IMPACT REPORT

Project Aviator

April 2017

An impact report on the local cattle and beef supply chain as a result of the Australian Defence Force's proposed land acquisitions of the Shoalwater Bay and Townsville Field training areas.

FTI CONSULTING™
EXPERTS WITH IMPACT

12 April 2017

Mr Charles Burke
Chief Executive Officer
AgForce Queensland
Brisbane QLD 4000

Dear Charles,

RE: Assessing the likely impact of the proposed land acquisitions at Shoalwater Bay and Townsville Field training areas by the Australian Defence Force on the local cattle and beef supply chains (**"the Engagement"**)

I refer to the various meetings and correspondence between FTI Consulting (Australia) Pty Limited (**"FTI Consulting"**) and AgForce Queensland (**"AgForce"**) with regard to the Engagement.

The purpose of this Report is analyse the impact on the capacity of the current and future cattle supply across Queensland as a result of the proposed land acquisition program.

We thank you for your instructions and look forward to discussing this Report and the next steps with you.

Yours faithfully

BEN WATERS

Senior Managing Director, Head of Agribusiness
Corporate Finance & Restructuring

Contents

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Glossary of Terms

ABS	Australian Bureau of Statistics
AE	Adult Equivalent
ADF	Australian Defence Force
AgForce	AgForce Queensland
AUD	Australian Dollar
Bos Indicus	Known as indicine cattle or humped cattle, is a species or subspecies of domestic cattle originating in South Asia
Bos Taurus	Originated in Europe and are all humpless cattle.
BAF	Breeding Age Females
CWE	Carcass Weight Equivalent
DAF	Queensland Government Department of Agriculture and Fisheries
EYCI	Eastern Young Cattle Indicator
Finishing Cattle	Includes steers and heifers
FTI Consulting	FTI Consulting Pty Limited
FY	Financial Year
GDP	Gross Domestic Product
LWT	Liveweight – the weight of a live animal
LTSC	Livestock Transport Services Contract
MLA	Meat and Livestock Australia
NSW	New South Wales
Other Cattle	Includes bulls, calves and weaners
QLD	Queensland
Throughput	Number of animals slaughtered
US	The United States
VIC	Victoria
YOY	Year-on-Year

1.0 Introduction

In late 2016, the ADF announced that it intended to acquire land surrounding the Shoalwater Bay and Townsville Field training areas to expand both military training bases.

The subject land areas being acquired have been classed by the ADF as either "Likely" or "Potential" with the difference being land acquisitions within the "Potential" area less likely to occur.

With the subject land areas predominately used for extensive cattle production, landholders and local communities impacted by the potential land acquisitions have expressed concerns about the impact the acquisitions will have on the local cattle and beef supply chain.

In response, the Queensland Government's Department of Agriculture and Fisheries (**"DAF"**) contracted AgForce as a consultant to provide an impact analysis report (**"the Report"**). Accordingly, AgForce then engaged FTI Consulting to prepare the Report.

The Report will assess the impact on the current and future cattle supply in the local region and how that may then flow onto impact the cattle industry in Queensland. The impact analysis will also consider the following:

- The change in operational capacity with respect to cattle production in the local area, in particular the impact on breeder numbers and the capacity to finish cattle off for market;
- The likely economic impacts on transport and related industries, and impacts on employment in the supply chain, with particular attention to the processing sector; and
- The impact on Queensland's beef production capacity which will be lost permanently as a result of change of land use (both the immediate impact and the potential future impact).

It is important to note that since our Engagement, the Federal Government announced that they will not be pursuing compulsory land acquisitions of the targeted land areas. As a result, this has had a significant impact on our ability to obtain information from the majority of local producers within the affected areas.

Map 1: Shoalwater Bay and Townsville Training Areas

2.0 Executive Summary

Key Findings

The proposal by the ADF to acquire approximately 350,000 hectares of agricultural land in the Burdekin and Fitzroy regions in Queensland will undoubtedly have an impact on the local community and throughout the local beef supply chain. The acquisition will see a significant amount of grazing land that not only supports a large number of cattle, but has the potential to be developed for a higher value end use, lost from the Queensland beef production system. Within these impacted areas there are some 71 individual businesses that support local businesses and local supply chains. They are predominately run by family enterprises who would be required to move on from these properties should the acquisition occur.

In an attempt to quantify what this would mean for the local community and the broader region, we sent out a questionnaire to each enterprise. Of the 71 producers contacted for information, 17 of these responded with varying levels of detailed information. The response to the survey was impacted by the decision that none of these properties would be compulsorily acquired. In addition to this, we were able to obtain data from other sources and, applying industry based assumptions, to assist with our methodology throughout the Report.

Based on our analysis, we estimate the total cattle herd lost in the immediate term located within the three expansion areas, to range between 51,970 and 78,329 head. The estimated sale market value for the cattle herd lost, ranges between $13m and $19m. In addition to the estimated loss of cattle, a total of 355,814 hectares of agricultural land would also be lost should land acquisitions take place within the expansion areas.

Specifically, from the total estimated cattle herd, we calculate that the Burdekin Region may lose between 1.50% and 2.22% of their total cattle herd in the region. Meanwhile, we have calculated that the Fitzroy Region may lose between 1.31% and 1.98% of its total cattle herd should land acquisitions take place. Despite the percentage amounts being relatively minor, we believe the impact from such potential loss will be felt by businesses along the beef supply chain and those that provide goods and services.

Both the Burdekin and Fitzroy Regions operational capacity will be impacted as a result of the land acquisitions. An estimated total ranging between 15,192 and 22,450 head of BAFs and 11,686 and 17,353 head of Weaner cattle may be lost to the QLD beef industry. Furthermore, an estimated range of between 12,511 and 18,043 head of Finishing cattle may also be lost to the QLD beef industry. As a result of this, breeding genetics and specific industry knowledge may be lost from the expansion and other surrounding areas. This will impact the quality of future progeny, the quality of beef produced and the number of cattle available.

Our detailed case study included within the Report provides a clear indication for the potential alternate uses for the existing agricultural land within the expansion areas. Due to areas containing high quality and versatile soils, producers have the opportunity to further develop existing land that would improve their enterprise and benefit the wider community. Such land improvements would improve profitability enabling producers to invest back into their enterprise, whilst also increasing their spending into the wider community and creating employment opportunities. Such opportunity for land development will be lost should land acquisitions take place.

Conclusion

From our analysis, the total estimated cattle herd located within the expansion areas compared with QLD's total herd is minimal, ranging between approximately 0.46% and 0.70%. Despite this, we believe that should there be this amount of cattle lost due to land acquisitions, there would still be a direct economic impact on the businesses and other associated services involved along the beef supply chain. Businesses that provide goods and services to the beef industry may feel the effect of lost customers and decreased sales activity, contributing to increased pressures on operating performances and negatively impacting employment levels.

The estimated loss of breeding cattle throughout both the Burdekin and Fitzroy Regions, will be significant from a beef genetics point of view. Existing and future genetic characteristics will be lost from the QLD cattle industry, whilst there may be a reduction in productivity levels with the removal of superior animals and industry knowledge. Additionally, future genetic research and development throughout QLD's beef industry may also be impacted given a number of beef producers involved with this are located within the Fitzroy Region.

If the acquisitions were to take place in its current form, not only would the current beef production and supply chain be impacted, but the potential for future development also lost. This potential includes development for better carrying capacity as well as conversion to higher value uses such as irrigated cropping, forage production and large scale grain production.

The estimated loss of breeding cattle throughout both the Burdekin and Fitzroy regions, will be significant from a beef genetics point of view.

3.0 Australian Beef Industry

3.1 Overview

The Australian beef industry includes breeding, finishing on grass or grain, as well as exporting live cattle for overseas markets.

The beef cattle industry is Australia's second largest agricultural industry behind crop production, with a gross value of $11.9 billion in 2015-16.

It is an extremely diverse industry, ranging from intensively managed small holdings in the south-east of Australia, where more fertile soils and plentiful supplies of water allow high stocking rates, to extensive large scale cattle stations in QLD and Northern Territory.

The value of the Australian beef and cattle industry in 2015-16 was $14.9 billion in 2015-16 (ABS, MLA estimate).

The 'Industry Value Added', a measure of the industry's contribution to the economy, is forecast to grow at an annualised 2.8% over the ten (10) years to 2021-22. Comparatively, the national GDP is forecast to grow at an annualised 2.5% over the same period.

In recent years, the Australian beef cattle industry has been affected by fluctuating rainfall and volatile operating costs, however despite these challenges, operators have posted strong revenue growth.

The industry's revenue is forecast to grow at an annualised 6.0% over the five (5) years from 2017 to 2022.

A recent report from Colliers International Rural & Agribusiness, indicates that the 2017 outlook for the beef industry will continue to mirror 2016. The combination of low supply numbers, competition between re stockers and meatworks buyers and solid domestic demand for beef is set to remain.

Added factors such as low domestic interest rates, a stable Australian dollar and increased international demand have supported investment in beef cattle properties in the latter part of 2016 (Colliers International).

Increased investment from non-traditional capital sources is expected to increase the amount of capital available for investment into productivity improvements in beef cattle enterprises.

Key Statistics Snapshot – Beef Cattle Farming

2016		
Revenue **$13.4bn**	Businesses* **37,100**	Annual Growth 2012-17 **6.0%**
Profit **$5.1bn**	Exports **$1.5bn**	Annual Growth 2017-22 **3.4%**

*A beef cattle farm is classified as any property producing beef products. This excludes feedlot, mixed livestock and grain farming operations.

Key Statistics Snapshot – Beef Cattle Feedlots

2016		
Revenue **$3.9bn**	Businesses** **309**	Annual Growth 2011-16 **7.6%**
Profit **$542.5m**	Wages **$63.4m**	Annual Growth 2016-21 **1.9%**

**A beef cattle feedlot is a confined yard area with watering and feeding facilities where cattle are completely hand or mechanically fed for the purpose of beef production.

Key Statistics Snapshot – Meat Processing

2016		
Revenue **$14.5bn**	Businesses*** **704**	Annual Growth 2012-17 **8.9%**
Profit **$2.4bn**	Exports **$12.7bn**	Annual Growth 2017-22 **2.0%**

***Industry operators primarily slaughter beef cattle, bone, freeze, preserve and pack meat.

Source: IBIS Industry Reports, MLA

3.1 Overview (cont.)

Australia's Beef Cattle Herd

The ABARES March quarter 2017 outlook indicates that Australia's beef cattle herd in 2015-16 totalled 23.3 million head (a decrease of 5% from 2014-15). Forecasts for 2016-17 period indicate a 3% rise to 24 million head for Australia's beef cattle population.

The majority of Australia's beef cattle are found in QLD, NSW and VIC with approximately 41% of the nation's herd located in QLD alone.

The majority of QLD's beef cattle herd are pasture raised (~70%), whilst the remaining 30% are typically raised on pastures, then moved to feedlots to be finished on grain-based rations.

With consumers becoming more aware of food sources, the demand for clean and safe products is increasing. Demand for organic beef is expected to grow over the next five (5) years. Organic sales currently account for a small percentage of total food sales in Australia, however the segment is expected to grow by 25-30% per annum according to recent reports.

Beef Cattle Prices

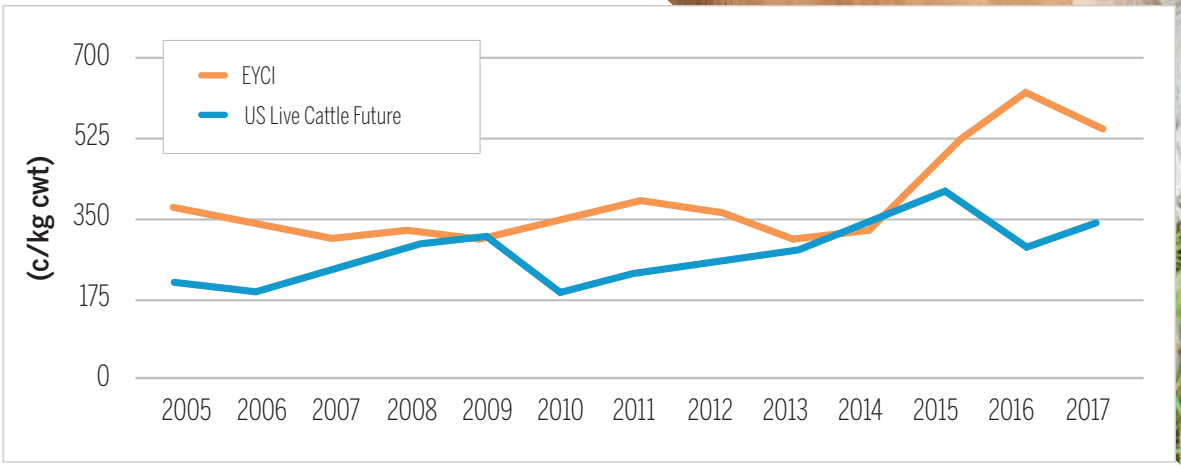
Australian beef cattle prices have been growing at unprecedented rates as the nation's herd numbers sit at its lowest in over 20 years.

Chart 1 provides a snapshot of the EYCI price and the US cattle futures movement over the period 2005 to 2017.

One contributor to the two year rise of the EYCI between 2015 and 2016 was bought on by the US market's demand for imported beef. This was in response to the lowered domestic US supply constraints following high corn prices and drought conditions since 2011.

With the US beef supply returning to stronger levels, demand for Australian beef has decreased. Such factors, coupled with the rebuilding of the Australia herd, are expected to drive the EYCI back to 500 AUc/kg in late 2017.

Chart 1: Eastern Young Cattle Indicator and US Cattle futures – Historic and forecast cattle prices



Source: IBIS Industry Report, MLA

3.1 Overview (cont.)

Beef Processing

In July 2015, the average monthly adult cattle slaughter peaked at an all-time high of 162,829 head, at the same time near record live exports were also being achieved.

18 months later, the number of cattle slaughtered per month in 2017 is expected to fall as low as 120,000 head for the first time since 2006. This is expected to remain throughout 2017 as cattle producers focus on herd rebuilding.

The rebuilding phase is expected to result in more calves in 2017, leading to higher beef production in 2018.

The slow-down of process ready cattle available is expected to keep meat processing extremely competitive in an industry that already operates on small margins.

The annual adult cattle slaughter is expected to decrease further to 6.9 million head in 2017, down 2% from 7.3 million head in 2016 (down 13% year-on-year from 2015).

Recent reports from MLA suggest that the number of cattle slaughtered should continue to gradually increase, before eventually reaching 8 million head again by 2021 (still around 1 million head below the 2014 and 2015 peak).

In July 2015, the average monthly adult cattle slaughter peaked at an all-time high of 162,829 head.

Source: IBIS Industry Report, MLA

Live Cattle Exports

Australia is one of the worlds most efficient producers of cattle and the worlds largest live exporter of beef cattle (excluding buffalo). The demand for live exports, especially throughout South East Asia and the Middle East is increasing.

Indonesia is Australia's largest live export market, accounting for approximately 46.2% of Australia's total cattle exports in 2015-16.

Australia's other main live export markets includes Vietnam (23.5%), China (8.1%), Israel (6.7%) and Russia (3.7%).

Live cattle exports decreased by 21% in 2016 to reach over 1 million head, largely due to increased pricing levels, limited Australian cattle availability and restricted trading with Indonesia for two months of the year due to permit delays.

Live cattle exports in 2017 are expected to remain constrained by limited supply, resulting in a further 24% drop in Australian live cattle exports in 2017.

Shipments are anticipated to decline from an estimated 1.05 million head in 2016 to 850,000 head in 2017.

Feedlots

The Australian cattle feedlot industry has an estimated value of production of $2.5b and employs over 28,500 people (directly and indirectly).

There are approximately 450 feedlots in Australia, with an estimated average carrying capacity of 2,800 head.

Cattle on feed throughout 2016 eased across all eastern states, with NSW and QLD experiencing an 11% YOY decrease to 250,430 head and 20% YOY decrease to 461,839 head respectively.

Cattle numbers on feed across Australia are expected to decrease further during 2017 to below the 800,000 head mark. This follows a period of tighter cattle supply and increased competition for young cattle from the restocking sector.

4.0 Queensland Beef Industry

4.1 Overview

Beef Cattle Herd

QLD has Australia's largest beef cattle herd and is the nation's largest producer and exporter of beef.

As of 2015, QLD held over 41% (11.3 million head) of all cattle in Australia. MLA estimate QLD's cattle herd in 2016 to be 11.18 million head, a slight decrease from 2015.

The GVP of QLD's cattle and calves industry is forecast to be $4.06 billion in 2016/17 (a decrease of 6% from $4.31 billion in 2015-16).

The main cattle producing regions throughout QLD are:

- Fitzroy;
- Darling Downs;
- Northern QLD (includes the Burdekin, Northern Gulf and Cape York regions); and
- Western QLD (includes the Southern Gulf and Mitchell Grass Downs).

Cattle in QLD are predominately fed on natural and improved grazing pastures, as well as feedlot systems. The extensive areas of native pastures are able to satisfy consumer demands for clean, grass-fed beef.

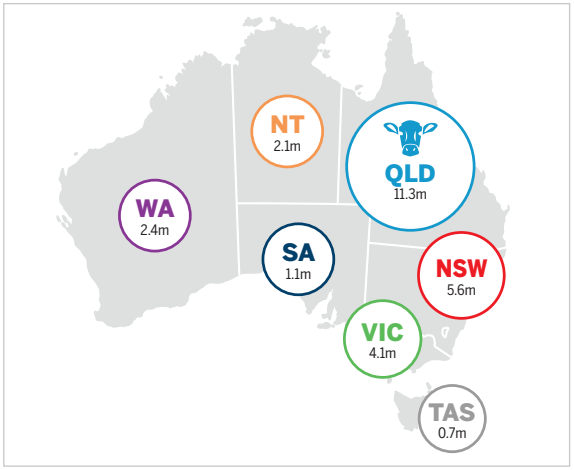
Cattle located in the northern regions are typically grass-fed on large property holdings, whilst cattle located in the southern regions are generally on smaller and more intensive property holdings.

Producers in the northern regions generally target the live export markets, given the geographical location and type of cattle (usually *Bos Indicus*), however they also consider sending cattle south to finish in feedlots prior to being sent for slaughter.

QLD operates under strict industry quality assurance programs across all parts of the supply chain, to build sustainability and confidence within the market place.

Source: www.publications.qld.gov.au, DAF, MLA, Future Beef

Map 2: Cattle Herd Distribution by State – 2015



For the purpose of this Report, we have focused on only the Burdekin and Fitzroy regions which correspond with the potential land acquisitions.

QLD operates under strict industry quality assurance programs across all parts of the supply chain, to build sustainability and confidence within the market place.

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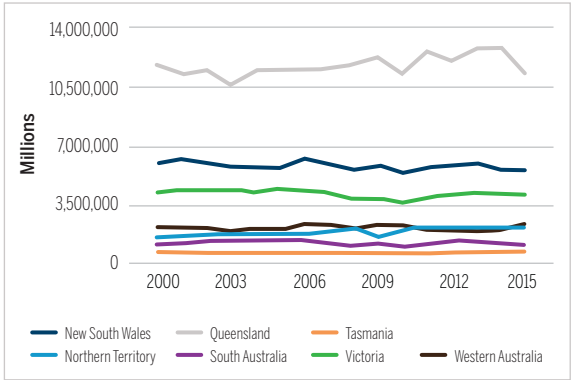
Chart 2: Head of Cattle in Australia per State (2001-2015)



4.2 Breeds of Cattle

Different Type of Breeds

QLD's beef industry is based on a diverse gene pool largely consisting of the *Bos Indicus* (tropical and arid) and *Bos Taurus* (temperate) breeds.

QLD's cattle herd boasts world class genetics through the early introduction of *Bos Indicus* genes, with over 80% of the QLD cattle herd having some *Bos Indicus* characteristics.

The predominate *Bos Indicus* breed in QLD, the Brahman, is suitable to run in tropical and arid regions of the state. The Brahman breed have higher resilience, adapt to poorer environments and have greater parasite resistance. *Bos Indicus* cattle are more suited to the manufacturing beef export market, rather than to the premium domestic and export markets.

The Wagyu breed is unsurpassed for its marbling and ability to improve meat quality in cross breeding programmes.

In the subtropical and temperate regions of QLD, a range of *Bos Taurus* breeds (such as Angus and Hereford) are managed as pure herds or crossed with Brahman genetics.

Bos Indicus × *Bos Taurus* composite breeds, including Santa Gertrudis, Droughtmaster, Braford and Brangus, are also very popular in QLD. Composite breeding is practised to take advantage of favoured qualities and hybrid vigour from two or more breeds.

Further, the introduction of Wagyu genetics in the 1980s has created further changes to QLD's cattle herd. As of 2017, QLD now have the largest fullblood wagyu beef population outside of Japan.

The Wagyu breed is unsurpassed for its marbling and ability to improve meat quality in cross breeding programmes.

While this has been important in improving the capacity of Australia's exports to Japan to 'grade' higher, Australian Wagyu beef is now sold globally with 80 – 90% of production exported. Some 10 – 20% of this is sold domestically, playing a major role in improving the quality of beef for local consumption.

Brahman cattle breed – predominate breed throughout Queensland

Wagyu breed – a Japanese beef cattle breed derived from native Asian cattle

Brangus breed – a composite breed of the Brahman and Angus

Droughtmaster breed

Source: www.daf.qld.gov.au | http://www.fbcattle.com.au | http://www.brangus.com.au | http://www.wagyu.org.au/

4.3 Supply Chain Overview

With approximately 70% of all beef processing occurring in the south-east regions of QLD, and the extensive and dispersed nature of beef cattle production throughout the state, producers and customers are heavily dependent on the beef supply chain.

In particular transport, infrastructure, energy and water sources, and telecommunications are all inputs that are relied upon at different stages of the beef production and processing stages.

Transport is a significant cost for cattle producers, particularly when located in northern Australia where the distance travelled from farm to abattoir is significant.

Transport

The QLD beef industry is heavily reliant on transport infrastructure to transport cattle to/from farms to saleyards, feedlots, abattoirs and ports.

Road Transport

The QLD freight transport industry is made up of a variety of operators, ranging from larger entities with a significant fleet size, down to the smaller family run operators who drive and operate their own vehicle(s).

Transport is a significant cost for cattle producers, particularly when located in northern Australia where the distance travelled from farm to abattoir is significant.

Poor roads can increase costs due to increased travel times, damage to vehicles and road accidents. Roads located in northern Australia are regularly disrupted during the wet season, reducing the capacity of farmers to muster and supply cattle saleyards, live export markets and abattoirs during the summer months.

Road congestion surrounding ports can be significant, contributing to lengthy delays and increased transport costs.

4.3 Supply Chain Overview (cont.)

Rail

QLD is the only state in Australia to use rail to transport cattle. However, in recent years, rail use in QLD has declined due to competition for rail services from the mining sector, increased road transport, and deteriorating rail infrastructure.

The current Livestock Transport Services Contract (**"LTSC"**) is a contract between Aurizon Limited and the QLD Government.

LTSC is a vehicle used by the state to ensure a minimum offering to the cattle industry of 325 rail cattle train services per annum. The term of the LTSC has recently been extended from December 2015 until December 2017.

The rail network also allows cattle to be transported from regional hubs in the north-west, central-west and south-west regions to processing plants throughout the state.

QLD is the only state in Australia to use rail to transport cattle.

Map 3: Aurizon's Livestock Rail Services

Source: ABS, ALFA, Aurizon, DTMA

4.3 Supply Chain Overview (cont.)

Infrastructure

Processing Facilities

QLD accounts for over 50% of Australia's total beef production. Accordingly, the beef processing industry requires large processing facilities to accommodate the number of cattle. Chart 3 illustrates the potential capacity of the major beef abattoirs in QLD.

The larger processing facilities throughout QLD are highly integrated with ownership of numerous feedlots which supply their processing facilities. This creates a competitive advantage over other players in the industry given the limited sources of cattle available in the current market.

With approximately 70% of beef in QLD processed in south east of the state, the majority of beef is processed by one of the three major processors namely JBS Australia, Teys Australia ad NH Foods Australia.

High costs for water and energy supply will continue to be significant within the industry, as will the need to meet strict food safety requirements.

Ports

The Port of Brisbane, located 20km east of Brisbane, is QLD's largest multi cargo port and Australia's third largest container port.

Road congestion travelling to ports is a concern due to the number of users. A recent report conducted by the Victoria University in 2013, states that the road network connecting the Port of Brisbane to importer and exporter locations is 'approaching high levels of congestion'.

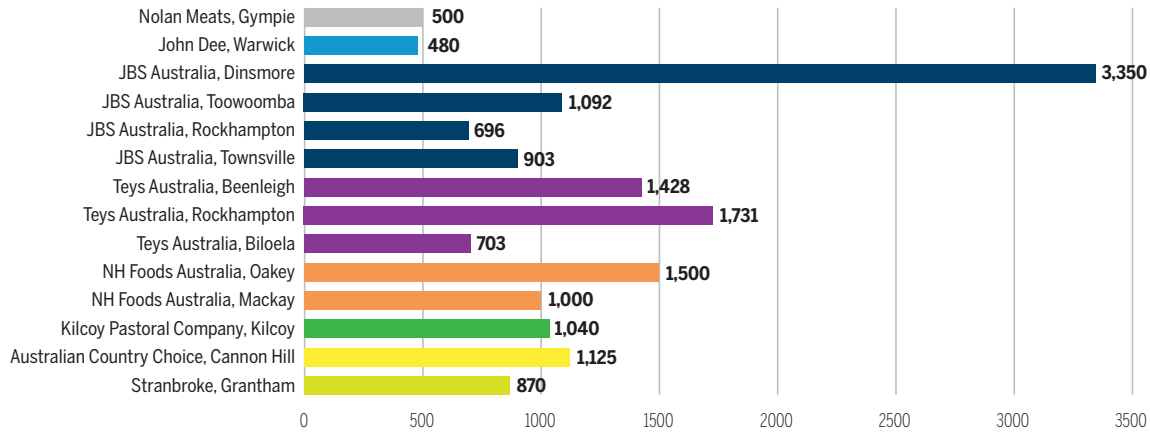
Telecommunications

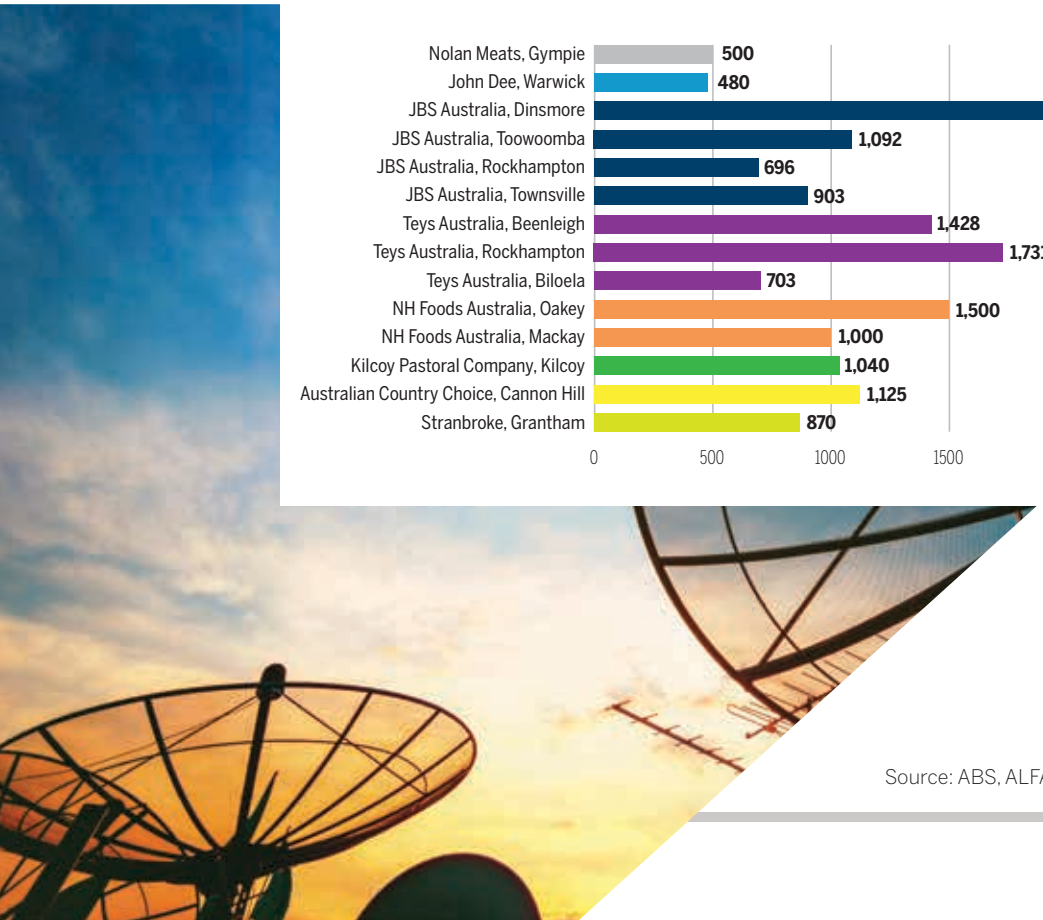
Telecommunications, such as telephones (land line and mobile) and the internet, are widely used throughout the beef supply chain.

Given the geographical dispersed coverage of QLD's cattle herd, the quality of telecommunications is an issue for beef producers rather than processors and exporters (located near to towns and cities).

Reports suggest that mobile coverage within remote areas throughout QLD remain poor, whilst many dial-up internet systems remain unreliable.

Chart 3: Capacity of QLD's Major Beef Abattoirs (Head a Day)





Source: ABS, ALFA, Aurizon, DTMA, ABARES

4.4 Beef Processing

Saleyards

Saleyards are strategically located to facilitate the sale and distribution of all cattle types. Access to feedlots and abattoirs is also considered important.

According to the Australian Livestock Markets Association, there are 128 saleyard sites across Australia, with QLD accounting for the third largest at 17% (21 sites) of the overall total. NSW and VIC a have the higher amount of sites with 64 and 28 sites respectively.

It is important to note that despite saleyards being the preferred method of sale throughout QLD, 'over-the-hook' and paddock sales account for 36% and 19% respectively.

There are 128 saleyard sites across Australia, with QLD accounting for the third largest at 17% (21 sites) of the overall total.

Chart 4 below shows that the Roma saleyards (located in the Maranoa Region) accounted for the most cattle sold from QLD saleyards, whilst CQLX Gracemere (within the Fitzroy Region) and Charters Towers (within the Burdekin Region) account for 12% and 3% respectively.

This demonstrates that a larger amount of cattle are sold via saleyards in the southern regions of QLD.

Beef Feedlots

There are around 320 feedlots throughout Australia, with 60% of the total feedlots located in QLD.

Feedlots are primarily located within close proximity to the major grain producing regions in south-east QLD.

Table 1 below illustrates that QLD had the highest amount of cattle turn off in Australia in 2016, accounting for 55% of Australia's total (2.8 million head).

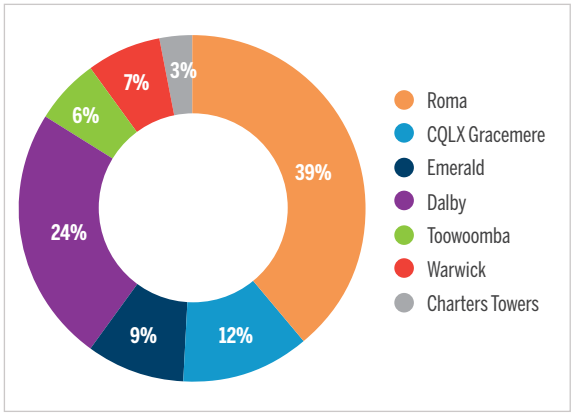
The increasing demand for grain-fed beef from Asia has been a contributing factor in the growth of investment that has gone into towards increasing feedlot capacity. Growth within the feedlot sector has allowed the beef industry to access lucrative markets in Japan, Korean and Taiwan.

Approximately 30-40% of all QLD cattle spend time in a feedlot prior to slaughter.

Table 1: Feedlot Turn-off

	FY2007	FY2015	FY2016
QLD	**1,448,374**	**1,583,644**	**1,571,212**
NSW	746,350	832,500	860,094
VIC	223,617	200,157	215,902
SA	83,903	98,605	78,106
WA	166,566	81,084	103,564
Australia	**2,668,810**	**2,795,990**	**2,828,878**

Chart 4: Proportion of cattle sold per QLD Saleyards (2015)



4.4 Beef Processing (cont.)

Beef Processing

The beef processing sector is QLD 's largest manufacturing industry, employing an estimated 18,000 workers.

Beef is the state's largest agricultural export commodity (in value) with processors exporting meat valued at $12.7 billion in 2015/16.

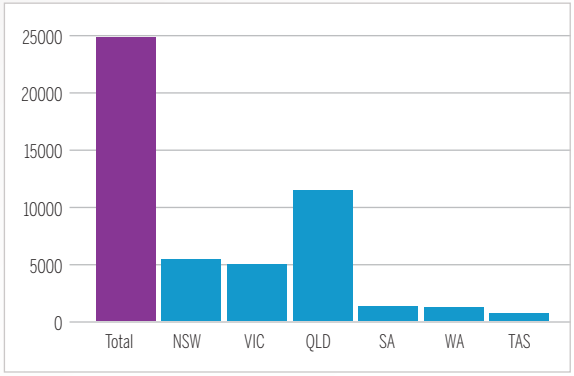
In 2014-15 alone, QLD slaughtered 4.39m head of cattle, representing 43% of the nation's total slaughter. Chart 5 illustrates the number of cattle slaughtered over the two year period (2014-16).

QLD accounts for approximately 50% of Australia's total beef production. Processing costs, including energy and water costs, are some of the highest in the world, to the extent that it costs up to twice as much to process cattle in Australia compared to Brazil and the United States.

QLD accounts for approximately 50% of Australia's total beef production.

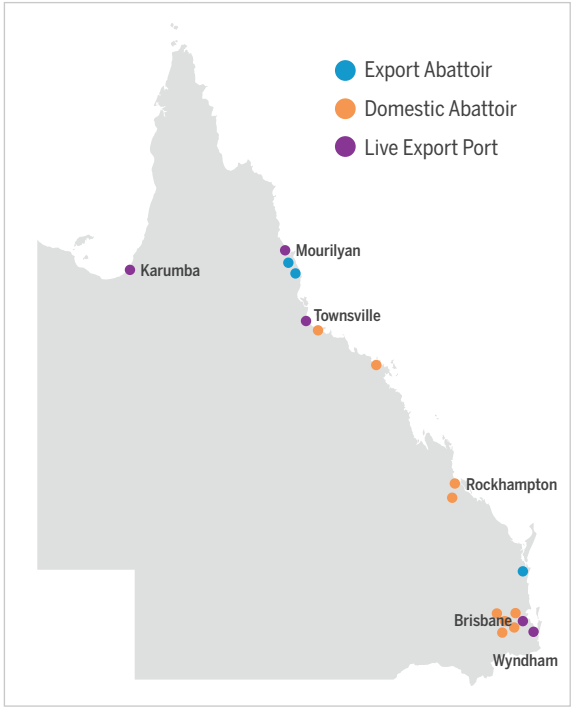
Global meat processor, JBS Australia, operates 10 processing plants and five feedlots across QLD, NSW, VIC and Tasmania. One of JBS's processing plants, located in Dinmore QLD, is Australia largest with a throughput of 3,350 cattle per day (JBS Australia 2014).

Chart 5: Total Number of Cattle Slaughtered (2014-16)

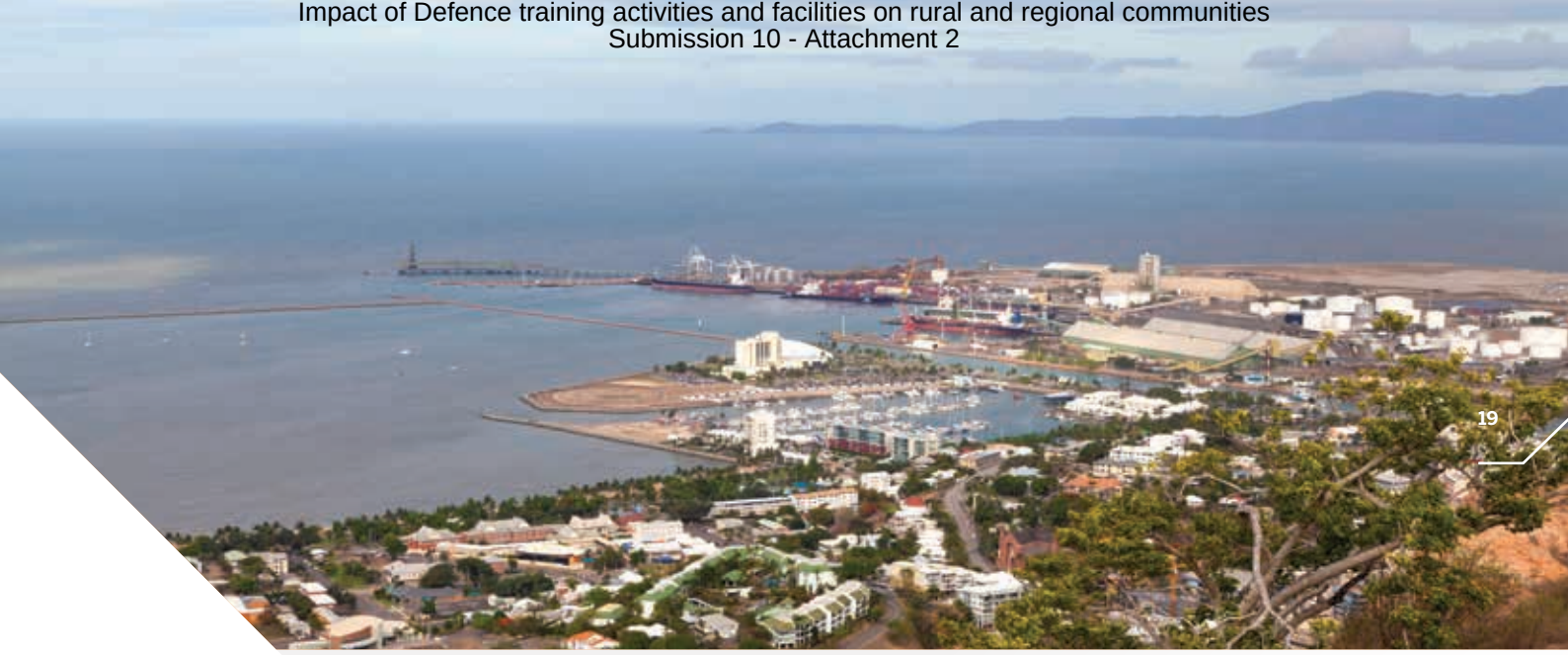


*Note: ACT and NT have been excluded as no cattle were slaughtered in these states between 2014 and 2016

Map 4: Abattoirs in Queensland



Source: DAF, MLA, FutureBeef, ABARES



4.5 Live Export

Live Export Ports

Australia has 12 live export ports, with four of those located in QLD (highlighted below):

Adelaide – SA	Brisbane – QLD
Broome – WA	Darwin – NT
Fremantle – WA	Geelong – VIC
Geraldton – WA	Karumba – QLD
Mourilyan – QLD	Portland – VIC
Townsville – QLD	Wyndham – WA

In 2015-16, Australia exported 1.2 million head of live cattle at an estimated value of $1.5 billion (an increase of 22% on 2014-2015).

In 2015, QLD was the second largest exporter of live cattle behind the Northern Territory. Townsville ports exports the highest number of live cattle in QLD (refer to Chart 6 opposite).

The Townsville port exported approximately 215,000 head of cattle in 2016, which was again the leading QLD port for live exports. Recent MLA market reports indicate that live exports from Townsville in January 2017 reached 32,000 head, an increase from 21,000 head in 2016.

The Port of Brisbane is primarily used to export chilled and boxed beef.

As Chart 7 illustrates, Australia's live cattle exports are primarily destined to markets located in south-east Asia such as Indonesia (46%), Vietnam (24%) and China (8%).

Approximately 77% of QLD 's beef exports are destined for five (5) countries, namely:

- United States (32%);
- Japan (25%);
- South Korea (13%);
- China (6.3%); and
- Taiwan (2.8%).

Chart 6: Largest Live Cattle Export Ports (2015)

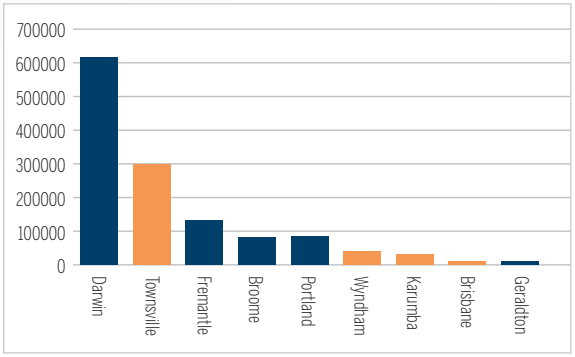
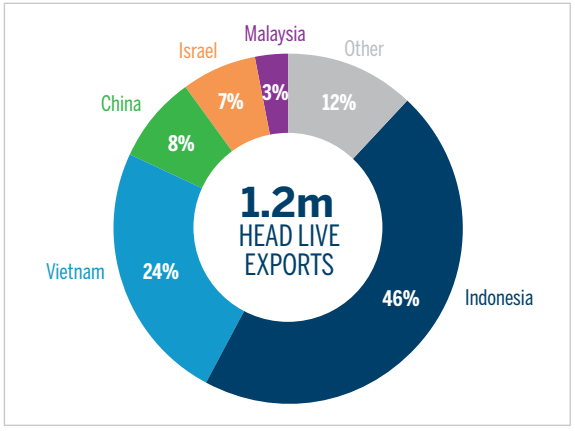


Chart 7: Australia Live Cattle Export Markets (2016)

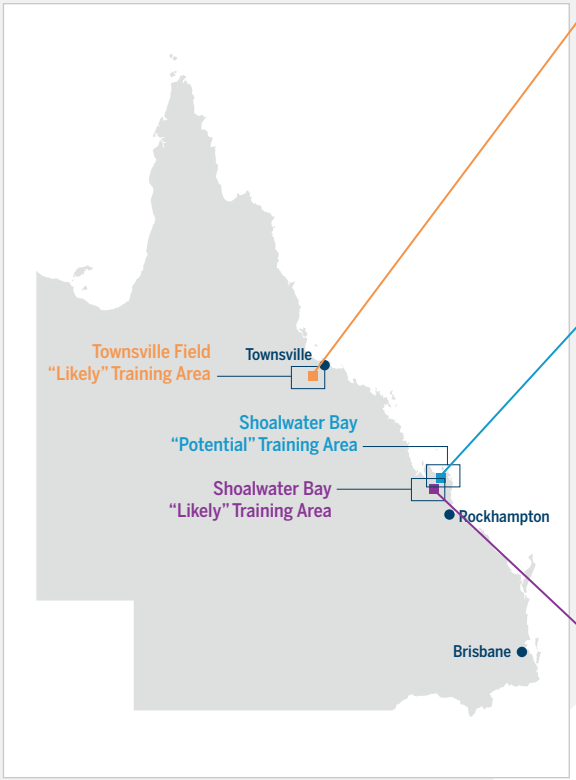


Source: ABS, DTMA

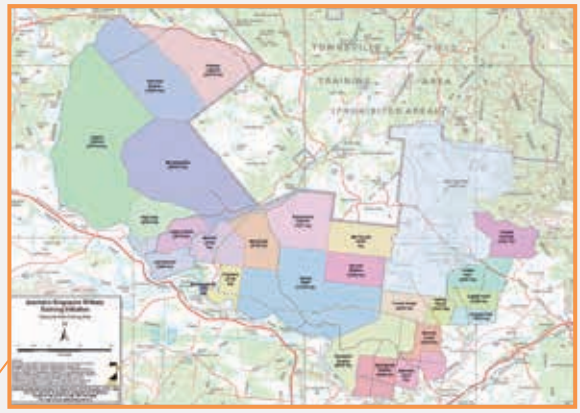
5.0 Overview of Targeted Land Acquisition Areas

5.1 Location

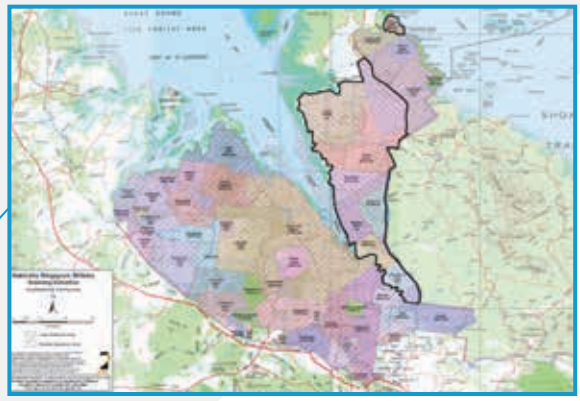
Illustrated below are the areas likely to be affected by the potential land acquisitions that are located within the Burdekin and Fitzroy Regions. As mentioned previously in the Report, the "Potential" affected area is classified as land area in which acquisition is less likely to occur.



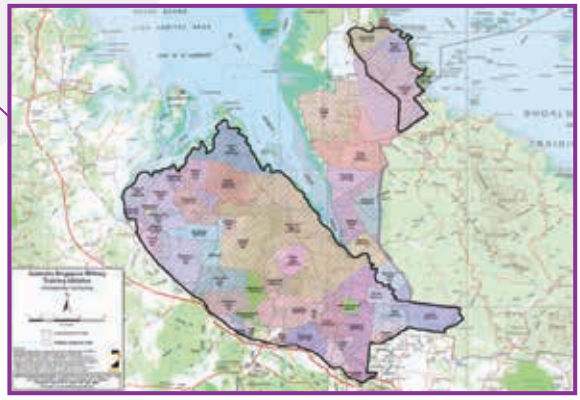
Map 5: Townsville Field Training "Likely" Expansion Area



Map 6: Shoalwater Bay "Potential" Expansion Areas



Map 7: Shoalwater Bay "Likely" Expansion Areas



Source: ADF

5.2 Information Gathering – Methodology

Information Received

Immediately following our Engagement, FTI Consulting issued a questionnaire to all beef producing enterprises located within the potential expansion areas of the Townsville Field and Shoalwater Bay training areas.

The questionnaire provided to the producers included a number of questions with respect to the existing operations performed on their land area. An example of a questionnaire is provided in 11.0 Appendix.

This information has been collated and used within this Report.

Estimated Cattle Herd

Given the limited amount of information publicly available on the number of cattle located in the affected areas, we have applied two different methods to calculate an estimated range for the total cattle herd in all three affected areas. As such we have completed our analysis using the two methodologies to give an estimated range.

The two methods that have been applied are described further below.

Methodology 1

The method applied to this calculation is based on the information obtained by DAF. DAF supplied data that was based on items such as land types and herd numbers whilst also providing the average carrying capacity for the three affected areas. This estimated carrying capacity has been applied to each of the three affected areas, allowing us to reach an estimated total cattle herd.

Methodology 2

The method applied to this calculation of the estimated cattle herd total has been extrapolated by using the information sourced (both land area and head of cattle) from the producers who completed the questionnaire. We have applied these carrying capacities against the total land area and estimated cattle herd in the three affected areas.

Improved Productivity

We have estimated the increased productivity in the cattle herds in the three affected areas to 1.5% per annum. We have used data from ABARES which estimates the increase in productivity for the beef industry in the northern regions to average 1.5% per annum.

We have also assumed a relatively constant weather pattern for the affected regions. We have not allowed for very dry or very wet influences on the results of each affected area.

Given the limited amount of information publicly available on the number of cattle located in the affected areas, we have applied two different methods to calculate an estimated range for the total cattle herd in all three affected areas.

5.2 Information Gathering – Methodology (cont.)

Chart 8: Total Properties Within Affected Areas

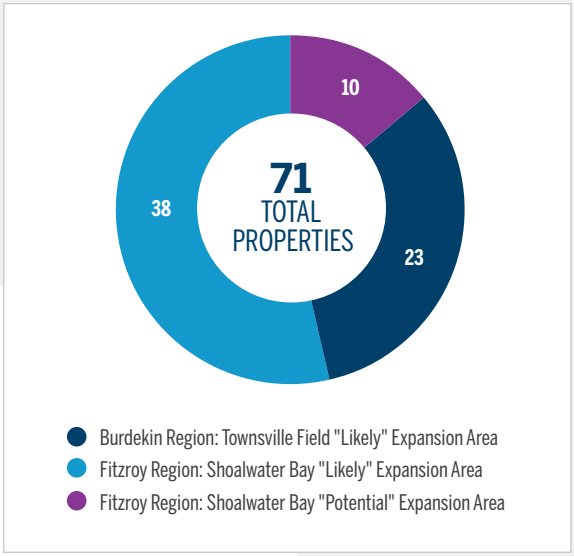


Chart 9: Questionnaire Response

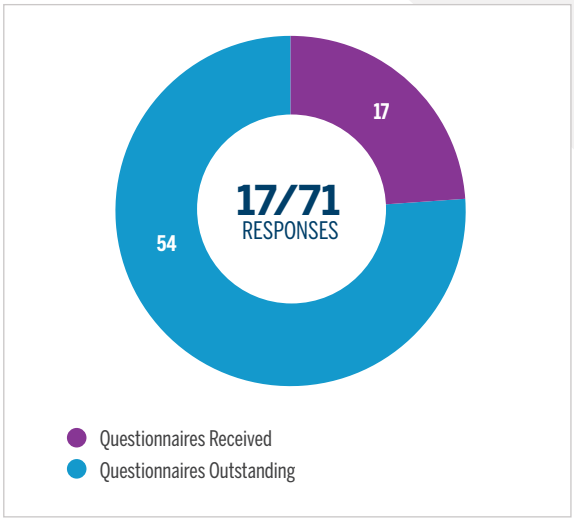


Chart 10: Amount of Cattle

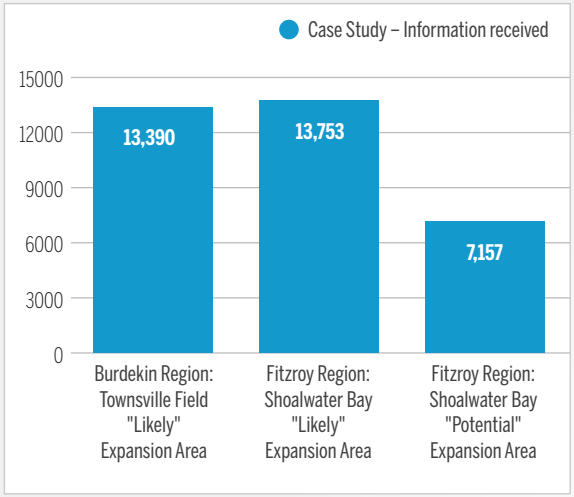
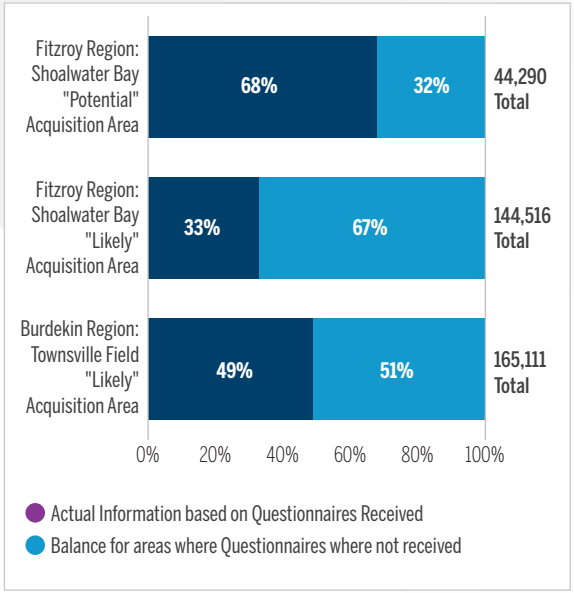


Chart 11: Total Agricultural Land Areas



Source: Questionnaires

6.0 Burdekin Region

6.1 Overview

Summary of Region

The Burdekin Region includes the Shire of Burdekin, the Charters Towers region and the City of Townsville. The Region has a total land area of 10.7m hectares, spreading from the south of Home Hill, to the north of Ingham and west to Greenvale, Pentland and Lake Buchanan. The Region covers approximately 8% of the state of QLD.

The Region is well known for its agricultural production of commodities such as sugar, beef and horticulture.

The Region covers approximately 8% of the state of QLD.

Despite the Region's strong agricultural production of various commodities, Townsville, the largest city within the Region, has the second highest unemployment rate in QLD. Recent reports from the ABS Labour Force Survey indicate that the unemployment rate for Townsville as at January 2017 was at 11.4%.

Cattle production is predominantly extensive grazing on inland pastures, producing store cattle for feedlots and finishing.

There are several areas towards the coastline that are more suitable for finishing operations. Most of the production is centered around breeding and selling weaner, store and finishing cattle.

The closest saleyards are located at Charters Towers, with the major abattoir situated in nearby Townsville. Live cattle such as feeder steers are predominately exported from the Port of Townsville.

A QLD Agricultural Land Audit conducted in 2009, noted beef cattle productivity in the Burdekin Region can be improved through good pasture management, using appropriate stocking rates, introducing perennial legumes into existing pastures, and enhanced herd and business management.

This opportunity applies statewide, but particularly in this Region, as land conditions declined rapidly throughout the 1980s as a result of high stock numbers and prolonged drought, leading to pasture degradation, soil erosion and loss of productivity.

Widespread soil erosion resulted in leeching of soil nutrients into catchments and the Great Barrier Reef lagoon.

Map 8: The Burdekin Region

Source: QALA, ABS

6.1 Overview (cont.)

Land Area

QLD has a total land area mass of over 135.9m hectares, with approximately 90% of this total used for agricultural production (refer to Table 2 below).

The Burdekin Region covers over 10.7m hectares, equating to 8% of QLD's total land area.

Over 10m hectares or 94% of the Burdekin Region is used for agricultural production.

Chart 13 shows that 97% of the Burdekin region's agricultural area is classified as grazing area.

The Burdekin Region grazing area is further sub-categorised between Improved Pasture (13%) and grazing on Other Land (84%).

Table 2: Total Land Areas

	Queensland		Burdekin	
	Total Ha	**% of Total Area**	**Total Ha**	**% of Total Area**
Total Land Area	**135,917,925**	**100**	**10,686,656**	**100**
Total Agricultural Area	122,136,717	90	10,066,212	94
Total Grazing Area Used	118,716,693		9,767,738	
a) Improved Pastures	16,286,578		1,306,821	
b) Other Grazing	102,430,115		8,460,917	
Other Land	3,420,024		298,473	
Non Agricultural Land	13,781,208	10	620,444	6

Source: ABARES

Cattle Herd

In 2016, ABARES estimated there to be 11.18m head of cattle throughout QLD. The Burdekin Region represented approximately 9% (1.01m) of the total cattle herd in QLD (refer to Chart 13).

The *Bos Indicus* breed of cattle are dominant within the region due to its hotter climate and access to markets for these types of cattle.

Chart 12: The Burdekin Region Total Agricultural Land Area Source: ABS

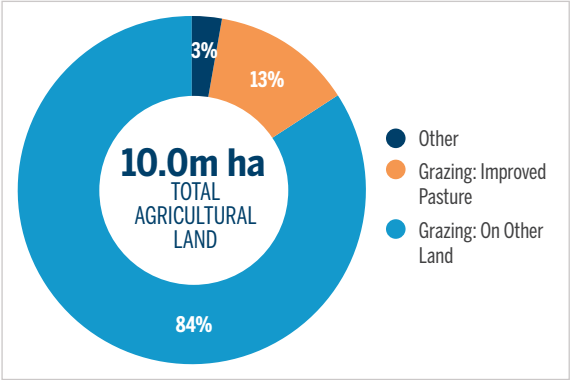
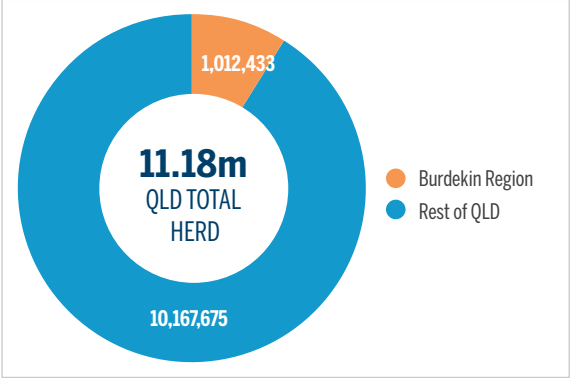


Chart 13: Burdekin Region Estimated Cattle Herd (2016) Source: ABARES



6.2 Land Use

Land Use

Map 9 details the variety of agricultural land-use for the Burdekin Region. Despite the high level of grazing land in the Region, conditions for sugarcane production is suitable predominately in areas along the coastal towns of Ayr and Ingham.

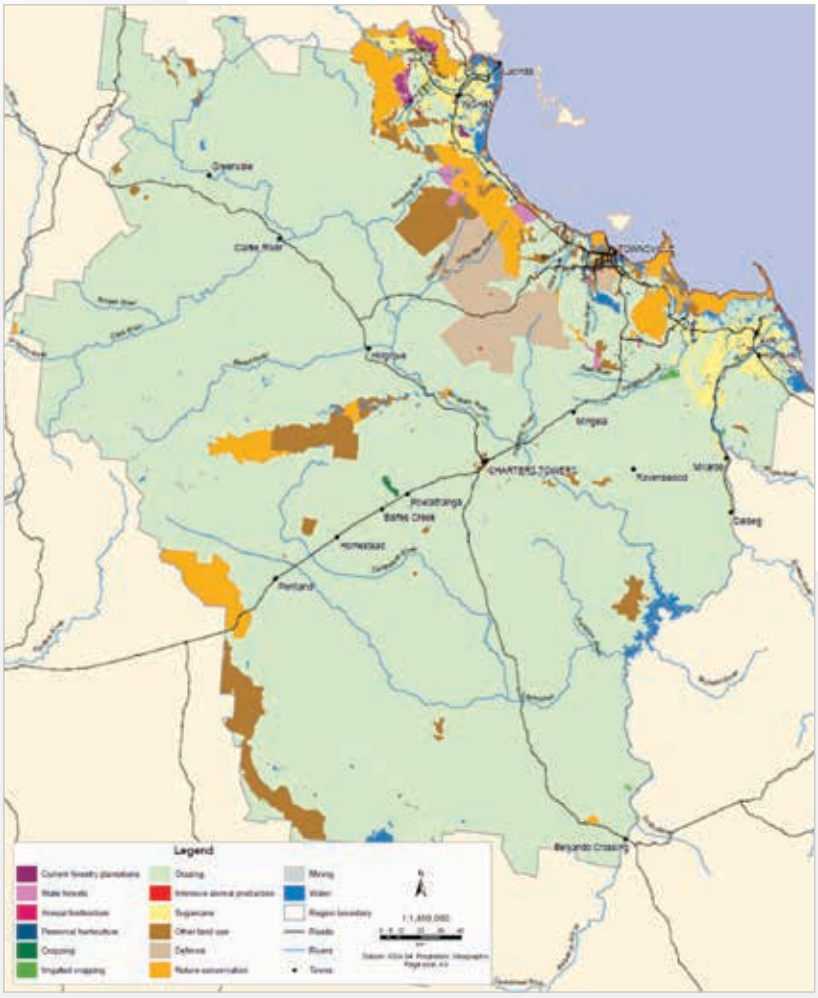
The Burdekin Region has a total of 1,583 agricultural businesses, of which beef cattle farming accounted for 803 businesses or 51% of the total number of agricultural businesses in the region.

The region produces mainly store cattle for feedlots or fattening in other regions, although there are several land types that are suitable for finishing (e.g. basalt, black soils, alluvial soils and cleared brigalow and gidgee).

The Burdekin Region has meat processing capability with one (1) major meat works located in Townsville. The JBS facility in Townsville has capacity to process approximately 903 head of cattle per day, largely for the export market.

Cattle supply to the Region is heavily supported by the cattle saleyards located at Charters Towers. The saleyards are positioned in between large beef cattle areas throughout the west of the Region to key infrastructure located on the east coast.

Map 9: The Burdekin Region – Agricultural Land Use



Source: QALA, ABS

6.3 Supply Chain – Infrastructure

Infrastructure

Map 10 indicates the major infrastructure and agricultural processing plants within the Burdekin Region. The freight network for agriculture is based around Townsville, Charters Towers, Ingham, Home Hill and Ayr.

The Flinders Highway is a major transport route in the Region, providing access from Cloncurry, located in the west, through Charters Towers and into the coastal country around Townsville.

Townsville is the main junction for road and rail transport. Townsville is home to the Port of Townsville which amongst other things, provides infrastructure to export live cattle and processed beef. The port is supported by the key roads, rail and beef processing infrastructure to make it an important link in the beef supply chain.

As mentioned previously there is also a large beef processing plant nearby in Townsville.

Upgrades to the road and railway infrastructure will be needed over time to support agricultural growth, which will enable longer trains and road trains to access the port.

Map 10: The Burdekin Region – Major Infrastructure and Processing Plants

Source: QALA

6.4 Water Resources

Water Resources

Map 11 shows the Burdekin Basin Water Resource location.

The Water Resource (Burdekin Basin) Plan 2007 manages surface water resources in the Burdekin catchment and is implemented by the Burdekin Basin Resource Operations Plan 2009.

The total area of the Burdekin Basin is 12.9m hectares.

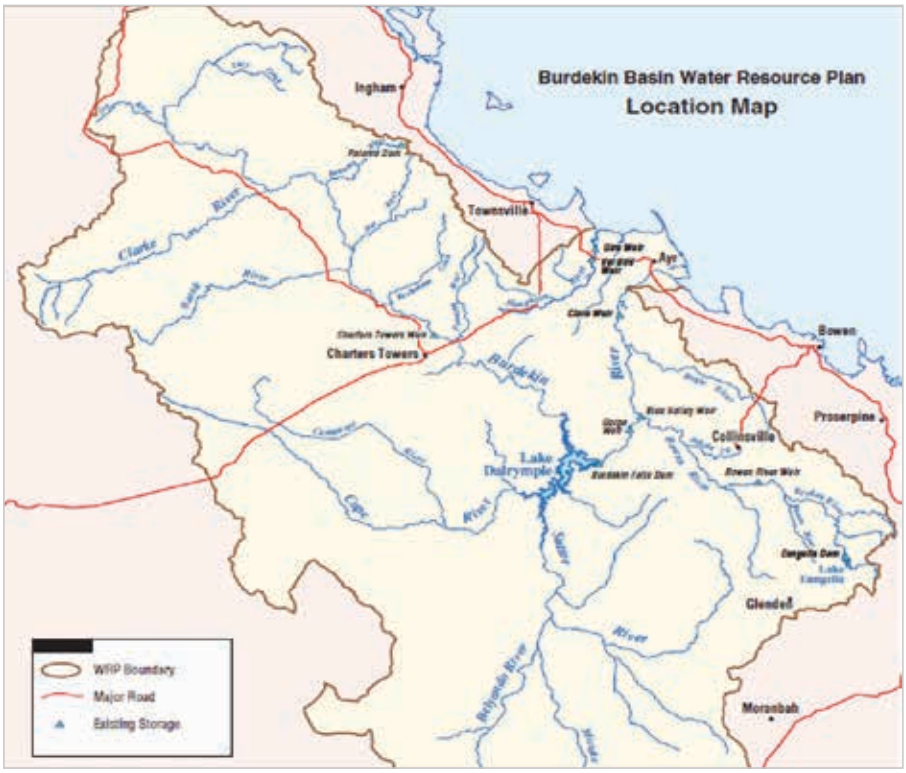
The Burdekin River is Australia's largest river by (peak) discharge volume.

The Burdekin River is located on the northern slopes of Boulder Mountain at Valley of Lagoons, it runs along part of the western slope of the Seaview Range, and flows into the Coral Sea at Upstart Bay (over 200km to the southeast of the source).

The Burdekin River is Australia's largest river by (peak) discharge volume.

The Burdekin Basin is also home to Queensland's largest dam, the Burdekin Falls Dam (also known as Lake Dalrymple), located west of Ayr and south of Charters Towers.

Map 11: The Burdekin Basin Water Resource Plan Location Map



* Not complete map of region.

Source: DNRM

6a Townsville Field Training "Likely" Expansion Area

6a.1 Overview of Expansion Area

Table 3: Expansion Area Details

Description	Within Affected Area
Total Area Being Acquired (Ha)	167,816
Total Agricultural Area (Ha)	167,008
Total Grazing Area (Ha)	165,111
No. of Businesses	23
No. of Cattle Producers	22

Map 12 highlights the properties located within the "likely" expansion area.

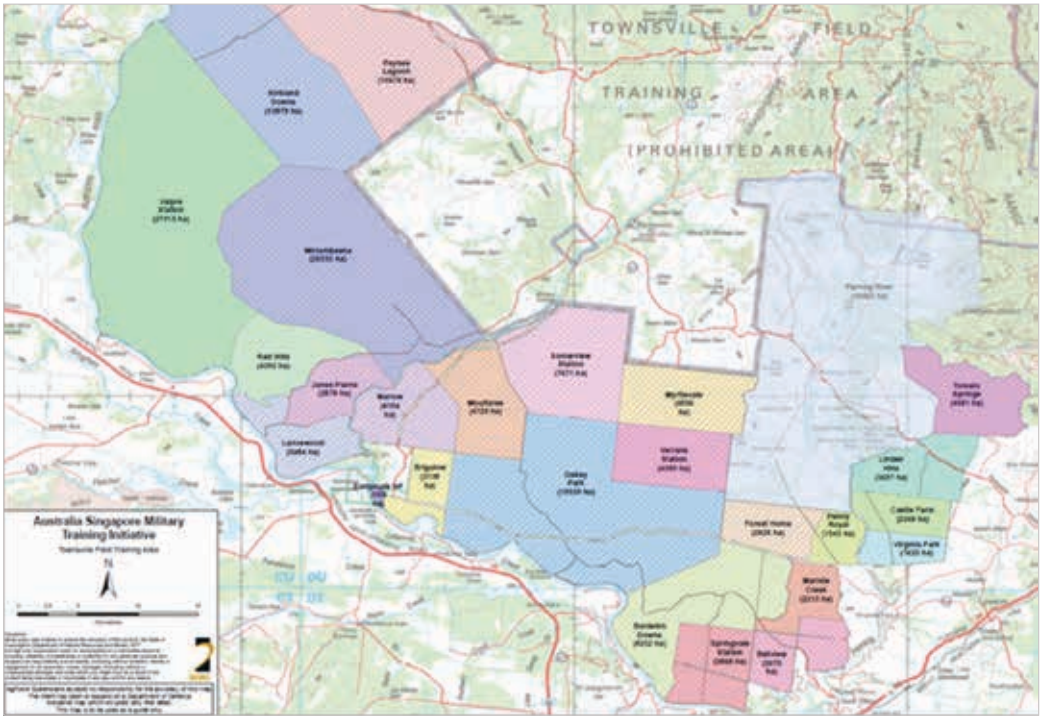
The impact findings are based on current proprietary information received from cattle producers in the region and analysed as a group, to represent the total "likely" expansion area.

The total area within the "likely" expansion area is 167,816 hectares, of which 167,008 hectares is classed as agricultural land. Additionally, there are 23 properties located and operating within the "likely" expansion area.

We have received proprietary information from five (5) producers within the affected area, totalling approximately 80,232 hectares, which equates to approximately 48% of the total affected area.

It should be noted that the Fanning River property has not been included within the analysis of the report.

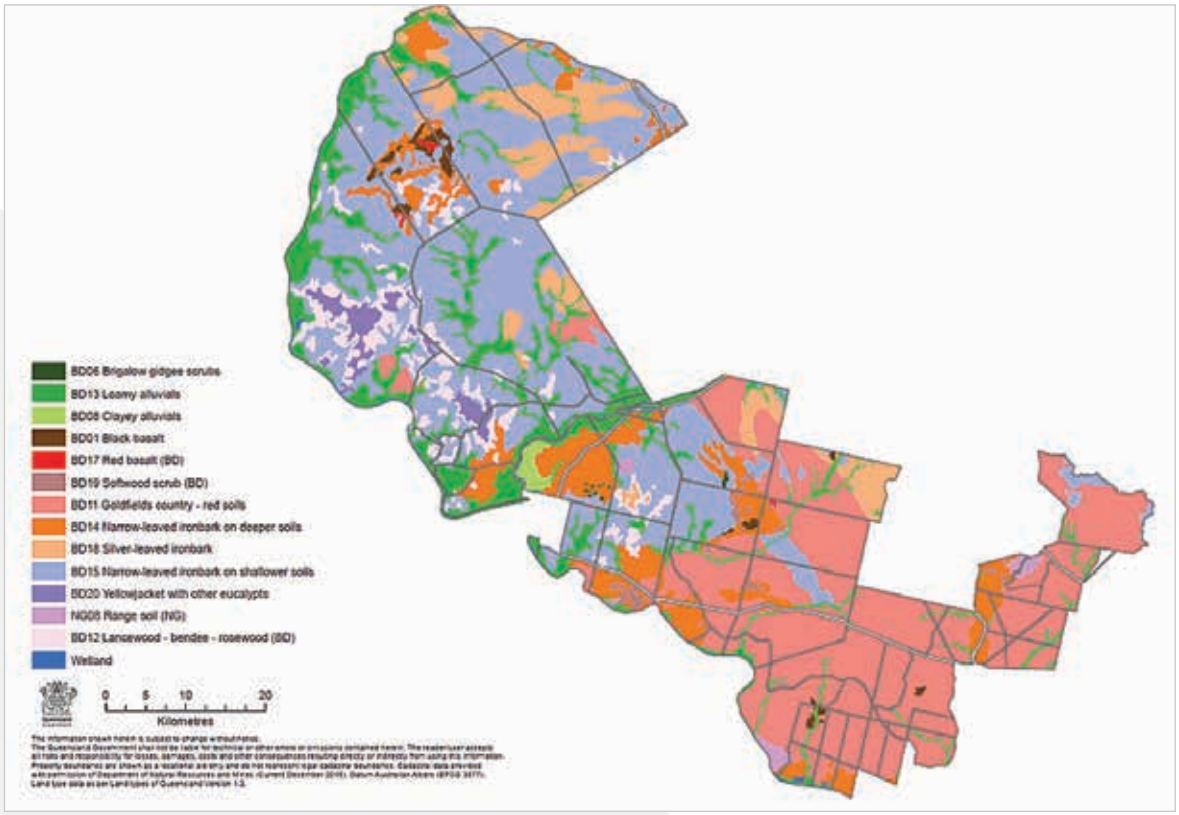
Map 12: Outline of the Townsville Field Training "Likely" Expansion Area



Source: ADF

6a.1 Overview of Expansion Area (cont.)

Map 13: Land Types – Townsville Field Training "Likely" Expansion Area



Source: DAF

Map 13 details the classification of the type of land use for the Townsville Field Training "Likely" expansion area.

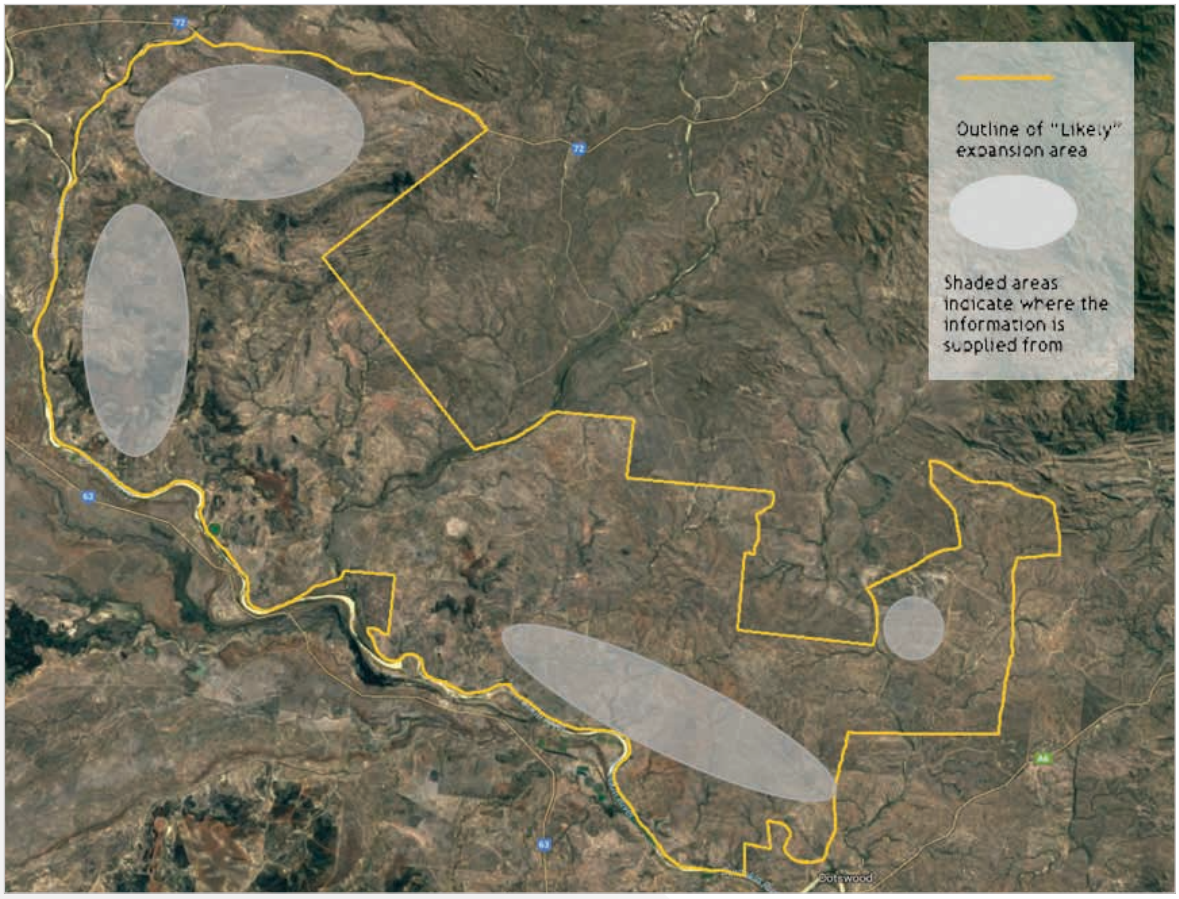
The map displays a variety of soils, ranging from red soils in the south eastern parts of the land, compared with the shallower soils and scrub throughout the central and north western parts.

Source: QALA

6a.2 Summary of Information Obtained

Map 14 below highlights the areas where the producers who provided the proprietary information operate. This information was used to support our findings throughout the Report.

Map 14: Townsville Field Training "Likely" Expansion Area – Proprietary Information Sourced from Producers



Source: Google Maps

6a.2 Summary of Information Obtained (cont.)

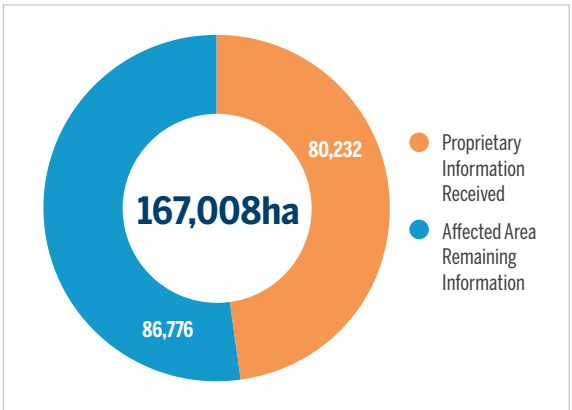
The proprietary information received from five (5) producers within the affected area totals approximately 80,232 hectares, equating to over 48% of the total affected area as displayed in Chart 14.

The size of the properties operated by the producers who provided the proprietary information, range between 1,500 hectares to 27,000 hectares. The properties are also located at opposite ends of the affected area, which has assisted our assumptions given we have a more diverse range of proprietary information.

As shown in Chart 15, the average turnover from the information received ranges between $55,000 and $2m. Average business expenditure ranges between $35,000 and $1.8m. It is noted that not all the producers who participated in this Report provided detailed financial data.

The size of the properties operated by the producers who provided the proprietary information, range between 1,500 hectares to 27,000 hectares.

Chart 14: Total Agricultural Area: Townsville Field "Likely" Expansion Area (Ha)



Whilst the affected area comprises of only approximately 1.69% of the total grazing area in the Burdekin Region, the total amount of cattle in the areas that provided proprietary information is approximately 1.32% of the total current herd in the Burdekin Region.

Chart 16 below illustrates the breakdown of cattle type that was received from the five producers with the total equating to approximately 13,390 head. Breeding Age Females (**"BAF"**) and Finishing cattle (steers and heifers) (**"Finishing"**) accounted for 32% and 31% of the total estimated herd respectively, whilst Other cattle (bulls, calves and weaners) (**"Other"**) accounted for the remaining 36%.

Chart 15: Townsville Field "Likely" Area – Property Size / Annual Turnover

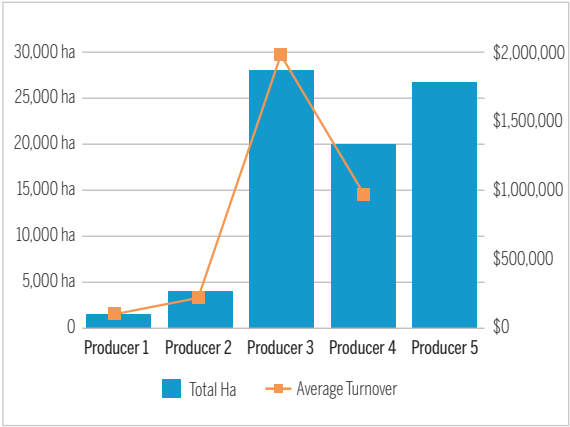
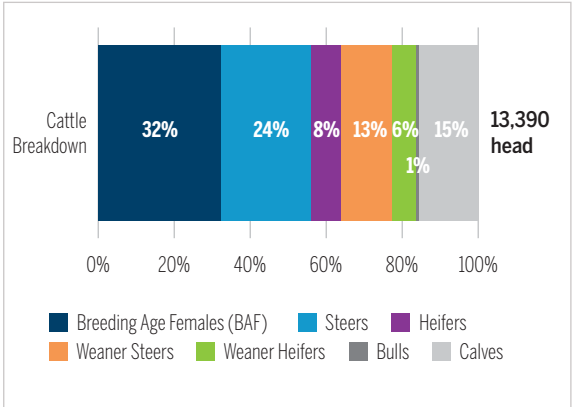


Chart 16: Breakdown of Cattle Herd



6a.3 Total Estimated Cattle Herd

Calculating Estimated Cattle Herd

As described in Section 5.2 – Information Gathering Methodology, Table 4 shows the data used to calculate the estimated total cattle herd in the Townsville Field "Likely" expansion area.

DAF have provided information on the estimated carrying capacity of the land area. Using this information in Methodology 1, we have calculated the total herd number based on the carrying capacity of the affected area. Information from DAF indicates the carrying capacity to be approximately eight (8) hectares to one (1) AE.

In Methodology 2, a pro rata method was used by FTI Consulting to estimate the total herd numbers in the affected area. The estimate is based on the information provided by the five producers, specifically the total grazing area percentage applied against the number of cattle in which the five producers hold.

Accordingly, the estimated total cattle herd located within the "Likely" expansion area ranges between 20,639 head to 27,556 head.

Table 4: Calculation of Cattle Herd

TFTA Likely Acquisition	Methodology 1	Methodology 2
Total Area (Ha)	167,816	167,816
Total Grazing Area (Ha)	165,111	165,111
Total Grazing Area (Ha) – Information Received	-	80,232
% of Total Grazing Area	-	49%
Total Herd – Information Received from Questionnaire	-	13,390
Carrying Capacity (Ha per AE)	8	-
Estimated Cattle Herd	**20,639**	**27,556**

The estimated total cattle herd located within the "Likely" expansion area ranges between 20,639 head to 27,556 head.

6a.4 Cattle Herd Breakdown

Breakdown of Cattle Types

In accordance with our methodology in calculating the estimated cattle herd, we have calculated the difference in the number of cattle provided by the five producers, to our estimated total cattle herd outlined in Table 4 (previous page).

Accordingly, as shown in Charts 17 and 18, we have estimated there to be in between approximately 7,249 and 14,166 head of additional cattle unaccounted for within the "Likely" expansion area.

To assist with our full analysis, we have used the percentage of each class of cattle (demonstrated in Charts 17 and 18) and applied this against the estimated total number of cattle in the subject area as shown in Charts 19 and 20 below.

Chart 17: Breakdown of Cattle – Methodology 1

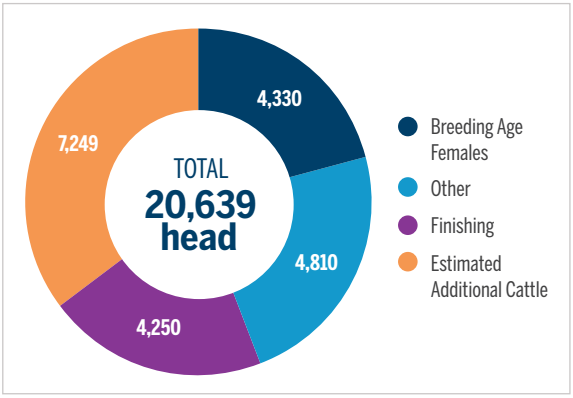
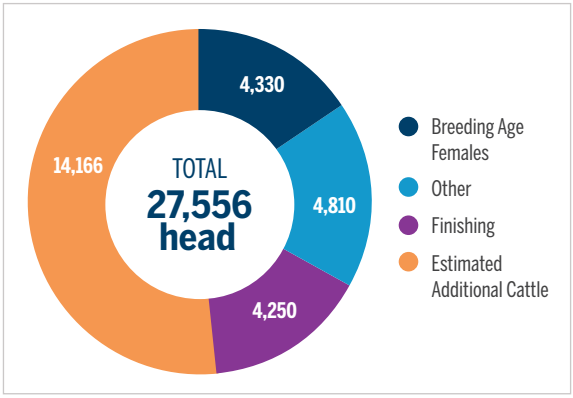


Chart 18: Breakdown of Cattle – Methodology 2



Summary of Total Estimated Cattle Herd

Applying the logic discussed above, in Charts 19 and 20 we estimate that there are between 6,674 and 8,911 head of BAFs located within the "Likely" expansion area.

Additionally, we estimate that there are between 6,551 head and 8,746 head classed as Finishing cattle, whilst an estimated range of 7,414 and 9,899 head classed as Other cattle located within the "Likely" expansion area.

Note that to determine the impact on the breeding and finishing capacity of the area, we have excluded Other cattle.

Chart 19: Estimated Cattle Herd – Methodology 1

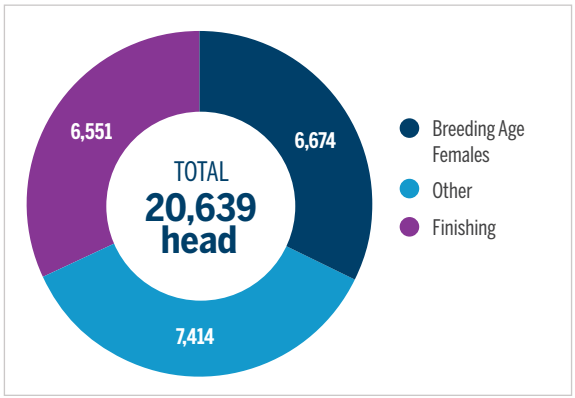
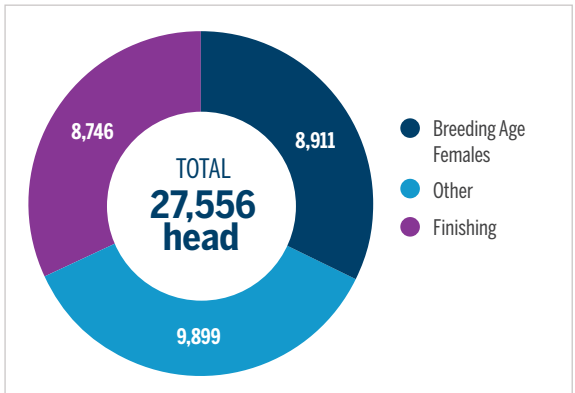


Chart 20: Estimated Cattle Herd – Methodology 2



6a.5 Impact on Productivity – Breeding

We have determined the impact on the cattle productivity within the affected area using information provided by the five producers and other industry standard assumptions which are outlined below in Table 5.

Note that both the average calving and weaning rates have been calculated based on the information provided by the five producers within the "Likely" expansion area and that the figures have been applied against both sets of data.

The BAF production increase % assumption used throughout the Report is based on information sourced from the ABARES 2016 Report*, which provided information on input and output growth on beef farms located throughout northern and southern Australia.

Townsville Field "Likely" Expansion Area

Table 5: Operational Capacity

Breeding Age Females	Assumptions	
	Methodology 1	Methodology 2
No. of BAF	6,674	8,911
Av. Calving Rate %	80%	80%
Av. Weaner Rate %	96%	96%
BAF Production Increase %	1.5%	1.5%

Table 6: 1–5 Year Forecast

	Year 1		Year 2		Year 3		Year 4		Year 5	
No. of Breeders	6,674	8,911	6,774	9,044	6,876	9,180	6,979	9,318	7,084	9,458
No. of Calves	5,339	7,129	5,419	7,236	5,501	7,344	5,583	7,454	5,667	7,566
No. of Weaners	5,072	6,772	5,148	6,874	5,226	6,977	5,304	7,082	5,384	7,188

Note that both the average calving and weaning rates have been calculated based on the information provided by the five producers within the "Likely" expansion area and that the figures have been applied against both sets of data.

*ABARES Report 2016 – Australian Beef: Financial Performance of beef farms 2013-14 to 2015-16

6a.5 Impact on Productivity – Breeding (cont.)

Short Term – Year 1

Based on our estimated range of the total cattle herd within the affected area, the number of BAFs for Year 1 ranges from 6,674 to 8,911 head whilst we estimate that the number of weaners range between 5,072 and 6,772 head.

Therefore, should the land acquisitions take place within the expansion areas, there will be a loss of BAFs ranging between 6,674 to 8,911 head.

The total loss will most likely be distributed as follows:

- Sold to other producers outside the expansion areas; and /or
- Sold to beef processors for slaughter.

As a result of the loss of BAFs, breeding genetics will be removed from the expansion and surrounding areas, impacting the quality of future progeny and also the quality of beef produced.

The number of BAFs for Year 1 ranges from 6,674 to 8,911 head whilst we estimate that the number of weaners range between 5,072 and 6,772 head.

Medium Term – Years 2-5

Based on our sources, we have assumed that the BAF herd will conservatively increase by 1.5%* due to improvements in pasture and herd management within the expansion areas, leading to productivity gains.

Accordingly, as shown in the Table 6, we expect that the number of BAFs would increase to between 7,084 and 9,458 head in Year 5 if no acquisitions took place.

Calving and weaning rates are assumed to increase in line with the number of BAF.

Should the proposed acquisition take place in totality, the throughput lost to the subject area would be equal to the number of progeny born each year (notwithstanding that the profile/age of cattle sold will be varied).

Based on the above, we estimate that the movement of between 21,064 and 28,120 weaner cattle will be lost to the affected area from Year 2 to Year 5. This means that this number of cattle will not be available for exporters, processors and restockers outside of the subject area.

*ABARES Report 2016 – Australian Beef: Financial Performance of beef farms 2013-14 to 2015-16

6a.6 Impact on Productivity – Finishing

Townsville Field "Likely" Expansion Area

Table 7: Operational Capacity

Breeding Age Females	Assumptions	
	Methodology 1	Methodology 2
No. of Finishing	6,551	8,746
Production Increase %	1.5%	1.5%

Table 8: 1–5 Year Forecast

	Year 1		Year 2		Year 3		Year 4		Year 5	
No. of Finishing	6,551	8,746	6,649	8,877	6,749	9,011	6,850	9,146	6,953	9,283
Production Increase %	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%

Short Term – Year 1

As Table 7 illustrates, based on our estimated range for the total cattle herd within the affected area, we have calculated the number of Finishing cattle to range between 6,551 and 8,746 head for Year 1.

Based on limited data received and on our knowledge of the region, we understand that a significant portion of cattle are brought in from outside of the subject region for finishing. These cattle will need to be sent elsewhere for finishing, should the acquisition proceed.

QLD is losing the capacity to finish between 6,551 and 8,746 head of cattle in Year 1. This has the potential to increase pressure on other finishing properties in external regions.

Medium Term – Years 2-5

Similarly, as per our assumptions with the breeding herd, we estimate conservatively a production increase of 1.5% each year based on the improvement of pastures and herd management leading to productivity gains.

Following on from our figures in Year 1, with the annual production increase, we estimate that the affected region may lose the ability to finish between 27,201 and 36,316 head of cattle over the four years from Year 2 to Year 5 (refer to Table 8).

Such a loss of finishing capacity is likely to impact upon the efficiency of the greater QLD beef supply chain.

We estimate conservatively a production increase of 1.5% each year based on the improvement of pastures and herd management leading to productivity gains.

6a.7 Market Value

Market Value Calculation Assumptions

To calculate the estimated market value of the cattle located in the "Likely" expansion area, we have ignored the potential 'one-off' liquidation sale of the total herd and instead have undertaken our analysis from the scenario of a usual ongoing year-on-year seasonal revenue point of view.

To determine the dollar value lost to the beef industry, we have sourced market value pricing on specifically feeder steers and heifers only. This approach is line with our assumption of a normal season where only Finishing cattle are likely to be sold during the course of the year.

To assist with the calculations, we have used an average weight (live weight) for the cattle type and have sourced market pricing from the nearest saleyard venue to the "Likely" expansion area - the Charters Towers saleyards.

Table 9 provides the assumptions used for our calculations.

Table 9: Finishing Cattle – Assumptions

Classification of Cattle	Cattle Category	Liveweight (kg/hd)	Sale value (AUDc/kg lwt)	$/hd
Finishing	Feeder Steers	365.00	296.00	$1,080
	Feeder Heifers	365.00	255.00	$931
Average Total		**365.00**	**276.00**	**$1,006**

Note: The sale value (AUDc/kg lwt) has been sourced from Charters Towers saleyard report dated 15 March 2017.

Gross Revenue

Using the information provided in Table 9 above, we have calculated the estimated sale proceeds from the total cattle herd using the average price ($/head) multiplied by the number of Finishing cattle under each methodology.

Accordingly, as shown in Table 10, the potential market value of the Finishing cattle ranges between $6.5m and $8.7m.

Should acquisitions take place, this provides an indication of the value of cattle lost to the industry.

Table 10: Impact on Gross Revenue

Finishing Cattle	Methodology 1	Methodology 2
No. of Head	6,551	8,746
$/head	$1,006	$1,006
Total	**$6,587,321**	**$8,794,918**

6a.8 Economic Impact on Supply Chain

The impact of the potential acquisitions of agricultural land will not only affect the beef producers who reside and operate within them, but will also be felt along the beef supply chain and throughout wider communities. Below we have assessed both qualitative and quantitative impacts on the beef supply chain should land acquisitions take place on the area.

Production Inputs

Local rural supplies, fertiliser and machinery businesses will be affected due to the removal of producers from the local area /region. Regular customers will be lost due to the reduced need for products.

The potential impact on local suppliers can be demonstrated by using the average cost of production in the northern regions of QLD. A recent research report from MLA, highlights that the average cost of production for beef cattle (per kg live weight cost) located in northern Australia is 113c/kg. Accordingly, we have included this in our assumptions as is shown in Table 11, to determine the average cost per beast.

Table 11: Input Costs – Assumptions

		Assumptions
Average cost per beast*	c/kg	113
Average Lwt (kg/hd)	kg	350
Average cost per beast	**$**	**$396**

*Includes total cash costs only. Excludes other costs such as finance, capital depreciation and unpaid family labour costs.

Based on the above assumptions, we estimate the average cost per beast to be $396 per head. This means that for each beast produced, an average cost of $396 is spent on inputs (such as feed, water, freight etc.) to reach a targeted weight prior to being sent for sale and / or slaughter.

Further, if we include the total estimated cattle herd within the area, we can establish the overall total input costs potentially lost to local businesses that provide such product and services.

As Table 12 illustrates, an estimated range of between $8.1m and $10.8m in spending could potentially be lost from the industry.

Table 12: Total Input Costs

Total Costs		Methodology 1	Methodology 2
Average cost per beast	$/head	$396	$396
No. of cattle	head	20,639	27,556
Total Input Costs	**$**	**$8,162,675**	**$10,898,217**

6a.8 Economic Impact on Supply Chain (cont.)

Livestock Agents

Livestock agents will lose long term customers (beef producers), impacting their business in the immediate to longer term. Agents operating within the affected area will need to expand their search for cattle stock and beef producers to develop relationships and re-build their customer base.

For an indication on the impact of potential land acquisitions, Table 13 illustrates the financial loss on livestock agents commissions for 6,551 and 8,847 head of Finished cattle.

The estimated value of the potential agent commissions' lost ranges between $230,556 and $311,359.

The estimated value of the potential agent commissions' lost ranges between $230,556 and $311,359.

Table 13: Livestock Agents

Finishing Cattle		Methodology 1	Methodology 2
No. of cattle	head	6,551	8,847
Live Weight	kg	365	365
Sale Price	c/kg	276	276
Income per Beast	$/beast	1,006	1,006
Commission Rate	%	3.5%	3.5%
Agents Commission	Per beast	$35.20	$35.20
Total Gross Commission	**$**	**$230,556**	**$311,359**

6a.8 Economic Impact on Supply Chain (cont.)

Transport

In the event that the land acquisitions take place, there will be a downstream impact on local businesses, particularly local transport companies.

Transport businesses play a major role in delivering cattle to local saleyards, processing facilities and ports. The removal of part of the region's cattle supply will reduce demand for stock transport services.

We note that there would be an offsetting effect as stock transporters are required to source cattle further afield for processors. We have not attempted to quantify the impact of this given the lack of data available.

Table 14 calculates the estimated total truck movements lost with respect to the amount of Finishing cattle located within the area. We note that only Finishing cattle would be available to transport off-farm immediately hence why we have excluded BAFs and Other cattle.

Accordingly, an estimated total ranging between 73 and 99 truck movements could potentially be lost to the transport industry, from the loss of 6,551 and 8,847 head of Finishing cattle located in the affected area per year.

Using the estimated truck movements lost, we are able to calculate the estimated cost in dollar value. As Table 15 shows, based on cattle being delivered to either Charters Towers or Townsville, we have assumed a conservative 200 kilometres to travel at $1.50 per km.

When adding to our total truck movement lost calculation, we can estimate that the dollar value lost to the trucking industry may range between $21,900 and $29,700.

Table 14: Transport Truck Movements

Decks of Cattle Lost		Methodology 1	Methodology 2
No. of cattle	head	6,551	8,847
Av. Live Weight	kg	350	350
Beasts per deck		30	30
Decks per Truck		3	3
Beasts per Truck		90	90
Total Decks		219	295
Total Truck Movements		**73**	**99**

Table 15: Cost of Lost Truck Movements

		Methodology 1	Methodology 2
Cost per kilometre	$	1.50	1.50
Kilometres to travel	km	200	200
Live Weight	kg	350	350
No. of Beasts per Truck		90	90
Total Truck Movements		73	99
Cost per Truck	AUD	300	300
Total Truck Movement Cost	**$**	**$21,900**	**$29,700**

Transport businesses play a major role in delivering cattle to local saleyards, processing facilities and ports.

6a.8 Economic Impact on Supply Chain (cont.)

Livestock Levy

All beef cattle producers are required to pay a transaction levy on the sale of their livestock. The levy amount is collected by the Department of Agriculture's Levies Service and distributed to MLA, Animal Health Australia (AHA) and the National Residue Survey (NRS).

Beef processors are also required to pay a levy.

The estimated loss (dollar value) on levy proceeds from the potential sale of all livestock located in the area is illustrated in Table 16.

The estimated loss amount equates to between $32,754 to $44,233 of levies, based on the total of 6,551 and 8,847 head of Finishing cattle being removed from the affected area.

Table 16: MLA Levies

Assumptions		Methodology 1	Methodology 2
Grassfed / Grainfed cattle	AUD/Head	$5.00	$5.00
No. of cattle	Head of cattle	6,551	8,847
Total Levy	**AUD**	**$32,754**	**$44,233**

Processing Facilities

In light of the recent market conditions surrounding the beef processing industry, the removal of cattle from the expansion area will have a further impact on abattoirs within the surrounding regions.

Smaller abattoirs, who may already be under pressure given recent high cattle prices and low availability of cattle, may face more difficult periods.

All other things remaining equal, further declines in the availability of cattle will cause local processors to reduce labour hours and reduce employee numbers to cater for the drop in throughput and to maintain margins.

Townsville's largest abattoir, JBS Australia for example, may need to expand its search for cattle which will incur increased transport costs and place further pressure on labour resources at the facility.

With limited public information available on abattoirs located throughout the area, it is difficult to quantify the impact on the employment levels should there be a reduction in cattle supply.

In late 2016, the JBS owned meat processing facility in Townsville resorted to closing their processing facility over a four month period as a result of unsuitable cattle and drought conditions. Since re-opening back in March 2016, JBS were reportedly employing approximately 500 staff and operating at 500 head per day, down from full capacity of 903 per day.

This example gives an indication of the capacity levels over the previous 12 months, with conditions remaining difficult within the industry to date, you could assume that further reductions in labour hours and employee numbers have or will reduce.

Should land acquisitions proceed, we believe it may place further pressure on processing facilities in the medium to long term.

Smaller abattoirs, who may already be under pressure given recent high cattle prices and low availability of cattle, may face more difficult periods.

6a.8 Economic Impact on Supply Chain (cont.)

Processing Facilities

The estimated throughput for each abattoir within the Burdekin Region is illustrated below in Table 17. With the inclusion of two scenarios, operating at 50% and 100%, it allows us to show the potential and level of cattle being sent to each processing plant on a daily, week and annual basis.

Note that information obtained for each abattoir regarding operating capacity is sourced from each company website. In light of recent market conditions, we believe that the current daily capacity levels would be lower than each processing plant's full operating capacity.

When undertaking an analysis on the impact on the processing plants as a result of the loss of the estimated cattle herd from both the Townsville Field "Likely" expansion areas, we have applied the figures against the processing plants operating capacity when at 50%.

Table 17: The Burkedin Region – Beef Processing Capacity

Abattoir	Capacity (Head / day)	
	50%	100%
JBS Australia, Townsville	452	903
Total Head / Day	**452**	**903**
Total Head / Week	2,258	4,515
Total Head / Year*	**108,360**	**216,720**

* We have calculated a standard operating year of 48 weeks, allowing for 4 weeks closure. This equates to 240 working days during the course of the year.

As Table 18 illustrates, we have applied both estimated Finished cattle herds under each methodology (between 6,551 and 8,746 head) against the total head of cattle slaughter when the processing plants are operating at 50% capacity.

The impact of removing the estimated Finishing cattle herd from both the Townsville Field "Likely" expansion areas, to the total amount of cattle sent through to the three processing plants is immaterial, ranging between 6.05% and 8.07% .

Table 18: Percentage of Finishing Cattle

Townsville Field "Likely" Expansion Area	Estimated Total Cattle Herd (Finishing)	Operating Capacity of Processing Plant (%)	Operating Capacity of Processing Plant (No. of Head)	% of Estimated Cattle Herd Lost
Methodology 1	6,551	50%	108,360	6.05%
Methodology 2	8,746			8.07%

6a.8 Economic Impact on Supply Chain (cont.)

Impact on Employment

Outlined in Table 19, provides an indication on the number of businesses by industry that are located in the potential land acquisition areas including the City of Townsville, the Burdekin Shire and the Charters Towers Region.

Despite the data being relating back to 2014, we can still draw out key information with respect to potential direct impacts of the land acquisitions on key industries and the flow-on effects of same.

Should land acquisitions on the expansion areas take place, businesses that may be impacted would include agriculture and transporting services.

A reduction in operational activity for these businesses may have a flow-on effect to other industry's such as retail and education within local communities.

Regional unemployment in QLD is still significant and faces ongoing challenges, with most notable levels occurring in outback QLD and in the northern coastal regions including the Burdekin Region.

Recent reports from the ABS indicate that Townsville's unemployment rate reached around 11.6% in February 2017, the second highest in QLD, on the back of job losses in the resource sector.

Chart 21 provides an example of Charters Towers level of employment by industry in 2011. Mining, agriculture and retail trade hold the larger amount of employees with approximately 14%, 11% and 10% respectively. Despite the information being dated back to 2011, you could assume that the any impact on agricultural businesses will result in a direct decrease in employment and flow-on effect to other businesses' within retail and education.

Chart 21: Charter Towers Region: No. of Employees by Industry (2011)

Table 19: The Burkedin Region – Number of Businesses by Industry (2014) Source: ABS

Industry	Charters Towers Region	City of Townsville	Burdekin Shire
Agriculture, Forestry and Fishing	301	496	1,111
Construction	132	2,747	200
Retail Trade	80	781	132
Transport, Postal and Warehousing	68	892	119
Rental, hiring and real estate services	57	1,360	152
Other	288	5,823	524
Total	**926**	**12,099**	**2,238**

6a.8 Economic Impact on Supply Chain (cont.)

Community

The table below provides a summary of the immediate and medium to long term impacts on the local and regional communities should land acquisitions take place within the Burdekin Region.

Impact	Immediate (within 1 year)	Medium to Long Term (2-5 years)
Local	• Local communities such as Dotswood, Charters Towers, Woodstock and Crimea would be affected by the potential land acquisitions. • Families residing within these communities may need to relocate to other towns outside of the affected areas to source employment and other opportunities. This may impact the local businesses throughout these communities, decreasing shop-front activity and customer sales. • Local cafes, retail shops and pubs may be impacted over the course of the year from the lack of foot traffic and sale of products. • Local primary and high schools may see a decrease in attendance and enrolment levels as a result of families relocating due to the potential acquisitions of agricultural land. Families may be forced to relocate and seek work elsewhere in other areas. • Unemployment levels may increase in these communities. The reliance on agricultural, retail and transport businesses within the affected is strong, therefore the impact on these businesses may be significant should any land acquisitions go ahead.	• Local cafes, retail shops and pubs, who may have been impacted from the decrease in customer activity, may be forced to close down or sell the business. • Attracting new staff or staff retention levels at local schools may be impacted as a result of the decrease in enrolment figures and limited opportunities in the surrounding communities. • Higher unemployment levels may lead to an increase in crime and other related activity. • There may be a reduction in population numbers within the communities affected by the land acquisitions, placing further pressure on trade potential for local businesses. • Local councils may be placed under increased pressure to create job opportunities.
Regional	• Individuals working within the affected and surrounding areas may lose jobs due to the loss of activity along the beef supply chain. Job losses extend to not only agricultural businesses, but also retail, transporting and hospitality businesses. • The regions unemployment rate may increase from current levels. • There may be increased immediate pressure placed on local councils to increase spending on new infrastructure to create jobs and generate activity within the economy.	• There may an increase in population growth with the number of people relocating to other areas to seek job and learning opportunities. • Businesses who provide agricultural goods and services would be required to attract new customers to replace the those within the affected areas. Sourcing new customers may require expanding their presence outside of the region, which may increase expenditure levels.

6a.8 Economic Impact on Supply Chain (cont.)

Voluntary Land Acquisitions

To provide further information on the impact of potential land acquisitions, we have provided three scenarios to demonstrate.

In Table 20 we have provided three scenarios (based on a percentage of land being acquired voluntarily) to indicate the level of impact acquisitions of land may have on the cattle and supply chain.

Table 20 provides an understanding of the impact for each scenario, ranging between 25%, 50% and 75%.

Table 20: Impact of Voluntary Land Acquisitions

Type	Total[a]	Scenario A 25%	Scenario B 50%	Scenario C 75%
Total Land Area	**167,816**	41,954	83,908	125,862
Estimated Cattle Lost	**24,097**	6,024	12,049	18,073
Inputs Lost	**$9,530,446**	$2,382,612	$4,765,223	$7,147,835
Agents Commission Lost	**$270,958**	$67,739	$135,479	$203,218
Transport Movements Lost	**86**	22	43	65
Transport Costs Lost	**$25,800**	$6,450	$12,900	$19,350
Livestock Levy Lost	**$38,494**	$9,623	$19,247	$28,870
Estimated Market Value Lost	**$7,691,120**	$1,922,780	$3,845,560	$5,768,340

Note: a. All total figures have been provided using the average of Methodology 1 and Methodology 2.

6b. Case Study

Background

As has been set out in the Report, the soil types that are captured by much of the expansion of the training facilities at both locations are of high quality and have a significant amount of versatility.

The level of versatility for agricultural soil adds a significant amount of value to the overarching enterprise as it allows the operator to produce high quality output on a regular basis, subject to sufficient rain and other seasonal conditions.

The other key value accretive aspect is that versatility allows for the operator of the enterprise to move between commodities when and if required.

Whilst many of the enterprises in the impacted areas are grazing enterprises, and are likely to remain so (as a result of planning regulation, available water or lack of investment capital), it should be taken into consideration as to what alternative high-value uses the land may have.

Purpose

The purpose of compiling a more detailed case study is to give the reader some context about not only what the identified land can currently produce, but also what it could be developed into at a future date, once the appropriate planning has been achieved, capital invested and water accessed.

Sustainable development of the land within the impacted areas will have a number of positive immediate impacts, and then ongoing and broader impacts over time.

The immediate impact is often improved profitability and therefore the ability to invest in the enterprise, and also into the wider community, through things like increased spending.

Longer term and broader impacts are likely to be increased employment, flow-on investment opportunities and new agricultural produce being available to the local area, for example, locally produced grain or fodder.

By setting out the potential, this Report hopes to give the reader a sense of the capacity that the impacted land could have and to emphasise that examination of the current use may not provide the entire picture.

The enterprise selected to be the case study has provided detailed information about current land use and potential future land use. As with all the information provided, the identity of the enterprise is to be protected, however, the detailed data pack has been reviewed to ensure that the estimated results are reasonable and achievable.

There is a strong case for further investment and development of northern Australian agricultural enterprises, with a particular focus on allowing each area to increase its self-sufficiency. For example, by allowing investment into land improvement and irrigation, there becomes a reduced need to transport feed from other areas to improve production or assist in drier seasons. This has a number of important impacts for the local area. It may mean reduced transport costs for feed inputs improving financial returns to local businesses, but it may also mean a reduced cost to Government as the need to subsidise emergency feed could be reduced and a somewhat better ability to control the need for drought subsidies. These issues are not considered as part of this work but are important when assessing the long term impacts.

6b. Case Study (cont.)

Background

The case study property is located north of Charters Towers, QLD and within the Townsville Field "Likely" Expansion area of the Burdekin Region (**"the Property"**).

The Property was purchased in 2011 by a family enterprise.

Since the purchase, the Property has been subject to significantly lower than average rainfall. This has impacted the financial returns of the enterprise, through both a reduction in the number of cattle that can be supported by the land, and the additional costs incurred managing animal welfare on the Property (feed and supplements) and the cost of agistment to maintain a viable herd number for when conditions improve.

The Property's total land area is over 26,000 hectares and it operates as a beef production enterprise, primarily consisting of Brahman cattle.

The Property is covered with highly productive goldfield soils, with native bluegrass, Indian Couch and improved pastures such as buffel grass, Seca, Verano and other legumes.

The Property has access to significant river water for irrigation.

Additionally, the Property has capacity for 3,500ML of water storage, following the construction of the storage dam to capture overland flow and water harvesting.

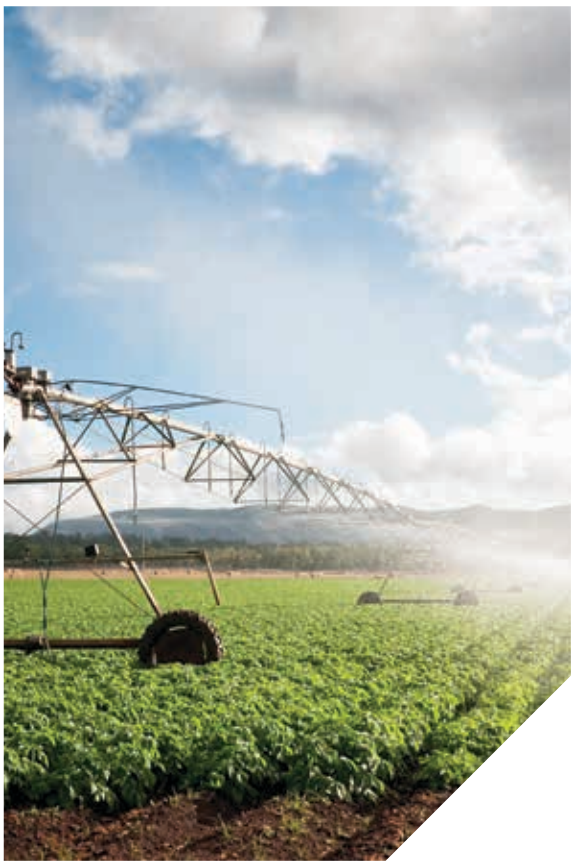
As a result of the sub-optimal weather conditions, the Property's management have applied for a High Value Agriculture (**"HVA"**) Permit. As part of the application process, management were required to compile a number of very detailed reports on soil types and topography, vegetation studies and hydrology work to map water flow and water courses across the Property.

Situation

Following the submission of the HVA Permit, where significant costs were incurred to complete the detailed reports and other regulatory matters, approval for the permit is now subject to meeting new regulatory criteria incorporated by the Environmental Protection and Biodiversity Conservation Act 1999.

Importantly, the new regulatory criteria were incorporated subsequent to management's lodgement of the HVA permit application.

The application continues to be delayed, with the Property's management incurring further costs in order to meet necessary criteria. The impact to the Property's enterprise has been significant, with further stock being placed on agistment to maintain land and herd conditions. Furthermore, equipment purchased in the event that the application would be approved is currently sitting idle.



6b. Case Study (cont.)

Use of Agricultural Land

- The Property is currently used solely as a beef production enterprise.
- Alternate uses of the land include introducing irrigated cropping, dryland cropping and operating a self-sufficient cattle feedlot.
- Based on the detailed information provided by the Property's management, we will illustrate and compare the current and potential alternative uses of the subject land area. We will also discuss the impact to both the existing use and potential alternative uses of the land should the proposed acquisitions take place.

Current Use

Table 21 displays a breakdown of the current use of land on the Property. Approximately 26,000 hectares is classified as grazing land for beef production.

We understand there are approximately 4,000 head of cattle located on the Property.

Due to sub-optimal weather conditions, the Property is operating below its carrying capacity of approximately 5,000 head of the cattle.

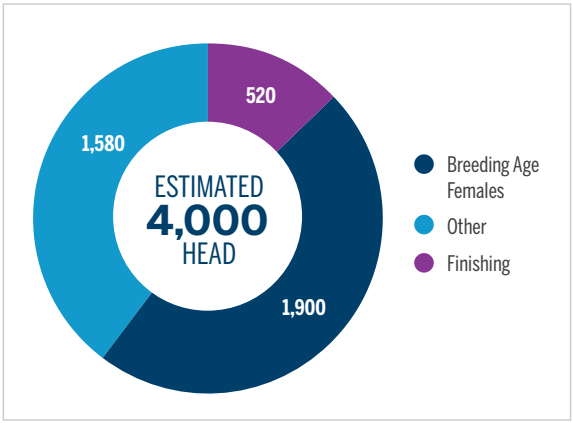
Chart 22 displays the breakdown on the type of cattle currently located on the Property.

Table 21: Land Utilisation and Total Herd

		Current Use
Total Land	ha	26,000
Cattle Herd		4,000
Carrying Capacity		5,000

Note: The total land area (ha) figure used above is not the exact total.

Chart 22: Case Study – Cattle Herd Breakdown



6b. Case Study (cont.)

Loss to Operating Capacity

Table 22 shows the assumptions used to calculate the estimated loss of BAFs from the Property.

All information used has been sourced from the Property's management and other industry reports.

Using these assumptions, Table 23 below calculates the estimated loss of BAFs from the Property, over a five year period.

Table 22: Case Study – Breeding Capacity

Type	Assumptions
No. of BAF	1,900
Av. Calving Rate %	70%
Av. Weaner Rate %	95%
BAF Production Increase %*	1.5%

Table 23: 1–5 Year Forecast

	Year 1	Year 2	Year 3	Year 4	Year 5
No. of Breeders	1,900	1,929	1,957	1,987	2,017
No. of Calves	1,330	1,350	1,370	1,391	1,412
No. of Weaners	1,264	1,282	1,302	1,321	1,341

Short Term – Year 1

Should land acquisitions take place over this area, we estimate there to be 1,900 head of BAFs immediately lost to the Property and subject area. We also estimate that 1,264 weaners will be removed from the Property.

We estimate that 520 head of finishing cattle will be transported to other properties located outside the subject land areas for further growth and sale or straight to processing. 1,580 head of other cattle will be either sent other producers outside the affected areas or sold to beef processors for slaughter.

Medium Term – Years 2-5

By Year 5, we estimate that the Property will carry approximately 2,017 head of BAFs, should no acquisitions take place.

Should the proposed acquisition take place in totality, the throughput lost to the Property and / or subject area would be equal to the number of progeny born each year (notwithstanding that the profile/age of cattle sold will be varied).

Based on the above, we estimate that the movement of 5,246 head of weaner cattle will be lost to the subject area from Year 2 to Year 5. This means that this number of cattle will not be available for exporters, processors and restockers outside of the subject area.

6b. Case Study (cont.)

Impact on Gross Revenue

Table 24 shows the assumptions used to calculate the estimated revenue loss from the number of cattle sold from the Property during a normal operating season.

All information used has been sourced from the Property's management and other industry reports. Note that we have assumed a normal year-in-year-out season, therefore only cows, steers and heifer weaner cattle on the Property have been subjected to sale.

As Table 25 illustrates, should land acquisitions take place over this area, we estimate $1.4m in gross revenue to be lost to the Property's management from the removal of saleable cattle.

Further, the estimated proceeds will be foregone to other businesses within the beef supply chain, namely livestock agents, transport services and MLA's livestock levy.

Table 24: Cattle Available for Sale

Assumption	No.of Head	No.of Head Allocated for Sale
Progeny	1,264	
Category:		
Steers	632	632
Heifers	632	
Less: Retained Heifers	(200)	
	432	432
Cull Breeders		200
Total		**1,264**

We estimate $1.4m in gross revenue to be lost to the Property's management.

Table 25: Impact on Gross Revenue

Assumptions		BAF	Steers	Heifers	Total
Average Weight	kg lwt / head	480.00	350.00	350.00	
Price	c/kg per head	230	340	310	
Total Sales / Head	$ / head	1,104	1,190	1,085	
No. of Head	Head	200	632	432	**1,264**
Total Sales	**$**	**$220,800**	**$751,783**	**$468,720**	**$1,441,303**

6b. Case Study (cont.)

Alternative Use of Land

Management's submission of the HVA permit application provides a detailed description for alternatives to the Property's current land use. Additionally, the application demonstrates how the Property could be transformed to allow for alternative high value use, contributing to profitability for the enterprise and improvement on spending throughout the wider community.

In the HVA permit application, management detailed the alternative uses for the land, namely the introduction of irrigated and dryland cropping, and a feedlot.

Management's long term view is achieving 1,000 hectares of land under irrigation, therefore the remaining 600 hectares will require further water allocations to meet this requirement.

Table 26 compares the current land use to the management's HVA permit application to utilise land for carrying out other revenue generating activities.

Accordingly, we have outlined each alternative option for the Property whilst also demonstrating the versatility of the land.

Irrigated Cropping (200 hectares)

Management consider that their four existing water licenses (totalling approximately 4,000ML) will allow them to irrigate up to 400 hectares of land.

Conservatively, management's plan is to initially prepare 200 hectares of land (all with river access) to prepare and install irrigation for the production of irrigated crops such as grain, fodder crops and pastures.

Following this, a further 200 hectares of land will be further developed. Management's long term view is achieving 1,000 hectares of land under irrigation, therefore the remaining 600 hectares will require further water allocations to meet this requirement.

The installation of irrigated pasture provides the Property with a drought-proof feed resource for its cattle. Further, this demonstrates the versatility of the land, and highlights the quality and reliability of both the soils and water available.

Table 26: Land Utilisation – Comparison

Type		Current	Alternative
Irrigation Cropping	ha	-	200
Dryland Cropping	ha	-	15,500
Grazing Land	ha	26,000	10,300
Total Land	**ha**	**26,000**	**26,000**

Note: The figures provided are not the exact total, rather they have been provided to illustrate the potential and versatility of the Property.

6b. Case Study (cont.)

Cost Benefit Analysis

With the information provided by the Property's management, we have prepared a cost benefit analysis based on the planting of a 400 hectare irrigated hay crop. Note that in order to complete this analysis, we have used assumptions based on both information provided by management, in addition to current market prices/yields.

Table 27 opposite shows the assumptions used to complete the brief analysis.

Table 28 opposite displays a basic cost benefit analysis based on the preparation of a 400 hectare irrigated hay crop on the Property, using the assumptions in Table 27 and other information provided by management.

As Table 28 illustrates, the initial set up costs (including land preparation and infrastructure purchases) in Year 0 is expected to be in the vicinity of $310,000.

Using the assumptions outlaid in Table 27, management are able to generate a positive net income of $3.5m at the end of Year 1 following harvest. This shows the potential for the land, subject to the seasonal conditions and effective management, and highlights the lost opportunity should there be acquisitions of this land for a non-agricultural purpose.

Assuming the proposed acquisition moves forward, its impact will be felt both locally and in the wider region. Business and revenue generated through the purchasing of crop inputs from local retailers will be lost, and the employment of contractors / staff for activities such as spraying, baling and cartage will be unnecessary.

Table 27: Irrigation Cropping (Hay)

Yield		Assumptions
Base case	t / ha	6.82
Pricing		
Base case	AUD / bale	$30
Quantity and Sales Output		
Bale weight	kg / bale	110
Land used to grow Hay	ha	400
Quantity	t	2,728
	No. of Bales / t	9
No. of Bales per cut	Bales	24,800
No. of cuts per year	Cuts	5
Total Bales per Year	AUD	124,000
Sales	AUD	3,720,000

Table 28: Irrigation Cropping (Annual)

Grass Hay	Yr 0	Yr 1
Revenue		
Hay Proceeds	-	3,720,000
Expenses		
Crop Inputs	(5,400)	(154,222)
Project Development Costs	(307,443)	
Net Income (Loss)	**(312,843)**	**3,565,778**

Assuming the proposed acquisition moves forward, its impact will be felt both locally and in the wider region.

6b. Case Study (cont.)

Example – Comparison between the production of one BAF vs production of hay (Based on carrying capacity)

Given the potential alternate uses for the Property, as an irrigated cropping enterprise, we have illustrated the difference between the current use of cattle grazing compared to the financial benefits of operating an irrigated hay crop on the same sized area.

Table 29: Carrying Capacity per BAF v Irrigated Hay Crop

Current – Grazing		Assumptions
Carrying Capacity	Ha / BAF	6.07
Months		12
Sales	$ / progeny	900
Calving Rate	% / BAF	70%
$ / beast area		630
Alternate – Irrigated Cropping		
Yield		
Base case	t / ha	6.82
Quantity		
Land area	Ha	6.07
Quantity	t	41
	No. of Bales / t	9
Hay Bales / Cut		376
No. of Cuts / Year	Cuts / Year	5
Bales / Year		1,882
Sales Output		
Bales / Year		1,882
$ / Bale	$	30
Sales		56,454

Table 29 shows the assumptions used to complete the brief analysis.

Table 30 shows a comparison of the potential financial return on the same amount of land area (6.07 hectares =15 acres) on the Property.

Gross revenue is significantly higher when producing 1,882 bales of hay over the course of the year, generating $56,454 in sales. Compared with the production of one BAF generating 70% of one weaner over a 12 month period, reaching approximately $630/ head.

This indicates clearly, the potential and versatility of the land on the Property.

Table 30: Summary (Carrying Capacity per BAF v Irrigated Crop)

Summary	Land Area (Ha)	Est. Income ($)
Current – Grazing	6.07	630
Alternate – Irrigated Cropping	6.07	56,454

6b. Case Study (cont.)

Management have provided the following photographs of the targeted areas which they intend to develop to irrigated cropping.

The photographs show a mix of both loamy alluvial soils and red goldfields – neutral red duplex soils, which are suitable for irrigated cereal crops, horticultural and small crops, and a wide range of irrigated pasture species.

Dryland Cropping (15,500 hectares)

As shown in Table 26, the opportunity for dryland cropping on the Property represents a far larger area than the potential irrigated cropping land area. Management consider approximately 15,500 hectares of land could be developed for the production of extensive cropping dryland cereal crops.

The subject land area has suitable soil types for dryland cropping, consisting of primarily red duplexes and loamy clays. Rainfall data also supports a dryland cropping enterprise.

The grain produced could be used to establish an on-farm feedlot and to supply various local markets, including local feedlots, chicken farms and piggeries who demand high protein cereals.

Any of the cleared timber may be used to benefit the surrounding landscape through the use of contours and broken gully remediation.

6b. Case Study (cont.)

Cost Benefit Analysis

With the information provided by the Property's management, we have prepared a cost benefit analysis based on the planting of a 15,500 hectare dryland grain sorghum crop. Note that in order to complete this analysis, we have used assumptions based on both information provided by management, in addition to current market prices/yields.

In conjunction with the total land used for sorghum production (provided in Table 26), Table 31 below show the assumptions used to complete the brief analysis.

Table 32 displays a brief cost benefit analysis for the operation of a 15,500 hectare dryland grain sorghum crop on the Property.

As Table 32 illustrates, the initial development costs are expected to total approximately $4.3m, these include land clearing and land preparation.

Table 31: Dryland Cropping (Grain Sorghum)

Yield		Assumptions
Base case	t / ha	2.67
Pricing		
Base case	AUD / t	229
Quantity and Sales Output		
Land used to grow Sorghum	ha	15,500
Quantity	t	41,385
Sales	AUD total	9,477,165
Income per Ha	**$/Ha**	**611.43**

Using the assumptions outlaid in Table 31, management are able to generate a positive net income of $4.5m at the end of Year 1 following harvest. This shows the potential for the land, subject to the seasonal conditions and effective management, and highlights the lost opportunity should there be acquisitions of this land for a non-agricultural purpose.

Assuming the proposed acquisition moves forward, its impact will be felt both locally and in the wider region. Business and revenue generated through the purchasing of crop inputs from local retailers will be lost, and the employment of contractors / staff for activities such as sowing and harvesting will be unnecessary.

Table 32: Dryland Cropping (Annual)

Grain Sorghum	$/Ha	Yr 1
Revenue		
Sorghum Proceeds	611	9,477,165
Expenses		
Development Costs	(281)	(4,360,615)
Harvest Costs	(35)	(542,500)
Total Costs	(316)	(4,903,115)
Net Income (Loss)	**295**	**4,574,050**

6b. Case Study (cont.)

Management have provided the following photographs of the targeted areas which they intend to develop to dryland cropping.

The photographs show a mix of both red goldfields – neutral red duplex soils, black cracking clays and loamy alluvials which are suitable for dryland cropping.




6b. Case Study (cont.)

Summary of Irrigated and Dryland Cropping

From the analysis undertaken on each of the potential cropping developments available to the Property, it appears that there is a significant amount of unlocked potential in the Property.

In addition to the financial benefits, the developed land on the Property will increase its carrying capacity. Management have advised that if cattle were run on irrigated pastures, it will reach up to 10 head per hectare. This compares favourably to the 2.5 head per hectare on improved pasture and 0.165 head per hectare on natural pasture. This is a significant difference and highlights what the Property is capable of and potential loss to QLD's cattle industry should this land be acquired and used for non-agricultural purposes.

Our high level analysis, which relies on management's forecasts and current market yield / price estimates, indicates that both the irrigated and dryland cropping enterprises could generate positive cash flows of approximately $8m (combined) once finally developed.

Furthermore, we expect that the proposed activities, if commenced on the Property, would also contribute to increased economic activity in the region, as well as higher utilisation of the local workforce.

Our high level analysis ... indicates that both the irrigated and dryland cropping enterprises could generate positive cash flows of approximately $8m (combined) once finally developed.

On-Farm Feedlot

Whilst not part of the HVA permit application, management have contemplated developing an on-farm feedlot as part of further future development. The inclusion of the feedlot would not impact on the areas available for irrigated and dryland cropping.

Management estimate the feedlot capacity to be 5,000 head per year. All cattle would spend 60-90 days on feed prior to being sent off for processing.

Based on the figures above, this equates to turning off cattle four times throughout the year, thus finishing 20,000 head per year.

Grain produced from the Property's sorghum crop can be used as a further resource for the feedlot.

Assuming the proposed acquisition takes place, this potential finishing capacity will not be realised and will be lost to the region.

6b. Case Study (cont.)

Impact of Potential Land Acquisition

Current Use

Should land acquisitions take place on the Property, the immediate impact will be that of the loss of approximately 4,000 head of cattle. This includes approximately 1,900 head of BAFs. Importantly, breeding genetics that have been developed over a period of time, will be removed from the Property and contribute to a loss of breeding sources within the upper Burdekin Region.

Estimated revenue of $1.4m will be lost from the removal of the saleable cattle herd on the Property.

This loss of cattle will not only contribute to the overall loss for the total herd within the Burdekin Region, but will also impact the local and state-wide beef supply chain. For example, local livestock agents, veterinarians and agricultural product suppliers will experience a decrease in operational activity.

An estimated market value of $1.4m will be lost from the removal of the saleable cattle herd on the Property.

Productivity lost from the Property is expected to be mirrored across all other beef enterprises located in the region.

Alternative Use

Based on the analysis undertaken on the alternate uses of the land, the potential loss for the Property is significant given the versatility of the subject land area.

From the information provided by the Property's management, a total of approximately 16,000 hectares of land is suitable for the production of irrigated and dryland cropping.

The work to be performed and level of spending required to prepare and operate the alternate uses of land is significant and would impact the local area and community both financially and socially.

The alternate uses of land have the ability to generate positive cash flows of approximately $8m (combined) once finally developed in Year 1.

The product(s) developed by the Property (whether they be hay or sorghum) would provide an increase in supply for local producers throughout the area and be of benefit for various customers including piggeries, feedlots and chicken farms.

Should the proposed acquisitions proceed, their productive capacity will be lost.

7.0 The Fitzroy Region

7.1 Overview

Summary of Region

The Fitzroy Region has a total land area of 13.8m hectares, ranging from the QLD's central coast of Rockhampton and Gladstone, west to Bogantungan. The Region covers approximately 10% of the state of QLD.

The Region's main agricultural activity is beef cattle, whilst also supporting dryland and irrigated cropping, horticulture and forestry.

A QLD Agricultural Land Audit conducted in 2009 projected that the Region would experience strong annual population growth of 2.1% over the next 20 years, which is higher than the State's projected average of 1.8%.

Grazing will continue to be an important agricultural land use in Central QLD.

As noted, cattle grazing is the dominant agricultural land use in Central QLD, with the main activities being:

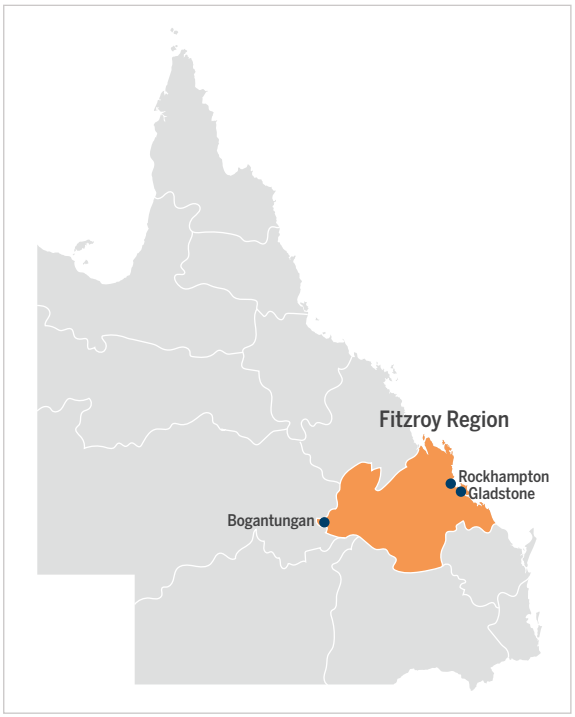
- Production of yearling and weaner steers for grass and grain finishing;
- Breeding and finishing cattle; and
- Stud breeding enterprises producing stud bulls and cows (genetics).

The extensive grazing systems in Central QLD are rain-fed with the availability of water typically not a constraint to production.

Grazing will continue to be an important agricultural land use in Central QLD. Although the area under grazing is unlikely to significantly expand, there are opportunities to improve the productivity of pastures by improving land condition (increasing the area of high-productivity pastures by approximately 1.5m hectares).

There are also opportunities to improve beef production systems and target niche markets to access premium prices.

Map 15: The Fitzroy Region



7.1 Overview (cont.)

Land Area

The Fitzroy Region covers over 13.8m hectares, which equates to approximately 10% of QLD's total land area (refer to Table 7 below).

Over 12.2m hectares or 89% of the Fitzroy Region is used for agricultural production.

Chart 23 shows that 95% of the Fitzroy Region agricultural area is classified as grazing area.

The Fitzroy Region grazing area is further sub-categorised between Improved Pasture (43%) and grazing on Other Land (53%).

Improved pasture is considered high quality cattle country where there is an increased carrying capacity in comparison to other regions.

Chart 23: The Fitzroy Region Total Agricultural Land Area

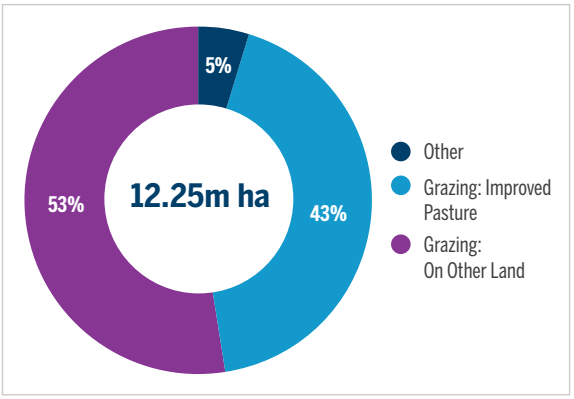


Table 33: Fitzroy Region – Total Land Areas

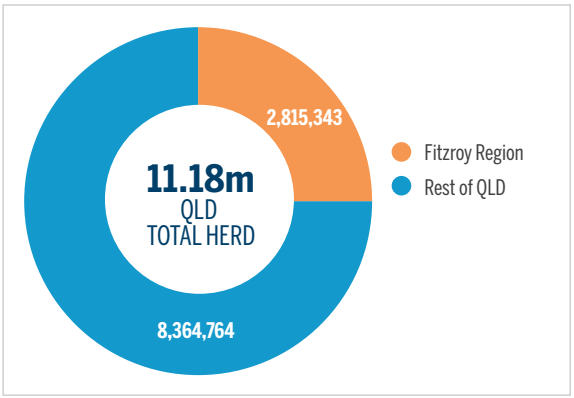
	Queensland		Fitzroy Region	
	Hectares (Ha)	%	Hectares (Ha)	%
Total Land Area	135,917,925	100%	13,819,841	10%
Total Agricultural Area	122,136,717	90%	12,258,132	89%
Total Grazing Land Used	118,716,693		11,705,260	
a) Improved Pastures	16,286,578		5,233,623	
b) Other Grazing	102,430,115		6,471,637	
Other Land	3,420,024		552,872	
Non Agricultural Land	13,781,208	10%	1,561,709	11%

Cattle Herd

As mentioned previously, ABARES estimated there to be approximately 11.18m head of cattle throughout QLD in 2016. Due to the high quality of grazing country, the Fitzroy Region represents approximately 20% (2.81m head) of the total cattle herd in QLD (refer to Chart 24).

As such, this region is considered very important for the beef industry in Australia.

Chart 24: The Fitzroy Region Estimated Cattle Herd (2016)



7.2 Land Use

Land Use

Map 16 details the variety of agricultural land-use of the Fitzroy Region.

The Fitzroy Region has a total of 2,714 agricultural farms, of which beef cattle farming accounted for 2,048 farms or 75.5% of the total number of agricultural farms in the region.

Central QLD has a strong meat processing capability with three (3) major meat works located between Rockhampton and Biloela. These facilities have the capacity to process approximately 3,320 head of cattle per day, largely for the export market.

The processing facilities are sufficient to process cattle from within the region and are currently not a constraint to increasing production in Central QLD. Facilities in Central QLD process cattle from inside and outside their own regions.

The industry is also supported by a network of cattle sale yards at Emerald, Biloela, Moura and Springsure, and the CQLX Gracemere saleyards.

Beef breeding services are available at Rockhampton for the extraction, processing and storage of cattle semen.

If grazing land is able to be managed, using best management practice to restore the land to a high quality, we consider that the area of high pasture production (and therefore high-quality grazing land) would increase significantly.

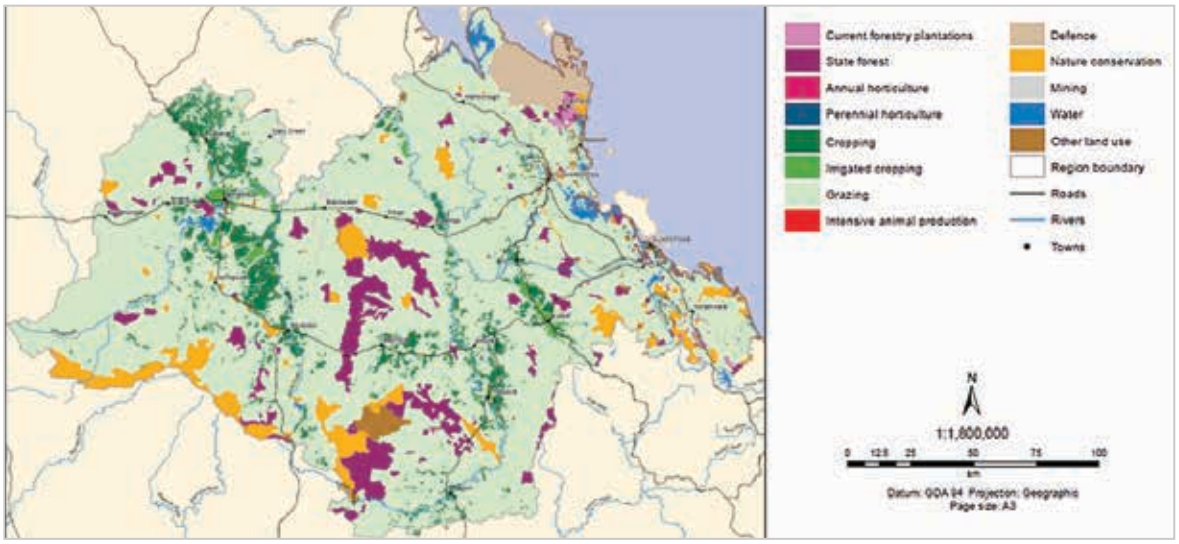
Improved calving rates and enhanced herd and business management, will also improve the productivity of beef production systems throughout Central QLD.

Central QLD has a strong meat processing capability with three (3) major meat works located between Rockhampton and Biloela.

Additionally, finishing cattle on more fertile and more productive country would be better suited and would further enhance productivity.

Although this opportunity applies statewide due to the inherent quality of the region for grazing, the potential gains are higher in the Fitzroy Region than for some other regions.

Map 16: The Fitzroy Region – Agricultural Land Use



Source: QALA

7.3 Supply Chain – Infrastructure

Infrastructure

Map 17 indicates the major infrastructure and agricultural processing plants located within the Fitzroy Region.

Rockhampton is the central junction for the major highways and rail network, as it is home to two large beef processing plants.

The Fitzroy Region has a well developed arterial road system which links to major roads such as the Bruce and Capricorn Highways.

Rockhampton is the central junction for the major highways and rail network, as it is home to two large beef processing plants.

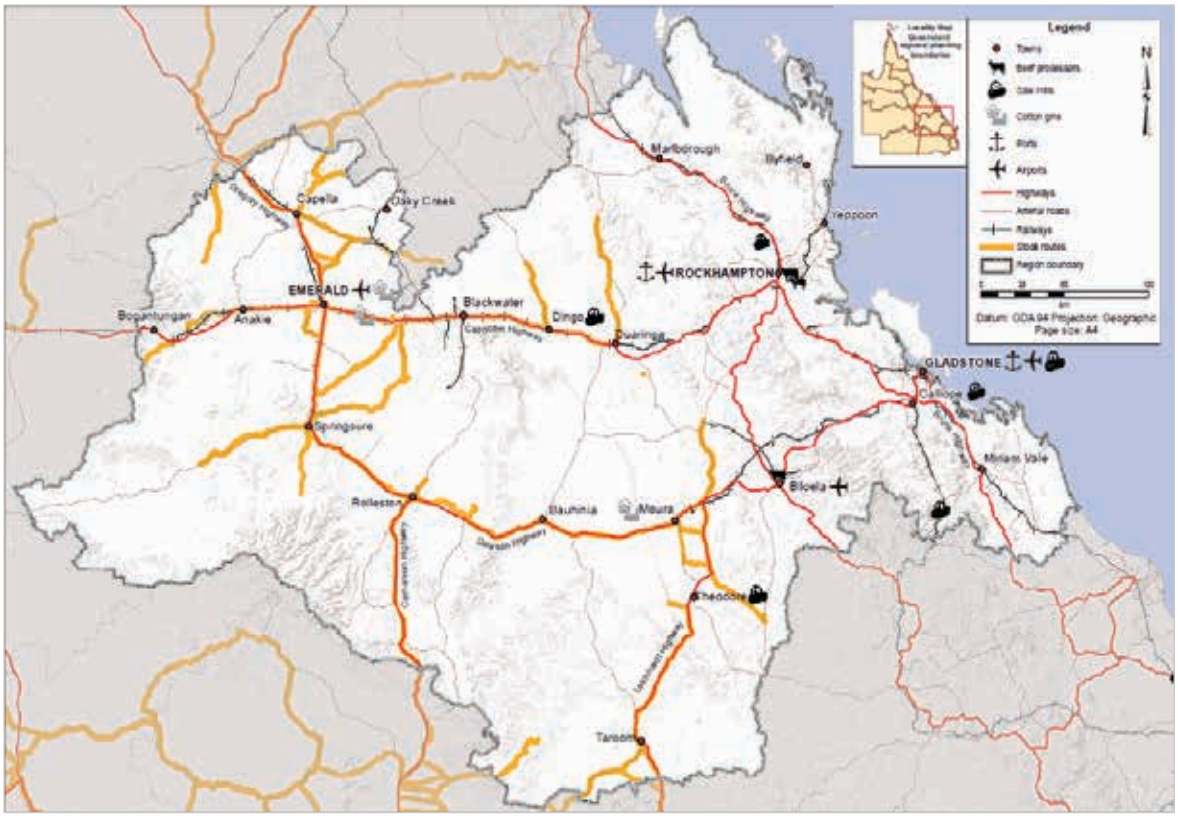
Emerald is also an important hub for rail and road transport of agricultural products, although rail capacity is largely allocated to coal and other freight.

The CQLX Gracemere saleyards, located 15kms outside Rockhampton, is the closest to the affected area and likely to be the preferred destination for the producers located within the Shoalwater Bay expansion areas.

In late 2016,the Federal Government committed approximately $56 million for 15 beef road projects and more than $82 million to upgrade four major regional QLD roads with the aim of boosting the QLD cattle industry by reducing transport costs and improving safety on key routes.

Included within the federal governments commitment was $20m allocated to road upgrades between the CQLX Gracemere saleyards and the Rockhampton abattoirs to provide access for Type 1 road trains.

Map 17: The Fitzroy Region – Transportation Types



Source: QALA

7.4 Water Resources

Water Resources

Map 18 shows the Fitzroy Region Water Basin Resource Plan location.

The Fitzroy Region basin encompasses six major river systems running through an area of just over 142 600 square kilometres. The catchment stretches from the Carnarvon Ranges in the west to the river mouth in Keppel Bay, near Rockhampton.

All water that falls in the landscapes within the Fitzroy Basin eventually reaches the Fitzroy River, which flows into the Great Barrier Reef lagoon.

The Fitzroy River, is formed by the joining of the Mackenzie and Dawson rivers at Duaringa.

The amount of water that flows from the Fitzroy Basin into the ocean each year is about 4,800 gigalitres.

Major Rivers within the Fitzroy Basin include:

- Connors River joins the Isaac River, both rivers start in the north of the basin;
- Nogoa River originates out west and combines to form the Mackenzie River;
- Dawson River starts in the south-west of the basin in the Carnarvon Range; and
- Fitzroy River is formed where the Mackenzie and Dawson Rivers meet.

Map 18: The Fitzroy Region: Water Resource Plan Location Map

Source: https://www.fba.org.au/fitzroy-basin/DNRM

7.0a Shoalwater Bay "Likely" Expansion Area

7a.1 Overview of Expansion Area

Table 34: Expansion Area Details

Description	Within Affected Area
Total Area Being Acquired (Ha)	152,193
Total Agricultural Area (Ha)	144,516
Total Grazing Area (Ha)	141,587
No. of All Business	38
No. of Cattle Producers	38

Map 19 highlights the properties located within the "likely" expansion area.

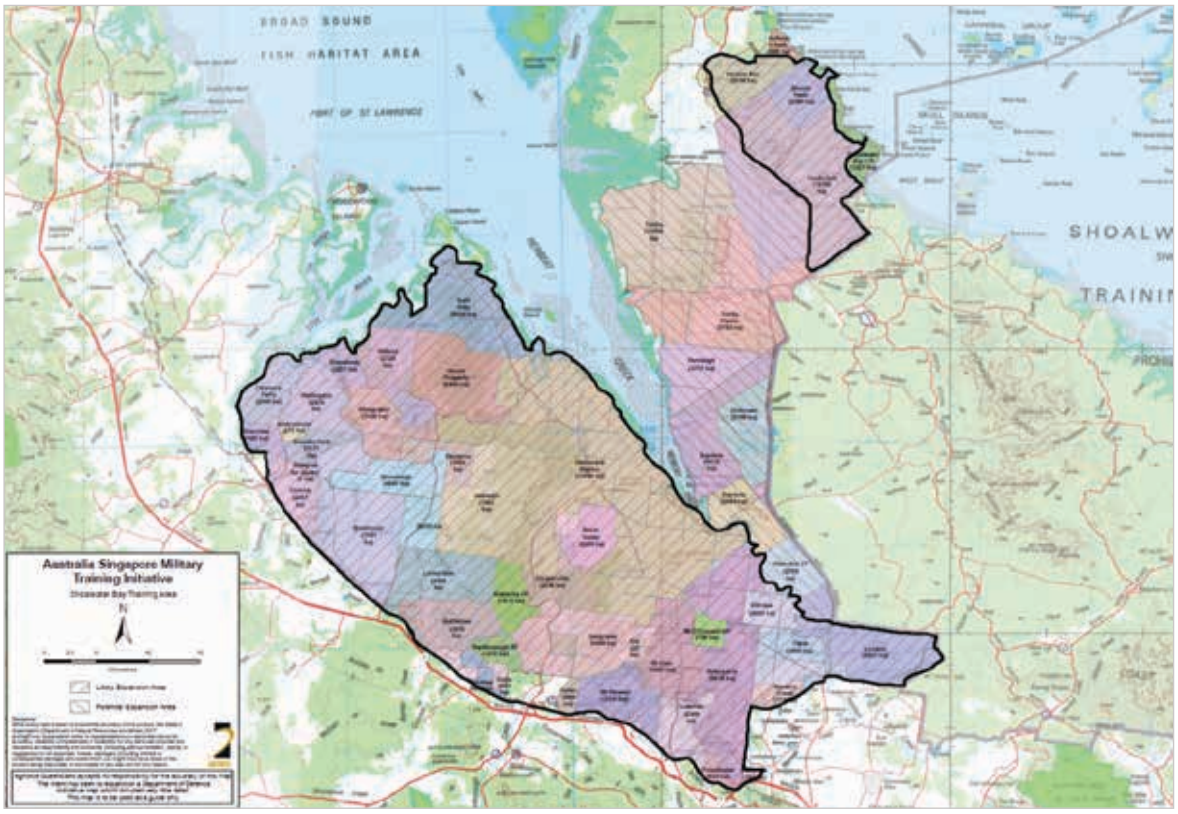
The impact findings are based on current proprietary information received from businesses in the region and extrapolated over the remaining properties in the "likely" expansion area.

The total area to be acquired is 152,193 hectares, of which 144,516 hectares is classed as agricultural land. Additionally, there are 38 properties located and operating within the "likely" expansion area.

We have received proprietary information from seven (7) producers within the affected area, totalling 48,335 hectares, which equates to over 31% of the total affected area.

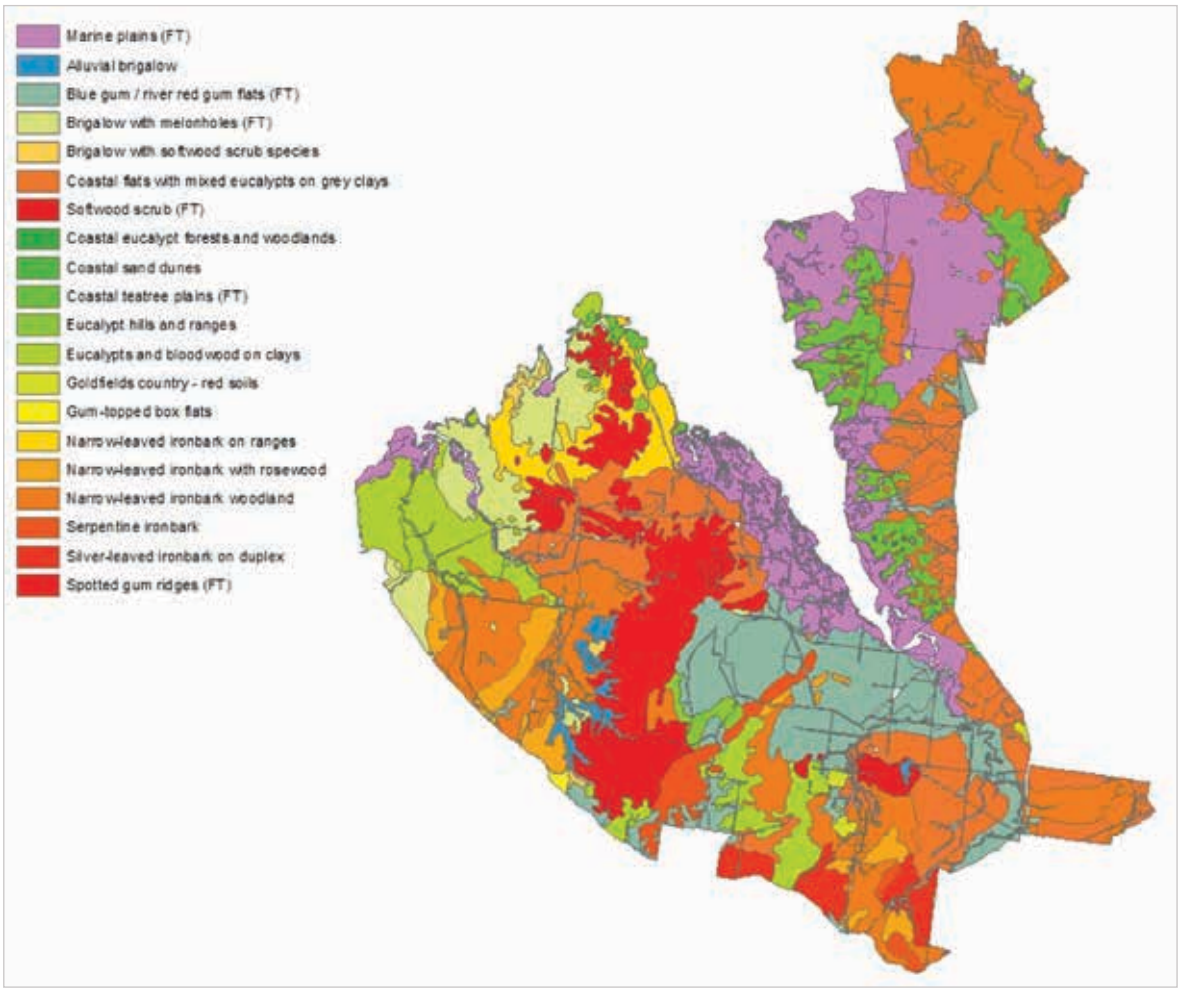
The size of the properties operated by the producers who provided proprietary information range from 700 to 16,000 hectares.

Map 19: The Shoalwater Bay "Likely" Expansion Area



Source: ADF

Map 20: Land Types – Shoalwater Bay "Likely" Expansion Area



Source: DAF

Map 20 details the various land type classifications within the Shoalwater Bay "Likely" expansion area.

There is a large amount of marine plains which is classed as top quality, productive country and can carry more cattle on a per hectare basis.

There is also a significant amount of land area that is finishing country. This is quality grazing land with a mixture of bluegum flats, brigalows and softwood scrubs.

7a.2 Summary of Information Obtained

Map 21 below highlights the broad locations of the seven properties that provided questionnaires to us for the purpose of this Report. This information was used to support our findings throughout the Report.

Map 21: The Shoalwater Bay "Likely " Expansion Area – Proprietary Information Sourced from Producers

Source: Google Maps

7a.2 Summary of Information Obtained (cont.)

The proprietary information received from seven (7) producers within the affected area totals approximately 48,335 hectares, equating to over 34% of the total affected area as displayed in Chart 25.

The size of the properties operated by the producers who provided proprietary information, range from 700 hectares to 16,000 hectares. The data received from the producers come from different locations of the affected area (as indicated on Map 21), which has assisted our assumptions given the range of proprietary information.

Chart 25: Total Agricultural Area: Shoalwater Bay "Likely" Area (Ha)

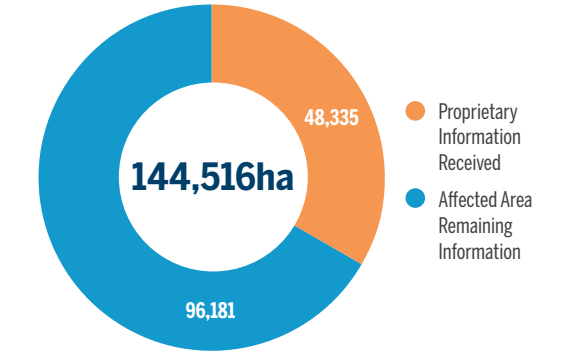
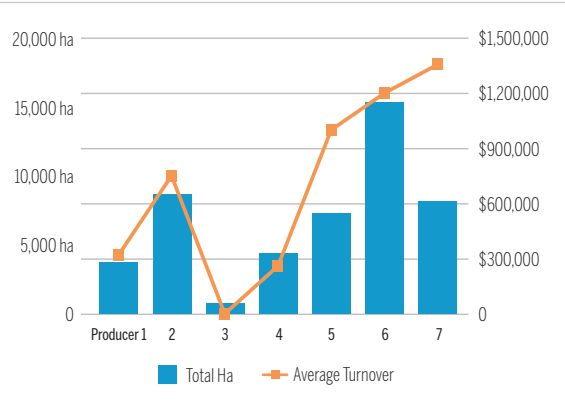


Chart 26: Shoalwater Bay "Likely" Area: Property Size / Annual Turnover

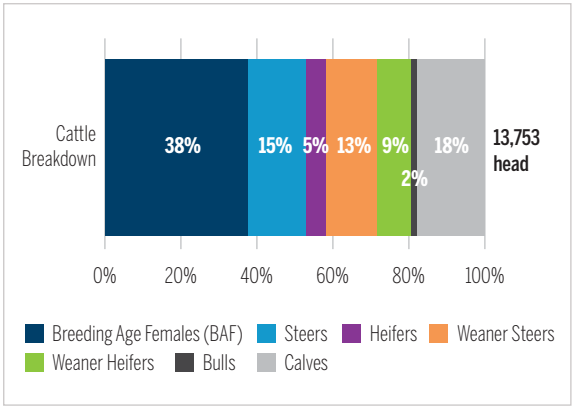


As illustrated in Chart 26, the average turnover from the information received ranges between $260,000 and $1.3m. Average business expenditure ranges between $40,000 and $800,000. farm supplies, livestock transport and education expenses are examples of the items incurred by the producers. It is noted not all producers that participated in this Report provided detailed financial data.

The affected area comprises of only approximately 1.21% of the total grazing area in the Fitzroy Region, whilst the total amount of cattle in the areas that provided proprietary information is approximately less than 1% (~0.48%) of the total current herd in the Fitzroy Region.

Chart 27 below illustrates the breakdown of cattle types that was received from the seven producers with the total equating to approximately 13,753 head. From the total head of cattle, BAFs and Finishing Cattle (steers and heifers) account for 38% and 20% respectively, whilst Other Cattle (bulls, calves and weaners) accounted for 42%.

Chart 27: Breakdown of Shoalwater Bay "Likely" Cattle Herd



7a.3 Total Estimated Cattle Herd

Calculating Estimated Cattle Herd

Given the variety in land type within the Shoalwater Bay "Likely" expansion area, we have provided a breakdown (refer to Table 35) on the estimated average carrying capacity of the total grazing area. We have applied information obtained from DAF on land type and carrying capacity to assist with the calculation of an overall average carrying capacity for the total grazing land area.

As a result, we estimate the average carrying capacity for the affected area to be 1 AE per 6 hectares.

Applying this information, we are able to calculate the estimated total cattle herd number based on the average carrying capacity of the affected area under Methodology 1 (refer to Table 36).

In Methodology 2, the pro-rata method has been applied to estimate the total cattle herd in the affected area, based on the information provided by the seven producers as explained in Section 5.2 – Information Gathering Methodology.

Accordingly, the estimated total cattle herd located within the "Likely" expansion area ranges between 22,264 head to 40,287 head.

Table 35: Breakdown of Carrying Capacity per Grazing Area

Area	Grazing Land Area (Ha)	No. of Ha to one AE	Estimated Total Head
Shoalwater Bay "Likely" Area	9,407	4	2,352
	58,792	5	11,758
	73,388	9	8,154
Total	**141,587**		**22,264**
Average Carrying Capacity			**6**

Table 36: Calculation of Cattle Herd

Shoalwater Bay "Likely" Area	Methodology 1	Methodology 2
Total Area (ha)	152,193	152,193
Total Grazing Area (ha)	141,587	141,587
Total Grazing Area (ha) – Information Received	-	48,335
% of Total Grazing Area	-	34%
Total Herd - Information Received from Questionnaire	-	13,753
Carrying Capacity (Ha per AE)	6	-
Estimated Cattle Herd	**22,264**	**40,287**

7a.4 Cattle Herd Breakdown

Breakdown of Cattle Types

In accordance with our methodology and similar to our analysis undertaken on the Townsville Field "Likely" Expansion Area, we have calculated the remaining balance in the number of cattle provided by the seven producers, to our estimated total cattle herd outlined in Table 36 (previous page).

Accordingly, as shown in Charts 28 and 29, we have estimated there to be in the range of approximately 8,511 and 26,534 head of additional cattle unaccounted for within the "Likely" expansion area.

To assist with our analysis, we have used the percentage of each class of cattle (demonstrated in Charts 28 and 29) and applied this against the estimated total number of cattle in the subject area as shown in Charts 30 and 31 below.

Summary of Total Estimated Cattle Herd

Applying the logic discussed above, in Charts 28 and 29 we estimate that there are between 5,648 and 10,220 BAFs located within the "Likely" expansion area.

Additionally, we estimate that there are between 3,681 and 6,661 head classed as Finishing Cattle, whilst an estimated range of between 12,935 and 23,405 head classed as Other Cattle are located within the "Likely" expansion area.

Note that to determine the impact on the breeding and finishing capacity of the affected area, we have excluded Other Cattle throughout our analysis.

Chart 28: Breakdown of Cattle – Methodology 1

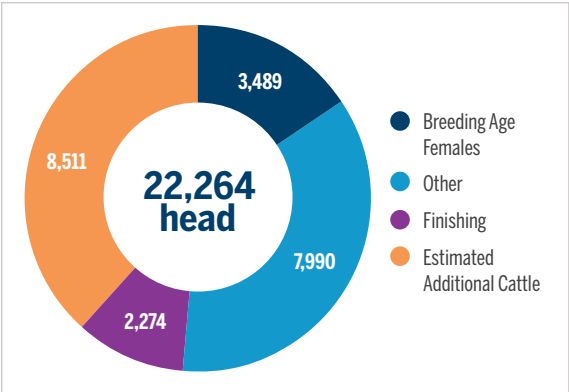


Chart 30: Estimated Cattle Herd – Methodology 1

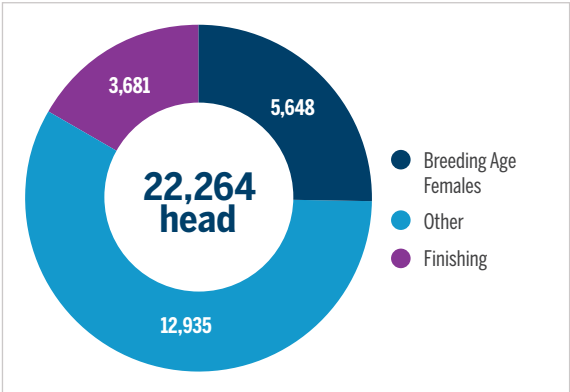


Chart 29: Estimated Breakdown of Cattle – Methodology 2

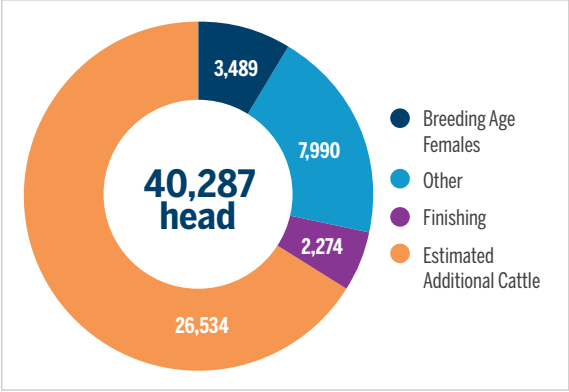
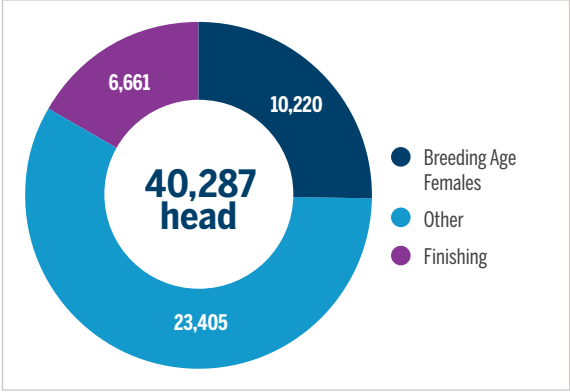


Chart 31: Estimated Cattle Herd – Methodology 2



7a.5 Impact on Productivity – Breeding

We have determined the potential impact on cattle productivity within the affected area using information provided by the seven producers and other industry standard assumptions which are outlined below in Table 37.

Note that both the average calving and weaning rates have been calculated based on the information provided by the seven producers within the "Likely" expansion area. Note the assumptions have been applied to both methodology's.

Similarly to the Townsville Field "Likely" Expansion Area, the BAF production increase % assumption has been applied within this analysis.

Table 37: Operational Capacity – Breeding Age Females

Assumptions	Methodology 1	Methodology 2
No. of BAF	5,648	10,220
Av. Calving Rate %	81%	81%
Av. Weaner Rate %	97%	97%
BAF Production Increase %	1.5%	1.5%

Table 38: 1–5 Year Forecast

	Year 1		Year 2		Year 3		Year 4		Year 5	
No. of Breeders	5,648	10,220	5,733	10,374	5,819	10,529	5,906	10,687	5,995	10,847
No. of Calves	4,575	8,295	4,644	8,420	4,713	8,546	4,784	8,674	4,856	8,805
No. of Weaners	4,438	8,080	4,504	8,201	4,572	8,324	4,641	8,449	4,710	8,576

7a.5 Impact on Productivity – Breeding (cont.)

Short Term – Year 1

Based on our estimated range of the total cattle herd within the affected area, the number of BAFs for Year 1 ranges from 5,648 and 10,220 head whilst we estimate that the number of weaners to range between 4,438 and 8,080 head.

Therefore, should the land acquisitions take place within the expansion areas, there will be a loss of BAFs ranging between 5,648 and 10,220 head.

The total loss will most likely be distributed as follows:

- Sold to other producers outside the expansion areas; and /or
- Sold to beef processors for slaughter.

As a result from the loss of BAFs, breeding genetics will be removed from the expansion and surrounding areas, impacting the quality of future progeny and also the quality of beef produced.

Medium Term – Years 2-5

With the annual production increase, we expect that the number of BAFs would increase to between 5,995 and 10,847 head in Year 5 if no acquisitions took place.

Calving and weaning rates are assumed to increase in line with the number of BAF.

Should the proposed acquisition take place in totality, the throughput lost to the subject area would be equal to the number of progeny born each year (notwithstanding that the profile/age of cattle sold will be varied).

Based on the above, we estimate that the movement of between 18,427 and 33,550 weaner cattle could be lost to the affected area from Year 2 to Year 5. This means that this number of cattle will not be available for exporters, processors and restockers outside of the subject area.

7a.6 Impact on Productivity – Finishing

Table 39: Operational Capacity – Finishing Cattle

Assumptions	Methodology 1	Methodology 2
No. of Finishing	3,681	6,661
Production Increase %	1.5%	1.5%

Table 40: 1–5 Year Forecast

	Year 1		Year 2		Year 3		Year 4		Year 5	
No. of Finishing	3,681	6,661	3,737	6,761	3,793	6,863	3,849	6,966	3,907	7,070
Production Increase	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%

Short Term – Year 1

As Table 39 illustrates, based on our estimated range for the total cattle herd within the affected area, we have calculated the number of Finishing cattle to range between 3,681 and 6,661 head for Year 1.

Based on limited data received and on our knowledge of the region, we understand that a significant portion of cattle are brought in from outside of the subject region for finishing. These cattle will need to be sent elsewhere for finishing, should land acquisitions proceed.

Should land acquisitions take place, QLD is losing the capacity to finish between 3,681 and 6,661 head of cattle in Year 1. This has the potential to increase pressure on other finishing properties in external regions.

Medium Term – Years 2-5

Similarly, to our assumptions with the breeding herd, regarding the annual production increase, we estimate that the affected area may lose the ability to finish between 15,286 and 27,659 head of cattle over the four years from Year 2 to Year 5 (refer to Table 40).

Such a loss of finishing capacity is likely to impact upon the efficiency of the greater QLD beef supply chain.

7a.7 Impact on Market Value

Market Value calculation assumptions

To calculate the estimated market value of the cattle located in the "Likely" expansion area, we have ignored the potential 'one-off' liquidation sale of the estimated total herd and instead have undertaken our analysis on the scenario of the enterprises undertaking a normal year-on-year season with respect to a revenue capability.

To determine the dollar value lost to the beef industry, we have sourced market value pricing on specific types – feeder steers and heifers only. This approach is in line with our assumption of a normal season where only Finishing cattle are likely to be sold throughout the course of the year.

To assist with the calculations, we have used an average weight (live weight) for each cattle type and sourced market pricing from the nearest saleyard venue to the "Likely" expansion area – being the CQLX Gracemere saleyards.

Table 41 shows that assuming a sale of a 400kg/ live weight beast, we have calculated an average sale price/head to be $1,130.

We have based our calculations on the feeder steers and heifers averaging approximately 400kg lwt / head. We believe that this is appropriate given the location of the cattle within the Fitzroy Region, where pasture conditions and the increase in population of the *Bos Taurus* cattle breed is favourable for heavier cattle, compared with cattle located in the Burdekin Region.

Table 41: Finishing Cattle – Assumptions

Classification of Cattle	Cattle Category	Live weight (kg/hd)	Sale Value (AUD c/kg lwt)	$/hd
Finishing	Feeder Steers	400.00	$303.00	$1,212
	Feeder Heifers	400.00	$262.00	$1,048
Average Total		**400.00**	**$283.00**	**$1,130**

Note: The sale value (AUD c/kg lwt) has been sourced from CQLX Gracemere saleyard report dated 17 March 2017.

Gross Revenue

Using the information provided in Table 42 opposite, we have calculated the estimated sale proceeds from the total estimated head of cattle using the average sale price ($/head), multiplied by the number of Finishing cattle under each methodology.

As a result, the potential market value of the Finishing cattle ranges between $4.1m and $7.5m.

Should acquisitions take place, this provides an indication of the value of Finishing cattle lost to the industry.

Table 42: Impact on Gross Revenue

Assumptions	Methodology 1	Methodology 2
No. of Head	3,681	6,661
$/head	1,130	1,130
Total ($)	**4,159,880**	**7,527,186**

7a.8 Economic Impact on Supply Chain

The impact of the potential acquisitions of agricultural land will not only affect the beef producers who reside and operate within them, but will also be felt along the beef supply chain and throughout wider communities. Below we have assessed both qualitative and quantitative impacts on the beef supply chain should land acquisitions take place on the area.

Production Inputs

Local rural supplies, fertiliser and machinery businesses will be affected due to the removal of producers from the local area /region. Regular customers will be lost due to the reduced need for products.

The potential impact on local suppliers can be demonstrated by using the average cost of production in the northern regions of QLD. Similarly to our analysis in the Townsville area, we have applied the average cost of production (113c/kg live weight) for beef cattle located in northern Australia to calculate the average cost per beast.

Table 43: Input Costs – Assumptions

		Assumptions
Average cost per beast*	c/kg	113
Average Lwt (kg/hd)	kg	350
Average cost per beast	$	$396

*Includes total cash costs only. Excludes other costs such as finance, capital depreciation and unpaid family labour costs.

Table 44: Total Input Costs

Total Costs		Methodology 1	Methodology 2
Average cost	$/ head	$396	$396
No. of cattle	head	22,264	40,287
Total Input Costs	**$**	**$8,805,537**	**$15,933,370**

Based on the above assumptions, we estimate the average cost per beast to be $396 per head. This means that for each beast produced, an average cost of $396 is spent on inputs (such as feed, water, freight etc.) to reach a targeted weight prior to being sent for sale and / or slaughter.

By adding the total estimated herd of cattle within the area, we can establish the overall total input costs potentially lost to local businesses that provide product and services during the beef production phase.

As Table 44 illustrates, an estimated value of between $8.8m and $15.9m in spending could potentially be lost from the industry.

Livestock Agents

Livestock agents would lose long-term customers (beef producers), impacting their business in the immediate to longer term. Agents operating within the affected area will need to expand their search for cattle and beef producers to develop re-build relationships and their customer base.

For an indication on the potential impact of land acquisitions, Table 45 illustrates the financial loss on livestock agent commissions for the sale of between 3,681 and 6,661 head of Finished cattle.

The estimated value of the potential agent commissions' lost ranges between $145,596 and $263,451.

Table 45: Livestock Agents

Finishing Cattle		Methodology 1	Methodology 2
No. of cattle	head	3,681	6,661
Live Weight	kg	400	400
Sale Price	c/kg	283	283
Income per Beast	$/ beast	1,130	1,130
Commission Rate	%	3.5%	3.5%
Agents Commission	Per beast	$39.55	$39.55
Total Gross Commission	**$**	**$145,596**	**$263,451**

7a.8 Economic Impact on Supply Chain (cont.)

Transport

In the event that the land acquisitions take place, there will be a downstream impact on local businesses, particularly local transport companies.

Transport businesses play a major role in delivering cattle to local saleyards, processing facilities and ports. The removal of part of the region's cattle supply will reduce demand for stock transport services.

Table 46 calculates the estimated total truck movements lost with respect to the amount of Finishing cattle located within the affected area. We note that only Finishing cattle would be available to transport off-farm immediately should land acquisitions take place, hence why we have excluded BAFs and Other cattle in the calculations.

In the event that the land acquisitions take place, there will be a downstream impact on local businesses, particularly local transport companies.

As a result, an estimated total ranged between 41 and 75 truck movements could potentially be lost to the transport industry, from the loss of 3,681 and 6,661 head of Finishing cattle located in the affected area.

On the back of our estimated truck movement calculation, we are able to provide the estimated cost to the industry (in dollar value). As Table 47 shows, based on cattle being delivered to meat processing plants in Rockhampton, we have assumed a conservative 150 kilometres to travel at $1.50 per km.

When adding to our total truck movement lost calculation, we can estimate that the dollar value lost to the trucking industry may range between $9,225 and $16,875 per year.

Table 46: Transport Truck Movements

Decks of Cattle Lost		Methodology 1	Methodology 2
No. of cattle	head	3,681	6,661
Av. Live Weight	kg	350	350
Beasts per deck		30	30
Decks per Truck		3	3
Beasts per Truck		90	90
Total Decks		123	223
Total Truck Movements		**41**	**75**

Table 47: Cost of Lost Truck Movements

		Methodology 1	Methodology 2
Cost per kilometre	$	1.50	1.50
Kilometres to travel	km	150	150
Live Weight	kg	350	350
No. of Beasts per Truck		90	90
Total Truck Movements		41	75
Cost per Truck	AUD	225	225
Total Truck Movement Cost	**$**	**$9,225**	**$16,875**

7a.8 Economic Impact on Supply Chain (cont.)

Livestock Levy

The estimated loss (dollar value) on levy proceeds from the potential sale of Finished cattle located in the affected area is illustrated in Table 48 below.

The estimated loss equates to between $18,407 and $33,306, based on the total of 3,681 and 6,661 head of Finishing cattle being removed from the affected area.

Table 48: MLA Levies Source: MLA

Assumptions		Methodology 1	Methodology 2
Grassfed / Grainfed cattle	AUD/Head	$5.00	$5.00
No. of cattle	Head of cattle	3,681	6,661
Total Levy	**AUD**	**$18,407**	**$33,306**

7a.9 Impact of Voluntary Land Acquisitions

Voluntary Land Acquisitions

We have provided three different scenarios (based on a percentage of land being acquired voluntarily) to indicate the level of impact acquisitions of land may have on the cattle herd and supply chain.

As Table 49 illustrates in Scenario A, should only 25% of the total land area be acquired, there would be an impact on the supply chain. For example, agricultural businesses supplying inputs for the beef production may lose an estimated $3.0m with approximately $1.4m of saleable cattle lost to the affected area.

Table 49: Impact of Voluntary Land Acquisitions

Type	Total[a]	Scenario A 25%	Scenario B 50%	Scenario C 75%
Total Land Area	**152,193**	38,048	76,097	114,145
Estimated Cattle Lost	**31,275**	7,819	15,637.74	23,456.61
Inputs Lost	**$12,369,454**	$3,092,363	$6,184,727	$9,277,090
Agents Commission Lost	**$204,524**	$51,131	$102,262	$153,393
Transport Movements Lost	**58**	15	29	44
Transport Costs Lost	**$13,050**	$3,263	$6,525	$ 9,788
Livestock Levy Lost	**$25,856**	$6,464	$12,928	$19,392
Estimated Market Value Lost	**$5,843,533**	$1,460,883	$2,921,766	$4,382,650

Note: a. All total figures have been provided using the average of Methodology 1 and Methodology 2.

7a.10 Shoalwater Bay Area: Genetics

Overview

As discussed in Section 4.2: Breeds of Cattle, the QLD beef industry is home to a diverse number of cattle breeds, heavily influenced by focused genetic breeding to adapt cattle to specific environmental conditions and to promote particular characteristics.

Historically, Brahman cattle located in northern regions of Australia are less efficient breeders due to the harsher climate. However, through genetic improvement, beef producers have been able to develop highly fertile herds.

Specifically, cattle producers within the Shoalwater Bay area have worked closely with scientists and researchers over the previous 25 years to help develop the cattle breeding industry. Additionally, the producers provide the opportunity for university and PhD students across the state to experience the on-farm process and importance of breeding and genetics.

A cattle producer located in Belah Valley has developed a highly fertile Brahman herd, which is rare given the property's geographical location which faces subtropical and temperate conditions.

In addition, this particular cattle producer, along with research scientists, have recently submitted an application to the Australian Research Council to undertake a genomic evaluation of the Brahman herd at Belah Valley.

Genomic screening is the gateway to understanding the genetic basis for high fertility in Brahman cattle, and the research conducted from this study is expected to revolutionise the next phase of genetic improvement in fertility for Brahman cattle. This in turn will have a significant impact on the productivity and profitability of beef production and trade sectors in Australia.

Case Study: CBV Brahmans – Belah Valley, East of Marlborough QLD

CBV Brahmans (**"CBV"**), located in Belah Valley within the Shoalwater Bay area, has one of the most analysed Brahman cattle herds in the world. CBV , led by producer Mr Alf Collins, is leading the way globally in the science and research of Brahman cattle production.

When choosing cattle for reproductive efficiency, CBV select based on the age of the beast at puberty. This is a primary trait that is associated with whole herd reproductive efficiency. CBV use this trait as the phenotypic marker to improve the genetics of the CBV herd.

The task of selection for this trait is typically challenging due to the need to sustain the serial measurements of testicle size on each calf during the period of sexual development so as to ascertain age when puberty occurs in each individual.

The challenges in conducting such a task in a precise and consistent fashion has proved a barrier for other northern Australian cattle enterprises. These measurements have, however, continued for decades at CBV.

The outcome from this long term genetic selection has been the development of the elite Brahman herd known worldwide for its superior fertility.

Bulls from CBV are now highly sought after and have made an impact (improved calving rates) on many properties locally, and from the Gulf through to Central QLD.

The development of the elite Brahman genetics at CBV has not only been from a result of Mr Collins' passion for cattle. The development of the land base (including pastures) and facility infrastructures, simultaneously with the development of the Brahman herd has been integral to the success of this elite beef cattle enterprise.

7a.10 Shoalwater Bay Area: Genetics (cont.)

Impact

We believe that should land acquisitions on the affected areas take place, the loss of breeding cattle throughout those and surrounding regions, will be significant. The potential effect from the loss of breeding cattle in the affected areas may include the following:

- Existing and future genetic characteristics will be removed from the QLD cattle industry, not only affecting local producers within the affected areas, but also a significant amount of others in surrounding regions and throughout Australia. For example, male progeny produced by the Belah Valley property have been sent throughout Australia, whilst semen from superior bulls has been sold worldwide.
- There may be a reduction in fertility levels with the removal of superior breeds. The loss of valuable resources (bulls with better genetics for fertility), will decrease the quality and quantity (calving rates) of future progeny.
- The future of research and development in QLD's beef industry may be impacted through the removal of existing producers whom are based with experience and knowledge that would assist with future beef research. Cattle producers may not be able to provide on-farm experience to young university and PhD students to further develop skills.
- Relocating the breeding herd to other suitable environments outside the affected areas may be time consuming and overall difficult.

We believe that should land acquisitions on the affected areas take place, the loss of breeding cattle throughout those and surrounding regions, will be significant.

7.0b Shoalwater Bay "Potential" Expansion Area

7b.1 Overview of Expansion Area

Table 50: Expansion Area Details

Description	Within Affected Area
Total Area Being Acquired (Ha)	46,725
Total Agricultural Area (Ha)	44,290
Total Grazing Area (Ha)	24,372
No. of All Business	10
No. of Cattle Producers	10

Map 22 highlights the properties located within the "Potential" expansion area.

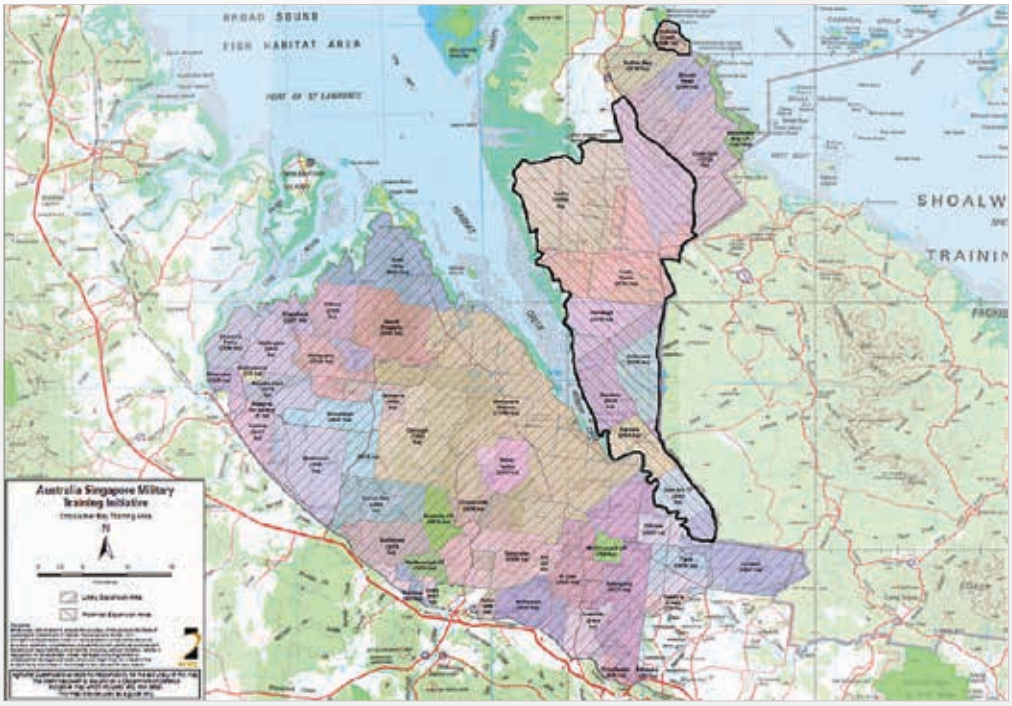
The impact findings are based on current proprietary information received from businesses in the region and extrapolated over the remaining properties in the "Potential" expansion area.

The total area to be potentially acquired is 46,725 hectares, of which 44,290 hectares is classed as agricultural land. Additionally, there are 10 properties located and operating within the potential expansion area.

To date, we have received proprietary information from five (5) producers with land area totalling 30,226 hectares, which equates to over 68% of the total potential affected area.

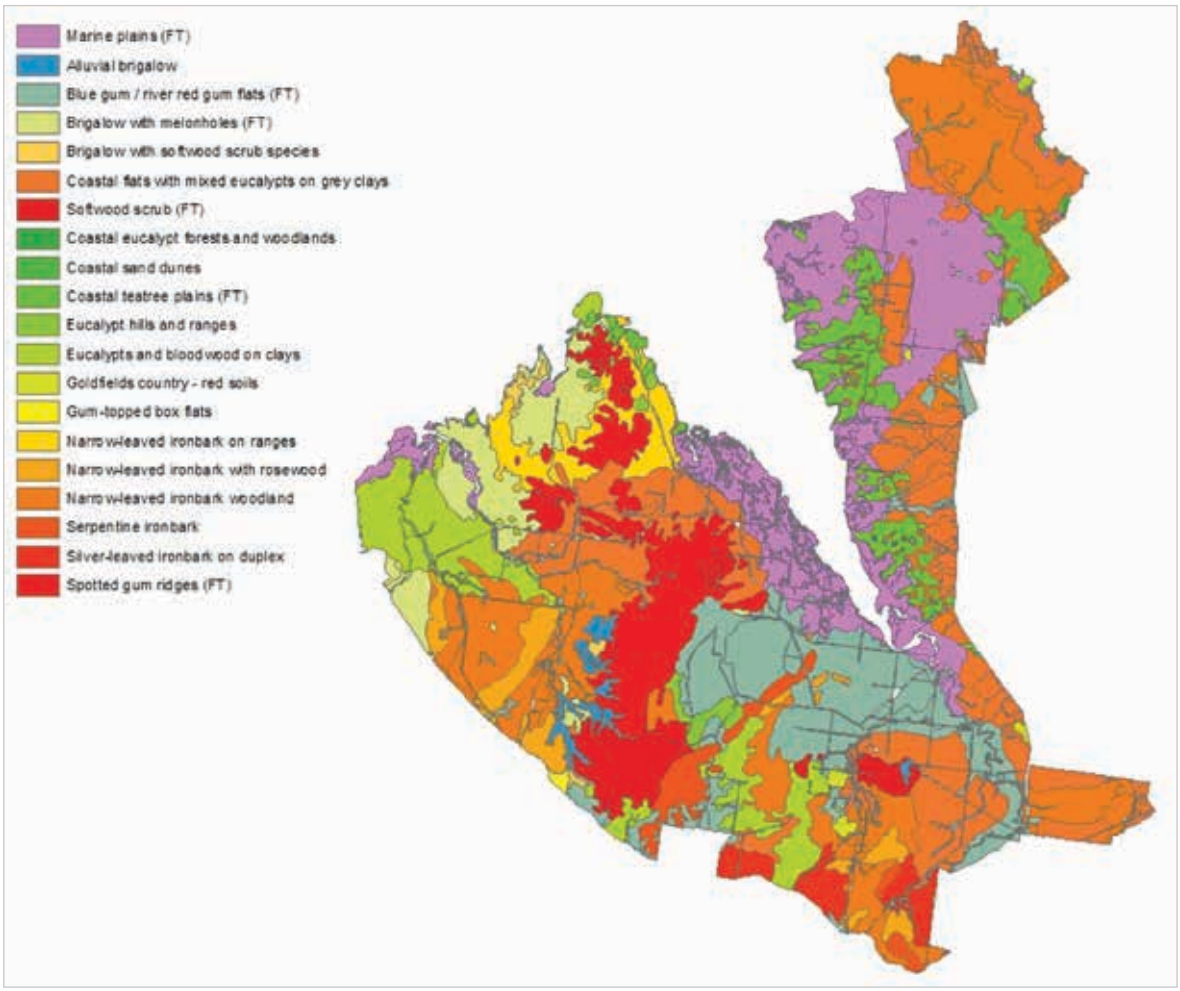
The size of the properties operated by the producers who provided proprietary information range from 1,000 to 10,000 hectares.

Map 22: Outline of the Shoalwater Bay "Potential" Expansion Area



Source: ADF

Map 23: Land Types – Shoalwater Bay "Potential" Expansion Area



Source: DAF

Map 23 details the various land use classifications within the Shoalwater Bay "Potential" expansion area.

There is a large amount of marine plains which is classed as top quality, productive country and can carry more cattle on a per hectare basis.

There is also a significant amount of land area that is finishing country. This is quality grazing land with a mixture of bluegum flats, brigalows and softwood scrubs.

7b.2 Summary of Information Obtained

Map 24 below highlights the broad locations of the five properties that provided questionnaires to us for the purpose of this report.

Map 24: The Shoalwater Bay "Potential" Expansion Area – Proprietary information sourced from Producers

Source: Google Maps

7b.2 Summary of Information Obtained (cont.)

The proprietary information received from the five (5) producers within the affected area totalling approximately 30,226 hectares, equating to over 68% of the total affected area as displayed in Chart 32.

The size of the properties operated by the producers who provided proprietary information, range from 1,000 hectares to 10,000 hectares. The data received from the producers come from different locations of the affected area (as indicated on Map 24), which has assisted our assumptions given we have a range of proprietary information.

Chart 32: Total Agricultural Area: Shoalwater Bay "Potential" Area (Ha)

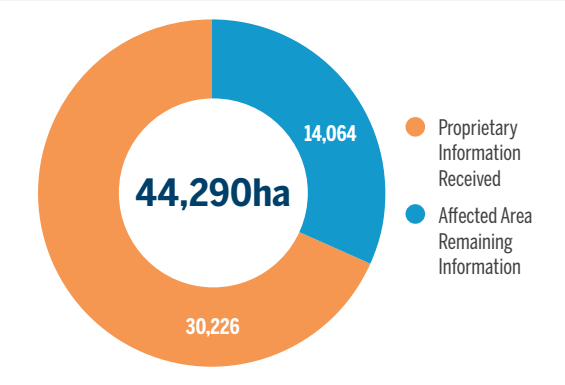
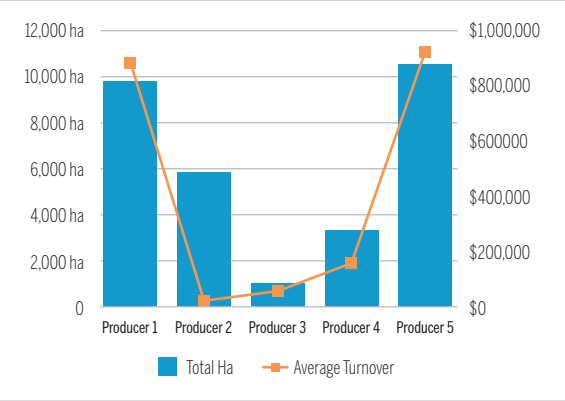


Chart 33: Property Size/Annual Turnover: Shoalwater Bay "Potential" Area

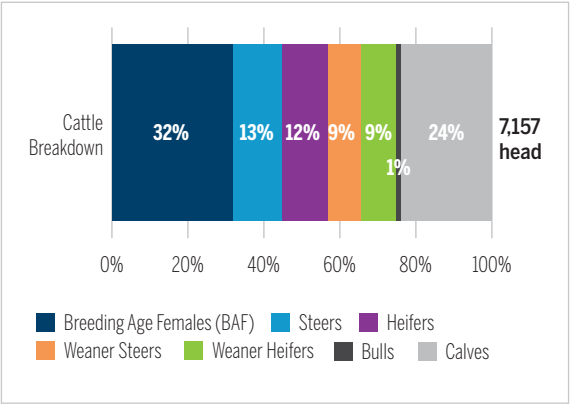


As illustrated in Chart 33, the average turnover from the information received ranges between $25,000 and $920,000. Average business expenditure ranges between $20,000 and $600,000. It is noted not all producers that participated in this Report provided detailed financial data.

Whilst the affected area comprises of only approximately 0.21% of the total grazing area in the Fitzroy Region, the total amount of cattle in the areas that provided proprietary information is approximately 0.25% of the total current herd in the Fitzroy Region.

Chart 34 below illustrates the breakdown of cattle type that were received from the seven producers. The total head of cattle received from the producers amounted to 7,157 head. Of the total heads of cattle, BAFs and Finishing Cattle (steers and heifers) accounted for 32% and 25% respectively, whilst Other Cattle (bulls, calves and weaners) account for 43%.

Chart 34: Breakdown of Cattle



7b.3 Total Estimated Cattle Herd

Calculating Estimated Cattle Herd

Please note for the Shoalwater Bay "Potential" Expansion Area, the information received from producers with respect to the total land area exceeds the total grazing area obtained from our data source. We have calculated our estimated total cattle herd and average carrying capacity using the total agricultural land area. We consider this approach reasonable given that it's likely that since 2009, work has been performed on the land to increase the amount suitable for grazing.

As per our analysis on the Shoalwater Bay "Likely" expansion area, the difference in land type within the Shoalwater Bay "Potential " expansion area needs to be considered when calculating the average carrying capacity of the affected area.

Accordingly, we have provided a breakdown (refer to Table 51) on the estimated carrying capacity of the total area, applying the information obtained from DAF on various land types to assist with the calculation.

As a result, we estimate the average carrying capacity for the area to be 1 AE per 5 hectares.

From this information in Methodology 1, we have calculated the estimated total cattle herd number based on the average carrying capacity of the affected area (refer to Table 52).

In Methodology 2, the pro rata method used to estimate the total cattle herd numbers in the affected area is based on the information provided by the seven producers as explained in Section 5.2 – Information Gathering Methodology.

Accordingly, the estimated total cattle herd located within the "Likely" expansion area ranges between 9,067 head to 10,487 head.

Table 51: Breakdown of Carrying Capacity per Grazing Area

Area	Grazing Land Area (Ha)	No. of Ha to one AE	Estimated Total Head
Shoalwater Bay "Potential" Area	20,535	4	5,134
	14,554	5	2,911
	9,201	9	1,022
Total	**44,290**		**9,067**
Average Carrying Capacity			**5**

Table 52: Calculation of Cattle Herd

Shoalwater Bay "Potential" Area	Methodology 1	Methodology 2
Total Area (ha)	46,725	46,725
Total Agricultural Area (ha)	44,290	44,290
Total Grazing Area (ha)	24,372	24,372
Total Grazing Area (ha) – Information Received	-	30,226
% of Total Grazing Area	-	68%
Total Herd – Information Received from Questionnaire	-	
Carrying Capacity (Ha per AE)	5	-
Estimated Cattle Herd	**9,067**	**10,487**

7b.3 Total Estimated Cattle Herd (cont.)

Breakdown of Cattle Types

In accordance with our methodology and similar to our analysis undertaken on the other affected areas, we have calculated the remaining balance in the number of cattle provided by the seven producers, to our estimated total cattle herd outlined in Table 52 (previous page).

Accordingly, as shown in Charts 35 and 36, we have estimated there to be in the range of approximately 1,910 and 3,330 head of additional cattle unaccounted for within the "Potential" expansion area.

To assist with our full analysis, we have used the percentage of each class of cattle (demonstrated in Charts 35 and 36) and applied this against the estimated total number of cattle in the subject area as shown in Charts 37 and 38 below.

Chart 35: Breakdown of Cattle – Methodology 1

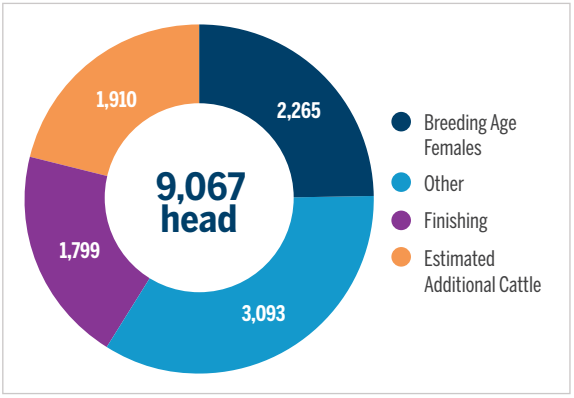
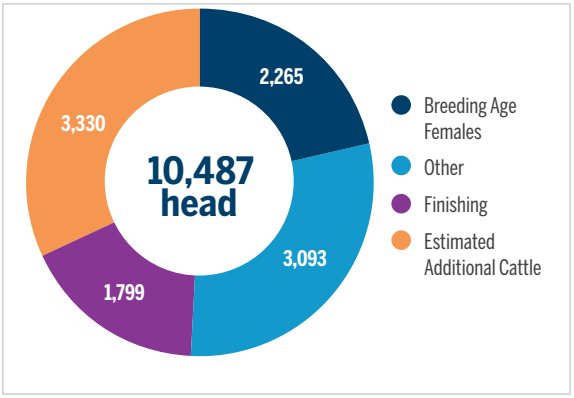


Chart 36: Breakdown of Cattle – Methodology 2



Summary of Total Estimated Cattle Herd

Applying the logic discussed above, in Charts 37 and 38 we estimate that there are between 2,869 and 3,319 BAFs located within the "Potential" expansion area.

Additionally, we estimate that there are between 2,279 and 2,636 head classed as Finishing Cattle, whilst an estimated range of between 3,918 and 4,532 head classed as Other Cattle are located within the "Potential" expansion area.

Note that to determine the impact on the breeding and finishing capacity of the affected area, we have excluded Other Cattle throughout our analysis.

Chart 37: Estimated Cattle Herd – Methodology 1

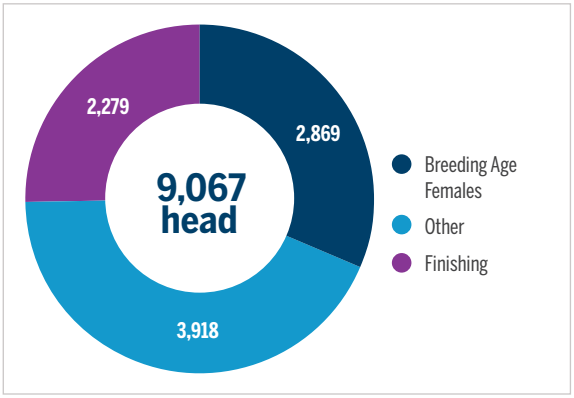
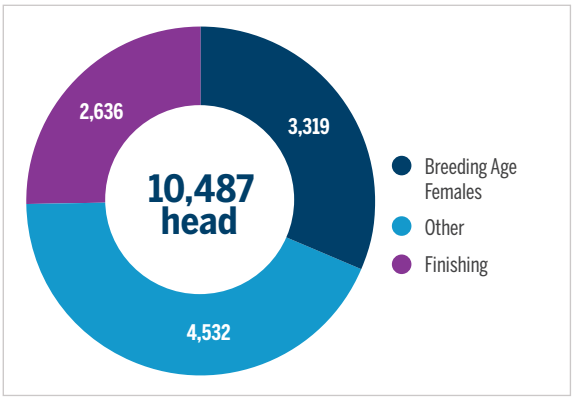


Chart 38: Estimated Cattle Herd – Methodology 2



7b.4 Impact on Productivity – Breeding

We have determined the potential impact on cattle productivity within the affected area using information provided by the five producers and other industry standard assumptions which are outlined below in Table 53.

Note that both the average calving and weaning rates have been calculated based on the information provided by the five producers within the "Potential" expansion area. Note the assumptions have been applied to both methodology's.

Similarly to both the Townsville Field "Likely" and Shoalwater Bay "Likely" expansion areas, the BAF production increase % assumption has been applied within this analysis.

Table 53: Operational Capacity – Assumptions

Assumptions	Methodology 1	Methodology 2
No. of BAF	2,869	3,319
Av. Calving Rate %	79%	79%
Av. Weaner Rate %	96%	96%
BAF Production Increase %	1.5%	1.5%

Table 54: 1–5 Year Forecast

	Year 1		Year 2		Year 3		Year 4		Year 5	
No. of Breeders	2,869	3,319	2,912	3,369	2,956	3,419	3,000	3,470	3,046	3,523
No. of Calves	2,267	2,605	2,301	2,644	2,335	2,684	2,370	2,724	2,406	2,765
No. of Weaners	2,176	2,501	2,209	2,539	2,242	2,577	2,276	2,615	2,310	2,655

Short Term – Year 1

Based on our estimated range of the total cattle herd within the affected area, the number of BAFs for Year 1 ranges from 2,869 and 3,319 head whilst we estimate that the number of weaners range between 2,176 and 2,501 head.

Therefore, should the land acquisitions take place within the expansion areas, there will be a loss of BAFs ranging between 2,869 and 3,319 head.

The total loss will most likely be distributed as follows:

- Sold to other producers outside the expansion areas; and /or
- Sold to beef processors for slaughter.

As a result from the loss of BAFs, breeding genetics will be removed from the expansion and surrounding areas, impacting the quality of future progeny and also the quality of beef produced.

Medium Term – Years 2-5

With the annual production increase, we expect that the number of BAFs would increase to between 3,046 and 3,523 head in Year 5 if no acquisitions took place.

Calving and weaning rates are assumed to increase in line with the number of BAF.

Should the proposed acquisition take place in totality, the throughput lost to the subject area would be equal to the number of progeny born each year (notwithstanding that the profile/age of cattle sold will be varied).

Based on the above, we estimate that the movement of between 9,036 and 10,385 weaner cattle could be lost to the affected area from Year 2 to Year 5. This means that this number of cattle will not be available for exporters, processors and restockers outside of the subject area.

7b.5 Impact on Productivity – Finishing

Table 55: Operational Capacity – Finishing Cattle

Assumptions	Methodology 1	Methodology 2
No. of Finishing	2,279	2,636
Production Increase	1.5%	1.5%

Table 56: 1–5 Year Forecast

	Year 1		Year 2		Year 3		Year 4		Year 5	
No. of Finishing	2,279	2,636	2,313	2,676	2,348	2,716	2,383	2,756	2,419	2,798
Production Increase	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%

Short Term – Year 1

As Table 55 illustrates, based on our estimated range for the total cattle herd within the affected area, we have calculated the number of Finishing cattle to range between 2,279 and 2,636 head for Year 1.

Based on limited data received and on our knowledge of the region, we understand that a significant portion of cattle are brought in from outside of the subject region for finishing. These cattle will need to be sent elsewhere for finishing, should land acquisitions proceed.

QLD is losing the capacity to finish between 2,279 and 2,636 head of cattle in Year 1. This has the potential to increase pressure on other finishing properties in external regions.

Medium Term – Years 2-5

Similarly, to our assumptions with the breeding herd regarding the annual production increase, we estimate that the affected area loses the ability to finish between 9,463 and 10,946 head of cattle over the four years from Year 2 to Year 5.

Such a loss of finishing capacity is likely to further contribute to the impact upon the efficiency of the greater QLD beef supply chain. Such a loss of finishing capacity is likely to further contribute to the impact upon the efficiency of the greater QLD beef supply chain.

7a.6 Impact on Market Value

Market Value Calculation Assumptions

To calculate the estimated market value of the cattle located in the "Potential" expansion area, we have ignored the potential 'one-off' liquidation sale of the estimated total herd and instead have undertaken our analysis on the scenario of the enterprises undertaking a normal year-on-year season with respect to a revenue capability.

To determine the dollar value lost to the beef industry, we have sourced market value pricing on specifically feeder steers and heifers only. This approach is in line with our assumption of a normal season where only Finishing cattle are likely to be sold throughout the course of the year.

To assist with the calculations, we have used an average weight (live weight) for each cattle type and have sourced market pricing from the nearest saleyard venue to the "Potential" expansion area – being the CQLX Gracemere saleyards.

Table 57 shows that assuming a sale of a 400kg/ live weight beast, we have calculated an average sale price/head to be $1,130.

We have based our calculations on the feeder steers and heifers averaging approximately 400kg lwt / head. We believe that this is appropriate given the location of the cattle within the Fitzroy Region, where pasture conditions and the increase in population of the *Bos Taurus* cattle breed is favourable for heavier cattle, compared with cattle located in the Burdekin Region.

Table 57: Finishing Cattle – Assumptions

Classification of Cattle	Cattle Category	Liveweight (kg/ hd)	Sale value (AUDc/kg lwt)	$/hd
Finishing	Feeder Steers	400.00	303.00	$1,212
	Feeder Heifers	400.00	262.00	$1,048
Average Total		**400**	**$283**	**$1,130**

Gross Revenue

Using the information provided in Table 58 above, we have calculated the estimated sale proceeds from the total estimated cattle herd using the average sale price ($/head), multiplied by the number of Finishing cattle under each methodology.

As a result, the potential market value of the Finishing cattle ranges between $2.5m and $2.9m.

Table 58: Impact on Gross Revenue

Finishing Cattle	Methodology 1	Methodology 2
No. of Head	2,279	2,636
$/head	$1,130	$1,130
Total	**$2,575,351**	**$2,978,714**

We have based our calculations on the feeder steers and heifers averaging approximately 400kg lwt / head.

7b.7 Economic Impact on Supply Chain

The impact of the potential acquisitions of agricultural land will not only affect the beef producers who reside and operate within them, but will also be felt along the beef supply chain and throughout wider communities. Below we have assessed both qualitative and quantitative impacts on the beef supply chain should land acquisitions take place on the area.

Production Inputs

Local rural supplies, fertiliser and machinery businesses will be affected due to the removal of producers from the local area /region. Regular customers will be lost due to the reduced need for products.

The potential impact on local suppliers can be demonstrated by using the average cost of production in the northern regions of QLD. Similarly to our analysis in the Townsville area, we have applied the average cost of production (113c/kg live weight) for beef cattle located in northern Australia to calculate the average cost per beast.

Based on the above assumptions, we estimate the average cost per beast to be $396 per head. This means that for each beast produced, an average cost of $396 is spent on inputs (such as feed, water, freight etc.) to reach a targeted weight prior to being sent for sale and / or slaughter.

Table 59: Input Costs – Assumptions

		Assumptions
Average cost per beast*	c/kg	113
Average Lwt (kg/hd)	kg	350
Average cost per beast	$	$396

* Includes total cash costs only. Excludes other costs such as finance, capital depreciation and unpaid family labour costs.

Table 60: Total Input Costs

Total Costs		Methodology 1	Methodology 2
Average cost	$/ head	$396	$396
No. of cattle	head	9,067	10,487
Total Input Costs		**$3,585,951**	**$4,147,599**

By adding the total estimated herd of cattle within the area, we can establish the overall total input costs potentially lost to local businesses that provide product and services during the beef production phase.

As Table 60 illustrates, an estimated range of between $3.5m and $4.1m in spending could potentially be lost from the industry.

Livestock Agents

Livestock agents would lose long-term customers (beef producers), impacting their business in the immediate to longer term. Agents operating within the affected area will need to expand their search for cattle and beef producers to develop re-build relationships and their customer base.

For an indication on the potential impact of land acquisitions, Table 61 illustrates the financial loss on livestock agent commissions for the sale of between 2,279 and 2,636 head of Finished cattle.

The estimated value of the potential agent commissions' lost ranges between $90,137 and $104,255.

Table 61: Livestock Agents

Finishing Cattle		Methodology 1	Methodology 2
No. of cattle	head	2,279	2,636
Live Weight	kg	400	400
Sale Price	c/kg	283	283
Income per Beast	$/ beast	1,130	1,130
Commission Rate	%	3.5%	3.5%
Agents Commission	Per beast	$39.55	$39.55
Total Gross Commission		**$90,137**	**$104,255**

7b.7 Economic Impact on Supply Chain (cont.)

Transport

Table 62 calculates the estimated total truck movements lost with respect to the amount of Finishing cattle located within the affected area. We note that only Finishing cattle would be available to transport off-farm immediately should land acquisitions take place, hence why we have excluded BAFs and Other cattle in the calculations.

As a result, an estimated total ranged between 26 and 30 truck movements could potentially be lost to the transport industry, from the loss of 2,279 and 2,636 head of Finishing cattle located in the affected area.

On the back of our estimated truck movement calculation, we are able to provide the estimated cost to the industry (in dollar value). As Table 63 shows, based on cattle being delivered to meat processing plants in Rockhampton, we have assumed a conservative 150 kilometres to travel at $1.50 per km.

When adding to our total truck movements lost calculation, we can estimate that the dollar value lost to the trucking industry may range between $5,850 and $6,750 per year.

Table 62: Transport Truck Movements

Decks of Cattle Lost		Methodology 1	Methodology 2
No. of cattle	head	2,279	2,636
Av. Live Weight	kg	350	350
Beasts per deck		30	30
Decks per Truck		3	3
Beasts per Truck		90	90
Total Decks		76	88
Total Truck Movements		**26**	**30**

Table 63: Cost of Lost Truck Movements

		Methodology 1	Methodology 2
Cost per kilometre	$	1.50	1.50
Kilometres to travel	km	150	150
Live Weight	kg	350	350
No. of Beasts per Truck		90	90
Total Truck Movements		26	30
Cost per Truck	AUD	225	225
Total Truck Movement Cost		**$5,850**	**$6,750**

Livestock Levy

The estimated loss (dollar value) on levy proceeds from the potential sale of Finished cattle located in the affected area is illustrated in Table 64.

The estimated loss equates to between $11,395 and $13,180, based on the total of 2,279 and 2,636 head of Finishing cattle being removed from the affected area.

Table 64: MLA Levies Source: MLA

Assumptions		Methodology 1	Methodology 2
Grassfed / Grainfed cattle	AUD/ Head	$5.00	$5.00
No. of cattle	Head of cattle	2,279	2,636
Total Levy	**AUD**	**$11,395**	**$13,180**

7b.8 Impact of Voluntary Land Acquisitions

Voluntary Land Acquisitions

We have provided three different scenarios (based on a percentage of land being acquired voluntarily) to indicate the level of impact acquisitions of land may have on the cattle herd and supply chain.

As Table 65 illustrates in Scenario A, should only 25% of the total land area be acquired, there would be an impact on the supply chain. For example, agricultural businesses supplying inputs for the beef production may lose an estimated $966,000 with approximately $694,000 of cattle lost to the affected area.

Table 65: Impact of Voluntary Land Acquisitions

		Scenario A	Scenario B	Scenario C
Type	Total[a]	25%	50%	75%
Total Land Area	**46,725**	11,681	23,363	35,044
Estimated Cattle Lost	**9,777**	2,444	4,888.46	7,332.70
Inputs Lost	**$3,866,775**	$966,694	$1,933,388	$2,900,081
Agents Commission Lost	**$97,196**	$24,299	$48,598	$72,897
Transport Movements Lost	**28**	7	14	21.00
Transport Costs Lost	**$6,300**	$1,575	$3,150	$4,725
Livestock Levy Lost	**$12,288**	$3,072	$6,144	$9,216
Estimated Market Value Lost	**$2,777,033**	$694,258	$1,388,516	$2,082,775

Note: a. All total figures have been provided using the average of Methodology 1 and Methodology 2.

7b.9 The Shoalwater Bay Area – Impact on Supply Chain

Processing Facilities

As mentioned previously throughout the Report, difficult market conditions currently faced by the beef processing industry will continue to place pressure on all processing plants throughout Australia.

Specifically within the Fitzroy Region, Rockhampton and Biloela are home to the three largest abattoirs that process cattle.

Should there be land acquisitions within the affected areas and subsequent removal of cattle, each processor will need to expand on its search for replacement cattle.

As a result, this may increase the cost to both the beef processor (purchaser) and the beef producer (seller) as there will be increased transportation costs with delivery and collection of cattle.

The flow-on effect to this increased cost and lowered supply of cattle will be the reduction of labour hours for skilled workers. Processors will be needing to manage their operations efficiently, therefore a reduction in a number of head per day will significantly effect margins.

Specifically within the Fitzroy Region, Rockhampton and Biloela are home to the three largest abattoirs that process cattle.

All other things remaining equal, further declines in the availability of cattle will cause local processors to reduce labour hours and reduce employee numbers to cater for the drop in throughput and to maintain margins.

The estimated throughput for each abattoir within the Fitzroy Region is illustrated opposite in Table 66. With the inclusion of two scenarios, operating at 50% and 100%, it allows us to show the potential and level of cattle being sent to each processing plant on a daily, week and annual basis.

Note that information obtained for each abattoir regarding operating capacity is sourced from each company website. In light of recent market conditions, we believe that the current daily capacity levels would be lower than each processing plant's full operating capacity.

When undertaking an analysis on the impact on the processing plants as a result of the loss of the estimated cattle herd from both the Shoalwater Bay "Likely" and "Potential" expansion areas, we have applied the figures against the processing plants operating capacity when at 50%.

As Table 67 illustrates, we have applied both estimated Finished cattle herds under each methodology (between 5,960 and 9,297 head) against the total head of cattle slaughter when the processing plants are operating at 50% capacity.

The impact of removing the estimated Finishing cattle herd from both the Shoalwater Bay "Likely" and "Potential" expansion areas, to the total amount of cattle sent through to the three processing plants is immaterial ranging between 1.59% and 2.48%.

Table 66: The Fitzroy Region: Beef Processing Capacity

Abattoir	Capacity (Head / day)	
	50%	100%
Teys Australia, Rockhampton	866	1,731
Teys Australia, Biloela	352	703
JBS Australia, Rockhampton	348	696
Total Head / Day	**1,565**	**3,130**
Total Head / Week	7,825	15,650
Total Head / Year*	**375,600**	**751,200**

*We have calculated a standard operating year of 48 weeks, allowing for 4 weeks closure. This equates to 240 working days during the course of the year.

Table 67: Percentage of Finishing Cattle

Shoalwater Bay "Likely" and "Potential"	Estimated Total Cattle Herd (Finishing)	Operating Capacity of Processing Plant (%)	Operating Capacity of Processing Plant (No. of Head)	% of Estimated Cattle Herd Lost
Methodology 1	5,960	50%	375,600	1.59%
Methodology 2	9,297			2.48%

7b.9 The Shoalwater Bay Area – Impact on Supply Chain (cont.)

Impact on Employment

The Fitzroy Region's unemployment rate has increased up to levels not reached since 2012-13, sitting at 6.6% in 2015-16.

As shown in Table 68, the key employing industries within the Fitzroy Region area agriculture, construction and real estate services. Data sourced from 2015 shows that agriculture had the highest number of businesses (4,462) throughout the Fitzroy Region, compared to the construction industry which was the second highest (2,929) with number of businesses.

Over the last 18 months, beef processing plants located throughout QLD have been forced to decrease employee numbers as a result of a decrease in stock available for slaughter and increased pressure on operational costs.

Important to note that conditions within the Fitzroy Region is not only favourable to beef production, but also the broadacre cropping and horticultural industry where production is often more labour intensive.

Over the last 18 months, beef processing plants located throughout QLD have been forced to decrease employee numbers as a result of a decrease in stock available for slaughter and increased pressure on operational costs.

Despite the minimal impact on processing plants the from the loss of cattle supply sourced from the Shoalwater Bay "Likely" and "Potential" expansion areas, any decrease in throughput will need to be replaced. This may place pressure on each processing plants labour hours and employee numbers.

According to the JBS Australia and Teys Australia websites, they state the number of staff across their three beef processing sites to be approximately 1,900 employees. Given the current market conditions, we believe that this figure would be reduced at this point in time, however we are unable to provide an estimate on current levels.

Based on our analysis on the impact on the beef processing industry as a result of potential land acquisitions over the affected areas, we believe that there would be a negative impact on employment within the beef processing industry.

Table 68: The Fitzroy Region: Summary of Employment

Type	2012–13	2013–14	2014–15	2015–16
Employed persons	109,000	115,600	116,000	116,100
Unemployed persons	7,400	6,700	7,800	8,300
Unemployment rate (%)	6.4	5.4	6.3	6.6

Table 69: The Fitzroy Region: No. of Businesses by Industry

Industry	2014	2015
Agriculture	4,496	4,462
Construction	3,014	2,929
Rental, hiring and real estate services	1,683	1,668
Professional, scientific and technical services	1,131	1,131
Other	7,505	7,496
Total	**17,829**	**17,686**

7b.9 The Shoalwater Bay Area – Impact on Supply Chain (cont.)

Community

The table below provides a summary of the immediate and medium to long term impacts on the local and regional communities should land acquisitions take place within the Fitzroy Region.

Impact	Immediate (within 1 year)	Medium to Long Term (2-5 years)
Local	• Local communities such as Shoalwater, Marlborough and Kunwarara will be affected by the acquisitions as families relocate to other regions / areas, decreasing local activity. Local cafes, shops, pubs and schools will feel the effects from the lack of foot traffic and sale of products. • Individuals working within the affected and surrounding areas may lose jobs due to the loss of activity along the beef supply chain. An increase in unemployment within the affected area and surrounding regions will place increased pressure on local councils and governments. Further, higher unemployment levels may also lead to an increase in crime and other related matters.	• Local cafes, retail shops and pubs, who may have been impacted from the decrease in customer activity, may be forced to close down or sell the business. • Attracting new staff or staff retention at local schools may be impacted as a result of the decrease in enrolment figures and limited opportunities in the surrounding communities. • Higher unemployment levels may lead to an increase in crime and other related activity. • There may be a reduction in population numbers within the communities affected by the land acquisitions, placing further pressure on trade potential for local businesses. • Local councils may be placed under increased pressure to create job opportunities
Regional	• Individuals working within the affected and surrounding areas may lose jobs due to the loss of activity along the beef supply chain. Job losses extend to not only agricultural businesses, but also retail, transporting and hospitality businesses. • The regions unemployment rate may increase from current levels. • There will be increased immediate pressure placed on local councils and to increase spending for new infrastructure to create jobs.	• An increase in unemployment within the affected area and surrounding regions may place increased pressure on local councils and governments. • There may be an increase in population growth with the number of people relocating to other areas to seek job and learning opportunities.

8.0 Short Term Impacts

8.1 First Year – Cattle Herd Operating Capacity

Cattle Herd Operating Capacity

Herd Capacity

Based on our analysis of the data received and using logical assumptions as set out throughout our report, below we have provided a breakdown of the range for the total estimated head of cattle to be lost to the QLD beef industry should land acquisitions take place (refer to Table 70 for further detail).

- The Townsville Field "Likely" Expansion Area – between 20,639 and 27,556 head;
- The Shoalwater Bay "Likely" Expansion Area – between 22,264 and 40,287 head; and
- The Shoalwater Bay "Potential" Expansion Area – between 9,067 and 10,487 head.

The total estimated loss of cattle equates to between 51,970 and 78,329 head.

The total estimated loss of cattle, will most likely be distributed to other producers in surrounding areas or be sent to slaughter for processing.

Summary: Short Term (1 Year) Loss of Cattle Herd

Table 70: Short Term Loss

	Townsville Field		Shoalwater Bay "Likely" Area		Shoalwater Bay "Potential" Area		Total	
	Methodology 1	Methodology 2	Methodology 1	Methodology 2	Methodology 1	Methodology 2	Methodology 1	Methodology 2
Breeding Age Females	6,674	8,911	5,648	10,220	2,869	3,319	15,192	22,450
Other	7,414	9,899	12,935	23,405	3,918	4,532	24,267	37,836
Finishing	6,551	8,746	3,681	6,661	2,279	2,636	12,511	18,043
Estimated Total Cattle in Affected Area	**20,639**	**27,556**	**22,264**	**40,287**	**9,067**	**10,487**	**51,970**	**78,329**

8.1 First Year – Cattle Herd Operating Capacity (cont.)

Cattle Herd Operating Capacity

Breeding Capacity

Further to our analysis completed on each affected area for the immediate term, we have provided a summary on the total BAFs and Weaner cattle that could potentially be lost to the QLD beef industry should land acquisitions take place.

An estimated range between 26,878 and 39,803 head of BAFs and Weaner cattle that may be lost to the QLD beef industry.

As illustrated in Table 71 below, the estimated loss of breeding capacity for each affected area is calculated under each methodology to provide a range. Our findings are described below:

- The Townsville Field "Likely" Expansion Area – between 11,746 and 15,683 head;
- The Shoalwater Bay "Likely" Expansion Area – between 10,086 and 18,300 head; and
- The Shoalwater Bay "Potential" Expansion Area – between 5,046 and 5,820 head.

This equates to an estimated range between 26,878 and 39,803 head of BAFs and Weaner cattle that may be lost to the QLD beef industry.

Table 71: Estimated Loss of BAFs and Weaner Cattle – Year 1

Type	Estimated BAFs Total		Estimated Weaner Total		Estimated Total Cattle	
Affected Area	Methodology 1	Methodology 2	Methodology 1	Methodology 2	Methodology 1	Methodology 2
Townsville Field "Likely" Area	6,674	8,911	5,072	6,772	11,746	15,683
Shoalwater Bay "Likely" Area	5,648	10,220	4,438	8,080	10,086	18,300
Shoalwater Bay "Potential" Area	2,869	3,319	2,176	2,501	5,046	5,820
Total	**15,192**	**22,450**	**11,686**	**17,353**	**26,878**	**39,803**

8.1 First Year – Cattle Herd Operating Capacity (cont.)

Cattle Herd Operating Capacity

Finishing Capacity

Similarly to the breeding herd, we have provided a summary on the total Finishing cattle that could potentially be lost to the QLD beef industry should land acquisitions take place.

As illustrated in Table 72 below, the estimated loss of finishing capacity for each affected area is calculated under each methodology to provide a range. Our findings are described below:

- The Townsville Field "Likely" Expansion Area – between 6,551 and 8,746 head;
- The Shoalwater Bay "Likely" Expansion Area – between 3,681 and 6,661 head; and
- The Shoalwater Bay "Potential" Expansion Area – between 2,279 and 2,636 head.

This equates to an estimated range between 12,511 and 18,043 head of Finishing cattle that may be lost to the QLD beef industry.

Table 72: Estimated Loss of Finishing Cattle – Year 1

Type	Estimated Finishing Cattle Total	
Affected Area	**Methodology 1**	**Methodology 2**
Townsville Field "Likely" Area	6,551	8,746
Shoalwater Bay "Likely" Area	3,681	6,661
Shoalwater Bay "Potential" Area	2,279	2,636
Total	**12,511**	**18,043**

8.2 First Year – Estimated Market Value

Estimated Market Value

From our scenario analysis undertaken regarding the enterprises within each affected area undertaking a normal year-on-year season with respect to a revenue capability, we have provided a summary of the estimated range for the market value of Finishing cattle lost to the QLD beef industry should land acquisitions take place.

As illustrated in Table 73 opposite, the estimated value on the loss of Finishing cattle available for each affected area is calculated under each methodology to provide a range. Our findings are described below:

- The Townsville Field "Likely" Expansion Area – between $6.5m and $8.7m;
- The Shoalwater Bay "Likely" Expansion Area – between $4.1m and $7.5m; and
- The Shoalwater Bay "Potential" Expansion Area – between $2.5m and $2.9m.

This equates to an estimated market value ranging between $13.3m and $19.3m of Finished cattle that may be lost to the QLD beef industry.

Table 73: Estimated Market Value

Type	Estimated Market Value of Finishing Cattle	
Affected Area	**Methodology 1**	**Methodology 2**
Townsville Field "Likely" Area	$6,587,321	$8,794,918
Shoalwater Bay "Likely" Area	$4,159,880	$7,527,186
Shoalwater Bay "Potential" Area	$2,575,351	$2,978,714
Total	**$13,322,553**	**$19,300,818**

This equates to an estimated market value ranging between $13.3m and $19.3m of Finished cattle that may be lost to the QLD beef industry.

8.3 First Year – Impact on Supply Chain

Production Inputs

The impact on local agricultural businesses, within each affected area, who provide key products and services throughout beef production is illustrated in Table 74.

- The Townsville Field "Likely" Expansion Area – between $8.1m and $10.8m;
- The Shoalwater Bay "Likely" Expansion Area – between $8.8m and $15.9m; and
- The Shoalwater Bay "Potential" Expansion Area – between $3.5m and $4.1m.

This equates to an estimated loss of input costs ranging between $20.5m and $30.9m for the total cattle herd that may be lost to the QLD beef industry.

Table 74: Estimated Loss of Inputs

Type	Inputs	
Affected Area	**Methodology 1**	**Methodology 2**
Townsville Field "Likely" Area	$8,162,675	$10,898,217
Shoalwater Bay "Likely" Area	$8,805,537	$15,933,370
Shoalwater Bay"Potential" Area	$3,585,951	$4,147,599
Total	**$20,554,163**	**$30,979,187**

Agents Commission

The dollar impact on the loss of cattle for livestock agents, within each affected area, who provide sale services and receive commission on the sale of cattle is illustrated in Table 75.

- The Townsville Field "Likely" Expansion Area – between $230K and $311K;
- The Shoalwater Bay "Likely" Expansion Area – between $145K and $263K; and
- The Shoalwater Bay "Potential" Expansion Area – between $90K and $104K.

This equates to an estimated value ranging between $466K and $679K of potential commission sales if the estimated total of Finished cattle is lost to the QLD beef industry.

Table 75: Estimated Loss of Gross Commission

Type	$ Commission	
Affected Area	**Methodology 1**	**Methodology 2**
Townsville Field "Likely" Area	$230,556	$311,359
Shoalwater Bay "Likely" Area	$145,596	$263,451
Shoalwater Bay "Potential" Area	$90,137	$104,255
Total	**$466,289**	**$679,065**

8.3 First Year – Impact on Supply Chain (cont.)

Transport

Truck Movements

The impact on local livestock transport businesses, within each affected area, who provide transportation services for beef producers taking cattle to market is illustrated in Table 76 through the level of truck movements lost per year.

- The Townsville Field "Likely" Expansion Area – between 73 and 99 truck movements will be lost;
- The Shoalwater Bay "Likely" Expansion Area – between 41 and 75 truck movements will be lost; and
- The Shoalwater Bay "Potential" Expansion Area – between 26 and 30 truck movements will be lost.

Table 76: Estimated Loss of Transport Truck Movements

Type	Truck Movements	
Affected Area	**Methodology 1**	**Methodology 2**
Townsville Field "Likely" Area	73	99
Shoalwater Bay "Likely" Area	41	75
Shoalwater Bay "Potential" Area	26	30
Total	**140**	**204**

This equates to an estimated total ranging between 140 and 204 truck movements of Finished cattle that may be lost to the QLD beef industry per year.

Cost of Truck Movements Lost

The cost of such loss on truck movements mentioned above, is illustrated in Table 77 below.

- The Townsville Field "Likely" Expansion Area – between $22K and $29K;
- The Shoalwater Bay "Likely" Expansion Area – between $9K and $16K; and
- The Shoalwater Bay "Potential" Expansion Area – between $5K and $7K.

This equates to an estimated cost ranging between $36K and $53K lost on the total of truck movements foregone per year.

Table 77: Estimated $ Value Loss of Transport Truck Movements

Type	Truck Movements	
Affected Area	**Methodology 1**	**Methodology 2**
Townsville Field "Likely" Area	$21,900	$29,700
Shoalwater Bay "Likely" Area	$9,225	$16,875
Shoalwater Bay "Potential" Area	$5,850	$6,750
Total	**$36,975**	**$53,325**

8.3 First Year – Impact on Supply Chain (cont.)

MLA Levies

The impact on the loss of cattle within each affected area would impact the amount of levy proceeds received by the MLA during the sale of livestock. Below is a summary for each affected area.

- The Townsville Field "Likely" Expansion Area – between $32,754 and $44,233 will be lost per year;
- The Shoalwater Bay "Likely" Expansion Area – between $18,407 and $33,306 will be lost per year; and
- The Shoalwater Bay "Potential" Expansion Area – between $11,395 and $13,180 will be lost per year.

This equates to an estimated total ranging between $62,556 and $90,720 in levy proceeds lost to MLA per year.

Table 78: Estimated $ Value Loss to MLA

Type	MLA Levies	
Affected Area	Methodology 1	Methodology 2
Townsville Field "Likely" Area	$32,754	$44,233
Shoalwater Bay "Likely" Area	$18,407	$33,306
Shoalwater Bay "Potential" Area	$11,395	$13,180
Total	**$62,556**	**$90,720**

The impact on the loss of cattle within each affected area would impact the amount of levy proceeds received by the MLA during the sale of livestock.

8.3 First Year – Impact on Supply Chain (cont.)

Other Impacts

Meat processors may see an increase in the number of cattle available coming to market, however, this sudden increase will be flattened out heavily with the permanent loss of such cattle supply. Meat processors may need to further expand on their sources for locating cattle supply, meat processing industry.

Local businesses in small communities that rely on foot traffic and providing goods and services to all stakeholders within the beef supply chain may see a downturn in operational performance. Due to limited information available, the quantitative level of impact is unknown. However, we assume that there would be a material change in performance over time with smaller towns and larger cities receiving very little or nil economic benefit from change in land use.

The efficiency of the QLD beef supply chain may be affected with the loss of cattle supply within the affected areas. Those beef producers who rely on cattle being finished in the affected areas will need to reassess and relocate such cattle, whilst transport, local livestock agents and processing businesses will need to revise strategies moving forward.

The efficiency of the QLD beef supply chain may be affected with the loss of cattle supply within the affected areas.

9.0 Medium – Long Term Impacts

9.1 Cattle Herd Capacity

Cattle Operating Capacity

Breeding Capacity

Further to our analysis completed on each affected area for the immediate term, we have provided a summary on the total BAFs and Weaners that may be lost to the QLD beef industry should land acquisitions take place.

As illustrated in Table 79 below, the potential estimated loss of breeding capacity for the affected areas calculated following a five year period:

- The Townsville Field "Likely" Expansion Area – between 28,145 and 37,578 head;
- The Shoalwater Bay "Likely" Expansion Area – between 41,880 and 75,987 head; and
- The Shoalwater Bay "Potential" Expansion Area – between 20,951 and 24,166 head.

This equates to an estimated range between 90,976 and 137,731 head of BAFs and Weaner cattle that may be lost to the QLD beef industry.

Table 79: Estimated Loss of BAFs and Weaner Cattle – Years 2-5

Type	Estimated BAFs Total		Estimated Weaner Total		Estimated Total Cattle	
Affected Area	Methodology 1	Methodology 2	Methodology 1	Methodology 2	Methodology 1	Methodology 2
Townsville Field "Likely" Area	7,084	9,458	21,062	28,120	28,145	37,578
Shoalwater Bay "Likely" Area	23,453	42,438	18,427	33,550	41,880	75,987
Shoalwater Bay "Potential" Area	11,915	13,781	9,036	10,385	20,951	24,166
Total	**42,451**	**65,676**	**48,525**	**72,055**	**90,976**	**137,731**

9.1 Cattle Herd Capacity (cont.)

Cattle Operating Capacity

Finishing Capacity

Further to our analysis completed on each affected area for the immediate term, we have provided a summary on the total Finishing cattle that may be lost to the QLD beef industry should land acquisitions take place.

As illustrated in Table 80 opposite, the potential estimated loss of breeding capacity for the affected areas calculated following a five year period:

- The Townsville Field "Likely" Expansion Area – between 27,201 and 36,316 head;
- The Shoalwater Bay "Likely" Expansion Area – between 15,286 and 27,659 head; and
- The Shoalwater Bay "Potential" Expansion Area – between 9,463 and 10,946 head.

This equates to an estimated range between 51,950 and 74,921 head of Finishing cattle that may be lost to the QLD beef industry.

Table 80: Estimated Loss of Finishing Cattle – Years 2-5

Type	Estimated Finishing Cattle	
Affected Area	**Methodology 1**	**Methodology 2**
Townsville Field "Likely" Area	27,201	36,316
Shoalwater Bay "Likely" Area	15,286	27,659
Shoalwater Bay "Potential" Area	9,463	10,946
Total	**51,950**	**74,921**

This equates to an estimated range between 51,950 and 74,921 head of Finishing cattle that may be lost to the QLD beef industry.

9.2 Supply Chain

Impact on Supply Chain

As the identified areas would be lost to beef production permanently, we believe that it would be difficult to replace the total amount of cattle in both affected areas.

Given it is unlikely that further grazing land suitable for beef production is able to be found, any impact would be over the longer term. To replace the amount of cattle lost within the affected areas, existing beef producers located outside the affected areas, but within the region, will need to improve their carrying capacity by either implementing better pasture management, using appropriate stocking rates and introducing perennial legumes into existing pastures to enhance dry matter production.

It is difficult to quantify the medium to long term impacts placed on meat processing plants as a result of the proposed land acquisitions on the affected areas. As described in our immediate impact, processing plants would be forced to expand their search for suitable cattle to replace the amount lost due to the land acquisitions. Subject to the market conditions over the next few years, an increase in transportation costs from sourcing additional cattle may have an impact on the processing plants operating capacity.

Specifically, within the Fitzroy Region, the red-meat processing industry contributes between 4-5% of QLD's total FTE employment whilst also contributing 4.7% to QLD's gross industry value added.

The red meat processing sector is currently facing a number of industry head winds as a result of shortages in suitable cattle for processing and very high cattle prices. These forces have driven a number of plants in the processing sector to either reduce the number of operating hours or close completely, some of the closures are permanent. As processing businesses are extremely sensitive to shifts in cattle availability and pricing, any event, such as the loss of land or cattle, will place further strain on plants within the affected areas.

A recent report undertaken by the Australian Meat Processor Corporation provides an indication on the impact the red meat processing industry contributes towards the QLD economy. As Table 81 illustrates, the red meat processing industry is estimated to contribute 2.9% of QLD's gross industry value added and 2.5% of full time equivalent (FTE) employment.

Specifically, within the Fitzroy Region, the red-meat processing industry contributes between 4-5% of QLD's total FTE employment whilst also contributing 4.7% to QLD's gross industry value added.

Using this indicative information, we consider that any negative impact on the meat processing industry, including a further reduction in cattle supply, may see estimated contributions to the QLD economy decrease.

Table 81: Contribution of Beef Processing Industry to QLD's Economy (2014-15)

Measure	Economic Impact	
	Value (incl.flow-on impacts)	Contribution to the State Economy
Industry Added Value ($m)	8,255.8	2.9%
Household income ($m)	3,119.9	2.1%
Employment (FTE)	48,659	2.5%

Table 82: The Fitzroy Regions contribution to QLD's Economy (2014-15)

Measure	Economic Impact	
	Value (incl.flow-on impacts)	Contribution to the State Economy
Industry Added Value ($m)	648.8	4.7%
Household income ($m)	247.3	3.3%
Employment (FTE)	3,683	4.2%

10.0 Key Contacts

The contacts at FTI Consulting in connection with this report are:

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11.0 Appendix

Impact Study Beef Questionnaire

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Thank you for your willingness to participate in the study commissioned by AgForce QLD and performed by FTI Consulting.

The scope of this research, is to perform a preliminary study to assess the impact of the proposed expansion of both the Shoalwater Bay and Townsville training areas on the beef industry supply chain.

AgForce urges all affected landholders to use this opportunity to take part in this independent study.

All responses are due no later than **5PM Wednesday 8 February**. Please send the questionnaire with relevant information to FTI Consulting, by email to matthew.wilson@fticonsulting.com or fax 07 3225 4900.

We apologise for the urgency and the short turn around period, however in order to have this information prior to any announcements or other modelling commissioned by the Defence Department, we need to have the information within this short timeframe.

Please note FTI Consulting will only deal with the questionnaire, if you have any questions or concerns in relation to this study please contact AgForce.

Please also note AgForce and FTI Consulting is bound by confidentiality under this study agreement, as such all the information received by FTI Consulting or Agforce will not be used in isolation or disclosed to third parties.

About the Questionnaire

- Please note the responses to this questionnaire will be kept completely confidential.
- All the data provided will be aggregated to give an overall position and will not be used in isolation.
- It is vital that the information provided is as accurate as possible, as the information will be used to estimate the impact of the proposed expansions on the entire affected area.

The questionnaire is divided in 3 categories that will impact the quality of the study results:

1. Essential Information
2. Important Information
3. Additional Information.

This questionnaire is relevant **only** to those properties in the affected areas according to Defence mapping.

If you own additional property/ies outside the mapped areas, please indicate clearly any references to those additional properties.

Due to the short turn around, please provide information when available specially the information under category 1. Information can be provided in part/batches.

Impact Study Beef Questionnaire (cont.)

What is your name/s, property/ies and best contact details?

Part 1: Essential Information

a. What is your total land size in hectares within the affected area?

b. What is your main production within the affected area?

c. If your main production is cattle, is your land use for breeding, finishing (finishing including backgrounding), seed stock production or a combination? If your cattle production is or includes a feedlot, please describe feedlot total capacity.

   i. If a combination, please specify percentage (in land area – or % of numbers?) of each (estimate).

   ii. If it is finishing or backgrounding, how many animals do you turn off on average a year?

d. If your main production is not cattle, please explain your enterprise and the best way to value your production.

e. What is your current carrying capacity within the affected area?

f. What is your current herd number and breed within the affected area?

Part 1: Essential Information (Continued)

i. Out of the current herd number please indicate the total below:

   1. Breeders
   2. Bulls
   3. Steers
   4. Heifers
   5. Weaner Steers
   6. Weaner Heifers
   7. Calves

ii. What is your average calving rate?

iii. What is your average weaning rate?

Part 2: Important Information:

a. What was your total rates payment last year for properties within the affected area?

b. How many people do you employ in total, including (all your) family members that work in the business?

c. If your land has improvement capacity (for example in relation to additional water dam implementation), how many adult equivalent's would the land carry if fully developed?

d. What is your average annual turnover?

e. What is your average annual business expenses?

Part 3: Additional Information:

Please provide any additional information that has not been captured above, with regards to expenditure of your business that may be relevant to the portrayal of the impact of the beef supply chain. For example, information such as annual expenditure on;

FARM SUPPLIES
EDUCATION
LIVESTOCK TRANSPORT
PERSONAL EXPENSES
OTHER (Please specify)

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