Snapshot Report

Beef Carcase Orientation

Beef Carcase Orientation Study

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Project Description

One of the initial processing stages of a beef carcase is the carcase splitting process. Here, the carcases are split straight down the median plane resulting in two half-carcases or “sides”. This splitting process introduces a unique problem for automated production processes which made controlling what side of the carcase is facing the processing equipment a challenge. This becomes an important variable since most sites only carry out processing operations on the medial or “cut” side of the carcase

Our main objectives for this project were to develop a concept which can enable a hanging side of beef to be orientated as per our system requirements with the medial side presented to an automation cell, along with the fabrication of test apparatuses to enable factory and site testing. Both of these objectives were achieved successfully and learnings from each stage were recorded.

Project Content

This project involved developing a concept to enable the orientation of a beef carcase while maintaining control of the final position. A trial of the technology will be performed to access its suitability for the industry, to enabling further beef side automation.

1) Conducting an initial study and review existing methods
2) Develop a range of concepts to enable carcase orientation
3) Develop tests to validate these concepts
4) Perform site testing on the best options

Project Outcome

Based on the results gathered on site, we saw that for common carcase shapes, it would be sufficient to have the turning mechanism at a fixed height. This is however a need to account for unique carcase shapes and heights by giving the mechanism some ability for dynamic adjustment.

Benefit for Industry

The main purpose of these trials was to develop a concept to enable the orientation of a beef carcase in an accurate manner while maintaining control of the final position. Presenting the carcase to automated processing equipment in the incorrect orientation can result in efficiency losses which directly impact ROI for the processing site as they will need to pause the system while the orientation of the carcase is corrected by an operator. Hence, this project involved developing a concept to enable orientation control of a beef carcase whilst maintaining control of its final position, which can maximise efficiency of drive downstream automation.

The next step is to determine the maximum and minimum range of height variation required to ensure we catch the carcase in our stable regions, with the view to develop a prototype which can be trialled on a processor site.