BEEF TECHNOLOGY AND SERVICES
BEST PRACTICE SYSTEMS FROM PADDOCK TO PLATE

Australian producers have a global reputation for consistently delivering high quality, great-tasting beef, backed by world’s best practice systems in traceability and food safety.

INDUSTRY OVERVIEW

Australian farmers are among the world’s most efficient producers of cattle and Australia’s beef sector is one of its most prominent agricultural industries in both domestic and export markets.

Australian beef and live cattle exports make a significant contribution to global red meat supply, and Australia is the world’s second largest exporter of beef by volume. In 2012-13, Australian beef and veal exports were valued at more than A$4.8 billion, with live cattle exports valued at an additional A$589 million. The United States, Japan, South Korea, China, Taiwan, Indonesia and the EU were the main export destinations for beef and veal, with Indonesia, the Middle East, China and Russia the main buyers of breeder and slaughter cattle.¹

KEY CAPABILITIES

The Australian beef industry is extremely diverse, spanning roughly half of Australia’s landmass and comprising more than 40 different cattle breeds.² This diversity means Australia has cattle production expertise across widely varying and often challenging climates and geographies.

Australia’s beef sector exports products for different markets and tastes worldwide, from premium beef varieties and specialty cuts to grassfed, grainfed, organic and halal products, through to bulk supply of hamburger meat.

In addition to highly successful pasture-fed production systems, the Australian beef industry has strong capabilities in the efficient use of grain and conserved fodder in animal nutrition and production. Other strengths include livestock genetic research, breeding development and reproductive technology.

Australia is a leader in best-practice quality control and management at every step of the beef supply chain, including cattle producers, industry bodies, meat processors, consulting companies and research institutions. Innovation and technology are widely used to improve farm operational efficiency, enhance animal health and welfare, and optimise live cattle, meat production and quality.
PASTURE AND GRAZING MANAGEMENT, WATER, WASTE AND SOIL MANAGEMENT AND AGRONOMY SERVICES

The majority of Australian beef production is pasture-based, which demands expertise in managing a broad range of land types for optimal profitability and sustainability of farm enterprises. Applying pasture management systems to native pasture, improved pasture and forage crops promotes pasture persistence and soil health with adequate nutrition for growth. Grazing management helps ensure livestock make the best use of available pasture.

Australian producers and firms can provide pasture and grazing management products and services, including pasture and forage crop seeds, fertilisers, pasture, soil and grazing management advisory services.

Australian beef producers have substantial water and waste management capabilities across extensive and intensive farming enterprises, particularly in biological measures for waste treatment.

FEED, FODDER AND NUTRITION

Australian producers develop and apply nutrition strategies across all production systems to ensure that animals reach their genetic potential and achieve optimal health and productivity. Capabilities include pasture finishing, intensive lot-feeding, supplementary feeding and drought feeding strategies.

The lean, free-range qualities of Australian grass-fed beef are increasingly attractive to health-conscious international consumers. The Cattle Council of Australia's Pasturefed Cattle Assurance System provides a set of standards for certifying pasture-fed or grass-fed beef production methods.3

Australian feedlot enterprises have decades of experience in formulating cattle and feed rations to a range of customer specifications, using high-quality grain inputs such as wheat, barley and sorghum, along with alfalfa and other forage crops, to achieve optimal growth rates and specific characteristics.

Australian research and development (R&D) in cattle nutrition has played a major role in delivering productivity and sustainability improvements. A number of research centres and commercial companies work with cattle producers on strategies and techniques for pasture management, stock feeds and supplementation to enhance productivity and reduce costs. Australian producers and agribusiness firms supply nutritional products and services, cattle feeds, supplements, farm advisory services and animal health and nutrition management advice.

GENETICS, BREEDING AND ASSOCIATED REPRODUCTIVE SERVICES

The Australian beef industry continuously invests in developing new genetic and reproductive knowledge and technologies aimed at improving production, optimising herd quality, performance and health and creating lines of cattle optimally adapted to Australia’s diverse climates and settings.

Specific capabilities include:

• breeding objectives and estimated breeding values, assessment and selection of breeding stock
• semen collection and processing
• artificial insemination
• multiple ovulation embryo transfer
• embryo freezing
• design and management of breeding programmes
• genetic material and equipment supply
• reproductive consulting services and training.
ANIMAL HEALTH, WELFARE AND BIOSECURITY

Animal health, welfare and biosecurity are recognised as vital components of livestock production in Australia.

Australia is free of the major epidemic diseases of cattle, like foot and mouth disease and bovine spongiform encephalopathy, as well as a number of significant agricultural pests. The sector maintains high standards of animal health through partnerships between the livestock industries and all levels of government. The Australian Government also runs a number of monitoring sites throughout the country as part of the National Arbovirus Monitoring Program to monitor presence or potential entry of diseases such as bluetongue, Akabane and bovine ephemeral fever virus.

Each individual beef producer is responsible for developing a biosecurity plan for their own property under the management and supervision of industry and government.

Animal welfare practices are designed to safeguard the health and welfare of cattle from birth to slaughter. A number of industry programmes are in place and the industry continues to invest in animal welfare research to improve livestock wellbeing and ensure community expectations are met.

Australia is a world leader in welfare practices related to livestock exports. A key component of this is the Export Supply Chain Assurance System (ESCAS), which includes requirements for animal welfare, control and traceability through the supply chain, and independent audit.4

CASE STUDY
ART HELPS CATTLE PRODUCERS ACHIEVE NEW SUCCESS

Queensland-based firm Australian Reproductive Technologies (ART) is helping beef producers internationally accelerate the growth and genetic improvement of their herds.

ART has led the way in combining best-practice cattle biotechnology with the latest human IVF techniques, resulting in significant improvements in embryo production and quality. Also, by applying the benefits of nutrition and herd management to the donor and recipient cattle, up to 50 live calves can be produced per donor cow each year.

The process has been successfully used across a range of cattle breeds and ART’s expertise is sought by beef and dairy producers in several countries. In August 2014, ART entered a joint venture with China’s fourth largest dairy group, Shanghai Dairy, to accelerate growth in the dairy milking herd, and discussions are currently underway with beef producers in north-west China. ART has also worked with beef producers in Botswana.

CASE STUDY
BUILDING AUSTRALIAN EXPERTISE INTO EACH STEP OF THE SUPPLY CHAIN

Australian technical support has played a major role in the development of a multi-million dollar agricultural complex in Vietnam, ensuring that it meets high standards of animal welfare and traceability. The Red Star facility, which includes a feedlot, abattoir and about 1500 hectares of surrounding farmland, received its first shipment of about 1700 Australian cattle in July 2014 from Australian livestock export company South East Asian Livestock Services (SEALS).

SEALS has extensive experience in tropical cattle export and operates in markets throughout South-East Asia, including Indonesia, the Philippines, Brunei, Malaysia and Vietnam. Ready-made ramps and discharge pods on each ship make it possible to unload cattle at a wide variety of ports, including the Nha Trang port in Vietnam which serves the new Red Star facility.

Australian involvement in the Red Star project began in 2011, when the site for the complex was first selected. The Australian Government, including the Northern Territory Department of Primary Industry, provided technical support across multiple aspects of the facility, from design and construction through to feed formulation and animal welfare. Australian technical advisers also provided training for Red Star staff on appropriate animal handling. This close collaboration ensured that the facility meets the requirements of the Export Supply Chain Assurance System, which is critical to ensuring supply of Australian cattle.
QUALITY ASSURANCE, SAFETY AND TRACEABILITY SYSTEMS

Australian beef’s global reputation for quality and safety is underpinned by best-practice systems that cover every aspect of the supply chain from paddock to plate, ensuring that consumers consistently receive the best possible products.

The industry body Meat and Livestock Australia (MLA), working with the wider red meat industry, oversees a series of safety programmes that extend through each step of the beef supply chain. These cover every aspect of beef production, from identification of individual animals at birth through to slaughter, to the control of medicines and agricultural chemicals, livestock transport and sales systems, as well as meat quality and safety systems.

EDUCATION, TRAINING, SKILLS AND RESEARCH

Australia delivers education and training across all aspects of the beef industry, ensuring a supply of skilled labour for domestic beef meat and livestock production as well as providing skills and knowledge to international customers.

Australian universities and applied technical colleges offer tertiary and vocational education in animal science, veterinary science technology, meat processing and related areas as well as conducting research into on and off-farm aspects of beef production.

R&D plays a vital role in maintaining the health of Australia’s cattle industry and improving the international competitiveness of Australian beef meat and live cattle exports.

MLA invests in on and off-farm R&D relevant to Australian red meat industries and collaborates with a number of government and industry bodies on research projects.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia’s national science agency, is involved in a wide range of R&D projects with applications to the beef industry and Australian agriculture and food production.

CASE STUDY
ABRI SOFTWARE AROUND THE WORLD

Based at the University of New England (UNE) in Armidale, NSW, the Agricultural Business Research Institute (ABRI) has over 40 years’ experience in providing agribusiness information systems to Australian and international livestock producers.

Set up to commercialise technology developed by the university’s Animal Genetics and Breeding Unit (AGBU), ABRI now supplies software, hardware and systems packages to producers throughout Australia and globally. Its breed registry software is used by over 80 breed societies worldwide, with over 35 million animals registered on ABRI databases.

ABRI’s BREEDPLAN genetic evaluation software allows beef breeders to accelerate herd genetic improvement and provide objective information to buyers by using Best Linear Unbiased Prediction technology to produce Estimated Breeding Values for beef cattle across a range of production traits such as weight, fertility and carcase quality. Other products include on-farm herd recording software, feed formulation software for producers, mills and consumers, breed registry and database software, and genetic extension services to help temperate and tropical beef producers make the best use of genetic technologies.

EQUIPMENT, TECHNOLOGY AND DESIGN

Australian firms design and manufacture a range of devices and equipment used for intensive and extensive cattle production systems, including equipment and systems for cattle handling, feedlots, farm management, veterinary treatment, animal transport and meat processing.

Australia also has substantial experience in designing ESCAS-compliant feedlot and rendering plants.

CONSULTING SERVICES

Australia offers a wide range of consultancy services to domestic and international customers in the beef industry, spanning all aspects of the beef production supply chain.
## Paddock to Plate

<table>
<thead>
<tr>
<th>Supply chain position</th>
<th>Safety programme/initiative</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-farm</td>
<td>Livestock Production Assurance</td>
<td>On-farm food safety certification programme that covers animal treatment, fodder, crop and grain treatment and record keeping as well as other areas.</td>
</tr>
<tr>
<td></td>
<td>Livestock Production Assurance On-farm Quality Assurance</td>
<td>Focuses on quality assurance and incorporates the Cattlecare programme.</td>
</tr>
<tr>
<td>Feedlot</td>
<td>National Feedlot Accreditation Scheme</td>
<td>A quality assurance and audit programme that ensures compliance with animal welfare, environmental, biosecurity, food safety and product-integrity legislation.</td>
</tr>
<tr>
<td>Transportation</td>
<td>TruckCare</td>
<td>A quality assurance programme for road transport of livestock, built around international standards.</td>
</tr>
<tr>
<td>Saleyard</td>
<td>National Saleyard Quality Assurance Program</td>
<td>Ensures saleyards meet and maintain recognised national standards in livestock handling and facilities.</td>
</tr>
<tr>
<td></td>
<td>Australian Quarantine and Inspection Service (AQIS) health certificate</td>
<td>Pre and post-slaughter inspection by AQIS veterinarians and inspectors to verify that meat has been processed hygienically from disease-free animals.</td>
</tr>
<tr>
<td></td>
<td>Australian Government Halal Slaughter Program</td>
<td>Ensures all aspects of halal product preparation, handling, packing and storage are consistent with halal integrity.</td>
</tr>
<tr>
<td></td>
<td>Microbial assessment and monitoring</td>
<td>Monitors carcase surfaces in processing plants for the presence of microorganisms.</td>
</tr>
<tr>
<td></td>
<td>MLA food safety programme</td>
<td>Run by the industry body MLA to help the industry build expertise in relation to red meat food safety issues.</td>
</tr>
<tr>
<td></td>
<td>National Residue Survey</td>
<td>Responsible for testing animal, grain, horticulture and fish products for residues of pesticides and veterinary medicines and other contaminants.</td>
</tr>
<tr>
<td>Export</td>
<td>Department of Agriculture Biosecurity</td>
<td>Responsible for movement of people and goods in and out of Australia and for coordinating response to pest and disease outbreaks.</td>
</tr>
<tr>
<td>Overall supply chain</td>
<td>National Livestock Identification System</td>
<td>Enables animals to be traced from property of birth to slaughter for biosecurity, meat safety, product integrity and market access.</td>
</tr>
<tr>
<td></td>
<td>AUS-MEAT</td>
<td>AUS-MEAT provides objective descriptions of red meat, providing customers an accurate system for buying meat products.</td>
</tr>
</tbody>
</table>
CASE STUDY
MEATENG HELPS PROCESSORS BUILD FOR THE FUTURE

For over 30 years, Meateng Ltd has provided specialist design and project management engineering services to the meat processing sector, delivering projects in Australia, Botswana, Namibia, India, Malaysia and Indonesia. Its work ranges from facility upgrades through to complete designs of new sites, incorporating site selection, planning approvals, process design, building design, refrigeration, services, and site layout. Its work covers all aspects of processing from livestock receivals to finished goods storage and despatch.

Recently, Meateng worked with Bindaree Beef, in northern NSW, in a project to construct a biodigester and rendering plant at its existing abattoir. The project was designed to improve environmental outcomes and significantly reduce plant carbon emissions. The new and highly effective waste treatment system will produce biogas and liquid fertiliser, while a biogas utilisation system will generate power and steam for onsite use.

INDUSTRY AND RESEARCH ORGANISATIONS

The following are some of the organisations involved in the Australian beef industry. Contact your local Austrade representative about connecting and partnering with the Australian beef industry.

**Meat & Livestock Australia Limited (MLA)** is the national industry body responsible for delivering marketing and R&D services for Australia’s cattle, sheep and goat producers.
mla.com.au

**Australian Livestock Export Corporation Ltd (LiveCorp)** is a member associated not-for-profit service provider to Australian livestock export industry.
livecorp.com.au

**Cattle Council of Australia** is the national organisation representing Australia’s beef cattle producers.
cattlecouncil.com.au

**Australian Meat Processor Corporation (AMPC)** is the national industry service body supports the red meat processing sector.
ampc.com.au

**Australian Meat Industry Council (AMIC)** is the peak industry association representing retailers, processors and smallgoods manufacturers in the post-farm-gate Australian meat industry.
amic.org.au

**AUS-MEAT Limited**, incorporating AUS-MEAT Standards and AUS-MEAT Commercial Services, is responsible for establishing and maintaining national industry standards for meat production and processing.
ausmeat.com.au

**CSIRO** is Australia’s national science agency and one of the largest and most diverse research agencies in the world. Its National Research Flags include Agriculture, Biosecurity, Food & Nutrition and Land & Water.
csiro.au

REFERENCES


Cover image courtesy of Cape Grim Beef
Publication date: February 2015
ABOUT AUSTRADE

The Australian Trade Commission – Austrade – contributes to Australia’s economic prosperity by helping Australian businesses, education institutions, tourism, operators, governments and citizens as they:

• develop international markets
• win productive foreign direct investment
• promote international education
• strengthen Australia’s tourism industry
• seek consular and passport services.

Austrade helps companies around the world to identify and take up investment opportunities in Australia as well as to source Australian goods and services.

Our assistance includes:

• providing insight on Australian capabilities
• identifying potential investment projects and strategic alliance partners
• helping you to identify and contact Australian suppliers

info@austrade.gov.au
austrade.gov.au