



# FINAL SHEEP CRC NEWS

June 2019

## *From the Homestead*

This will be the last Sheep CRC newsletter and marks the end of a great journey that we have had together. It has not always been smooth travelling, but we have achieved most of what we have set out to do and should regard this as a good outcome for our industry.

A very sincere thank you to everybody who has been part of the experience and particularly those who have been early users of CRC technology, willing to test new ideas and provide the feedback that has helped to make products better and information more useful.

The CRC has been responsible for many innovations that are now part of the mainstream tools and fabric of the sheep industry. It is worth reflecting on some of the innovations we have delivered over the last 18 years:

- Precision sheep production based on eID combined with automated weighing and drafting has helped to build an industry able to collect and use data for a range of purposes.
- Education and training activities included the establishment of an undergraduate education program that has been actively continued with support from the Australia Wool Education Trust. The postgraduate training program supported 81 young professionals who will continue the process of innovation for the sheep industry throughout their careers.
- The development and delivery of genomic technologies for faster affordable genetic gain has placed the sheep industry at the forefront of livestock industries able to use this advanced technology.
- Components for a quality-based sheepmeat value chain have been developed focusing on understanding and delivering what the consumer requires and is prepared to pay for.
- The Wool ComfortMeter was developed to help manage the most important negative consumer concern about wool – next-to-skin comfort. The value of the ComfortMeter has been enhanced by the complementary Wool HandleMeter.

- Internet-based information systems such as the Livestock Library and ParaBoss will be available long after the CRC winds up providing access to new and past knowledge.
- ASKBILL provides methodology for managing the complex issues of sheep wellbeing.
- RamSelect is helping ram buyers navigate the process of finding the best rams for their production systems.
- Training systems, such as Lifetime Ewe Management, Bred Well Fed Well, the pregnancy scanner workshops and high performance weaner initiatives have been widely used following their initial development within the CRC.

In addition to the legacy of new products and new information are the close networks, that have built up across organisations and across sectors of the sheep industry, that will continue to be active post-CRC. A good example is the Lamb Supply Chain Group that includes sheep producers, meat processors, retailers and researchers has been an effective mechanism for cooperation and is set to continue.

Given the highly productive nature of collaboration fostered by the CRC over many years it is unfortunate that AWI and CSIRO have not been part of the CRC network during the last five years. Fragmentation in the industry invariably leads to duplication, inefficiencies and additional costs.

As the industry identifies the next major opportunities and challenges, the CRC model of collaboration and engagement with end-users will hopefully be regarded as a positive template worthy of careful consideration when working out how to best utilise scarce resources and deliver lasting impact in future industry initiatives.

It is also vital for the industry's long-term future that there is significant investment in training and education to ensure that appropriate expertise is available to continue delivering new innovation and enhanced prosperity.

It has been a privilege to be part of this Cooperative Research Centre from start to finish.

James Rowe

CEO

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# A review and future plans for the CRC research programs

## Enhanced sheep wellbeing and productivity

The key achievement of this program has been the development and early stage commercialisation of the web-based application ASKBILL by a large team of animal scientists, modellers, data analysts, programmers, database administrators, climatologists and user interface designers. The team has developed the web-based application and compiled an associated climate database that takes meteorological data from the BoM and connects historical, near-term and six-month weather forecasts.

For the first time, sheep producers throughout Australia have access to a single source of forecasts of pasture, live weight, carcase, condition score, soil moisture, worm risk, flystrike risk, chill and heat risk customised on a 5km grid. Forecasts are adjusted to the genetic merit of livestock and are automatically updated each day to provide risk alerts to producers through SMS and email. As a consequence, producers now have access to detailed long-term predictions as well as shorter-term warnings based on the closest 5 km grid point to their property.

The accuracy of forecasts has been successfully validated on 20 sheep properties through some of the major sheep producing regions in Australia. Comparisons of measured pasture biomass, sheep live weight, carcase and worm risk with the ASKBILL forecasts have provided confidence that ASKBILL will help producers to better manage under variable climatic conditions.

The remaining activities needing to be completed as part of the wind up include final stages of the analysis of validation data and incorporation of any minor changes into the models, confirming the data transfer API between ASKBILL and third-party farm management software, documenting the wellbeing and sustainability indices, and hand-over to UNE for the on-going maintenance, development and commercialisation.



## Quality-based sheepmeat value chains

The research, development and extension undertaken by the meat program has been adventurous, sustained and transformative. The scale of the effort has been the envy of colleagues and industry players globally and is a tribute to the vision of the collaborating RDCs (MLA, AMPC), the national CRC program and of course the many partners who have come together. No other country can boast such close and focused collaboration to deliver outcomes for lamb and sheep meats (indeed for any other meat) across all sectors of the supply chain. Moreover, the evolution of the lamb and sheep meats industry has seen a sustained and remarkably united effort across all sectors of the industry for many years even before the CRC. This united approach focused on not just productivity but also on the consumer has, and always will, pay dividends.

Key outcomes have been the MSA mark II prototype which clearly shows that cuts of lamb can be graded into different eating quality grades that the consumer is willing to pay for. To underpin such grading at the processor level is enormously challenging, requiring accurate assessment of lean meat yield (LMY) and intramuscular fat (IMF) at line speed. Even the idea that LMY and eating quality need to be measured together is novel in lamb on a global stage, despite the clear antagonism between the two traits. Precision assessment of LMY is now real with the advent of the DEXA technology but the IMF methodologies are still in R&D phase. However, there is promising progress based on hyperspectral camera, near infrared (NIR) and other technologies being developed by commercial companies which are rapidly approaching reality. The on-farm aspects of carcase composition and intramuscular fat are now understood with effects of both nutrition and genetics well defined, with new breeding values for the management of these traits now mainstream within Sheep Genetics. The industry is about to enter an exciting phase of lamb and sheepmeat brands being underpinned by clear quality metrics combined with carcase feedback to allow lamb and sheep meat producers to target markets suited to their production systems.



The effort to bring all the work to fruition will never cease and in the shorter term is being underpinned by the new ALMTEch program, which has offered a CRC-type platform to progress objective carcase measurement across lamb, beef and pork. Further effort is warranted to showcase the broader credentials of lamb as a healthy red meat product which has been shown by CRC research.

The future of lamb and sheepmeat as high-value consumer products remains assured with a united and collaborative industry, which must be treasured and preserved at all costs.



## Faster affordable genetic gain

The Sheep CRC had two goals for genetic improvement during the final five-year extension. The first goal was to develop a state-of-the-art genotyping chip that included new predictable SNPs identified through the CRC's research using full sequence data. The improved genotyping chip needed to provide improved accuracy and therefore deliver faster genetic gain. The second goal was to reduce the cost of genotyping tests from \$50 to \$25/test to make the technology more affordable for the industry.

Neogen is very close to the final evaluation of a new 50k genotyping chip due for commercial delivery in July/August. The second goal of the CRC will be achieved by the fact that this new test will be available at \$25/test. Although the CRC may have missed the deadline by a few weeks, we will still claim attainment of both goals.

The genetics team held a productive workshop with the meat science team in early May to work out how to proceed with collaboration in future projects. Collaboration between geneticists and meat scientists to develop further methods to genetically improve meat eating quality in lambs is set to continue.

In late May our genetics research program was presented to the Australian Superfine Wool Growers' Association, including details of the Flock Profile and RamSelect products. There was a lot of interest and queries about the 'where to go' for testing. Encouragingly, interest was from breeders who are not currently members of Sheep Genetics.

The achievements of the Sheep CRC genetics program will also be presented at an international animal genetics conference in Korea in the end of June.

The use of RamSelect continues to create a lot of interest. There are now more than 600 user accounts – approximately half of these based on genomic Flock Profile results and the other half based on ram team averages entered by producers.

The introduction, two years ago, of a fee for listing rams has had the effect of discouraging breeders from using RamSelect and has reduced the number of breeders loading their ram sale catalogues on RamSelect. A decision has been made to remove the ram listing fees, making it free once again for breeders to load their catalogues. It is anticipated that this change will result in a significant increase in the use of RamSelect in the coming ram-buying season. More information will be available in the coming weeks.

It is strongly recommended that commercial producers and ram buyers, who do not already have user accounts on RamSelect, should make arrangements to undertake Flock Profile testing or enter ram team averages into a RamSelect account so that they are prepared to make the most out of the coming ram selling season.

## Next Steps (post CRC)

The Sheep CRC's highly successful app development program has delivered RamSelect and ASKBILL. The core development work has been conducted by UNE's Computation Analytics Software Informatics (CASI) team, which will continue to maintain and upgrade the software in the future. UNE will take over the business management of RamSelect and ASKBILL, ensuring they continue to service the sheep industry under a commercial delivery model.

Sheep producers can continue to access the online tools through [www.ramselect.com.au](http://www.ramselect.com.au) and [www.askbill.com.au](http://www.askbill.com.au), and stay up to date with important information and new developments through the Sheep CRC's current social media channels (Facebook, Twitter, LinkedIn and YouTube), which will also be managed by UNE as part of our digital technologies transition plan.

Delivery of the meat science outcomes of lean meat yield, eating quality and cuts-based grading will be coordinated by MLA with input from the ALMTech program. The transition is expected to be smooth and MLA's strong commitment to delivering these outcomes for the sheepmeat industry will ensure their long-term success.

Genomic testing, coordinated by the CRC's innovation company, will continue business as usual when the CRC winds up. The business will be under the management of Neogen Australasia with Bec Macarthur-Onslow, Marg Shedden and Andrea Simpson continuing to be the people that producers deal with when submitting samples. The online ordering and reporting systems will continue unchanged. This continuity is a great outcome for the industry and the fact that there has been such a productive relationship with Neogen Australasia over many years augurs well for the future use of genomic technologies.

A smooth transition at the end of the CRC and confidence that all innovations developed by the CRC will continue to be delivered post-CRC is a good achievement for the sheep industry, for all CRC Participants and major investors.

In closing, it is important to recognise the role of the Commonwealth Department of Industry, Innovation and Science through the CRC Program. Strong support from the Commonwealth over 19 years has delivered the vision of transformation for the sheep industry.

