CRC for Sheep Industry Innovation

James Rowe, Sheep CRC, Locked Bag 1, Armidale NSW

ABSTRACT

The new Sheep CRC focuses on the theme of transforming sheep production and its major products wool and meat. Another aspect of transformation will be to improve the rate and extent of industry adoption of new technologies. Three research programs covering: sheep and their management; next generation wool; and next generation meat, will be embedded in the innovative research framework of the 'information nucleus' as well as in programs covering adoption & commercialisation and education & training. The main outcomes will include sheep that are more productive and easier to manage, wool supply chains able to guarantee next-to-skin comfort as well as whiter fabrics and lamb that achieves new levels of consumer expectations for eating quality and human nutrion benefits.

DETAILS OF THE PROGRAMS

The CRC has developed a fully integrated set of projects that are linked through the information nucleus flocks and through delivery of genetic information through the portal of Sheep Genetics Australia. The individual Programs are described below.

Transformation of Sheep (Program 1) In an environment where labour is increasingly scarce it is essential that we transform sheep and their management to improve labour productivity. Welfare issues are of fundamental importance and must be enhanced while, at the same time, increasing labour efficiency. High lamb mortalities and weaner losses are seen as the next potential welfare issue as well as constituting an economic loss to producers. Increased survival will be an important component of this program. It is also essential to have parasite management improved through genetic selection and appropriate management systems. Stocking rate issues are central to management decisions and to environmental impact and will also be included in this program. Fundamental to simplified implementation of more sophisticated management systems are the technologies and decision support systems. It is recognized that multiple 'support systems' are already available and that integration and simplification of their use is a priority.

Transformation of Wool (Program 2) The major opportunity is to increase the use of wool beyond the narrow focus of northern hemisphere winter markets. Expansion into new markets will require new approaches to breeding, management and supply chain communication to assure next to skin comfort. Achieving certainty in specifications for next to skin comfort will be a major thrust in the wool program. The second major activity will be to identify the genes and production systems for producing white, photo-stable, wool. The approach to finding genes for whiteness and stiffness plus the know-how for appropriate production and processing will be based on the Information Nucleus flock. New measurement techniques will be required and involvement of commercial partners throughout the supply chain is essential.

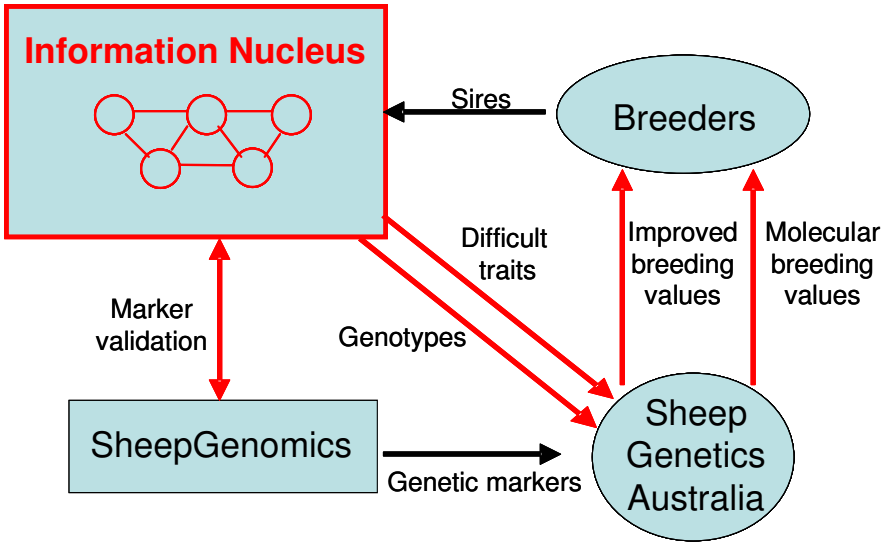
Transformation of Meat (Program 3) In addition to the traditional qualities demanded by consumers of leanness, tenderness, juiciness and flavour, market research indicates that we will need to go further to keep lamb ahead of competitors in the future. The new program will focus on increased muscling as part of the process of increasing yield and efficiency. The nutritive value of meat specifically omega 3 fats, iron and zinc are considered to be important for consumers and we will develop pathways to meet critical targets. Colour stability is important for retail shelf life and cooking odour is a factor that needs to be more predictable.

The 'Information Nucleus' (Program 4) The CRC's research program described above draws on the latest genomic technologies as an important tool to help improve our understanding of combination of genes and their management in different environments to produce sheep that are productive and easy to manage. As well as being easier to manage sheep must have genetics for wool or meat production. It is also essential to understand the management and processing required to convert genetic potential into delivery of wool and meat of a quality that consumers demand.

The central component of our integrated research plan is the Information Nucleus. This initiative involves five resource flocks located in different climatic regions throughout Australia. Each flock has 1000 ewes that will be mated using AI to 100 carefully selected sires from breeders participating in Sheep Genetics Australia. Animals in the Information Nucleus and their products will be intensively

measured to produce a comprehensive set of phenotypic measurements that can be matched with genotyping information. This approach will deliver better ways of including traits that are difficult to measure; allow for use of genomic selection; and significantly increase the rate of delivering genetic information to breeders. As shown in the diagram below the Information Nucleus is very closely linked with the Sheep Genomics program and with Sheep Genetics Australia. The specific programs focusing on transformation of the sheep, wool and meat, while separate programs, will base most of their research effort on the resource flocks within the Information Nucleus.

Fig. 1 Information nucleus – interlinked with Sheep Genomics and Sheep Genetics Australia. Delivery of Information Nucleus outcomes will be via Sheep Genetics Australia.



Education and Training (Program 5) The new CRC will focus on postgraduate education and will also initiate new programs in professional development. The resources and infrastructure for undergraduate education, developed during Sheep CRC1, will continue outside the new CRC.

Commercialisation and Adoption (Program 6) There is a strong commitment to ensure end user participation and consultation in developing all research programs. Understanding market needs will will be a priority in determining research priorities and CRC product definition. We have already benefited greatly from market research conducted by AWI and MLA in identifying the most important aspects of wool and meat for the new CRC. The new CRC's ability to involve industry end-users is enhanced through involvement of three prominent sheep consulting groups, the support of producer groups established by AWI and MLA such as "The Sheep's back" "Leading Sheep" etc and through the State Departments – all of which are Participants in the new CRC.

WA INVOLVEMENT IN THE NEW SHEEP CRC

Through the Department of Agriculture and Food, Murdoch University and University of Western Australia and a number of consultants, WA has played an important role in establishing the CRC and will be key participants. Katanning research station hosts one of the Information Nucleus flocks and this will be an important site for research as well as extension and training activities throughout the life of the CRC. WA researchers play a number of prominent roles in the new CRC and innovation in adoption & commercialisation will be based on strategies being developed by Russell Barnett and his colleagues. The first round of AI in the Katanning flock commenced earlier this year and the process of measuring and recording is already underway.

CONCLUSIONS

The Sheep CRC is confident that we will be able to start delivering benefits to the industry within two years. The information nucleus program is underway and arrangements for delivering results through SGA are already in place. There is very solid industry support for the CRC with 21 Participant organisations. We are also very pleased with the appointment of a skills-based board, chaired by John Keniry, to steer the CRC through the next seven years.