

ALMTech News

No. 7



Meat for thought

An important part of this Project is to identify target audiences and establish appropriate contacts and communication channels. Just one of the ways that we are achieving this outcome is via the media. Studies have indicated that media coverage of research developments can generate significant benefits for scientists. On 26th May 2017, Murdoch University put out a media release that was picked up by a number of media outlets.

The release focused on the dual x-ray absorptiometer (DEXA) scanning technology that is being developed as part of this Project for use in the beef industry. It highlighted that this device could accurately determine the bone, muscle and fat composition of a carcass. Based on 50 cattle, this research indicated that DEXA described 88% of the variation in carcass fatness, with the bulk of these predictions ranging within 3 carcass fat % units of their true value.

In March, it was announced that the security screening company, Rapiscan Systems would be a sponsor at the 2018 Gold Coast Commonwealth Games in Australia. Whilst the association between sport and meat technology might not seem obvious, the ALMTech project is working with Rapiscan to build imaging systems suitable for automation and measuring carcass composition.

Sean Miller has been appointed as a Research Fellow at the University of Adelaide and will work with Wayne Pitchford on research being done in P5 and more widely across the Project. More specifically, he will work with processors and the industry in general to examine opportunities to increase efficiency in meat processing. This position is integral to the success of the Project and it will be important for our industry partners to engage with him.

As was expected, access to animals in this Project is exceptionally important to enable meaningful testing of technologies. A P4 objective is to manage the available resources and if required, search for additional animals. At an industry meeting held in late May the potential to utilise or divert cattle from a range of breeds was discussed. This discussion was productive in ensuring that adequate animals can be sourced so that research in P1 and P2 can proceed as planned.

A point raised at the recent Annual Review was the seemingly long time period for new technologies to become functional in practice. However, it needs to be remembered that when a new technology becomes available, the hardware and any associated software have to work in situ. Technology developmental issues, beyond the control of researchers in this Project are occurring frequently and highlight the importance of a multi-faceted approach to developing measurement solutions for industry.

Please contact me if you have any Project matters that you would like to discuss further.

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Program E: Program Executive

Program leader: Graham Gardner

Further to the last newsletter, sub-program, PE4 will play an integral part of the Project. This sub-program will establish the traits of interest for measurement technologies across all programs, and develop a standardised calibration system going forward. It will be responsible for the standardisation of methodologies for measuring traits of interest, communication with industry regarding new traits and the language required to describe them.

In addition, it will create an industry system for maintaining the day-to-day nation-wide calibration and standardisation of technologies that measure these traits.

A Calibration Working Group will be set up by the end of July 2017 to progress this work. In addition, a report identifying traits for calibration that are relevant for lean meat yield will be written. A similar report will also be completed but will focus on relevance for eating quality.

P1: Development of Lean Meat Yield technology

Program leader: Graham Gardner

Planning is underway for the additional lamb validation work for DEXA at Bordertown. In the longer term scanning will occur at Brooklyn (Vic) and at Bordertown (SA) to investigate any site differences.

The Beef DEXA plan is on track and a device should be working at Rockhampton by the end of July. The first step in making it operational will be calibrating it with the mobile CT scanner. There are a couple of options being considered for carrying out this task and the most efficient procedure will be put in place.

Recently 3D imaging work has focussed on improving the capability to estimate P8 and muscling by developing techniques for online detection of: symmetry (posture correction); tail removal (tail irrelevant to 3D curvature); online noise filtering; and outlier removal. The developments feed into the capacity of 3D imaging to predict, and are a precursor to deal with cross-bred cattle.

Model development to deal with pure *Bos indicus* and European cattle is underway.

P2: Development of eating quality (EQ) measurement technology

Program leaders: Dave Pethick & Pete McGilchrist

Sarah Stewart has recently taken some excellent images with the new Meat Imaging Japan (MIJ) camera for the Angus and Brahman BIN cattle. The new

smaller more manoeuvrable MIJ camera has made an appearance in Australia and will be back in late July to start the validation process. The Frontmatec camera is due to arrive in August 2017.

A review of the NIR and boar taint work is planned for 21 July 2017 at Melbourne University. Researchers from AgResearch, New Zealand have been invited to attend this meeting. This review will provide a solid direction for future work in this area.

P3: Development of robotic technology

Program leader: Christian Ruberg

A demonstration of meat going through the Rapiscan system in the UK showed some positive outcomes for P3. Research will continue in this area and with Rapiscan Systems being in Australia in 2018, there could be further opportunity to trial it here. It would be particularly interesting to see how the Rapiscan image quality matches with CT.

Meetings with processors will be held in the next couple of months to look at the practicality of a processing line for offal in a plant.

P4: Industry Databases

Program leader: Daniel Brown

To obtain meaningful data for this Project, access to and coordination of animal resources is imperative. The MLA Resource Flock began as the Sheep CRC's Information Nucleus Flock (INF) in 2007. Over five years, the INF gathered a database of biological and genetic traits by joining 5,000 ewes each year to 100 industry sires.

The MLA Beef Information Nucleus (BIN) Project involves five breed societies with more than 300 sires and nearly 8,000 head of their progeny. This resource is useful for southern projects but is limited for those related to the north of Australia.

At a recent meeting there was general agreement to focus on the Northern BIN/ Repronomics animals and to secure ongoing funding for research.

P5: Data Decision Systems

Program leader: Wayne Pitchford

Sean Miller will coordinate P5 and will conduct and lead analysis of data from meat processors. This work will examine opportunities to increase efficiency in the boning room and add value to their business.

In addition Sean will be involved in analysis of industry and company specific data, undertake a stocktake of existing and potential tools and assist in developing tools of optimisation. He will also assist in the development of a work plan based on program KPIs and outputs and facilitate the training of Supply Chain Officers.