

Food, Metabolism & Microbiology

Meat Science



We provide the expertise to integrate animal production and processing systems, to ensure that quality meat and meat products are derived from beef, sheep, pigs and deer. A longstanding and hands-on association with the meat industry, combined with a strong fundamental research programme, offers the tools to create effective and novel commercial opportunities for the meat industry.

Expertise

- ▶ Effects of processing technologies on meat characteristics:
 - pre-slaughter handling
 - stunning procedures
 - electrical stimulation
 - chilling procedures
 - hot boning
 - novel processing techniques
 - packaging (MAP, CAP)
 - chilled storage and transport
 - retail display
- ▶ Muscle structure and biochemistry
- ▶ Objective assessment of meat quality attributes:
 - eating quality
 - Colour
 - water binding
 - meat texture

Our research and development work is focused on

- ▶ Rapid, on-line measurement of meat quality attributes
- ▶ Development of novel pre-slaughter stunning technologies
- ▶ Biochemical changes, i.e. pH and colour during conversion of muscle to meat and during storage
- ▶ Development of novel processing technologies, including pre-rigor physical manipulations of muscles
- ▶ Integration of electrical stimulation and chilling regimes to optimise quality attributes
- ▶ Structures in muscle and meat responsible for eating quality, and enzymatic changes responsible for tenderisation
- ▶ Effect of cooking on muscle proteins and resultant contributions to eating quality

Meat Science Capability

We can provide custom solutions for you

- ▶ Optimisation of pre-slaughter stunning procedures for animal welfare and meat quality
- ▶ Integration of processing procedures to optimise meat quality
- ▶ Novel processing options to improve efficiencies and product quality
- ▶ Audits of meat processing specifications and optimisation
- ▶ Product development and/or evaluation
- ▶ Troubleshooting of meat quality problems:
 - tenderness
 - meat colour
 - purge losses

Our specialist equipment and facilities include

- ▶ MIRINZ tenderometer, Texture Analyser
- ▶ Image analysis for muscle fibre type and collagen content
- ▶ Low voltage / high voltage equipment, stun boxes
- ▶ Hunterlab and Minolta colourimeters
- ▶ Food product manufacturing equipment
- ▶ Differential Scanning Calorimeter

Some of our most notable achievements

- ▶ Development of the Accelerated Conditioning and Ageing specification used by the New Zealand lamb export industry
- ▶ Development of the Quality Mark specifications for the domestic beef and lamb market
- ▶ Development of electrical stunning procedures for cattle, including Halal stunning
- ▶ Development of the MIRINZ Tenderometer for objective measurement of meat tenderness
- ▶ Commercial development of value-added meat products
- ▶ Collaboration with processors and supermarkets (local and overseas) for processing systems, auditing/meat quality improvements
- ▶ Development of meat modelling systems