SUPPLY CHAIN PERSPECTIVE

LIVESTOCK/MEAT

QTLC

QUEENSLAND TRANSPORT AND LOGISTICS COUNCIL

Overview[1234]

Queensland has Australia's largest beef cattle herd and is the nation's largest producer and exporter of beef. Historically, beef comprises approximately 83% of the gross production value of all of Queensland livestock industries, and is the state's largest agricultural industry.

As at June 2012, Queensland held an estimated 12.2 million head of cattle (42% of Australia's herd) and produced 1.1 million tonnes carcass weight (cwt) of beef and veal (50% of Australia's production).

The combined gross value of Queensland's beef cattle production and meat processing sectors was worth approximately $4.5b in 2011/12, of which the gross value of beef cattle production is estimated to be $3.4b.

Beef cattle production occurs across all regions in Queensland. It is particularly highly concentrated in the state's western regions. 70% of cattle produced are pasture fed, with the remaining 30% raised between pasture and feedlot in order to manage cyclical drought conditions.

National processing rates of livestock at abattoirs can reach as high as 170,000 head a week, with Queensland typically processing upwards of 80,000 head a week for both export and domestic consumption.

1 Fast Facts, 2013 Australia's Beef Industry, www.mla.com.au
2 Future Beef 2014, www.futurebeef.com.au
3 Beef Central, www.beefcentral.com.au
4 MLA Market Information Statistical Review July 2012-June 2013

Dimensions[1234]

The livestock and meat supply chain is multi-dimensional, with high nodal and modal activity required to move livestock from the stations through saleyards and feedlots, and ultimately through abattoir nodes to the export and domestic consumption supply chains.

The supply chain is broadly divided into the northern and southern beef regions. The Northern Territory, Queensland and the top end of Western Australia form the northern beef region, the balance being the southern beef region.

Livestock move between these regions for fattening, processing and consumption or export, subject to cattle type and market destination.

Northern Territory cattle can enter the domestic processing market via Queensland. The Northern Territory has the following key dimensioning statistics.

- The state has 620,000 square kilometres under two million head of cattle, on 220 pastoral leases.
- The annual turnoff is approximately 600,000 head, split 50% to live export and 50% to domestic consumption. This ratio may change due to the impacts on the live cattle export trade.
- The state's beef industry generates more than $400m in direct income, employing 1,800 people.

Queensland has the largest beef cattle herd, with the following key dimensioning statistics.

- Beef cattle production occurs across all regions, with 147.9 million hectares under grazing and 16.04 million hectares under sown pastures, making up 95% of Queensland's production area.
- The state has 14,568 beef-cattle properties, 889 grain, sheep and cattle properties, and 538 sheep/beef properties.
- The state's total herd size is 12.2 million head, with around 70% exported.

New South Wales, which can also share livestock movements with Queensland for processing, has an industry profile as follows.

- An estimated 50 million hecatres are under grazing for livestock.
- The state has 5.8 million head of cattle, involving some 14,000 farms and lot feeders.
- The state produces around 22% of all processed meat in Australia.

Saleyards play an important role once cattle are moved from the grazing pastures, from where cattle are sold to:

- feedlots
- abattoirs
- other pastoralists for further grazing.

Queensland has six major saleyards that record sales volumes. The table below shows the numbers of cattle sold through the major saleyards for 2011/12. Other smaller saleyards collectively handle more than 700,000 cattle a year[5].

Table 1: Annual sales by saleyards

Top 6 Saleyards (2011-12)	
Saleyards	Head sold
Roma	312,574
Dalby	214,358
Blackall	43,623
Charters Towers	126,168
Longreach	124,651
Gracemere	114,899
Total	**936,273**

Source: Meat & Livestock Australia Limited (2012), 2011-12 Queensland saleyard survey results

In addition to saleyards, feedlots play a valuable role in improving quality and yield. Australia has 400 feedlots, with 67% (268) located in Queensland[6], with:

- 59% of all intensive livestock activity on the Darling Downs
- 31% in South East Queensland
- 4% in the Wide bay Burnett region
- 2.5% in Central Queensland.

Cattle will typically consume 7 kg of grain-based feed per head per day. This feed is sourced from eastern and southern states. Feedlots in Queensland hold 542,971 head on average for 95 days at a 79% utilisation rate for the feedlot, which means those cattle could consume more than 4.2 million tonnes of feed a year[7]. Feedlot dimensions are shown in the following table.

Table 2: Feedlot information

Feedlots	**Australia**	**QLD**	**NSW**
		67%	14%
Number	400	268	56
Total employees	9,000	6030	1260
Direct employees	2,000	1,340	280
Indirect employees	7,000	4,690	980
Cattle held	810,405	542,971	113,457
Cattle per feedlot	2,026		
Days spent in feedlots	95		

Source: Australian Lot Feeders Association fact sheets

Once cattle are ready for slaughter, they are transported to abattoirs for processing. In Australia, there are 133 AUS-Meat accredited abattoirs, with 29 in Queensland, 38 in New South Wales and two in the Northern Territory[8].

At abattoirs, cattle are slaughtered and processed into either prime cuts for export or further processing, or the bodies are made available for domestic processing by local butcher shops.

Table 3: Slaughter numbers by major processing works in Queensland, 2009 and 2010

Major export and domestic processing works	**2009**	**%**	**2010**	**%**
Northern Queensland works	284,052	8%	293,875	9%
Central Queensland works	664,835	20%	612,434	19%
South East Queensland works	2,410,628	72%	2,392,290	73%
Total	**3,359,515**	**100%**	**3,298,599**	**100%**

Source: Meat and Livestock Australia, National Identification System Database

Export facts for 2012/13 are shown in Table 4.

5 Cattle Transport Study Stage 1, Access Economics 2011
6 Queensland Agricultural Land Audit, Statewide Overview Chapter 3, 2012
7 Feed choices: cattle preference for feedlot or pasture environments. www.mla.com.au
8 AUS-Meat Accreditation Listing, www.ausmeat.com.au/docs/AUS-MEAT%20Accreditation%20Listing.pdf

Table 4: Export ports

Port	Export tonnes	
Meat	**2012/13**	**%**
Brisbane	818,719	75.4%
Townsville	13,014	1.2%
Tallow		
Brisbane	207,029	19.1%
Rockhampton	32,164	3.0%
Mackay	5,003	0.5%
Livestock		
Karumba	8,487	0.8%
Townsville	2,072	0.2%
Total	**1,086,488**	

Source: Trade Statistics for Queensland Ports For the year ending June 30 2013

➲ People working in the Industry

The beef industry employs around 20,000 Queenslanders directly[9], as well as supporting another 8,000 jobs in the meat processing industry[10]. Queensland's meat industry also includes the production and sale of sheep and pig products.

➲ Livestock/meat businesses

Business profiles are [11]:

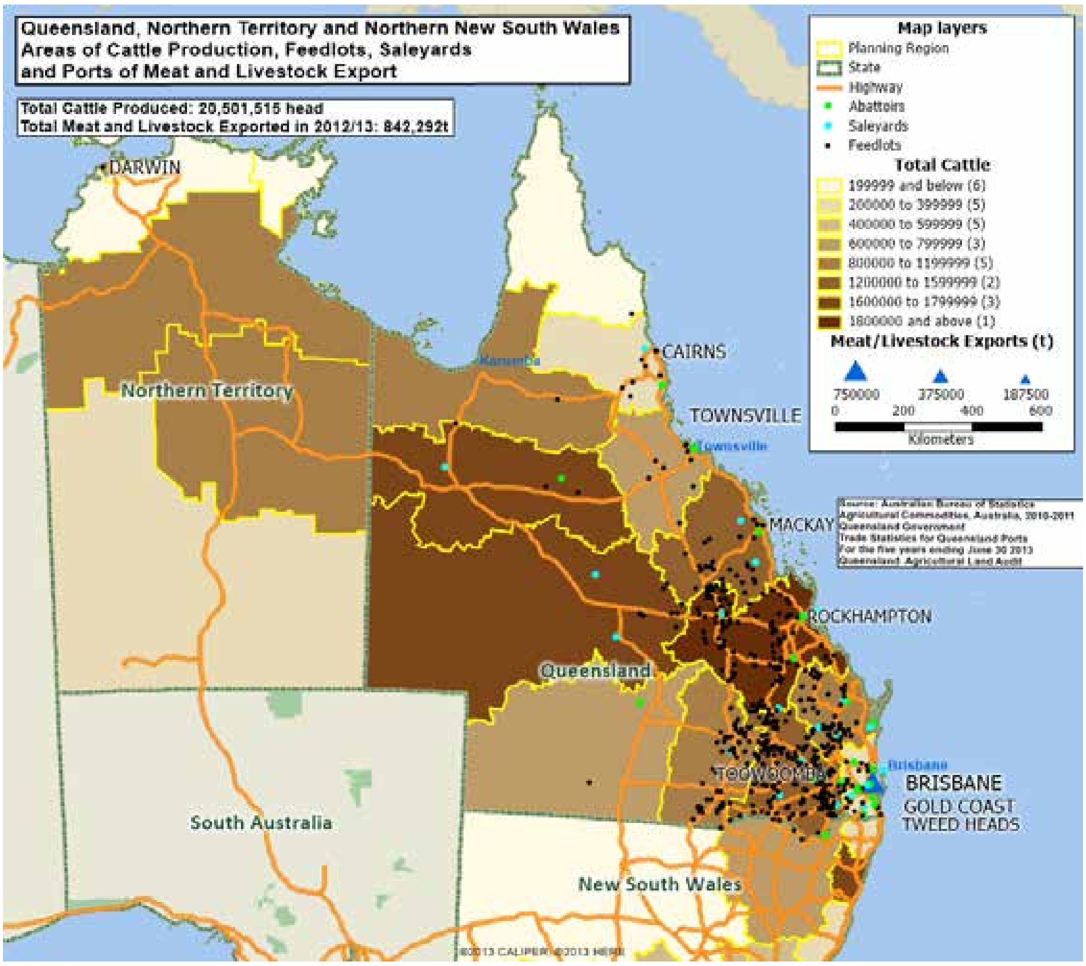
- 3,838 businesses with 1-19 employees
- 146 with 20-199 employees
- 22 with200 or more employees
- 527 businesses earn more than $2m a year.

9 Department of Employment, Economic Development and Innovation. The Queensland Beef Industry: Current Trends and Future Projections', 2010
10 Department of Agriculture, Fisheries and Forestry, 'Queensland's Beef Product', 2013 http://www.daff.qld.gov.au/animal-industries/beef/queensland-product
11 ABS 816501 Number of Australian Businesses 30 June 2012

Points of origin, value add, transformation and consumption

The distribution of Queensland's livestock holding is shown in Figure 1. Also shown is the location of abattoirs, feedlots, meat processors and export ports.

Figure 1: Areas of cattle production, feedlots, saleyards, abattoirs and ports of export



Source: Australian Bureau of Statistics

Agricultural Commodities, Australia, 2010-11, 2011 and Queensland Agricultural Land Audit, Statewide 2012

Once processed via abattoirs, meat products enter either the export supply chain or the various domestic fast-moving consumer goods (FMCG) channels. Figure 2 displays the FMCG distribution centres located in South East Queensland.

Australia-wide, 67% of beef and veal produced is exported to more than 100 countries worldwide. In 2010/11, Queensland exported approximately 620,280 tonnes of beef and veal with a value of approximately $2.84b[12].

12 Future Beef, 'Regions', http://futurebeef.com.au/regions/

Figure 2: FMCG Distribution centre network in South East Queensland

The majority of meat products are exported through the Port of Brisbane, with a small volume exported through Townsville. The Port of Brisbane is the largest export port due to its proximity to 72% of the meat processing capacity in Queensland.

The biggest individual importers of Queensland beef are Japan, the United States and South Korea. Approximately 70% of the beef exported to Japan is from Queensland. The distribution of beef exports from Queensland is shown in Figure 3.

Figure 3: Beef exports

Source: Meat and Livestock Australia.

'Statistical Review, July 2012 - June 2013', 2013

Freight movements

Based on a typical weekly throughput rate of 80,000 head of cattle (transformed into export and domestic cuts), the following single trip movements have been calculated at an indicative level:

- station to station: not calculated, but assumed at 17% of total
- station to saleyard: 39,000 movements
- saleyard to feedlot: 11,600 movements
- grain to feedlot: more than 130,000 movements at 32 tonnes average payload
- station to abattoir: 27,000 movements
- feedlot to abattoir: 15,600 (assume 20 head per deck)
- abattoir to export port: 54,800 TEU
- abattoir to domestic channel: 23,100 movements.

It is assumed that, on the primary livestock movement, cattle typically travel in a four-deck, 27-head average per deck unit of movement[13]. This is the equivalent of a B-Triple or Type 1 road train.

The total head movements a year are 9.57 million, or an average of 2.3 movements per head. Meat will travel primarily by TEU at an average of 14 tonnes per movement or refrigerated van at an average of 20 tonnes per unit[14].

The Department of Transport and Main Roads (TMR) Heavy Vehicle Action Plan[15] estimates a total of 9.6 million annual head movements based on sales, feedlot and slaughter production figures, which includes returns.

➲ Meat on rail

There are dedicated rail services used to move processed meat to markets from abattoirs. These refrigerated meat container trains, known as the Sea-Freighter have the capacity to move more than 20,000 TEU a year from central and northern Queensland meat processors to Brisbane for export[16]. The Sea-Freighter can carry standard 20 foot and 40 foot refrigerated containers.

13 See: www.daff.qld.gov.au/__data/assets/pdf_file/0013/72400/Loading-cattle-transport.PDF Guidelines for Livestock Loading, TMR, August 2009. Cattle transport, Loading strategies for road transport, Department of Employment, Economic Development and Innovation
14 Industry source
15 Heavy Vehicle Action Plan Stage 2, TMR June 2013
16 Industry sources

Livestock on rail

The Livestock Transport Service Contract (LTSC)[17] allows a minimum of 325 cattle train services a year. This LTSC, managed by TMR is positioned to purchase, on behalf of the Queensland Government, rail services from rail operators and rail infrastructure providers in Queensland. The intent is to satisfy government transport policy objectives, specify the services and performance required, and assess if these services are providing value for money.

The LTSC operates from July 2010 to June 2015, and transports cattle from north-west, central-west and south-west regions to processing facilities on the east coast of Queensland. In recent years, it has been widely reported that approximately 200,000 head of cattle have been moving by road. With the ability to access these 325 rail cattle train services, and based upon previous modelling data, this number could increase to between 290,000 and 300,000 head a year[18].

Transport mode

Type 2 road train specified prime movers are the standard for livestock haulage. These prime movers often start their journey in remote and dry conditions, traversing harsh terrain. Drive trains, running gear and suspensions are specified accordingly. The trailing units are colloquially spoken about in deck capacity. A deck, at 12.2 m in length and legal width, is the term used to measure the livestock carrying capacity of a configuration.

Under Australian Standards and guidelines for the welfare of animals, cattle are allowed a set floor area per head per deck. The size of the cattle (mass and horn widths) govern how much area is to be provided. Typically, the number of head per deck can span from 38 down to 18, with a weight span of 250 kg to 650 kg per head[19].

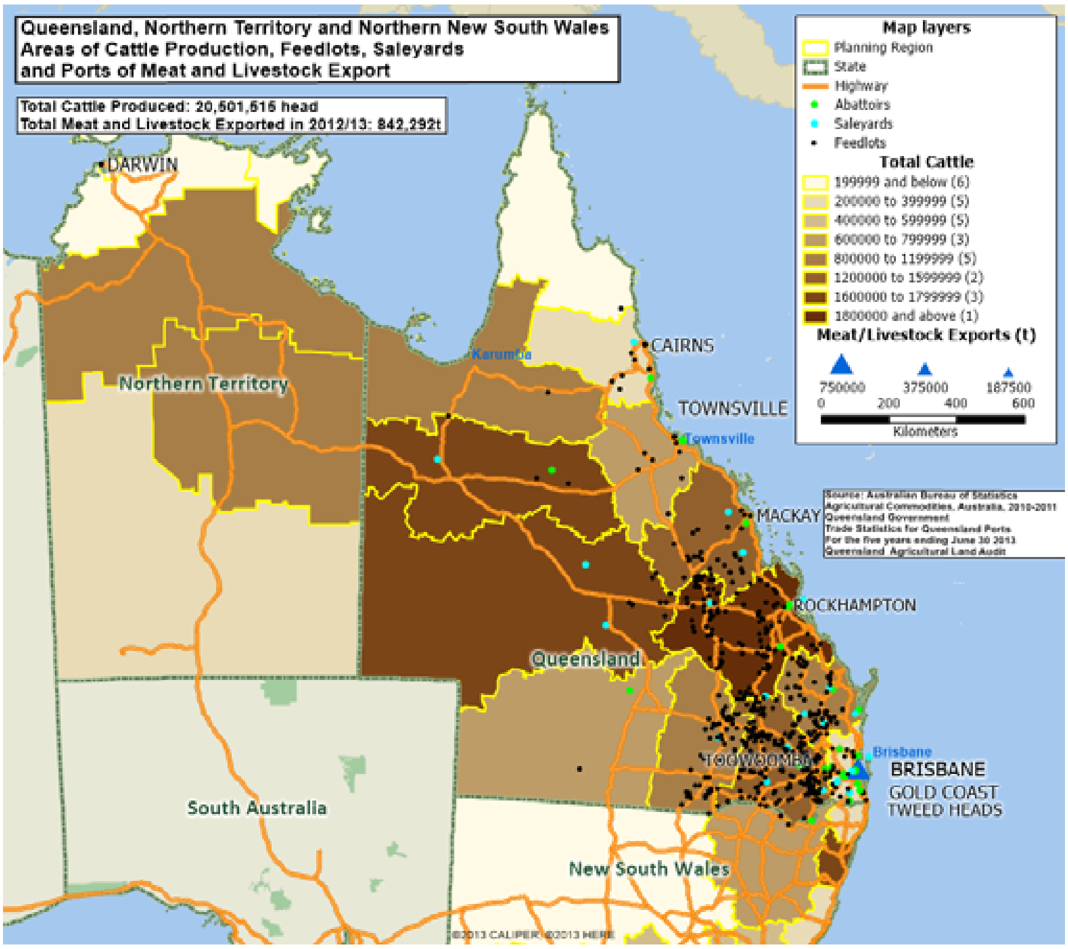
A Type 2 road train is 6 decks, a Type 1 is 4 decks and a standard articulated trailer is 2 decks. Varying decks capacities then exist in the B-Double (3 decks) and B-Triple (4 to 4.5 decks) configurations, subject to trailer lengths.

17 www.tmr.qld.gov.au/business-industry/Transport-sectors/Rail-services-and-infrastructure/Transport-Service-Contracts.aspx
18 Development and assessment of options for the efficient and commercially sustainable transport of cattle in Queensland - Stage 1, August 2011, Economic Associates
19 Biosecurity Queensland, 'Cattle Transport, Loading strategies for road transport'

Main routes

Figure 4 shows the nodal and modal relationship of the livestock supply chain, in particular the relationship between points of production, intermediate value adding and final processing ready for export and domestic distribution.

Figure 4: Nodal and modal activity



Source: Australian Bureau of Statistics 71210DO007_201011 Agricultural Commodities, Australia, 2010-11', 2011 and, Queensland Agricultural Land Audit, Statewide 2012

Key nodal infrastructure

Key nodal infrastructure includes[20]:

- stations and grazing lands
- cattle dip and inspection stations (31 throughout Queensland)
- saleyards
- feedlots
- abattoirs
- meat processors
- FMCG distribution centres
- Butchers and independent retailers.

20 Cattle Tick clearing facilities, http://www.daff.qld.gov.au/animal-industries/animal-health-and-diseases/animal-disease-control/cattle-tick/clearing-facilities