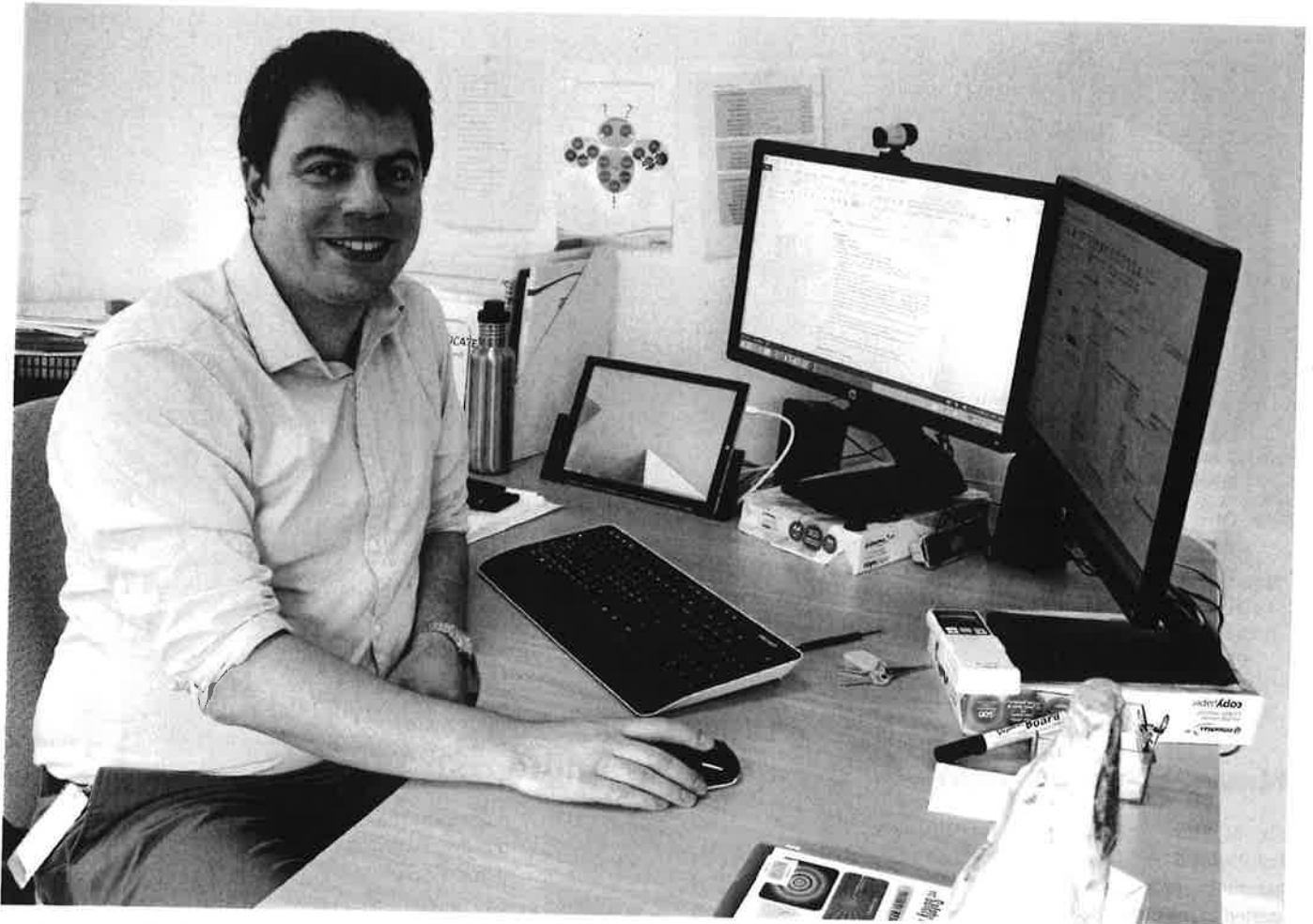


## MIA Focus



*Dr Cameron Craigie, project leader for the meat quality measurement project*

### More value to come from new meat quality sensors

New technology now being developed by Kiwi meat scientists will enable more value to be extracted from New Zealand meat products

Work has started on a five-year programme to develop a new platform of sensors to objectively measure the meat quality of beef, lamb and venison in the meat plant processing line.

The task ahead of the meat science team of eight, led by AgResearch, was made possible following approval of \$4.25 million of funding in the Ministry for Business, Innovation and Employment (MBIE)'s latest Endeavour Round announced in September.

Project leader, Dr Cameron Craigie, AgResearch science impact leader for meat products and supply, explains the new measurement system will identify the functional, compositional and structural properties of meat products at the point of processing – information directly linked to its eating quality and value.

"New Zealand has a unique place in world markets because we largely raise our stock on pasture. This point of difference gives our export meat an eating quality advantage consumers are willing to pay extra for," he says.

"We want to make it easier for the consumer to recognise and appreciate the premium position of New Zealand meat products and that depends on being able to measure the quality and prove those measurements are meaningful."

The project started on 1 October, just three weeks after the announcement was made, and the MBIE contract had been signed.

"We're pretty excited about it and are keen to get cracking now," says Craigie, adding the team held its first meeting at Auckland University on 25 October and is currently in the contract phase of the work.

The project is taking meat quality measurement, "offline, right back to basics and using a platform approach," he explains. "What we'll be doing is designing a meat quality measurement platform by trialling a combination of rapid non-invasive sensors to measure pH, texture and fat content."

Ideally, the sensor platform will be placed pre-rigor, at the end of the slaughter board and before the entry to the chillers, but currently work is being done after the chiller.

The emphasis is on "better by design," Craigie explains – this is balancing academic rigour and getting peer-reviewed papers into the scientific literature, alongside practicalities and producing results in a timely fashion.

The first step is to build a meat matrix with known variation in the



***Meat quality measurement will be able to be done inexpensively inline at meat processors like Alliance Group, where this picture was taken***

quality parameters of interest, using information about different cuts and meats gathered from prior research. Following that the team will start building the sensor platforms using the services of post-graduate researchers at Otago and Auckland Universities.

Forming linkages with industry stakeholders and research partners will be another important role for Craigie. The team will be working closely with the meat industry and will partner with Professor Keith Gordon's team at the Dodd-Walls Centre for Photonic and Quantum Technologies (along with researchers from the Universities of Auckland and Otago), plus Callaghan Innovation, Scott Technology Ltd and the University of Leuven in Belgium to research and develop the sensor technology.

#### **Feedback of useful data from plant to farmer**

One important factor, according to Craigie, is the enabling of feedback of useful meat quality data from the plant. This will help producers, like those supplying meat processor and exporter Alliance Group, to understand cause and effect on farm, resulting in premium prices being achieved for producing a better meat.

While quite detailed learnings and capabilities have been developed on lamb within the company, Alliance Group's marketing development services manager, Gary McLennan, says these new technologies could be developed to work equally well on its beef and venison processing lines.

The cooperative is focused on continually improving the quality of its products, particularly eating quality, he explains. While in the past this has relied on technologies such as visual imaging systems for measuring carcass conformation, fat cover and fat and meat colour, these new technologies take it a step further.

"We are able to drive attributes such as better textural, flavour and succulence profiles, intramuscular fat levels and nutritional

composition through to ultimate pH, which can then flow through to significant improvements in our product quality and greater value," he says.

From his perspective, the technology has dual benefits for Alliance, "Firstly, feeding information back to our suppliers for use in their breeding programmes. Secondly, having a rapid and cost-effective inline technology which will allow us to easily take out the products which don't meet our customers' requirements, while enabling verification and assurance of those which do."

The different systems also open up other quality associated benefits for processors, such as fast identification of any contamination, says McLennan.

The new sensors will add value for the meat industry and continue to improve New Zealand's red meat quality, he believes.

#### **Quality information on packaging, "exciting"**

MIA innovation programme manager, Richard McColl, has been involved since the early stages of the project. What excites him most is that the measurements will mean marketers will be able to provide the customer with quality information at the supermarket through packaging on premium meat products.

"Consumers will be able to pick up a leg of New Zealand lamb in a supermarket in the UK or China and know with confidence that it has the right quality attributes to ensure a consistently superior eating experience," he says.

"That level of assurance will further add to the good reputation we already enjoy for producing quality export meat products and will add additional value for New Zealand's farmers and processors."

Best of all, as Craigie notes, the financial benefits will be captured in New Zealand.