

final report

Project Code: P.PSH.0666
Prepared by: James Charnley
Scott Technology Australia

Date published: March 2016

PUBLISHED BY
Meat and Livestock Australia Limited
PO BOX 1961
NORTH SYDNEY NSW 2059

Beef Striploin Saw Australian Sales and Marketing Demonstration and Commercialisation Unit

This is an MLA Donor Company funded project.

Meat & Livestock Australia and the MLA Donor Company acknowledge the matching funds provided by the Australian Government to support the research and development detailed in this publication.

This publication is published by Meat & Livestock Australia Limited ABN 39 081 678 364 (MLA). Care is taken to ensure the accuracy of the information contained in this publication. However MLA cannot accept responsibility for the accuracy or completeness of the information or opinions contained in the publication. You should make your own enquiries before making decisions concerning your interests. Reproduction in whole or in part of this publication is prohibited without prior written consent of MLA.

Abstract

The aim of the beef striploin saw demonstration unit project is to increase industry awareness and involve processors in the machine's continuous improvement so that it closely suits their needs, thereby improving industry adoption. During this partial milestone upgrades to the safety circuitry and other necessary maintenance was conducted. Demonstration and training at the 6th trial site was successful and the site has positively reviewed the safety and yield advantages of the machine. Opportunities to further improve the machine have been identified. The site has requested a quote, which has subsequently been submitted for their consideration.

Project objectives

- Development of an Australian (only), Sales, Marketing and Demonstration Beef Striploin Saw MK III for evaluation use by Australian processing companies, and Scott/MLA at Australian industry trade shows and conferences.
- Demonstration of the saw at up to 12 processing sites.
- Submit a final report.

Success in achieving milestone

Since completing Milestone 7.1, the Beef Striploin Saw (BSLS) demonstration unit has returned to Scott facilities in Sydney for maintenance and further upgrades. The machine was subsequently sent to Harvey Beef in Harvey WA. Following successful installation, demonstration, training and handover, the BSLS has remained on-site for full production trials.

Pre-trial Modifications and Maintenance

Due to a combination of more stringent safety requirements requested by the site, and new safety documentation requirements for Scott Automation projects generally, an overhaul of the electrical and control systems was conducted when the BSLS was returned to site.

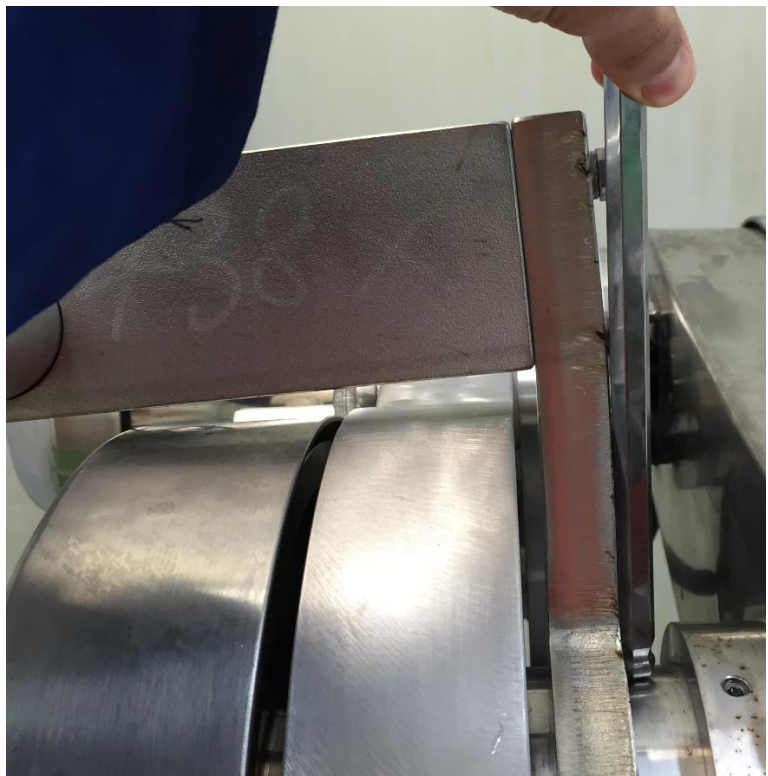
The lasers had once again become degraded due to water and other contaminant ingress. The lasers were cleaned out and the quality of the laser line returned to an acceptable level. At this stage there are no plans to redesign and replace the laser enclosures due to potential cost. However, the longer this is delayed, the more likely a laser may become unserviceable and require replacement.

On-site Maintenance

During the first inspection of the machine in the boning room, damage to the laser mounts was identified. Specifically, the top laser mount had been bent out of shape as can be seen in the image to the right.

This damage pushed the projected laser line out of alignment. The laser and enclosure positions were modified to partially correct the laser line location.

Repairs to the laser mount should be possible, and can be carried out the next time the machine returns to a Scott workshop. Alternatively the part can be replaced in the field.



The known issue of the VSD tripping high sensitivity RCDs presented once again at this site. Tripping is due to earth leakage from the VSD. This issue was resolved by hardwiring the 240V power supply cable into a circuit governed by a RCD with less sensitivity. A potential permanent solution to this recurring issue has been identified, but requires the replacement of the VSD.

On start-up, the blade was tracking incorrectly, instantly tracking to the extreme forward position. This poor tracking has allowed the teeth on the bandsaw blade to damage the alignment/tension wheel. This blade taking issue was not observed/reported at the previous site, nor at the last modification and maintenance pit-stop at the Scott workshop in Sydney. The poor tracking creates a loud grinding sound which is easily identifiable. Presumably this poor tracking is due to damage to the machine, perhaps related to the same incident that bent the laser mount out of shape.

The alignment of the tension wheel has been updated and the bandsaw blade no longer tracks forward so far as to damage the tensioning wheel. However, over tensioning the wheel forces this issue to resurface. Trainers, operators, operations staff and maintenance staff have been made aware of this issue, and have been asked to listen out for the sound of a poorly tracking blade.

A method to compensate for this damage has been identified and will be implemented at the next opportunity.



There are two pneumatic push buttons that make up the two handed start system. One of these push buttons was noticeably difficult to depress and was sticking in the activated position for a brief moment after the operator had released the button. Both pneumatic start buttons were disassembled and cleaned, this improved their performance somewhat. This disassembly for cleaning has been necessary a few times in the past and it is recommended that an alternative (electrical) solution be incorporated into the next generation of the BSLS.

Site feedback

As with all site production trials thus far, the operator and floor supervisors immediately recognised the significant operator safety advantages of the BSLS over a traditional bandsaw.

This site currently processes striploins off of the chain. During the demonstration the increased yield that the BSLS process offers became clear to the floor supervisors. The floor supervisors conducted their own preliminary yield trials with very positive results. The site requested a copy of the Greenleaf report. The public version of the report was supplied to the site, and it was explained that the report was based on results from a now superseded version of the machine.

The site has requested a quote, which has subsequently been submitted for their consideration.

During the demonstration and training some opportunities to improve the BSLS were identified:

- This site processes a wide range of product sizes and specs, and some striploins were either almost too large or too small for the clamps.
- The arms that support the removable section of the fully sliding table can interfere with some product.
- Easier cut angle setting.
- Redesigned laser enclosures that prevent water and other contaminant ingress.
- Blade Scraper and dust bin.
- Electronic two handed start system.
- Easier access e-stop.

Some of these improvements are already being designed into the newest version of the BSLS.

Overall progress of the project

The project has eight milestones with the following high level objectives:

Milestone 1	Build Mk III Unit
Milestone 2	Factory Acceptance Trials and Ship to Australia
Milestones 3 & 4	Trial sites 1 & 2
Milestone 5	Trial site 3
Milestone 6	Trial site 4 and Project Review
Milestone 7	Trial sites 5 – 12
Milestone 7.1	Trial site 5
Milestone 7.2	Trial site 6
Milestone 7.3-7.8	Trial site 7-12
Milestone 8	Final Report and Video

The on-site production trials are successfully showcasing the BSLS yield and safety advantages over traditional bandsaws. The numerous improvements made to the BSLS since this project began are having a positive impact on the machine’s useability and product yield and presentation. This is translating into increasingly positive feedback from trial sites.

Recommendations

Future Development Considerations

There are improvements that should be considered for implementation for the next time the BSLS is at a Scott workshop:

1. The arms that support the removable section of the fully sliding table should be modified to prevent interference with product.
2. The replacement of the VSD would simplify installation and improve first impressions of the machine.
3. New laser enclosures, although costly, will help reduce the need to regularly clean the laser enclosures and potentially safeguard the lasers themselves from premature failure.

Project Continuation

The positive feedback received from the latest trial sites verifies that the modifications made during the course of this project have enhanced the function of the BSLS. All of these enhancements contribute positively to the marketability of the BSLS.

It is therefore recommended that the project be permitted to continue onto the next partial milestone, the demonstration at the 7th trial site.