deal of feedback from producers, processors and industry dignitaries that all made reference to how important this technology is for the sustainability of the industry and the safety of employees.

There were a good range of visitors and dignitaries from a producer background, processor background, industry support background and notable industry leadership background. A number of the honorable members of the Australian parliament were able to attend the Expo

5 Discussion

It is believed that a great many people with many different roles and relationships with the red meat industry were exposed to the operation of the BladeStop through its periodic demonstration during the Beef Australia event.

It is understood from feedback from the MLA saw operator and from the social media reviews that the demonstrations have been successful in raising awareness of the work that Scott and MLA have done in developing this important technology as well as the real impact that MLA/Scott technologies are having on the viability of the red meat industry as well as the workplace health and safety of the red meat processing sector.

For many of the participants the demonstration gave them an insight into the types of key challenges that industry faces when it comes to safety and processing efficiency as well as more broadly attracting and keeping staff.

6 Conclusions/recommendations

It is proposed that the success of the event would lead to a recommendation that this kind of demonstration is both beneficial and important to the awareness and further facilitation of adoption within the red meat industry and is equally important in raising awareness of the good work that Scott and MLA have been doing in ensuring a viable and sustainable industry moving forward.

It is recommended that this kind of demonstration be considered for future events of a similar nature.

7 Key messages

The BladeStop has an immediate, quantifiable and real benefit to the industry and its people. It is important that industry is made aware of the technology that MLA and Scott have been able to develop and continue to develop in ensuring a safe and efficient processing sector in years to come.