

# Animal Production – Winter 2011

## INTRODUCTION

The Animal Production Unit undertakes research and development to achieve continuous improvement in production technologies in livestock enterprises in the State.

This function is essential to maintain long-term competitiveness and achieve sustained economic growth in the livestock industries (specifically beef, sheep and dairy industries) of rural NSW. Efficiencies are achieved through improvements in productivity, profitability and sustainability. Our research includes innovative farming technologies for the dairy industry, development of fodder conservation and stock feed technologies for the ruminant industries, meat science research into improved red meat eating quality, animal growth and development studies to enhance productive efficiency and biological and economic modelling to deliver easy to apply technologies.

## RESEARCH CAPABILITIES

- » Resources include large-scale, pasture-based cattle and sheep breeding research facilities at Cowra (sheep), Glen Innes (beef cattle and sheep), Grafton (Beef cattle), Trangie (Beef cattle and sheep) and Menangle (dairy cattle).
- » We have sophisticated experimental facilities at Wagga Wagga and Armidale.
- » Australia's largest breeding herd/flock research database and unique cattle and sheep genetic resources.
- » Strong partnerships with key industry and research players.
- » Comprehensive laboratory facilities are available at some of these centres, for meat science, nutrition, molecular genetics and other related experimental work.

## CONTACT US

For more information on our full portfolio please contact Bill Mckiernan on (02) 6770 1801 or [bill.mckiernan@industry.nsw.gov.au](mailto:bill.mckiernan@industry.nsw.gov.au)

## PROJECT UPDATES

### INFORMATION NUCLEUS (2007–2014)

**INTRODUCTION:** For the sheep industry to remain competitive and respond to consumer demand it must continue to understand the genetic variation of important traits and develop the appropriate breeding programs.

**FINDINGS:** This project has mapped the heritability of certain important meat traits such as tenderness, intramuscular fat, nutritional values and retail colour stability. This will pave the way for further work to discover how these traits can be improved through genetic selection or production practices.



CONTACT: David Hopkins, Cowra 6349 9722

PARTNERS: Sheep CRC

### SMARTSTRETCH (2007–2011)

**INTRODUCTION:** Attempts over the years to speed up the slaughter and processing of red meat have been limited by the impact on important meat quality traits, such as tenderness. New pilot technology called SmartStretch™ has been under development to enable beef and sheep cuts to be stretched and packaged in the pre-rigor state.

**FINDINGS:** It has been established that SmartStretch™ can be used to improve the tenderness of hot boned sheep cuts by up to 45%, but with lesser effect in beef cuts. In one case beef topside was injected with a kiwi fruit based solution and shaped using SmartShape™ and this resulted in a 20% improvement in tenderness. Additionally the capability to shape and portion meat gives the industry the tools to deliver a more consistent product.



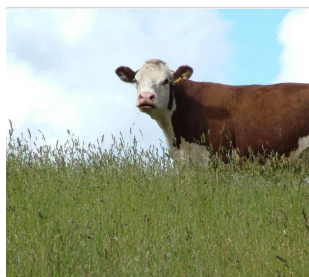
CONTACT: David Hopkins, Cowra (02) 6349 9722

PARTNERS: Meat & Livestock Australia

## MODELLING FOR BETTER BEEF (2005–2012)

**INTRODUCTION:** Fundamental research is required to understand how animals grow and lay down fat which influences meat quality and yield. A series of cattle growth experiments were conducted to measure fat deposition over time. From this growth models can be developed to help producers to decide how to breed and feed animals to achieve certain meat quality characteristics.

**FINDINGS:** We have now created models for fat deposition and distribution in beef cattle and from this research have developed BeefSpecs, a fat calculator to assist the Beef industry meet weight and fat specifications.



**CONTACT:** Malcolm McPhee,  
Armidale, (02) 6770 1838

**PARTNERS:** Beef Cooperative  
Research Centre

## TENDERNESS GENE MARKER EXPERIMENT(2005-2012)

**INTRODUCTION:** The most important trait in beef eating quality is tenderness. Studies have been conducted to determine the genes responsible for improving tenderness and production practices to optimise the animals genetic ability.

**FINDINGS:** We studied four commercially available gene markers for meat tenderness in young Brahman cattle. The favourable alleles improved meat tenderness, particularly after 7 days aging, but did not affect growth rates or feed efficiency in feedlot. There was little evidence of interactions between the gene marker status and HGP, sex, temperament, or hang method. The results will underpin incorporation of the tenderness gene markers into the Meat Standards Australia grading system.



**CONTACT:** Paul Greenwood,  
Armidale (02) 6770 1831

**PARTNERS:** Beef Cooperative  
Research Centre

## LIVESTOCK DATA LINK (2010–2011)

**INTRODUCTION:** There is a wide range of data collected within the supply chains of the Australian red meat industry, but this is rarely used to the collective advantage of all players. The establishment of the Livestock Data Link program (LDL) is the first step in providing a mechanism to enable greater utilisation of this information by organising it into a format that can be used to aid in decision-making throughout the supply chain.

**FINDINGS:** A national feedback system for slaughter animals (sheep and cattle) has been developed, including a component called "solutions to feedback" which gives users access to information to correct out of specification issues in the future. Product developed and now ready for role out to industry.



**CONTACT:** Bill McKiernan,  
Armidale (02) 6770 1801

**PARTNERS:** Meat & Livestock  
Australia

## SKEWING SEX RATIO OF SHEEP (2009–2010)

**INTRODUCTION:** Sheep operations would benefit from the opportunity to skew the sex ratio of offspring towards their preferred gender, for example, male prime lambs grow approximately 20% faster than females and have increased muscle accumulation, thereby reaching a higher market weight over a set time period, while first cross enterprises prefer breeding females, which may lead to a \$15-30 higher sale price at weaning.

**FINDINGS:** Preliminary trials have indicated that feeding a diet high in omega-3 (low in omega-6) to ewes reduces potential inflammation and was associated with a higher proportion of male lambs, while a diet low in omega-3 (high in omega-6) was associated with a higher proportion of female lambs. Therefore, there is an opportunity to selectively increase the proportion of male or female lambs depending on sheep enterprise in order to maximise profits.

**CONTACT:** Edward Clayton, Wagga Wagga (02) 6938 1999

**PARTNERS:** The EH Graham Centre

# PIS&R PROJECT UPDATES