The Cooperative Research Centre (CRC) for Beef Genetic Technologies was officially launched in Armidale on 13th December, 2005 by Mr Hugh Morgan AC, a Hereford breeder from Victoria and immediate past President of the Business Council of Australia.

The Beef CRC is Australia's largest beef research initiative, developed in partnership by the Australian beef industry (Cattle Council of Australia, Meat and Livestock Australia, Australian Lot Feeder’s Association, corporate and individual beef producers) and prestigious national and international scientific institutions. The CRC has its headquarters at the University of New England, which is also the CRC’s lead educational institution. The Centre is a collaborative venture between 19 partner organizations from Australia, New Zealand, Korea and the USA, with associate partners from Northern Ireland, the Irish Republic, France and South Africa. Centre research is focused on four beef industry priority issues (high quality beef, feed efficiency and maternal productivity; adaptation and cattle welfare; and improved reproductive performance) to capture unique opportunities for Australia through world-class gene discovery and gene expression research and accelerated adoption of beef industry technologies to improve profitability, productivity, animal welfare and responsible resource use of Australian beef businesses. Total cash and in-kind resources for the Beef CRC over the period 2005-2012 exceed $122 million.

The Beef CRC’s research, education and commercialisation strategies are targeting an increase in gross revenue of the Australian beef industry estimated at $179 million per annum from 2012, with total expected benefits of the new CRC research being more than $2 billion over 25 years. The centre will use emerging genetic technologies to:

- Improve the capacity to deliver high quality beef to Australia’s 110 global markets using cattle of known genetic merit for exacting specifications, without compromising animal welfare or the environment.
- Enhance beef yield and herd reproductive efficiency, improve efficiency of resource use, reduce production costs, minimise methane emissions and avoid chemical and antibiotic residues through precise application of knowledge about the genes controlling these attributes in cattle, their rumen microorganisms and in parasites that affect cattle productivity.
- Ensure Australia is the number one supplier of beef to meet the growing demand by neighbouring Asian countries to 2020.

Research outcomes will provide Australia with the ability to consistently produce beef products of exacting specifications to meet the needs of domestic consumers and those of the 110 countries to which we export.

The new CRC has a three-pronged approach to achieving beef industry outcomes …

Gene discovery: finding genes that impact on economically important attributes in cattle and developing diagnostic tests for them (e.g. GeneSTAR Marbling and Tenderness). At this stage, because there are so few DNA tests for each trait, it is not recommended that breeding decisions be based on DNA analysis alone. DNA results should be used with information such as EBVs derived from measurements of the trait. However, the new Beef CRC aims to identify packages of 8-10 genes for each hard-to-measure, economically very important trait (tenderness, retail beef yield, marbling, feed efficiency, age at puberty, cow reproduction rate, resistance to ticks) that together will account for 50-80% of the genetic variation for that trait, meaning the combined DNA tests will become more useful as a breeding or a drafting tool. As a result, seedstock breeders will be able to readily select breeding cattle with favourable forms of the genes or cull those cattle with unfavourable forms of the genes. Commercial producers, feedloters and beef processors will also be able to cost-effectively use the tests to identify cattle that best meet market specifications under particular production systems.

Gene expression: is aimed at understanding the function and expression of the genes associated with economically important traits and identifying non-genetic treatments (e.g. management practices, modified diets, water medications, vaccines) that can be used to ‘switch on’ favourable genes or ‘switch off’ unfavourable genes so that cattle can be individually managed to better comply with market specifications. Note: This will be achieved by selecting cattle for specific markets based on the genes they carry, not through artificial modification of their genomes.
Internet solutions continues growth

Calendar year 2005 has seen ABRI’s Internet Solutions range of applications continue the strong usage growth of previous years. Overall usage of the various systems across all species was up 45% on 2004 levels, to a massive 18.29 million page enquiries for the year. January 2006 has seen this trend continue, with an all-time record of 1.87 million transactions recorded for the month. We expect to exceed two million page enquiries per month by March, 2006.

The high-volume users of the service are spread across a range of livestock species, with Beef cattle (BREEDPLAN) systems leading the way, generating 56% of the overall usage.

With the exception of the American Hereford database (hosted in Kansas City, but software developed and supported by ABRI), all databases reside at ABRI’s headquarters in Armidale Australia. From this central computer facility, web-based livestock improvement services are delivered to a range of overseas countries. Internet Solutions provides a range of easy-to-use services including:

- Pedigrees
- Breeding Values (EBVs, EPDs)
- Sales and Semen Catalogues
- BreedObject Integration
- Breeder/Member Searches
- Mating Predictor
- Animal Registrations
- Performance data entry

You can access Internet Solutions databases directly from your Breed Association website, or alternatively use the ‘Search Facilities’ link from the BREEDPLAN home page http://breedplan.une.edu.au/

Accelerated Adoption: aims to increase the level of adoption by beef industry end-users and reduce the ‘Research to Adoption’ cycle from 5 years to 2 years. Economic analyses indicate that 30% of the $179 million p.a. estimated value of the new Beef CRC derives from increasing the rate of uptake of CRC technologies by industry. Accelerated Adoption will be achieved by the use of innovative participative and partnership processes based on credible industry profitability and productivity benchmarks. Under this model, each CRC research program will achieve its planned outcomes only if it also achieves Accelerated Adoption of the technologies it develops. The onus is therefore on the CRC scientists and their commercial partners in those research programs to fully engage with beef industry end-users to ensure commercialisation and utilisation of their research outputs in a way that has never before been achieved.

More information: Beef CRC website (www.beef.crc.org.au) or Warwick Fraser, Beef CRC, Phone 02 6773 3795; Email: Warwick.Fraser@une.edu.au

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