Making the possible practical

# Innovation

## Sheep Paddock to Plate

James Rowe - MINTRAC 2015
CEO, Sheep CRC

SHEEP CRC | An Australian Government Initiative | CRC AUSTRALIA

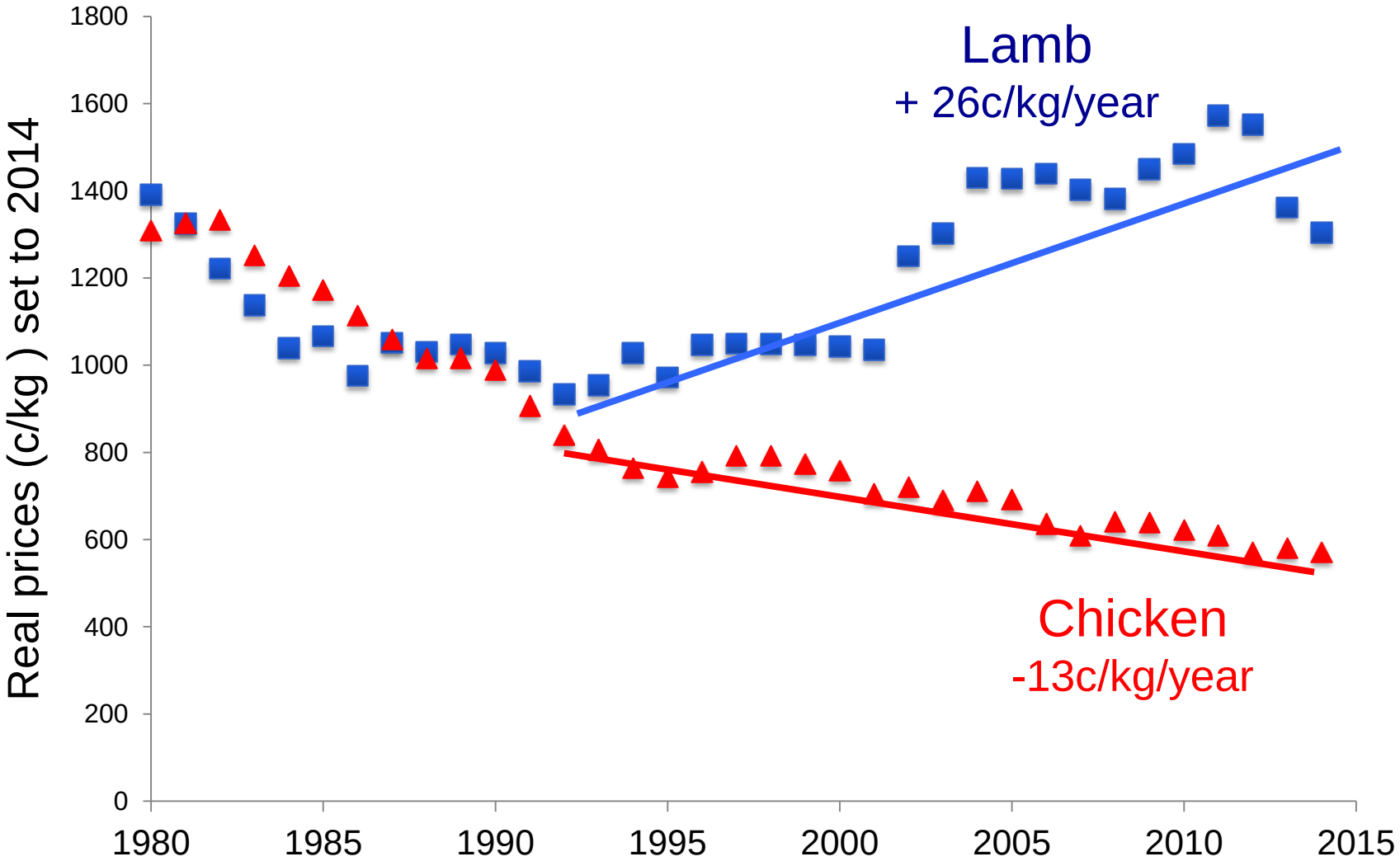
# Its expensive

## LMY is especially important in lamb

$30/kg (44% fat trim) → $54/kg (36% bone)

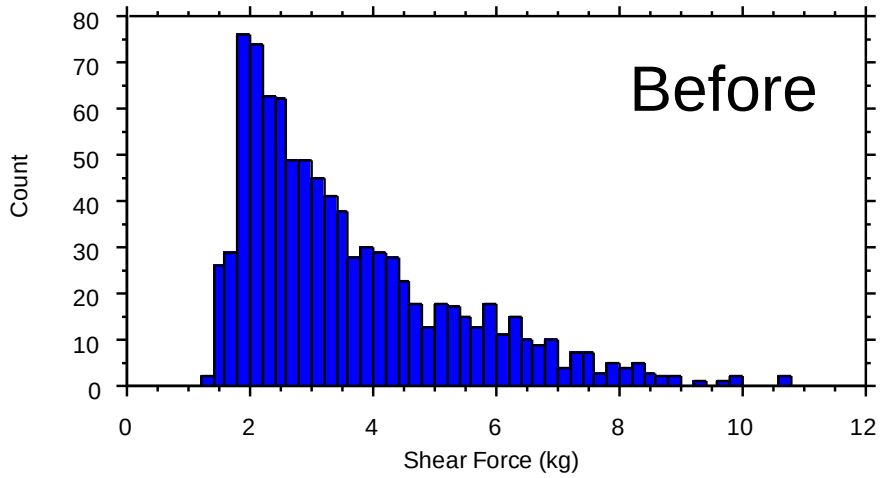
$84/kg for lean !!

# Retail prices of lamb and chicken

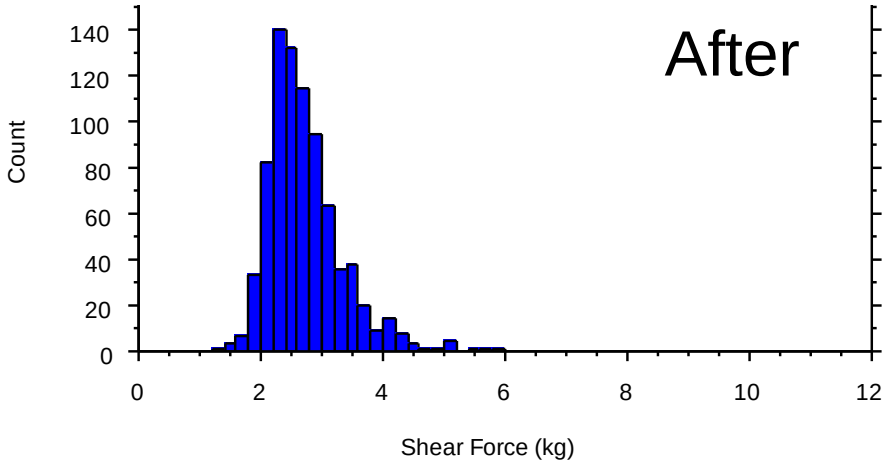


# Quality really does matter

# Lamb - eating quality (Pethick et al. 2006)




**1997/98 retail audit (n=907)**



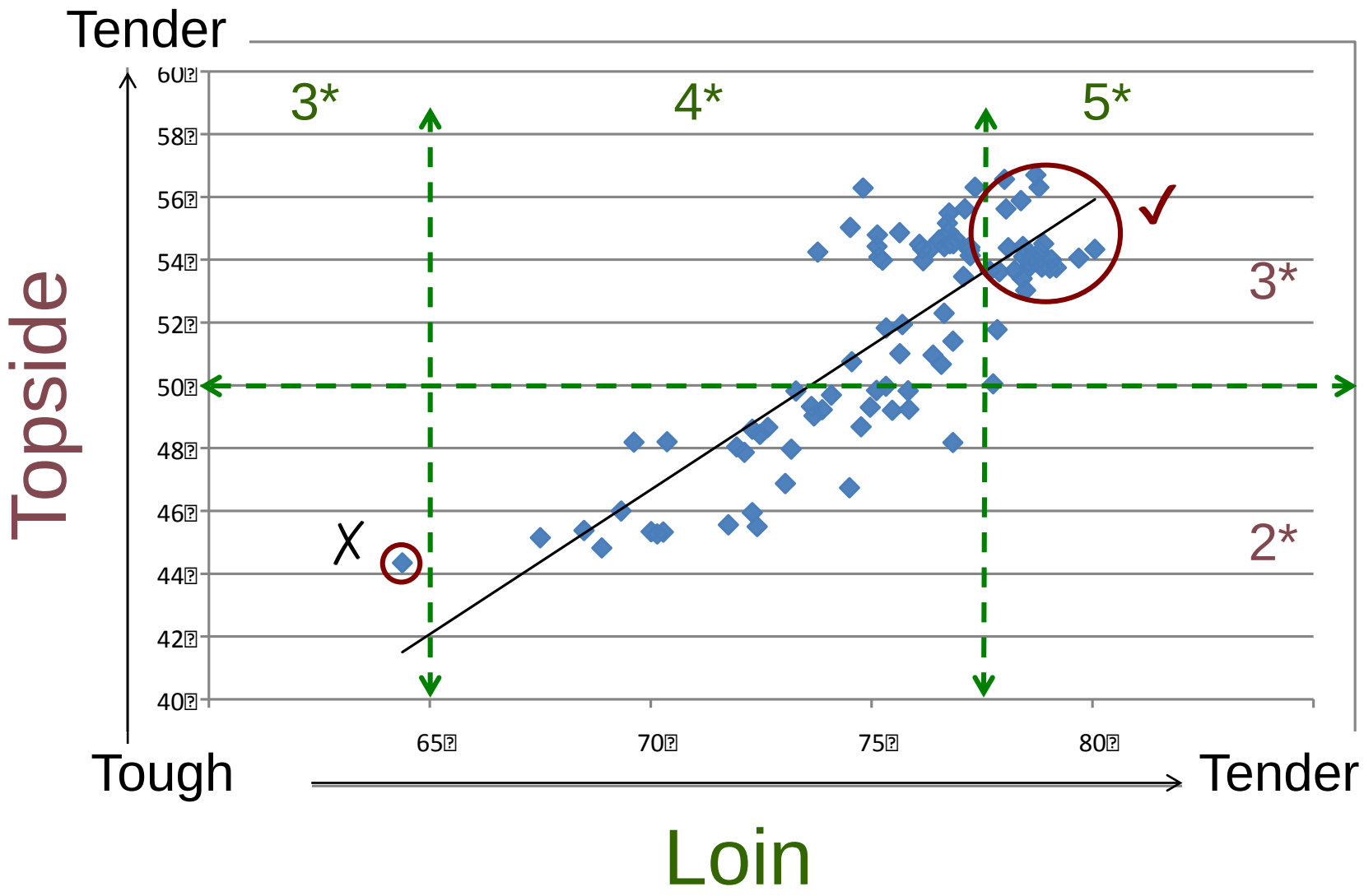

**MSA best practise 2006 (n=806)**
**Electrical stimulation & aging**

# Meat Eating Quality

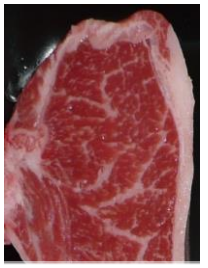
## Consumer testing: Real people – real answers !

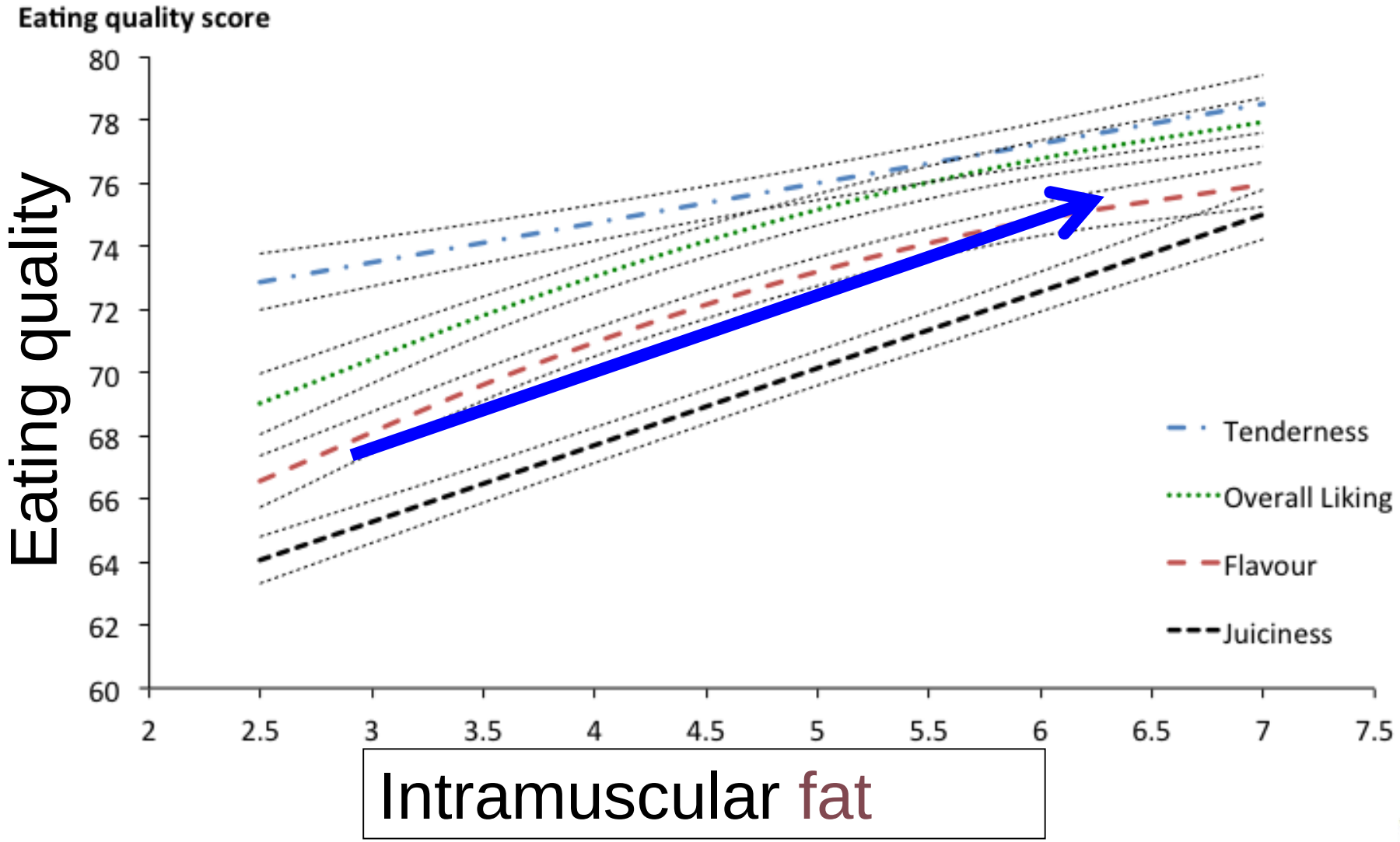
# Quality based meat value chain

## Consumer scoring of meat eating quality

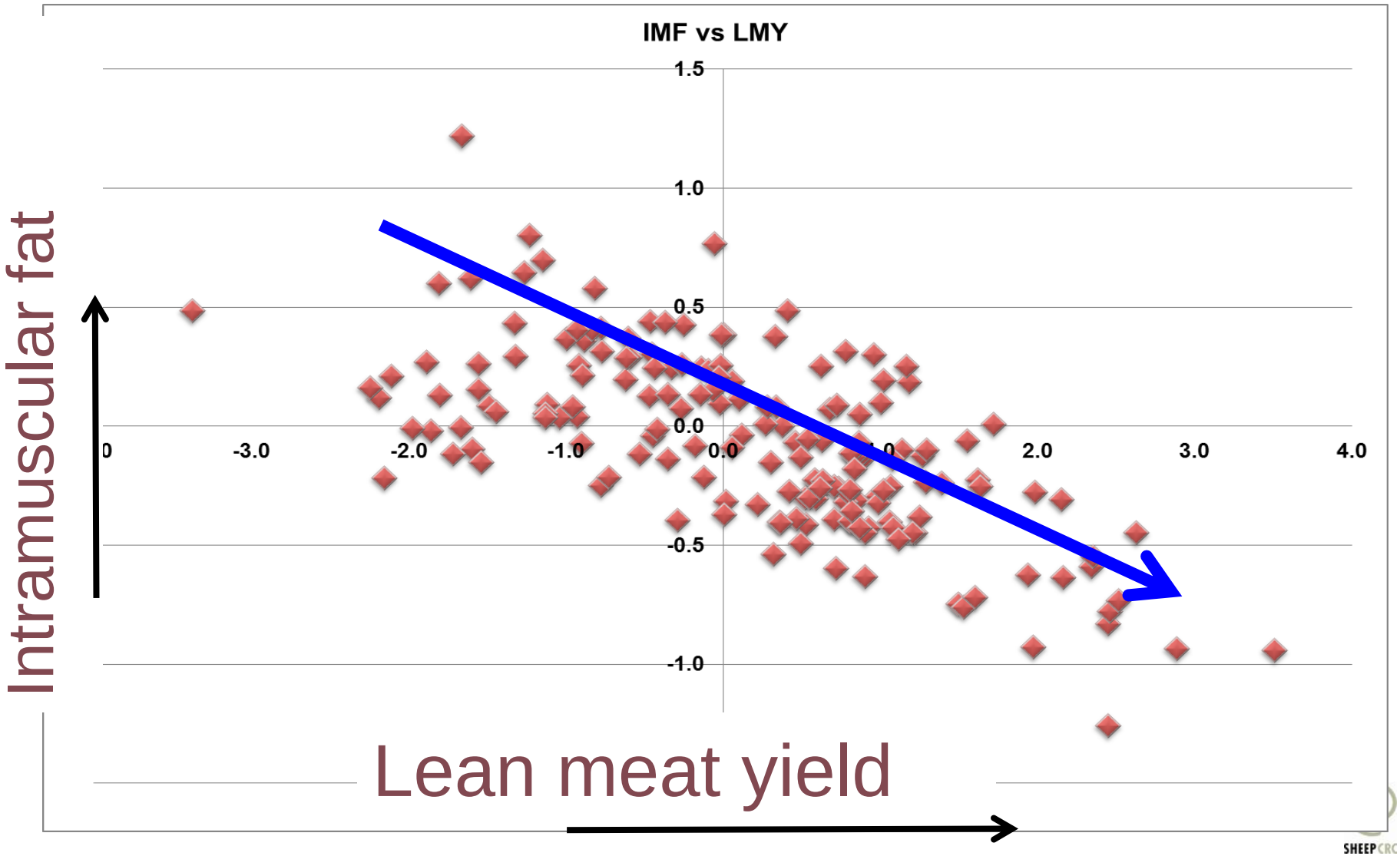


# Intramuscular fat – eating quality

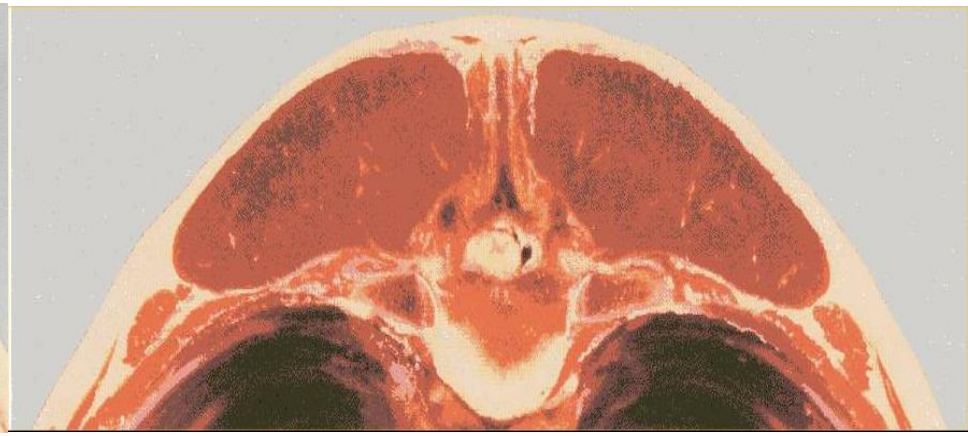




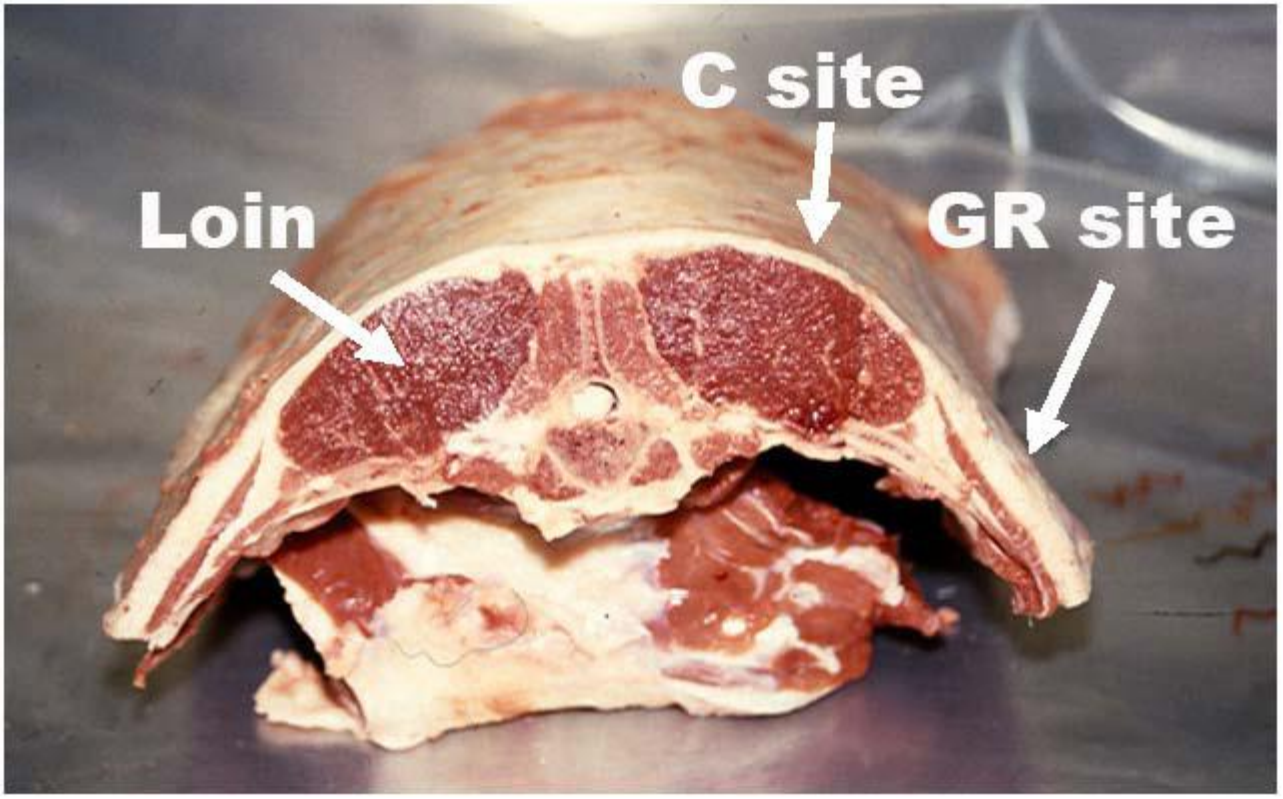
# Lean meat yield vs Intramuscular fat



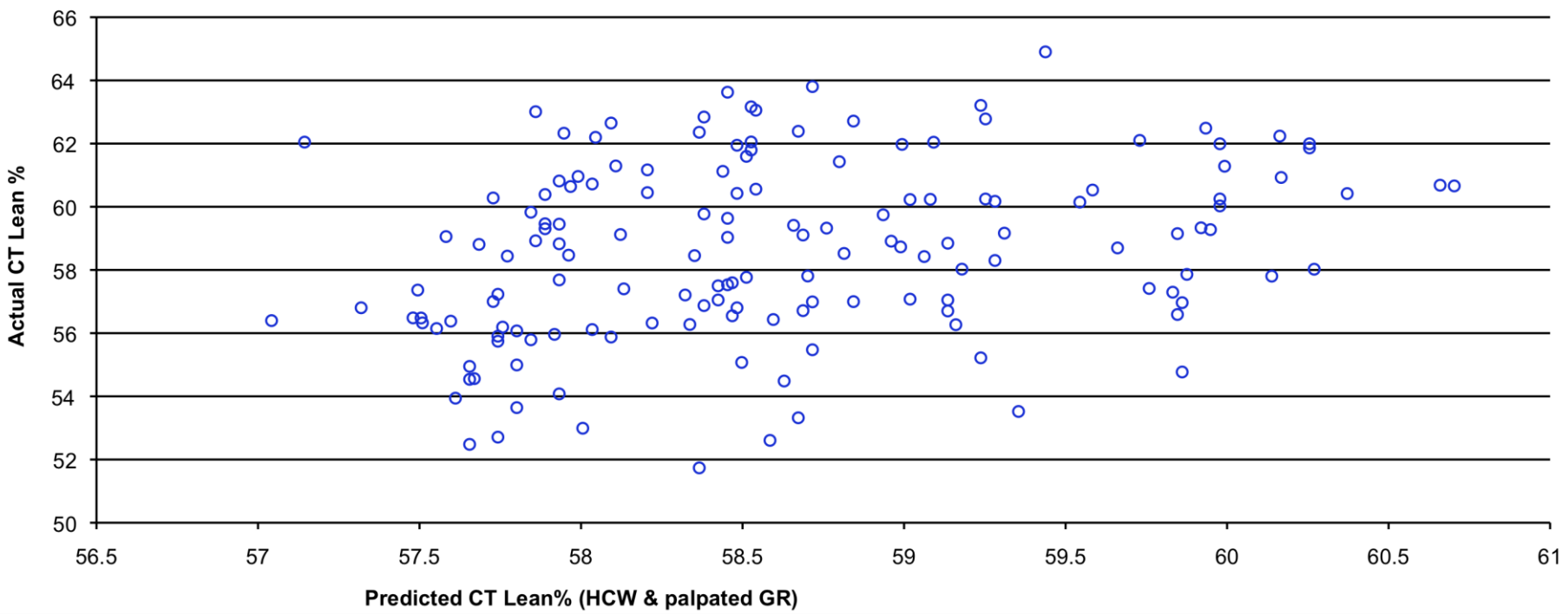
# How easy is carcase grading ?



# Lean meat yield: Traditional measures



# CURRENT = HCW + palpated ‘GR’ fat score to predict LMY




$R^2 = 0.09$

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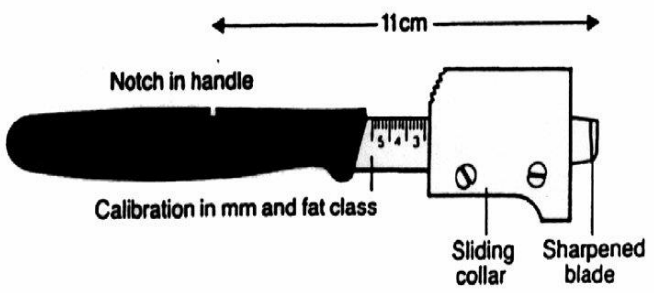
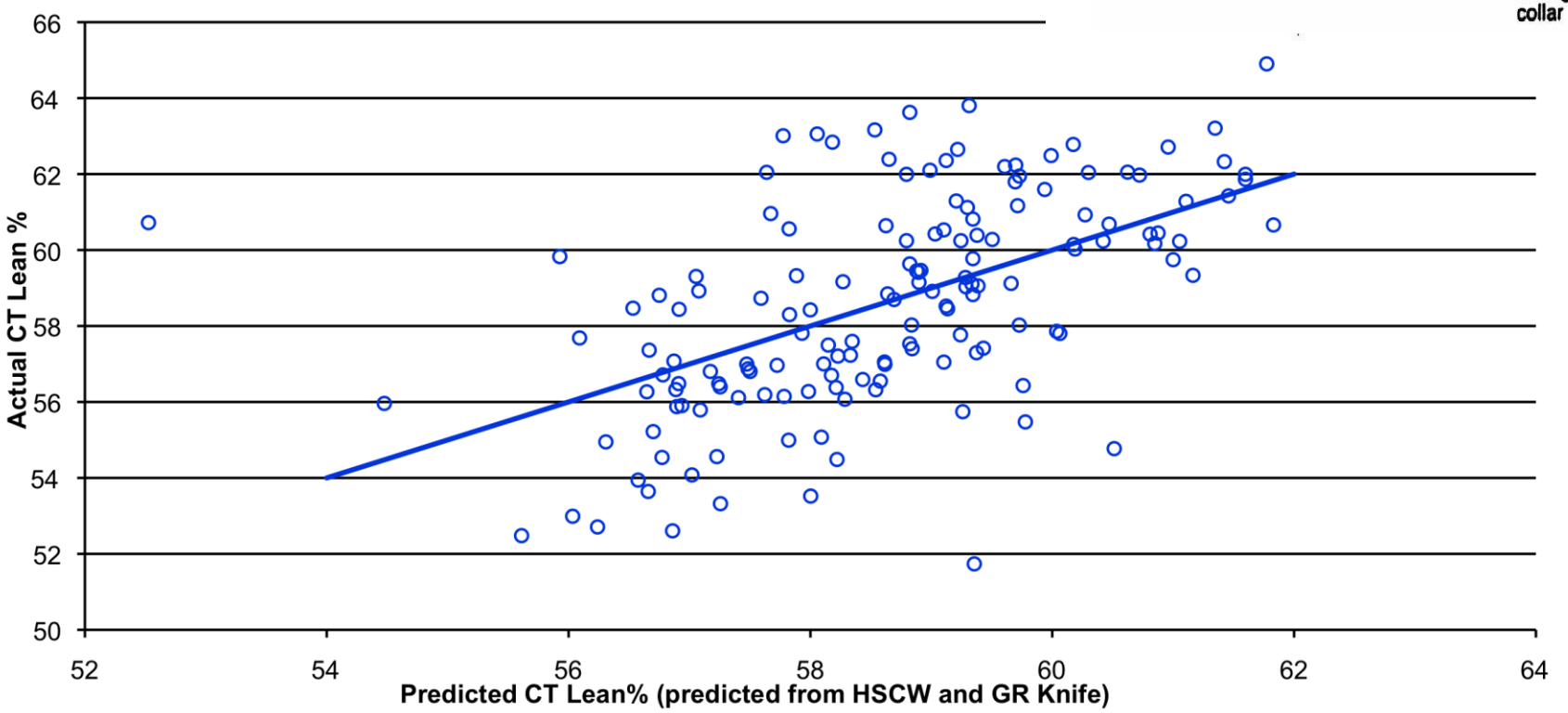
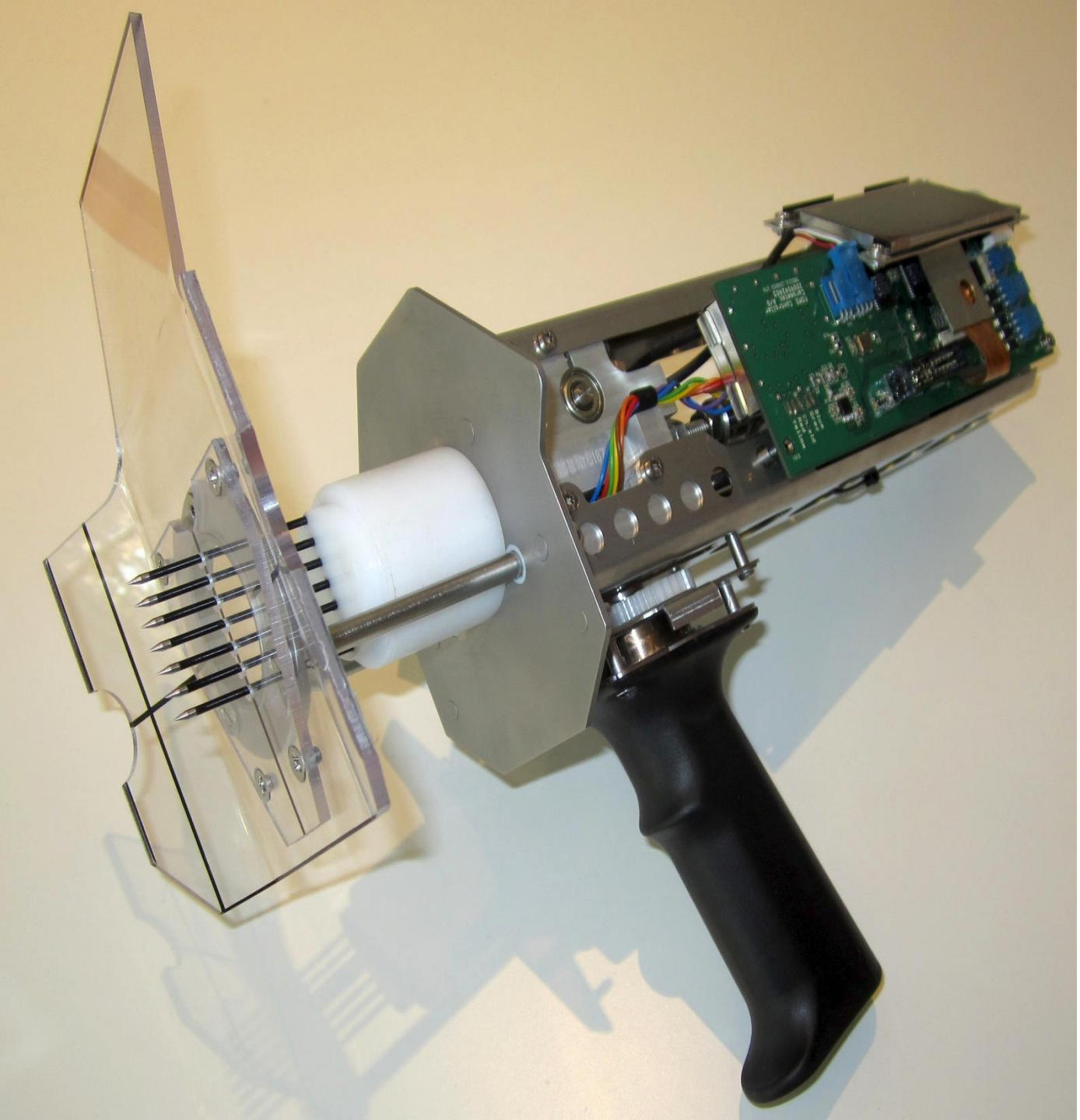
# HCW + GR(mm) to predict LMY




$R^2 = 0.30$

# New Probe
# and
# X-ray technologies



# Carometec probe

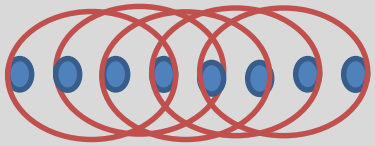
First probe

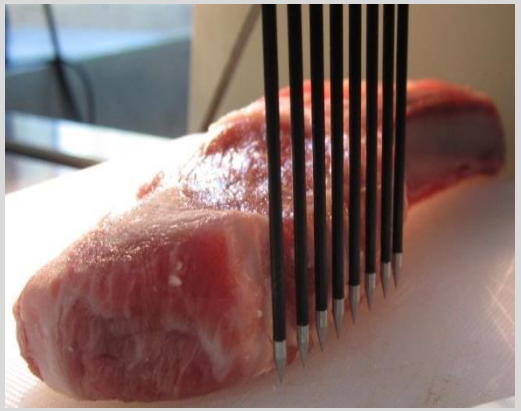
- GR ✓ (cold)

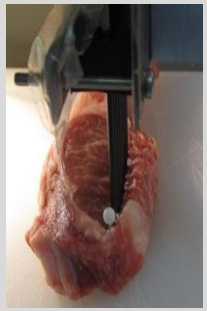
Second probe

- C fat ?
- C muscle ?
- IMF ?

# Carometec impedance probe







# Scotts Technology carcase splitter

- 2D Xrays find the ribs
- Have now modified to create a DEXA
- Prototypes have given excellent LMY measurement in NZ
- Graham's LAMBEX talk

# Hyperspectral imaging

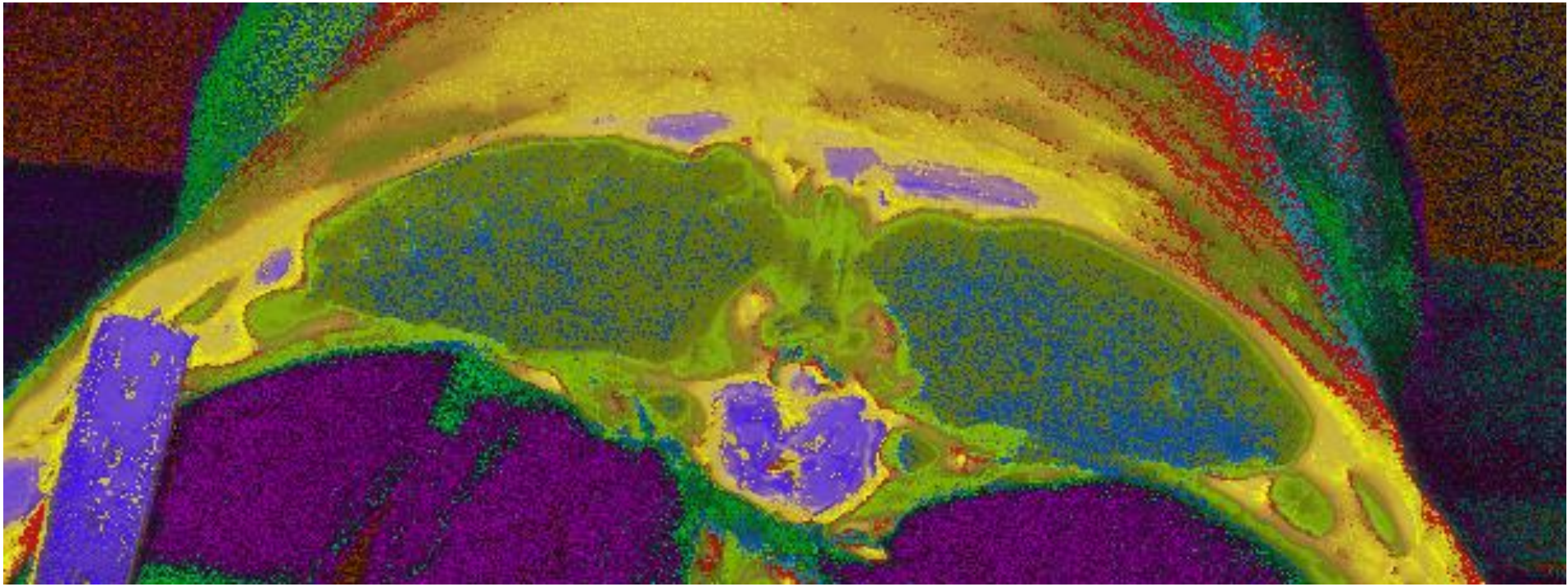
- Takes images at many different wavelengths ‘rapidly’
- Already a high correlation in the literature for ‘benchtop’ IMF in lamb ! (Irish work $r^2$=0.88*)

*Kamruzzaman et al. (2012) Innovative Food Science & Emerging Technologies 16, 218-226

# Hyperspectral imaging (Carometec and NICTA*)

- Imaging cut section of saddle primal
- Eye muscle area and fat area = predictor of yield
- Plus capture IMF and colour ?
- Like the beef VIA chiller assessor unit

*National Information Communications Technology Australia



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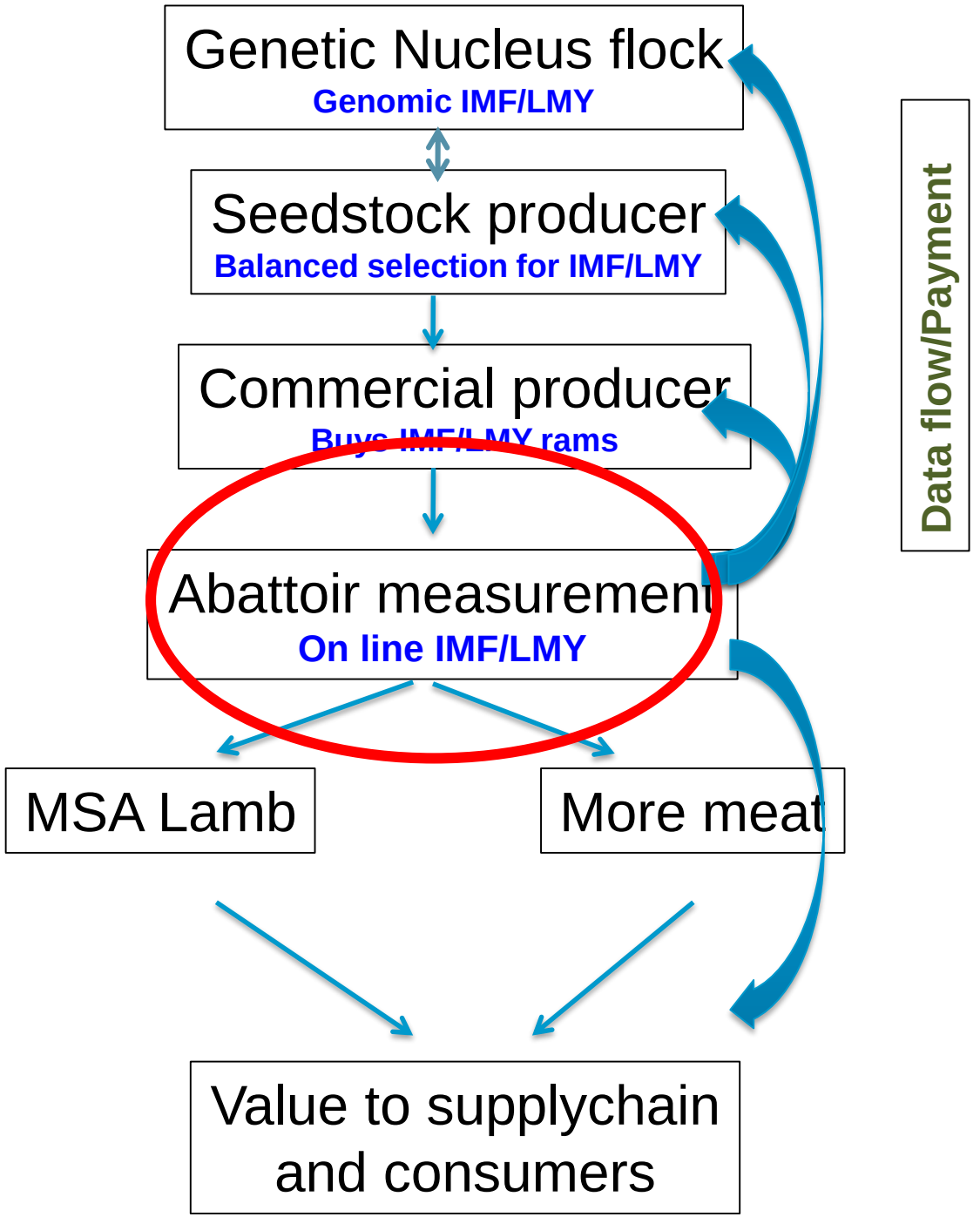
# LMY and eating quality

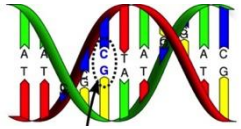
- Carcase grading is a top priority
- New systems within 6 -12 months
- Value comes in sharing data

# The value pipeline for IMF & LMY measurement in prime lamb

- **IMF: intramuscular fat**
- **LMY: Lean meat yield**



# Information Nucleus – innovation platform



DNA

Information Nucleus

**Predictive algorithms**

ASBVs

**Phenotype data**

**Sheep**

**Wool**

**Meat**

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# Data management – challenge & opportunity

- Incredible progress in what we can measure
- Massive increases in amount of data collected
- But . . . .
  - Still analysing data using Excel and .csv files
  - Still keeping data in secure database ‘silos’
  - Still relying on ‘experts’ for data analysis
  - Still not realising the potential value of data integration
- Challenge – to use data more effectively and more easily

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# The water analogy – traditional data collection

# Data flow today

# Drinking from the hydrant is difficult . . . . and you miss a lot

# Even with training – still difficult

# A smarter option . . .

# Data management, processing and delivery



Using data effectively and easily

# The value pipeline for IMF & LMY measurement in prime lamb

- **IMF: intramuscular fat**
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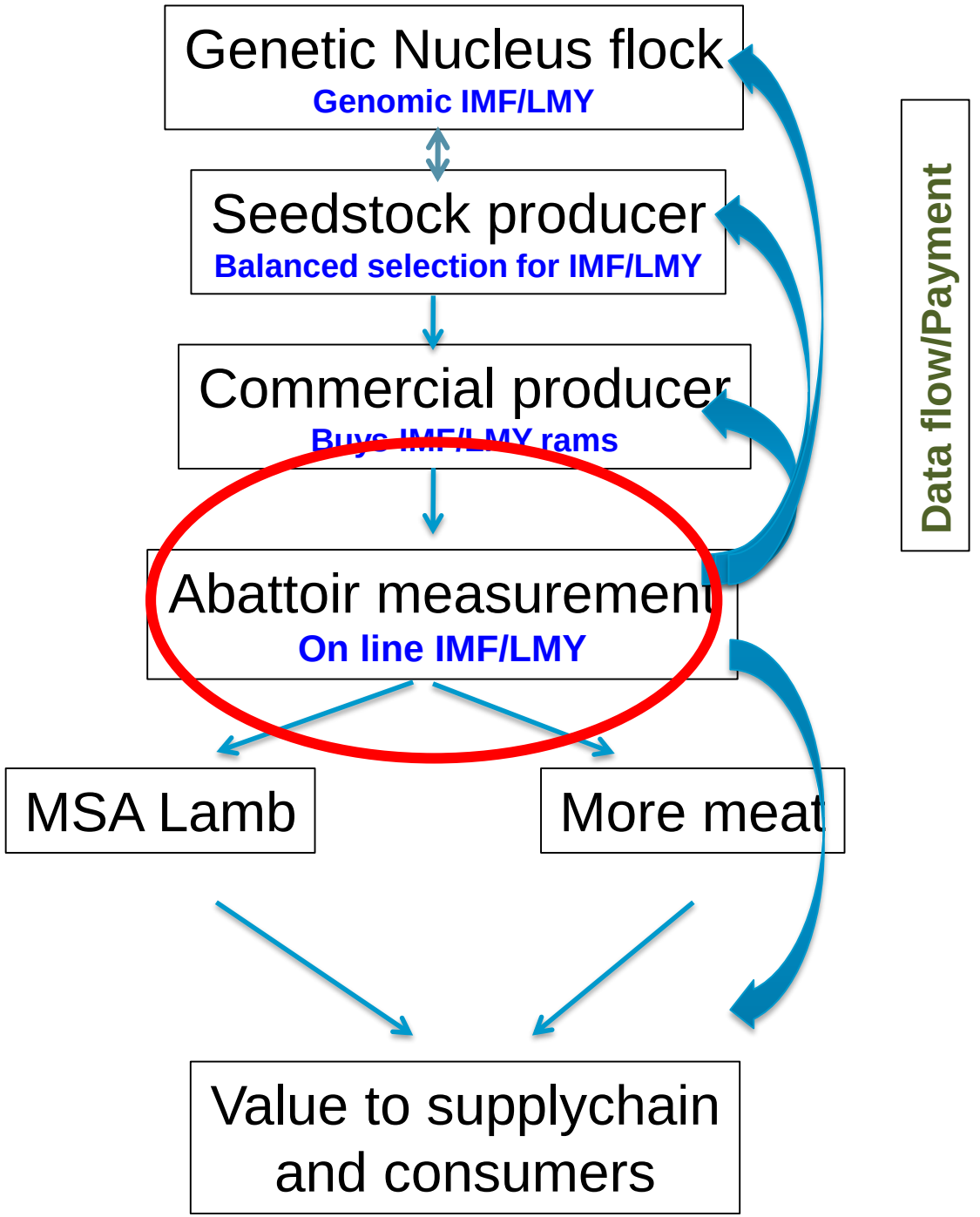

# CRC Postgraduate Scholarships

## Postgraduate Scholarships

### PhD & Masters degree $32 k/yr

CRC FOR SHEEP INDUSTRY INNOVATION

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Are you a highly motivated student interested in researching genomics, meat science, animal wellbeing, or rural extension and training?

The Sheep CRC is offering scholarships to PhD and Masters degree candidates for research projects at a choice of sites across the CRC network.

Flexible opportunities are also available for industry-based professionals seeking postgraduate qualifications.

Preference will be given to students intending to enroll at the CRC partner institutions: The University of New England in Armidale, NSW; Murdoch University, WA; The University of Adelaide; The University of Melbourne; and The University of Tasmania.

Opportunities also exist for projects to collaborate with leading commercial and R&D organisations, including Meat & Livestock Australia and Australian Meat Processor Corporation.

The scholarships will provide a tax-free stipend of $30,000 per annum for two years for Masters or for three years for PhD programs.

The CRC also offers supplementary stipends to students eligible for other government or private agency scholarships, to achieve a stipend total of $30,000.

**The Sheep CRC** is a collaboration between Australia's leading sheep research, education and commercial organisations.

The Sheep CRC portfolio includes three programs:

- enhanced sheep wellbeing and productivity;
- quality-based meat value chain; and
- faster affordable genetic gain.

Research programs link genetic and genomic technologies with sheep production and behaviour, meat science and meat processing.

Postgraduate research projects must be closely aligned with the CRC's Projects and applicants are advised to consult with the Program and Project leaders in developing their applications.

**For further information**
contact Dr Graham Gardner at Murdoch University on
**08 9360 2264** or
**G.Gardner@murdoch.edu.au**

**Go to www.sheepcrc.org.au**
for application forms, terms and conditions, information on research programs and potential projects.

**Applications close 10th April 2015**

RM[illegible]4805

*The CRC for Sheep Industry Innovation is supported under the Australian Government's Cooperative Research Centres Program*

CRC AUSTRALIA

***Social and cultural diversity and commitment to the principles of Equal Employment Opportunity and the provision of a smoke-free environment are policies of the CRC and University of New England.***

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