



Executive summary

Development and evaluation of carcase traits measurement on live animals for beef processing Confidential [Public version]

Project code: P.PSH.1462
Prepared by: Paul Gibson
Australian Country Choice Holdings Pty Ltd
[Technical input provided by Danny De Rosa (MEQ)]
Date published: 21 June 2024

PUBLISHED BY
Meat & Livestock Australia Limited
PO Box 1961
NORTH SYDNEY NSW 2059

This is an MLA Donor Company funded project.

Meat & Livestock Australia acknowledges 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.

Executive summary

Background

This project aimed to develop and evaluate the commercial installation of MEQ LIVE device to measure carcase traits on live animals. Specifically, the device will be trialled at a beef feedlot and quantified to measure and predict marbling performance that will be compared with whole of life data including carcase performance data captured post-slaughter. The proposition was to use live animal measures, such as the marble score prediction using the MEQ LIVE device, to predict turnoff potential and assist with pen sortation and allocation of livestock crush-side during feedlot induction. The ability of the MEQ LIVE device to deliver a point-in-time measurement for marbling will allow for an in-depth investigation into the rate of marbling and growth over the production cycle of the animal. The outcome of this project is to validate and commercialise the use of live animal measures, and in particular live animal surface measures including marbling, rib fat, and EMA that open opportunities that other technologies cannot provide. It would be expected that other red meat value chains who have similar production workflows will see the value defined in this project and want to adopt live animal measures.

Objectives

The overall objective of the project is to deliver an early adoption and evaluation of the MEQ LIVE device to measure beef cattle surface measures including marbling, rib fat and EMA. It would be expected that other red meat value chains who have similar production workflows will see the value defined in this project and want to adopt live animal measures. This project aims to deploy, commission and evaluate the MEQ LIVE system to measure cattle IMF and comparison to marble scores in corresponding beef carcasses. This will drive producer engagement with brand specifications and improve genetic gain.

Methodology

The following phased approach and process steps will be applied:

- i) Project planning, design and equipment supplied
- ii) Equipment commissioned and pilot feedlot testing
- iii) Device validation and data integration
- iv) Feasibility and business case
- v) Final report and present findings

Results/key findings

A staged approach was used to build and prepare trial ready MEQ Live system for commissioning crush-side at Brindley Park feedlot crush-side (i.e. Pilot feedlot). Initially a pre-commercial build, install at a MEQ pilot feedlot to demonstrate new hard-ware and software that the earlier version was transferring over to (i.e. Phase 1). The MEQ LIVE system was tested remotely in readiness for commissioning and data integration into the existing protocols at the pilot MEQ commercial feedlot (i.e. Harmony Agriculture and Food Co's Dimboola Feedlot). Full integration was possible after live animal data is collected on-site pending ethics approval. Following the factory testing signoff of the MEQ pilot feedlot installation, the upgraded hardware and software was transferred and commissioned at Brindley Park feedlot crush-side in the hospital area (i.e. Phase 2). Finally, a second commercial unit was installed at lairage of the ACC Cannon Hill processing plant to simulate an exit

feedlot measure and immediately prior to slaughter to enable a live animal point of measure to be directly compared with hot- and cold-grading carcass measurements (i.e. Phase 3). An independent detailed feasibility and business case was undertaken by modelling of the financial impact of having the data available, reviewing historical data analysis to build new brands and case use for live animal measures for marbling, rib fat, EMA, and rate of marbling.

Benefits to industry

The primary benefit is expected to be that data captured using objective measurements from live animals can contribute to “whole of life” validation and used to create additional value through carcass compliance. One of the most significant advantages of MEQ LIVE is its ability to cut down the number of days cattle are required to be on feed. By accurately predicting when an animal will reach specification, feedlot operators can know precisely when to stop feeding, as opposed to relying on a standardised number of days that can waste valuable resources and time. This not only reduces the amount of time cattle spend in feedlots but also allows feedlot operators to make better use of their resources and minimise their environmental impact.

In addition to its immediate benefits, MEQ LIVE also has the potential to future-proof the industry by enabling better selection of top performers for breeding programs. With vital measurements and information from MEQ LIVE, operators can identify the most efficient and profitable animals for breeding, driving better outcomes for the industry in the long term.

Future research and recommendations

In addition, while the design of pilot producer feedback with MEQ Live data has commenced with Agribusiness meeting to discuss critical design aspects aligned to ACC’s current feedback system (Linked to MyMSA portal), it is proposed this will be further expanded in the next phases of the project. While the project is concluding, an independent project steering group is formed to oversee the ongoing data capture and Whole of Life data analysis, including the ACC data analytics (genetics to live measure to carcass measures work that we propose). A project steering group will continue to review data captured from ongoing MEQ LIVE trials over the next 12 months.