Snapshot Report

Stealth Dual Purpose I.4.0 Knocking Box

Syndicated Development and Adoption PIP (5 of 10 – Ralphs)

Project code	Prepared by	Date submitted
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Project description

This project developed, installed and evaluated a Stealth Dual Purpose Beef Knocking Box at Ralphs Meat Company. The aim was to provide a quieter and more effective cattle-stunning system that supports animal welfare, Halal processing, staff safety and reliable data collection. The project also aimed to capture animal weight, RFID ear-tag data and images at the point of slaughter, helping processors make better use of production information.

The box was installed with support from Jarvis engineers and was then monitored during normal processing. Ralphs Meat Company worked with Jarvis and maintenance providers to address issues identified during operation. Improvements included changes to the restraint and cradle, chin lift, entry door, sound and visual alarms, pneumatic settings, ear-tag reader and data system. Regular electrical and mechanical servicing, audits and operator feedback were used to guide these changes. Electrical stunning was used for most cattle, while bulls weighing one tonne or more were processed using pneumatic stunning where this gave a more reliable result.

Over the project, the box became fully operational and better matched to the site's processing needs. Maintenance work and equipment changes reduced stoppages and supported smoother cattle flow. The box has been found to be straightforward for operators to use and for new staff to learn. Data can now be collected from the system, with updates to the ear-tag reader helping reduce duplicate or inaccurate reads. The project also contributed to a significant reduction in non-Halal carcases, which is important for Ralphs Meat Company's Halal-focused market. Ecchymosis and some equipment wear continued to require monitoring, but the project established practical maintenance, safety and operating procedures to support ongoing use of the system.

Project content

The project was carried out at Ralphs Meat Company in partnership with Jarvis, Melbourne Power and site maintenance staff. The Stealth Dual Purpose Beef Knocking Box was installed and then used during normal cattle processing. Its performance was monitored through operator feedback, production observations, maintenance records, electrical and pneumatic stunning logs, and data captured by the box.

The project team tested and refined both electrical and pneumatic stunning procedures. Electrical stunning was used for most cattle, while large bulls were assessed separately and processed using pneumatic stunning when this was more effective. The project also monitored animal movement, stunning outcomes, staff safety, equipment reliability, ear-tag reads, animal weight and other available processing data. Where problems were identified, Jarvis and the site team made practical changes to the equipment and its settings. These included adjustments to the chin lift, restraint and cradle, entry door, sound and visual alarms, pneumatic controls, immobiliser extension and ear-tag reader. The box was serviced regularly, with electrical and mechanical audits used to identify wear and maintenance requirements. Staff were trained in the updated procedures and provided feedback on how the system worked in daily operations.

Project outcomes

The project delivered a fully operational Dual Purpose Knocking Box that is now integrated into normal cattle processing at Ralphs Meat Company. The system has improved processing flow following equipment upgrades and maintenance, with fewer stoppages and smoother movement of cattle through the box. The box is straightforward for operators to use and provides a practical training platform for new staff.

A key outcome was the development of more reliable operating procedures. Electrical stunning is used for most cattle, while pneumatic stunning is used for bulls weighing one tonne or more where it provides a more effective result. Changes to the chin lift, restraint, cradle, immobiliser extension, alarms and pneumatic controls helped improve equipment performance and operator confidence. The project also improved the collection and use of production information. The system can capture animal weight, RFID ear-tag information and other processing data.

Upgrades to the ear-tag reader and programming reduced duplicate or inaccurate reads. This provides a stronger basis for monitoring processing outcomes and supporting future analysis.

The project contributed to a substantial reduction in non-Halal carcases, which is an important outcome for Ralphs Meat Company's Halal-focused market. It also highlighted the importance of regular maintenance, operator training and safety controls. Some issues, including equipment wear, occasional animal movement concerns and ecchymosis observations, require ongoing monitoring.

Tangible project outputs include the installed and modified Dual Purpose Knocking Box; operating and training procedures; electrical and pneumatic data logs; RFID and production data; Jarvis electrical and mechanical audit reports; maintenance and service records; milestone reports; and the Final and Snapshot Reports. These resources can be used by Ralphs Meat Company, AMPC and other relevant stakeholders to understand the equipment, monitor its performance and support future improvements.

Benefit for industry

This project provides practical lessons for meat processors considering dual-purpose knocking systems. It shows how a knocking box can be adapted and refined during normal operations to support animal welfare, staff safety, Halal processing and production efficiency.

The project demonstrated that equipment performance improves when processors work closely with suppliers, maintenance providers and operators. Regular servicing, prompt repairs, operator feedback and practical design changes were important in reducing stoppages and improving cattle flow. The project also shows that different stunning methods may be needed for different classes of cattle, with pneumatic stunning providing a more reliable option for very large bulls.

For Halal-focused processors, the reduction in non-Halal carcases is a particularly valuable outcome. The project also highlights the benefit of collecting accurate production data, including animal weight and RFID information, to support monitoring and future decision-making.

More broadly, the project provides useful operational knowledge about managing common issues such as equipment wear, ear-tag reading errors, animal movement and staff safety. These findings can help other processors plan maintenance, training and operating procedures when introducing similar technology.

Useful resources

The following project outputs provide further information about the development, operation and maintenance of the Stealth Dual Purpose Beef Knocking Box:

- Final Report – Stealth Dual Purpose Beef Knocking Box
- Snapshot Report – Stealth Dual Purpose Beef Knocking Box
- Milestone Reports – Project 2022-1067
- Electrical and Mechanical Audit Records
- Equipment Maintenance and Service Records
- Operational Data and RFID Data Collection Records
- Jarvis Operating Information and Equipment Documentation

Some maintenance, audit and production-data records may contain commercially sensitive information. Access to these records should be provided in accordance with Ralphs Meat Company and AMPC requirements.