



**LIVE DAIRY CATTLE EXPORT
INDUSTRY ECONOMIC ASSESSMENT**
A Report for the Livestock Export
Program and Dairy Australia

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Prepared by

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ABBREVIATIONS

ABS	Australia Bureau of Statistics
AI	artificial insemination
DFMP	Dairy Farm Monitoring Project
FOB	free on board
FTE	full-time equivalent
GDP	gross domestic product
GRP	gross regional product
MLA	Meat & Livestock Australia
NLIS	National Livestock Identification System
NSW	New South Wales
QLD	Queensland
RDP	Regional Dairy Program
SA	South Australia
TAS	Tasmania
VIC	Victoria
WA	Western Australia

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EXECUTIVE SUMMARY

The Australian livestock export industry is an important component of the Australian agricultural sector, contributing significantly to the economy and regional and rural employment. While beef cattle comprise most of the value of live cattle exports, exports of live dairy cattle also contribute to regional economies and provide an important alternative income stream to the dairy farming industry.

BDO EconSearch was engaged by LiveCorp, Meat & Livestock Australia (MLA) and Dairy Australia in a cross-sectoral study to estimate the value and importance of the Australian live dairy cattle trade to support industry in improving business processes and increasing efficiency and productivity. The aim of this study was to undertake an analysis of the economic value and impact of the live dairy cattle export sector on the Australian economy and its regional economies that supply and support the trade, review the competitiveness of Australia's live dairy cattle export sector and identify strategies that may assist to maintain and improve that competitiveness.

Method

The study required mapping the economic activity of the live dairy cattle export sector in each Regional Dairy Program (RDP) region¹ and Australia as a whole. To do this we accessed data from a variety of sources including the Australian Bureau of Statistics (ABS) and the Dairy Farm Monitor Project (DFMP), which included data from a sample of approximately 4,500 farms. As information was not available for all areas we required, two separate consultations (farmers and post farm businesses) were undertaken to collect data and context from suitable individuals and businesses involved in the dairy livestock export industry. Finally, extended input-output analysis was used to estimate the flow-on (or indirect) economic contributions of the industry.

Economic contribution

Total value

The live export of dairy cattle from Australia has seen significant growth over the last 20 years, from just under 20,000 head of cattle in 2001/02 to over 90,000 head of cattle in 2020/21. The free on board (FOB) value of this trade in real terms² has increased almost four-fold, from approximately \$56m in 2001/02 to almost \$258m in 2020/21.

Value by region

Over the last five years almost three quarters of all the live dairy cattle exports were from three dairy regions: Western Victoria (29 per cent), Gippsland (25 per cent) and Murray (19 per cent). The number and value of live dairy cattle exports by dairy farming region for 2020/21 is detailed in Table ES-1.

¹ Dairy production in Australia is spread across eight main Dairy Australia Regional Development Program (RDP) regions: South Australia, Western Victoria, Gippsland, Murray, Subtropical, Western Australia, Tasmania and New South Wales

² That is, the nominal value adjusted for inflation, in 2020/21 dollars.

Table ES-1 Number and value of live dairy cattle exports by dairy farming region, 2020/21

	SA	TAS	WA	NSW	Gippsland	WestVic	Murray	Australia
Number (head of cattle)	5,273	6,566	6,105	6,682	22,834	26,334	16,928	90,723
Value (FOB \$m)	15.0	18.6	17.3	19.0	64.8	74.7	48.0	257.5

Level of participation

Nationally, over 1,300 dairy farms (around 26 per cent of dairy farms in 2019/20) participated in the live dairy cattle export trade in 2019/20. However, regionally this proportion ranged from only 11 per cent in New South Wales to 52 per cent in Western Australia.

Due to the difficulty in identifying some exporting farms, the number of exporting dairy farms may be underestimated. Additionally, the number of exporting farms will change year-to-year depending on several factors including prices (domestically and internationally), rainfall, feed prices, and beef cattle prices.

Retained earnings

In all of the regions except for South Australia, profit (measured as EBIT/assets) was the same or higher for exporting farms than it was for non-exporting farms. The regions with the largest differences in average profit between exporting and non-exporting farms were:

- New South Wales (3.8 per cent for exporting farms compared to 2.4 per cent for non-exporting farms)
- Murray region (5.3 per cent for exporting farms compared to 3.9 per cent for non-exporting farms)
- Gippsland region (7.2 per cent for exporting farms compared to 6.1 per cent for non-exporting farms)
- Western Victoria (6.3 per cent for exporting farms compared to 4.9 per cent for non-exporting farms).

Employment

Overall, around 830 FTE jobs or 5 per cent of overall on-farm dairy employment was attributed to the rearing of dairy cattle for live export. However, this level of employment was dependent on the size of the dairy farm, with larger farms reporting a larger proportion of their labour dedicated towards rearing cattle for live export. Smaller exporting farms reported that as little as 5 per cent of their labour could be attributed to the rearing of dairy cattle for live export but larger farms reported as much as 30 per cent. Survey respondents highlighted the fact that all of this employment was in regional areas of Australia.

Risk management

Most dairy farmers consulted identified 'a way to sell excess heifers produced during herd replacement' as the reason they first started selling dairy livestock for export.

As with many farming sectors, the Australian dairy industry is volatile. The live dairy cattle export market provides an additional income stream for farmers and a way of diversifying risk. The income derived from live export is separate from milk prices and is something farms can achieve relatively easily without significant investment. Furthermore, the well-established supply chain can accept small volumes from

individual farms while maintaining profitability. The last few years have been positive for dairy farmers in terms of good milk prices, but farmers know that it may not last.

One farmer interviewed could not overstate how important the live trade is to mitigate that volatility, saying that if the milk price is low then live export helps them to “*keep ticking over*”. When the milk price is higher, then they can set some money aside for the next downturn, or it can support investment into their farm through better infrastructure. While some producers are opportunistic in their participation in the live dairy cattle trade, there is a growing number rearing heifers specifically for live export (or incorporate this into their herd replacement decisions).

The following quotes from participating dairy farmers highlight the importance of live dairy cattle exports to their businesses:

“You won’t get [a] return on investment as quickly as you get from live exports.”

“It [selling dairy livestock for export] allows us to fully utilise our mix of land better by getting a valuable return. It is a different revenue stream to our other income, which takes an element of risk out of the business.”

“It underpins the financial viability of our business given the significant income stream.”

Support services

The total FOB value of Australian live dairy cattle exports was almost \$258m in 2020/21. Around 70 per cent of this value, or \$180m, is retained by dairy farms. The remaining 30 per cent is attributed to various post farm services including: 7 per cent to feed (\$17m) the second largest item, 5 per cent to exporters (\$12m), 4 per cent to labour (\$9m), 4 per cent to transport and loading (\$9m), 3 per cent to health treatments and vet fees (\$6m), 3 per cent to quarantine facilities (\$6m), 3 per cent to on-board labour (\$6m each) and 2 per cent each to stock agents (\$4m), accommodation (\$4m) and certifications (\$4m).

Economic impact of a hypothetical cessation of live dairy cattle exports

If farms were no longer able to sell dairy cattle for live export, the economic impacts would occur immediately but would also change over time. The economic impact of a live dairy cattle export trade cessation would, in the short term, be felt the most by dairy farmers through a loss of income and by support services through a loss in economic activity. Dairy farmers would have to sell excess cattle in domestic markets or bring them into their milking herd and cull older cows. To the extent that heifers are sold into the domestic market, this would result in downward pressure on domestic heifer prices and, hence, income received by dairy farmers. However, dairy farmers would still require a similar level of feed, labour, transport, vet fees and stock agent fees.

In the longer term, in addition to the loss in economic activity from live dairy cattle export support services, there would be an employment impact because of the reduction in dairy cattle production, some of which would be offset by an increase in beef cattle production. Through consultation, dairy farmers indicated that they would change their operations so that they were not producing excess dairy cattle and only producing enough needed to replace their herd. Therefore, in the longer term there would be reduced income and costs from those farmers who would no longer produce excess dairy cattle. However, the land that was used to raise young cows for live export could go back into milk production, partly offsetting the loss. Some farmers indicated they would look at breeding calves for beef. These types of behaviour changes by farmers,

as occur in any sector that experiences a negative shock, mean that the net loss of economic activity (economic impact) of a cessation of live dairy cattle exports would likely be smaller than the total amount of economic activity that is currently involved in the activity. The estimated impact is summarised below in the short and long term.

Short-term impacts

In the short-term, the loss of gross domestic product (GDP) as a result of a live dairy cattle export trade cessation for Australia as a whole was estimated to be \$200m; \$163m directly on-farm and in downstream support services and \$37m in flow-on GDP in other sectors of the economy. Employment lost as a result of a cessation was estimated to be 452 total FTE jobs; 168 FTE jobs directly on-farm and in downstream support services and 283 FTE flow-on jobs. Regionally, the impact would be felt the greatest in the Western Victorian (\$51m in gross regional product (GRP) and 74 FTE jobs), Gippsland (\$45m in GRP and 68 FTE jobs) and Murray (\$34m in GRP and 58 FTE jobs) regions.

Long-term impacts

In the longer-term, the loss of GDP as a result of a live trade cessation for Australia as a whole annually was estimated to be \$116m; \$36m directly on-farm and in downstream support services and \$80m in flow-on GRP in other sectors of the economy. Employment lost as a result of a live dairy cattle export trade cessation was estimated to be 985 total FTE jobs; 375 FTE jobs directly on-farm and in downstream support services and 610 FTE flow-on jobs. Regionally, once again, the impact would be felt the greatest in the Western Victorian (\$19m in GRP and 167 FTE jobs), Gippsland (\$18m in GRP and 156 FTE jobs) and Murray (\$15m in GRP and 125 FTE jobs) regions.

Other impacts

One important aspect was highlighted repeatedly in interviews with dairy farmers: the potential ethical issue if live dairy cattle exports were to cease. There is an added incentive to use sexed semen³ when exporting heifers, producing a majority of female cattle and reducing the number of 5-day old calves going to slaughter⁴. For dairy farmers, there are a number of factors in the breeding and business considerations of using sexed or natural semen. Some of this impact would be offset by farmers using beef genetics over a portion of their herd to access the beef market.

Potential of live dairy cattle exports

The components of Australia's comparative advantage in live dairy cattle exports, relative to its neighbours are:

- Good genetic pool
- Stringent health protocols
- Disease-free livestock
- Resilient genetics, which convey the ability to thrive in variable weather conditions

³ The goal with sexed semen is to produce a calf of a specific sex using artificial insemination (AI).

⁴ Some male calves are slaughtered at 5 days old as they cannot produce milk and it has, in the past, been unviable to rear them for beef.

- Large population of livestock
- Proximity to China and South East Asia (shorter travel time than some competitors)
- Businesses are experienced in regulations etc. for live trade to our export markets
- Good animal welfare and occupational health and safety practices.

Interviews with stakeholders in the live dairy cattle export industry supported the finding that few countries have access to the Chinese market, so Australia's position as an exporter is advantageous. Particularly, the US does not export live dairy cattle to China, and with the cessation of New Zealand's live export industry, the only competitor in this market is South America.

While the cessation of live dairy cattle exports from New Zealand will leave a gap in the market that Australia could potentially fill, the limited area from which China accepts Australian cattle⁵ means that Australian farmers in the permitted area would need to significantly increase production to fill the gap created by New Zealand's cessation. So New Zealand's exit from the market will not be of immediate benefit to Australia. In addition to this, the type of dairy cattle exported from New Zealand is different to those from Australia. New Zealand cattle are targeted for the high butter fat content of their milk, while Australian cattle are generally targeted for their high milk volumes. This difference in "products" also suggests that New Zealand's exit from the market may not have much of an effect on Australia's live dairy cattle export industry.

⁵ Cattle destined for China can only be exported from Bluetongue virus free areas in southern Australia.

1. INTRODUCTION

The Australian live export industry is an important component of the Australian agricultural sector, contributing significantly to the economy and regional and rural employment. While beef cattle comprise most of the value of live cattle exports, exports of live dairy cattle also contribute to regional economies and provide an important alternative income stream to the dairy farming industry.

Undertaking a detailed economic analysis of the live dairy cattle export trade has been identified as a high priority for the dairy cattle export industry (producers and exporters) to ensure that the Australian public, as well as lawmakers and decision-makers, understand the benefits that the live dairy cattle export industry brings to regional businesses, communities and the Australian economy.

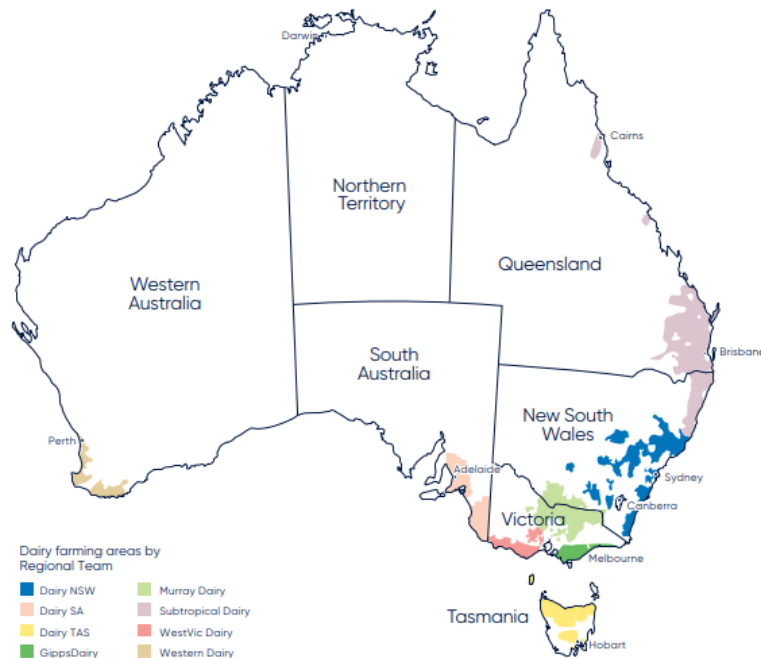
BDO EconSearch was engaged by LiveCorp, Meat & Livestock Australia (MLA) and Dairy Australia in a cross-sectoral study to estimate the value and importance of the Australian live dairy cattle export trade to support industry in improving business processes, and increasing efficiency and productivity. The aim of this study is to undertake an analysis of the economic value and impact of the live dairy cattle export industry on the Australian economy and its regional economies that supply and support the trade, review the competitiveness of Australia's live dairy cattle export sector and identify strategies that may assist to maintain and improve that competitiveness.

2. BACKGROUND

The Australian dairy industry plays a significant role in employment and economic output in regional and rural communities across the nation. This includes the direct activity generated through the production of milk and livestock on-farm and the flow-on activity the dairy industry generates in sectors such as transport, retail/wholesale trade and health and agricultural services.

Dairy production in Australia is spread across eight main Dairy Australia RDP regions: South Australia, Western Victoria, Gippsland, Murray, Subtropical, Western Australia, Tasmania and New South Wales (Figure 2-1).

Figure 2-1 Dairy regions in Australia

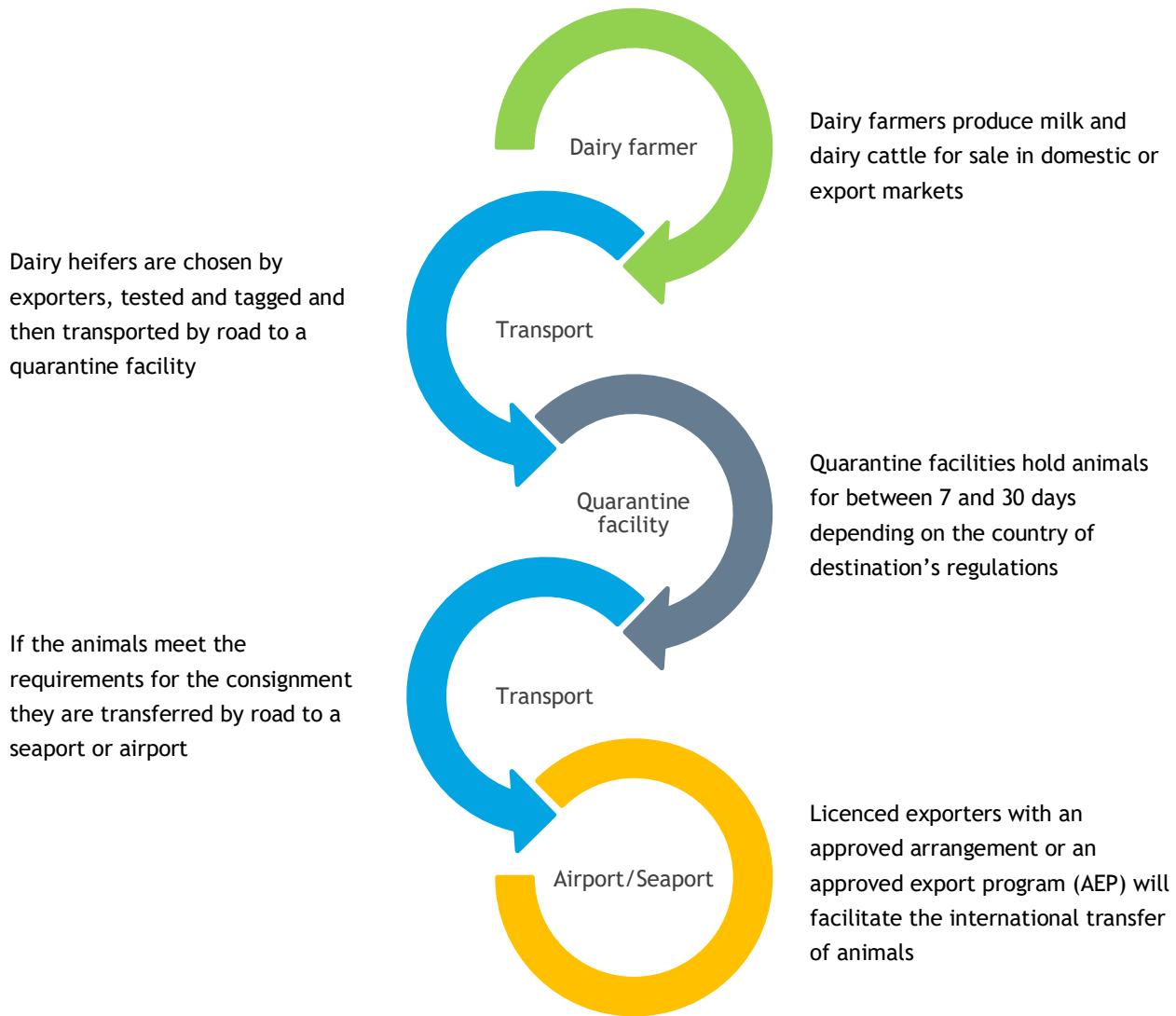


Source: Dairy Australia (2020)

The dairy industry in Australia has become much more sophisticated over the last two decades. Changes include an increase in the average farm size, the use of new technologies, developments in genetics, the National Livestock Identification System (NLIS), welfare improvements and the sale of livestock for export to provide an additional income stream.

An average dairy farm needs to replace between one fifth and one-third of their herd every year. As part of the process to replace their herd, dairy farmers end up with surplus heifers. Being able to sell these excess heifers provides dairy farmers with an additional income stream (i.e. in addition to the sale of milk) and has other welfare benefits. The development of the live export market has seen increased demand for heifers and resulted in better prices received by dairy farmers. In turn, this has led to dairy farmers investing in infrastructure and processes to better supply the live export market. The supply chain for the export of dairy livestock is illustrated in Figure 2-2.

Figure 2-2 Dairy cattle live export supply-chain



Source: BDO EconSearch analysis

The process to export live dairy cattle begins when an order comes through to an exporter. The facilitation of international trade can only occur through approved licenced exporters who must have the following (Department of Agriculture, Fisheries and Forestry 2022):

- an approved arrangement (or an exemption as a small and infrequent exporter)
- an approved export program
- and, if exporting feeder/slaughter animals, an approved exporter supply chain assurance system.

The process then involves the following steps:

1. Exporter receives a contract.
2. Some exporters send out their cattle buyers to farms and do their own selections. Other exporters will select their stock from stock agents.
3. The livestock are tested by a Department of Agriculture, Fisheries and Forestry approved vet.
4. The tested cattle that meet the required criteria are then tagged and sold to the exporter. The farmer or stock agent then arranges transport to the quarantine facility.
5. Cattle are kept in the quarantine facility for between 7 and 30 days, depending on the regulations for the country of destination.
6. During their time in quarantine the cattle are fed, vaccinated, drenched and prepared for consignment.
7. The cattle are then transported to the airport or seaport to be loaded onto a plane or ship. Vets and stockmen travel with the animals on ships to ensure their safety and welfare.

Export sales can be facilitated directly between an exporter and a farmer, or they can be facilitated through a stock agent. Stock agents are principally involved in the 'aggregation phase' between farmers and exporter. Some farmers supply 50 or so cattle a year, others just 8 or so. Stock agents aggregate them to a herd to be sold to an exporter.

3. DATA AND METHOD

Undertaking an economic impact assessment provides an understanding of the economic activity associated with a “shock” within an economy. How these estimates are created and the values presented are determined by the economic tool(s) used to calculate the contributions and the quality of the data collected.

The study required mapping the economic activity of the dairy cattle export industry in each RDP region and Australia as a whole. To do this we accessed data from a variety of sources including ABS and the DFMP. As information was not available for all areas we required, two separate consultations (farmers and post farm businesses) were undertaken to collect data and context from suitable individuals and businesses involved in the dairy cattle export industry. Finally, extended input-output analysis was used to estimate the flow-on (or indirect) economic contributions of the industry.

3.1. Consultation

The dairy farmer interviews (Appendix 1) focused on why farmers started selling dairy cattle for live export, what proportion of their employment could be attributed to the rearing of cattle for live export and what impact a live trade cessation would have on their business and their suppliers. A total of eight dairy farmers who participate or used to participate in the live export market completed interviews.

In addition to the dairy farmer consultation, three interviews were undertaken with experts at exporting companies heavily involved in the dairy cattle export trade. Information was gathered on the potential of the live dairy cattle trade including Australia’s competitiveness and comparative advantage. These exporters were also asked what impact a live trade cessation would have on their business and the industry more broadly. In addition to the interviews, exporters provided fine grained regional data allowing the attribution of exports of dairy cattle from Australia to dairy farming regions (e.g. where cattle were sourced from).

3.2. Estimation of Economic Effects - Key Concepts

3.2.1. Economic activity

Economic activity indicators: the primary focus of this report is the generation of economic activity resulting from the live dairy cattle export industry. The key economic activity indicators considered in the analysis are gross regional product (GRP) and employment. When looking at Australia-wide data GRP is replaced with gross domestic product (GDP).

Economic Impact: changes in economic activity are referred to as economic impacts. Generally, changes in *economic activity indicators* result from some stimulus or external shock imposed. In this analysis the concept of economic impact includes the decline in economic contribution from a hypothetical cessation of live trade. This *economic impact* is measured in terms of the *economic activity indicators* referred to above.

3.2.2. Indicators of economic activity defined

Gross regional product (GRP): is a measure of the contribution of an activity to the regional economy. GRP is measured as value of gross output (business revenue) less the cost of goods and services (including imports) used in producing the output. In other words, it can be measured as the sum of household income, gross operating surplus and gross mixed income minus payments to owner managers and taxes less subsidies on products and production. It represents payments to the primary inputs of production (labour, capital and

land). Using GRP as a measure of economic contribution avoids the problem of double counting that may arise from using value of output for this purpose.

Employment units: Employment numbers are usually reported in either full time equivalent (FTE) units or total job units defined as follows:

- *FTE:* is a way to measure a worker's involvement in a project or industry activity. An FTE of 1.0 means that the person is equivalent to a full-time worker, while an FTE of 0.5 signals that the worker is only half-time.
- In this report an FTE job is calculated as 37.5 hours per week. On average, the typical dairy farm employee works 50 hours a week so FTE jobs in this report may overstate the number of people working within the industry.
- *Jobs:* is used to refer to the number of workers employed in an industry or on a project at any point in time. It typically refers to either:
 - the *maximum* number of workers required at any point over the analytical period or the duration of the project; or
 - the *average* number of workers required over the analytical period/duration of the project. This can be calculated on a daily, weekly, monthly or annual basis.

In this report employment has been reported in terms of FTE units on a per annum basis.

3.3. Economic Contribution Models

The estimates of economic impact presented in this report are based on the use of an extension of the conventional input-output method. Over the past decade BDO EconSearch has developed an extended input-output model known as the RISE model (Regional Industry Structure & Employment). The RISE model provides a comprehensive economic framework that is extremely useful in the resource planning process, particularly for regional economic contribution applications.

Input-output models are widely used to assess the economic contribution of existing or changing levels of economic activity⁶, such as regional agriculture. Input-output models are available at the national, state and regional levels. To assess the economic activity of the live dairy cattle export industry in Australia a RISE model was utilised for each of the RDP regions and Australia as a whole.

⁶ Called an 'exogenous shock' in economic modelling terminology.

3.4. Data and Assumptions

The starting point for the analysis was total value and volume of live dairy cattle exports from Australia sourced from the ABS (unpublished data). Then data from exporters, as to where their dairy cattle were sourced from, was used to estimate regional volumes and values. The data provided to us by exporters accounted for almost 80 per cent of the total dairy cattle exported in 2020/21. Exporters also provided information on how the export value is attributed throughout the supply chain.

To analyse the contribution of live export to the dairy farming sector, Dairy Farm Monitor Project (DFMP) data by RDP region was sourced for 2019/20 and 2020/21 for all regions except for the Sub-tropical region from which there is little live dairy cattle export activity. The DFMP data was supplemented with financial information collected from farmers during interviews. It was possible to analyse the livestock prices received to identify and aggregate those dairy farms who were involved in live export as opposed to those who were not involved in live export (live export prices are much higher than prices received domestically). This was used to determine the level of farmer participation, retained earnings, employment and risk management.

The results in this section rely heavily on the DFMP, which does not collect data specifically asking about livestock sales for live export. However, as a result of the higher prices attained from live export sales it was possible to identify those DFMP respondents who had live export sales in 2019/20. High beef prices in 2020/21 made it more difficult to identify live export sales and, as such, the focus of this section is on the 2019/20 DFMP data. It is probable that at least this level of participation in the live export market would have continued in 2020/21 but this is not as clearly identifiable in the data. In addition, it is difficult to compare livestock sales with previous years as a result of restricted supply, competition and COVID-19 pandemic complications.

Note, the DFMP data is drawn from a limited number of dairy farmers. The number of respondents in each region is provided in Table 3-1.

Table 3-1 Number of survey participants in the DFMP in 2019/20

	SA	TAS	WA	NSW	Gippsland	WestVic	Murray	Australia
Number of respondents	18	27	25	34	25	25	30	184
Proportion of total farms	8%	7%	19%	10%	2%	2%	3%	4%

A combination of the data described above, information from consultation and RISE models were used to estimate the economic impact of a hypothetical cessation of the live dairy cattle trade. The assumptions made are described in Section 5.

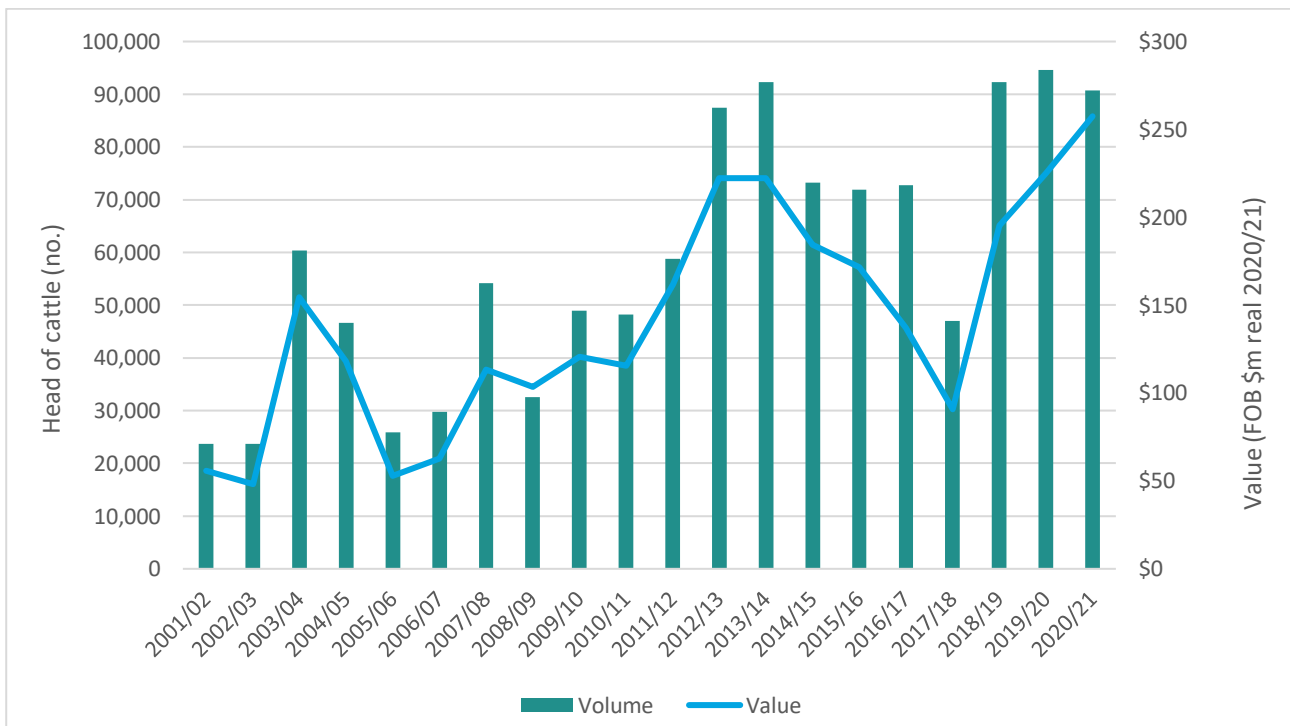
4. ECONOMIC CONTRIBUTION OF THE LIVE DAIRY CATTLE EXPORT INDUSTRY TO AUSTRALIA

4.1. Value of the live dairy cattle export trade

4.1.1. Australia

Live dairy cattle exports from Australia over the 20 years, 2001/02 to 2020/21, are presented in Figure 4-1. Live export of dairy cattle from Australia has seen significant growth over the last 20 years, from just under 20,000 head of cattle in 2001/02 to over 90,000 head of cattle in 2020/21. The value of this trade in real terms⁷ has increased almost four-fold, from around \$56m in 2001/02 to almost \$258m in 2020/21.

Figure 4-1 Value^a and volume of Australian live dairy cattle exports, 2001/02 to 2020/21



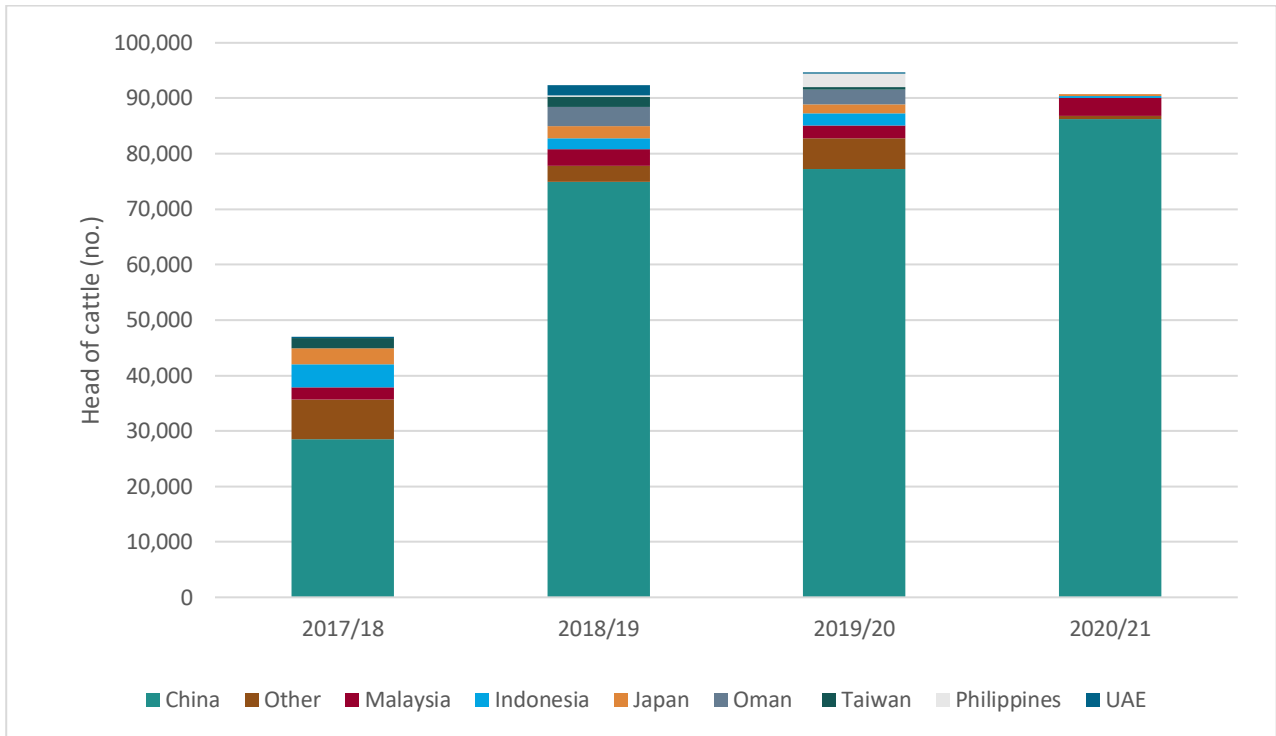
^a Nominal value has been adjusted for inflation. In real 2020/21 dollars.

Source: ABS unpublished data

Number and value of live dairy cattle exports from Australia by country of destination is illustrated in Figure 4-2 and Figure 4-3, respectively. By far the most important destination country for Australian exports of live dairy cattle is China, especially in 2020/21 where it accounted for 95 per cent of the number and 96 per cent of the total value. Other countries of significance include Indonesia, Japan and Malaysia.

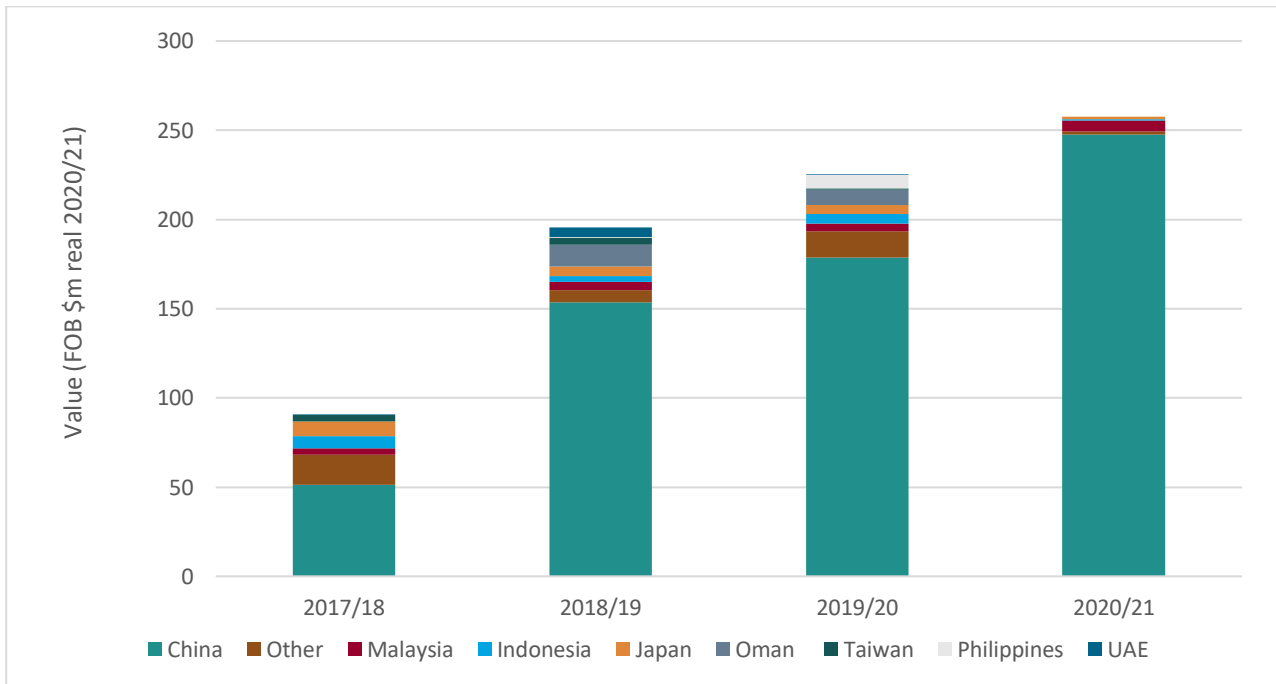
⁷ That is, the nominal value adjusted for inflation, in 2020/21 dollars.

Figure 4-2 Number of Australian exports by country of destination, 2017/18 to 2020/21



Source: ABS unpublished data

Figure 4-3 Value ^a of Australian dairy livestock exports by country of destination, 2017/18 to 2020/21



^a Nominal FOB value has been adjusted for inflation. In real 2020/21 dollars.

Source: ABS unpublished data

4.1.2. Dairy farming regions

Total number and value of live dairy cattle exports by dairy farming region is shown in Table 4-1 and Table 4-2, respectively, with value by dairy region illustrated in Figure 4-4 for the period 2016/17 to 2020/21. In each year almost three quarters of all the live dairy cattle exports were from three dairy regions: Western Victoria (29 per cent), Gippsland (25 per cent) and Murray (19 per cent).

Table 4-1 Number of live dairy cattle exports by dairy farming region, 2016/17 to 2020/21 (head of cattle)

	SA	TAS	WA	NSW	Gippsland	WestVic	Murray
2016/17	4,232	5,270	4,899	5,363	18,326	21,135	13,586
2017/18	2,733	3,403	3,164	3,463	11,834	13,648	8,773
2018/19	5,368	6,684	6,214	6,801	23,243	26,806	17,231
2019/20	5,501	6,849	6,368	6,970	23,818	27,469	17,658
2020/21	5,273	6,566	6,105	6,682	22,834	26,334	16,928

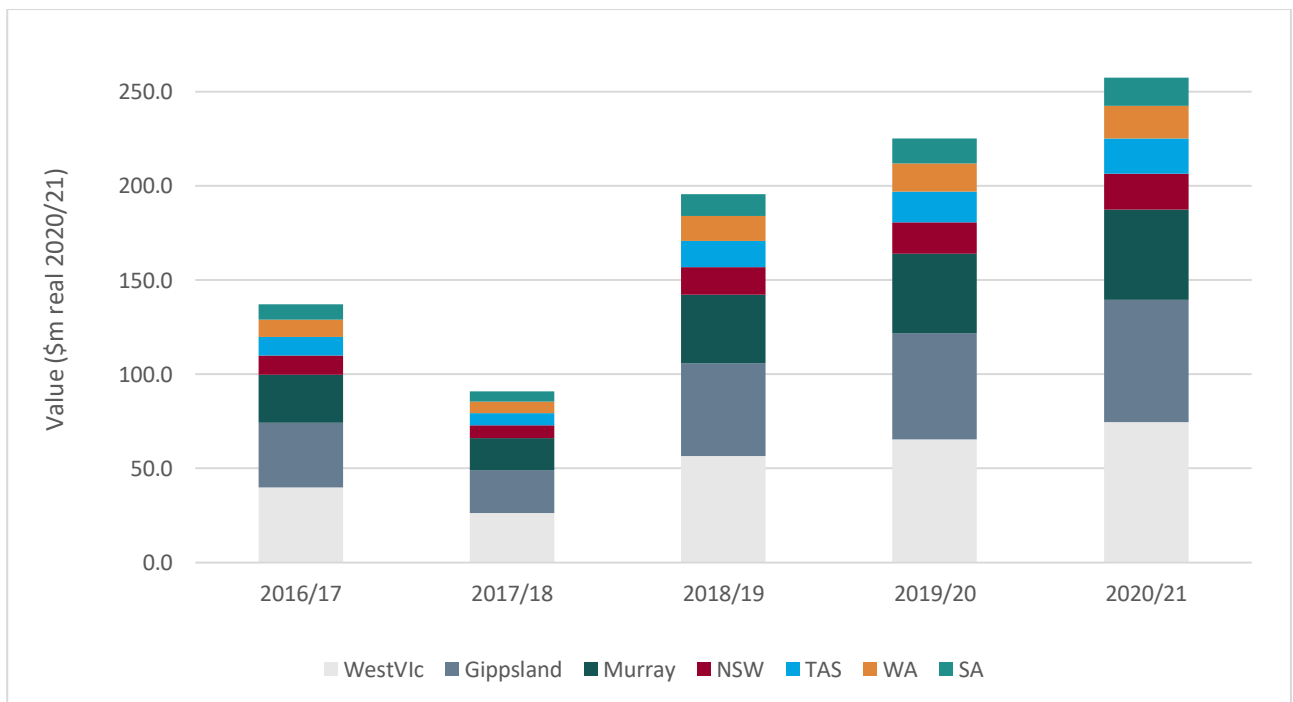
Source: BDO EconSearch analysis using ABS unpublished data and unpublished data from exporters.

Table 4-2 Value of live dairy cattle exports by dairy farming region, 2016/17 to 2020/21 (FOB \$m)

	SA	TAS	WA	NSW	Gippsland	WestVic	Murray
2016/17	8.0	9.9	9.2	10.1	34.5	39.8	25.6
2017/18	5.3	6.6	6.1	6.7	22.9	26.4	17.0
2018/19	11.4	14.1	13.2	14.4	49.2	56.7	36.5
2019/20	13.1	16.3	15.1	16.6	56.7	65.3	42.0
2020/21	15.0	18.6	17.3	19.0	64.8	74.7	48.0

Source: BDO EconSearch analysis using ABS unpublished data and unpublished data from exporters.

Figure 4-4 Value of live dairy cattle exports by dairy farming region, 2016/17 to 2020/21



Source: BDO EconSearch analysis using ABS unpublished data and unpublished data from exporters.

Of the total exports from Australia, by far the majority leave via Victoria (average of 96 per cent between 2016/17 and 2020/21) with around 2 per cent leaving via WA and 1 per cent each from SA and Queensland. Although, in 2019/20 and 2020/21 no exports of live dairy cattle left through ports in SA (Table 4-3).

Table 4-3 Number and value of live dairy cattle exports by state, 2016/17 to 2020/21

	NSW		QLD		SA		Vic		WA	
	No.	Value (\$m)	No.	Value (\$m)	No.	Value (\$m)	No.	Value (\$m)	No.	Value (\$m)
2016/17	215	0.36	0	0.00	0	0.00	30,332	57.70	0	0.00
2017/18	1,612	3.75	345	0.91	48	0.07	43,396	76.82	1,616	4.92
2018/19	719	1.77	459	1.28	24	0.03	90,869	185.28	276	0.27
2019/20	0	0.00	2,660	6.66	0	0.00	86,357	199.68	5,616	12.64
2020/21	92	0.18	340	1.12	0	0.00	89,612	254.24	679	1.91

Source: ABS unpublished data

4.2. Contribution to dairy farms

The estimates provided in this section of the report uses DFMP data which is drawn from a limited number of dairy farmers. See Section 3.4 for further detail.

4.2.1. Farmer participation

The estimated level of farmer participation in live dairy cattle export by dairy farming region in 2019/20 was extrapolated from DFMP data and is shown in Figure 4-5. Note that due to the difficulty identifying some exporting farms, where some of their exports may have been included in calf sales instead of heifer sales for example, the number of exporting dairy farms is likely to be underestimated. This can be shown by multiplying the total number of farms by the average livestock exports per farm where the result is approximately 73,000 head of dairy cattle exported from Australia. However, ABS export data shows there were around 90,000 head of cattle exported from Australia in 2019/20. Therefore, it is likely the number of exporting dairy farms is likely to be greater than that detailed in Table 4-4. Additionally, the number of exporting farms will change year to year depending on a number of factors including prices (domestically and internationally), rainfall, feed prices and beef cattle prices.

Table 4-4 Number and size of farms supplying to live dairy cattle exports, 2019/20

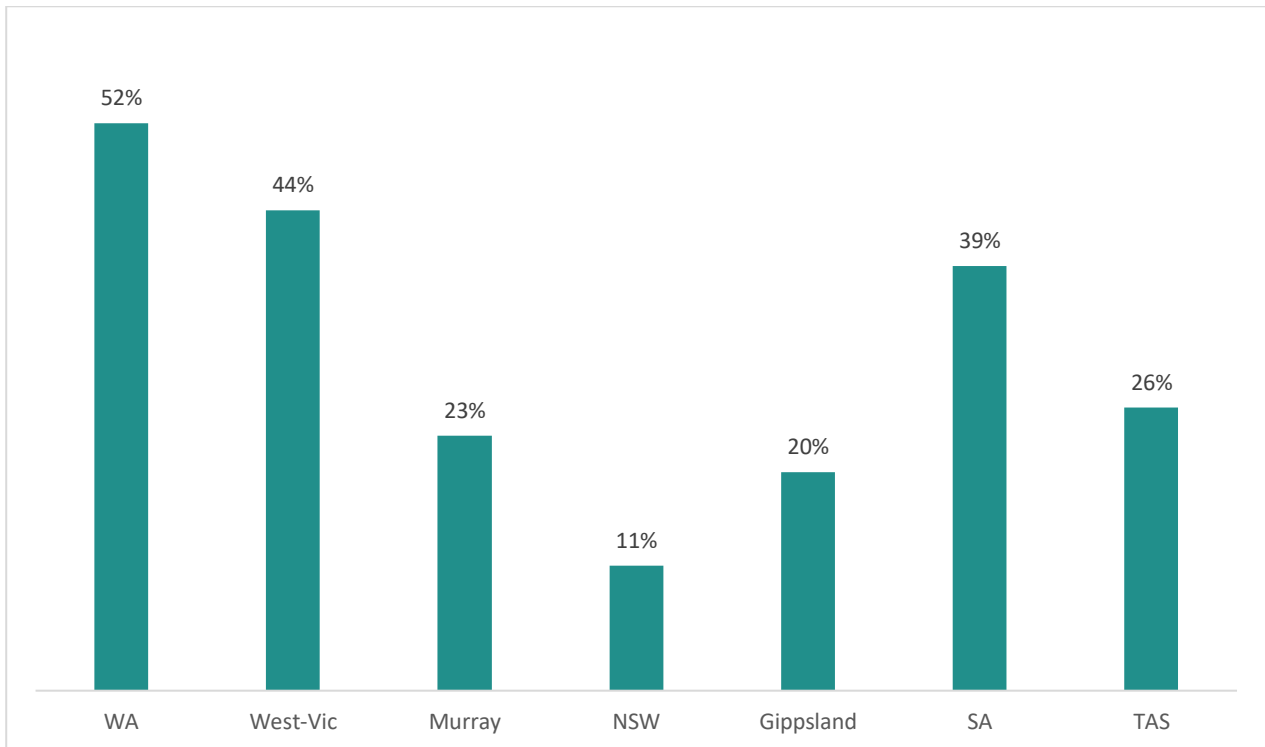
	SA	TAS	WA	NSW	Gippsland	WestVic	Murray	Australia
Farms (No.)	80	101	70	40	240	509	272	1,313
Average herd size (No.)	490	634	588	356	343	411	717	522
Total livestock sales (No.)	428	423	715	344	327	409	538	491
Livestock export sales (No.)	36	44	77	53	47	48	86	55
Export/total livestock sales	8%	10%	11%	15%	14%	12%	16%	11%

Source: BDO EconSearch analysis using DFMP unpublished data

Nationally, over 1,300 dairy farms (around 26 per cent of dairy farms in 2019/20) were estimated to have participated in the live dairy cattle export trade. However, regionally this proportion was estimated to have ranged from only 11 per cent in NSW to 52 per cent in WA. The approximate number and size of farms that supply to the live dairy cattle export trade is detailed in Table 4-4. The regions with the most dairy farms

participating in live export were Western Victoria (509 farms), Murray (272 farms) and Gippsland (240 farms). This corresponds to the regional data presented in Section 4.1.2 in that 73 per cent of dairy cattle for live export were sourced from these three regions in 2019/20. The average number of animals exported by these farms nationally was 55 or 11 per cent of the average export sales to livestock sales. However, this proportion ranged from a low of 8 per cent in SA to a high of 16 per cent in the Murray region.

Figure 4-5 Proportion of dairy farms exporting dairy heifers by dairy farming region, 2019/20 ^a



Source: BDO EconSearch analysis using DFMP unpublished data

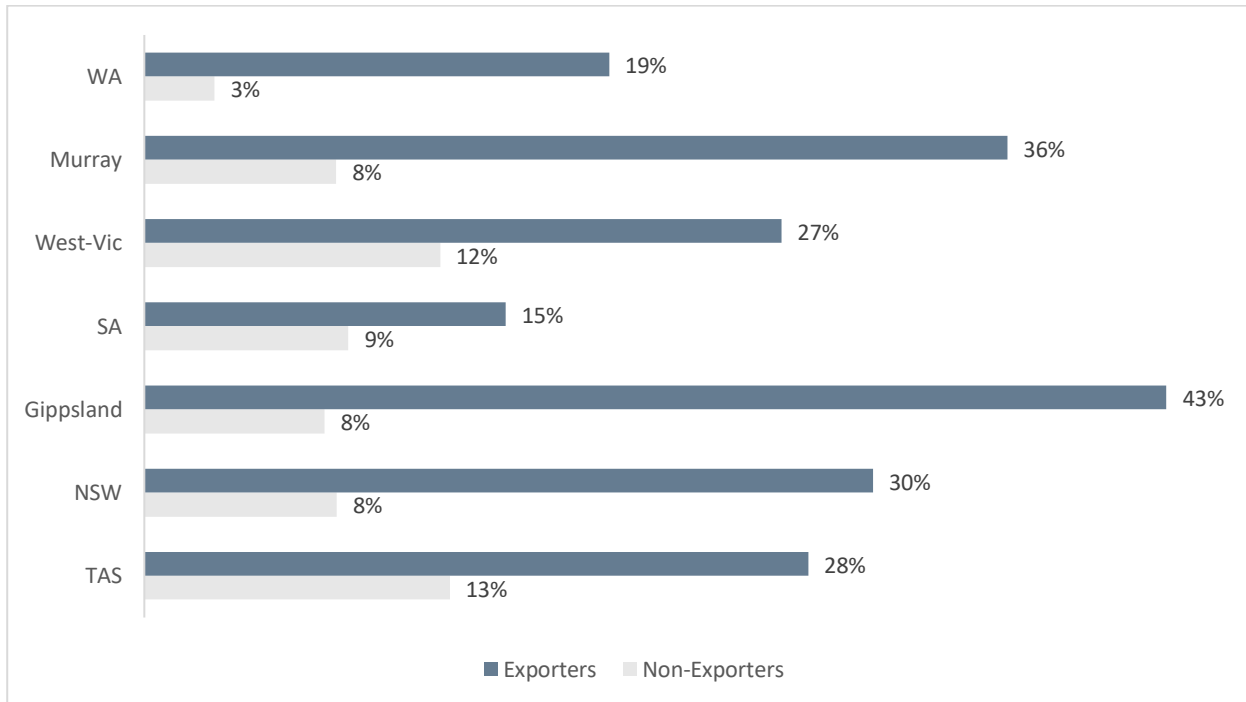
4.2.2. Retained earnings

Average livestock income as a proportion total farm income for farms who participate in live dairy cattle export verse those who do not is illustrated by dairy farming region in Figure 4-6 for 2019/20. The difference in average livestock income for farms who participate in live export compared to those farms who do not is notable in 2019/20, especially for Gippsland, Murray, SA and NSW. The difference is greatest in the Gippsland region, where average livestock income as a proportion total farm income for farms who participate in live dairy cattle export, was 12 per cent compared to only 6 per cent for those farms who did not participate in live export.

In all of the regions, profit (measured as earnings before interest and tax (EBIT)/value of total assets managed) was the same or higher for exporting farms than it was for non-exporting farms, as shown in Table 4-5. The regions with the largest differences in average profit between exporting and non-exporting farms were NSW (3.8 per cent for exporting farms compared to 2.4 per cent for non-exporting farms), Murray (5.3 per cent for exporting farms compared to 3.9 per cent for non-exporting farms), Gippsland (7.2 per cent for exporting farms compared to 6.1 per cent for non-exporting farms) and Western Victoria (6.3 per cent for exporting farms compared to 4.9 per cent for non-exporting farms).

The average differential in livestock income as a percentage of total farm income for exporting and non-exporting farms is likely due to exporting farms both receiving higher livestock trading prices for exporting and lower income from milk production, as some farm resources such as feed and land are used to raise young stock for export rather than for maximising milk production. The differential presented is the average and there are highly profitable farms that focus only on milk production rather than livestock trading income.

Figure 4-6 Livestock income as a proportion (%) of total farm income by dairy farming region, 2019/20



Source: DFMP unpublished data

Table 4-5 Average profit for exporting and non-exporting dairy farms, 2019/20 (EBIT/assets)

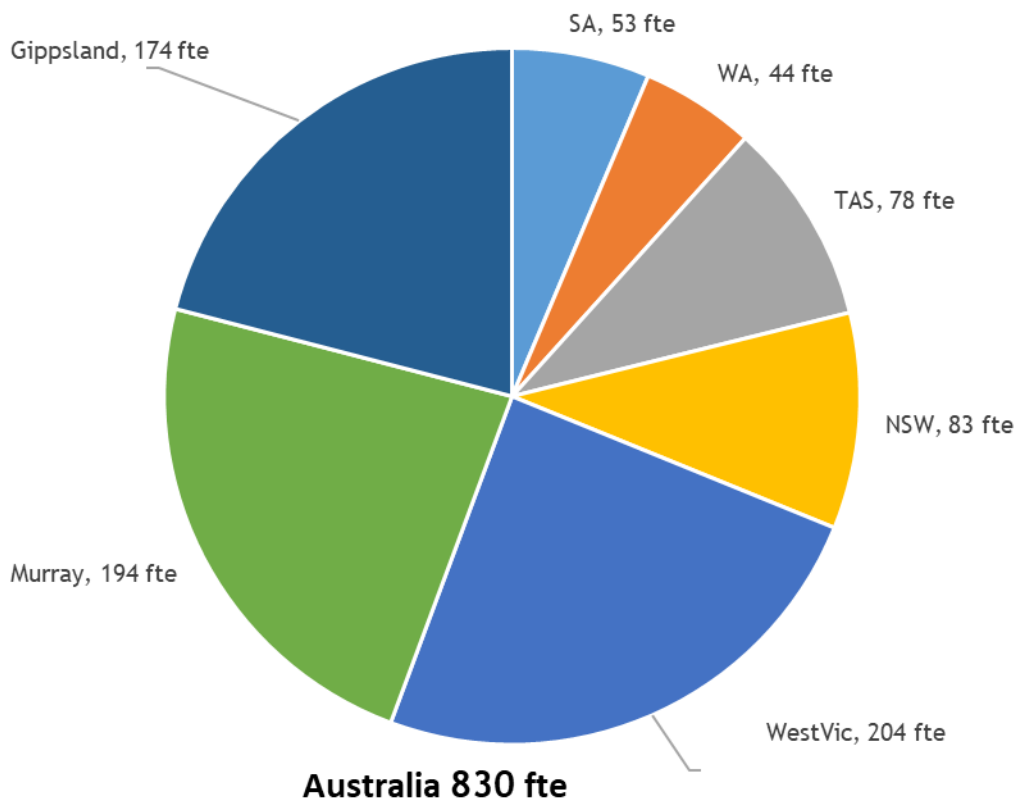
	Exporting farms	Non-exporting farms
West Vic	6.3%	4.9%
Gippsland	7.2%	6.1%
Murray	5.3%	3.9%
NSW	3.8%	2.4%
SA	5.6%	5.6%
WA	3.8%	3.6%
TAS	9.2%	8.9%

Source: BDO EconSearch analysis using DFMP unpublished data

4.2.3. Employment

Total dairy farm employment in Australia was estimated to be almost 16,700 FTE jobs (BDO EconSearch 2021). The contribution of the live dairy cattle export industry to employment in Australia through direct on-farm employment is illustrated in Figure 4-7 for 2019/20. Overall, around 830 FTE jobs or 5 per cent of on-farm dairy employment was attributed to the rearing of dairy cattle for live export in Australia. However, this level of employment was dependent on the size of the farm, with larger farms reporting a larger proportion of their labour dedicated towards rearing cattle for live export. Smaller farms reported as little as 5 per cent of their labour could be contributed to the rearing of live export but larger farms reported as much as 30 per cent. Survey respondents highlighted the fact that all of this employment was in regional areas of Australia.

Figure 4-7 Direct employment attributable to the live dairy cattle export industry, 2019/20



Source: BDO EconSearch 2021 and survey of dairy farms

4.2.4. Risk management

Most dairy farmers consulted identified ‘a way to sell excess heifers produced during herd replacement’ as the reason they first started selling dairy cattle for export. On average, dairy farms need to replace between one-fifth and one-third of their herds every year but many farms end up producing more heifers than they need. The live dairy cattle export market provides an income stream far beyond that which could be received by selling locally.

As with many farming sectors, the Australian dairy industry is volatile. The live dairy cattle export market provides an additional income stream for farmers and a way of diversifying risk. The live export income stream is somewhat separate from milk prices and is something farms can achieve relatively easily without significant investment as the well-established supply chain is able to accept small volumes from individual farms while maintaining profitability. The last few years have been positive for dairy farmers in terms of good milk prices, but farmers know that may not last. Whilst live export prices are separate to milk prices, they are not totally independent. Cows must produce the heifers for sale and so producing extra heifers does impact the milk production system. The loss of seasonality of production is one such impact.

The following are quotes from dairy farmers regarding live export:

“You won’t get [a] return on investment as quickly as you get from live exports.”

“It [selling dairy livestock for export] allows us to fully utilise our mix of land better by getting a valuable return. It is a different revenue stream to our other income, which takes an element of risk out of the business.”

“It underpins the financial viability of our business given the significant income stream.”

Other benefits of live export identified through farmer interviews were:

- The ability of farms to build their herd and increase production more quickly than otherwise possible (e.g. through selling younger calves for live export and buying back in-calf heifers).
- The ability to be selective about the animals they keep for their own herds. By picking the best animals they can push their herd to get the best milk production possible.
- Live export has driven the use of sexed semen to produce only female calves. This has resulted in fewer bull calves (bobby calves) produced and, as a result, culled.

In order to demonstrate the ability of exporting farms to manage risk we have modelled the impact on profit (EBIT/assets) for exporting farms and non-exporting farms of a 15 per cent reduction in non-livestock trading income (e.g. a milk price reduction) (Table 4-6). It shows that for most regions, exporting farms are better able to manage a fall in non-livestock trading income as a result of the additional income they receive from exports. In the Murray region, for example, it is the difference between EBIT being positive or negative.

Table 4-6 Impact on profit (EBIT/assets) of a reduction in non-livestock trading income

	2019/20		15% Reduction in non-livestock trading income	
	Exporters	Non-exporters	Exporters	Non-exporters
WestVic	6.3%	4.9%	2.5%	1.1%
Gippsland	7.2%	6.1%	4.1%	3.1%
Murray	5.3%	3.9%	1.5%	-0.2%
NSW	3.8%	2.4%	-0.2%	-1.1%
SA	5.6%	5.6%	1.9%	2.7%
WA	3.8%	3.6%	0.9%	0.8%
TAS	9.2%	8.9%	4.9%	5.2%

Source: BDO EconSearch analysis using DFMP unpublished data

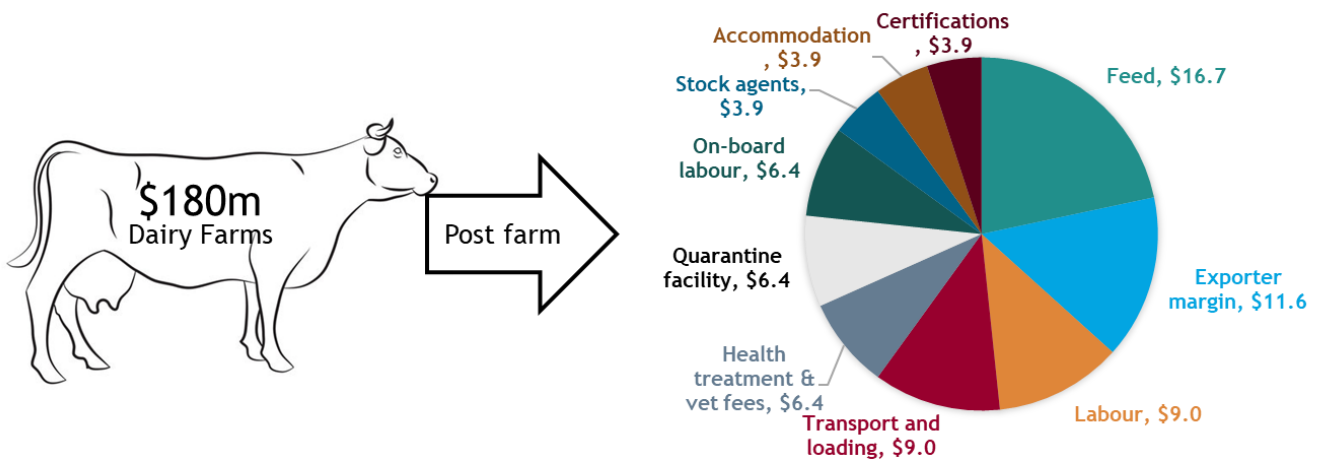
4.3. Support Services Contributions

The businesses typically involved in the dairy cattle export supply-chain include:

- Transport companies
- Vets
- Stock agents
- Quarantine facilities
- Feed and medicine/sundry suppliers
- Ruminant nutritionist
- Airport/seaport facilities
- Exporter staff (buyers, stockpersons)

The free-on-board (FOB) value is the value of a good exported including all costs at the point of consignment. For dairy cattle this includes the value of the cow but also all transport up until the cow is loaded on a ship (or plane), quarantine, feed, health care and agent fees. The total FOB value of Australian live dairy cattle exports was almost \$258m in 2020/21. The attribution of this value along the supply chain is detailed in Figure 4-8.

Figure 4-8 Australian live dairy cattle export value chain, attribution of 2020/21 FOB value (\$m)



Source: ABS unpublished data and industry consultation

The total FOB value of Australian live dairy cattle exports was almost \$258m in 2020/21. Around 70 per cent of this value, or \$180m is retained by dairy farms. The remaining 30 per cent is attributed to various post farm services including: 7 per cent to feed (\$17m) the second largest item, 5 per cent to exporters (\$12m), 4 per cent to labour (\$9m), 4 per cent to transport and loading (\$9m), 3 per cent to health treatments and vet fees (\$6m), 3 per cent to quarantine facilities (\$6m), 3 per cent to on-board labour (\$6m each) and 2 per cent each to stock agents (\$4m), accommodation (\$4m) and certifications (\$4m).

The value of the live export trade on support services across dairy production regions is detailed in Table 4-7. By far the largest value is received by dairy farmers, followed by feed, exporters' margin, labour, transport and loading, health and vet fees, and quarantine facilities.

Table 4-7 Australian live dairy cattle export value chain national value attribution by source dairy farming region (2020/21 FOB value)

	SA	TAS	WA	NSW	Gippsland	WestVic	Murray
Dairy farming	10.5	13.0	12.1	13.3	45.4	52.3	33.6
Feed	1.0	1.2	1.1	1.2	4.2	4.9	3.1
Exporter margin	0.7	0.8	0.8	0.9	2.9	3.4	2.2
Labour	0.5	0.7	0.6	0.7	2.3	2.6	1.7
Transport and loading	0.5	0.7	0.6	0.7	2.3	2.6	1.7
Health & vet fees	0.4	0.5	0.4	0.5	1.6	1.9	1.2
Quarantine facility	0.4	0.5	0.4	0.5	1.6	1.9	1.2
On-board labour	0.4	0.5	0.4	0.5	1.6	1.9	1.2
Stock agents	0.2	0.3	0.3	0.3	1.0	1.1	0.7
Accommodation	0.2	0.3	0.3	0.3	1.0	1.1	0.7
Certifications	0.2	0.3	0.3	0.3	1.0	1.1	0.7
Total	15.0	18.6	17.3	19.0	64.8	74.7	48.0

Source: ABS unpublished data and industry consultation

5. ECONOMIC IMPACT OF A HYPOTHETICAL CESSATION OF DAIRY CATTLE LIVE TRADE

The consultation with dairy farmers and exporters highlighted the importance of the live dairy cattle trade, particularly for providing an additional income stream for dairy farmers. This section of the report describes the economic impact results of a hypothetical cessation of the dairy cattle live export trade. The results have been presented for two time periods; short-term and long-term. This is in response to the expected changes dairy farmers would make in response to a live trade cessation and the time it would take for them to be able to change their business operations. These types of behaviour changes by farmers, as occurs in any sector that experiences a negative shock, mean that the net loss of economic activity (economic impact) of a cessation of live dairy cattle exports would likely be smaller than the total amount of economic activity that is currently involved in the activity. The estimated impact is summarised below in the short and long term.

In the short term (i.e. in the first year or two) dairy farmers would have to sell excess cattle in domestic markets or bring them into their milking herd and cull older cows. To the extent that heifers are sold into the domestic market, this would result in downward pressure on domestic heifer prices and, hence, income received by dairy farmers. However, dairy farmers would still require a similar level of feed, labour, transport, vet fees and stock agent fees. The impact in the short term would be felt most by dairy farmers as a result of reduced income without any reduction in costs.

A quote from a dairy farmer sums this up well:

“Locally there is a declining market for excess stock, especially with the use of female sexed semen. There are no new dairies and most other dairies are at full potential. The live export market provides an important market to be able to sell the excess stock.”

In the longer-term dairy farmers indicated in the consultation that they would change their operations so that they are not producing excess dairy cattle and only producing enough needed to replace their herd. So in the longer term there would be reduced income and costs from those farmers who will no longer produce excess dairy cattle. However, the land that was used to raise young cows for export could go back into milk production, partly offsetting the loss and some farmers indicated they would look at breeding calves for beef. Some of the lost economic activity from a reduction in dairy cattle production would be offset by an increase in beef cattle production.

Economic activity from quarantine facilities, on-board labour, accommodation and certifications would all be lost in the short term and long term.

The economic impact result of a hypothetical cessation of live trade is shown in Table 5-1 in the short-term, and in Table 5-2 in the long term.

In the short-term the loss of gross domestic product (GDP) as a result of a live dairy cattle trade cessation for Australia as a whole was estimated to be \$200m; \$163m directly on-farm and in downstream support services and \$37m in flow-on GDP in other sectors of the economy. Employment lost as a result of a live trade cessation was estimated to be 452 total FTE jobs; 168 FTE jobs directly on-farm and in downstream support services and 283 FTE flow-on jobs. Regionally, the impact would be felt the greatest in the Western Victorian (\$51m in gross regional product (GRP) and 74 FTE jobs), Gippsland (\$45m in GRP and 68 FTE jobs) and Murray (\$34m in GRP and 58 FTE jobs) regions (Table 5-1).

Table 5-1 Economic impact of a hypothetical cessation of live dairy cattle export trade, short-term, loss of activity

	SA	TAS	WA	NSW	Gippsland	WestVic	Murray	Australia
GRP/GDP (\$m)								
Direct	9.7	12.3	11.1	11.9	40.6	46.9	30.2	163.0
Flow-on								
<i>Production induced</i>	0.5	0.6	0.4	0.8	2.4	2.4	2.2	19.0
<i>Consumption induced</i>	0.4	0.4	0.4	0.7	1.7	2.0	1.9	17.8
Total flow-on	0.8	1.0	0.8	1.6	4.1	4.4	4.1	36.8
Total	10.5	13.3	11.8	13.5	44.7	51.2	34.2	199.9
Employment (FTE)								
Direct	10	15	12	12	36	41	27	168
Flow-on								
<i>Production induced</i>	4	5	3	7	20	20	17	147
<i>Consumption induced</i>	3	3	3	5	13	14	14	136
Total flow-on	7	8	6	12	32	34	31	283
Total	17	23	17	24	68	74	58	452

Source: BDO EconSearch analysis

Table 5-2 Economic impact of a hypothetical cessation of live dairy cattle export trade, long-term, loss of activity

	SA	TAS	WA	NSW	Gippsland	WestVic	Murray	Australia
GRP/GDP (\$m)								
Direct	2.6	3.8	2.6	2.5	8.4	9.6	6.2	36.5
Flow-on								
<i>Production induced</i>	1.1	1.1	0.8	1.8	5.2	5.1	4.7	41.4
<i>Consumption induced</i>	0.8	0.8	0.9	1.4	4.0	4.3	3.7	38.2
Total flow-on	1.8	2.0	1.8	3.2	9.1	9.4	8.4	79.5
Total	4.4	5.8	4.4	5.7	17.5	19.0	14.6	116.1
Employment (FTE)								
Direct	23	30	30	23	85	96	61	375
Flow-on								
<i>Production induced</i>	9	10	6	15	42	40	37	318
<i>Consumption induced</i>	6	6	6	10	29	31	27	293
Total flow-on	15	15	13	25	71	72	64	610
Total	37	46	42	47	156	167	125	985

Source: BDO EconSearch analysis

In the longer-term, the loss of GDP as a result of a live dairy cattle export trade cessation for Australia as a whole annually was estimated to be \$116m; \$36m directly on-farm and in downstream support services and \$80m in flow-on GRP in other sectors of the economy. Employment lost because of a live trade cessation was estimated to be 985 total FTE jobs; 375 FTE jobs directly on-farm and in downstream support services and 610 FTE flow-on jobs. Regionally, once again, the impact would be felt the greatest in the Western

Victorian (\$19m in GRP and 167 FTE jobs), Gippsland (\$18m in GRP and 156 FTE jobs) and Murray (\$15m in GRP and 125 FTE jobs) regions (Table 5-2).

One important aspect was highlighted repeatedly in interviews with dairy farmers: the potential welfare issue if live exports were to cease. There is currently a premium for export heifers, which encourages farmers to incur the additional cost of using sexed semen⁸, producing a majority of female cattle and reducing the number of 5-day old calves going to slaughter⁹. For many dairy farmers, live export is not just about business, it is also about animal welfare. That is, it is important to them to breed animals for a solid purpose and for communities and countries where they will be valued, instead of culling them.

It was also highlighted that the mental health impact on dairy farmers of a live trade cessation would be significant. Even with higher prices, the morale of the dairy industry is low and farmers are unsure about the future. If live exports were to cease, then this would be another blow.

⁸ The goal with sexed semen is to produce a calf of a specific sex using artificial insemination (AI).

⁹ Some male calves are slaughtered at 5 days old as they cannot produce milk and it has, in the past, been unviable to rear them for beef.

6. POTENTIAL OF THE LIVE DAIRY CATTLE EXPORT TRADE

6.1. Australia's competitiveness

China has imported Australian dairy products for many years but is now expanding its own industry to meet the needs of its population. Dairy farming in China has gone from small scale operations of a few cows to big milking operations of over 100,000 cows. To meet the demand of these operations, it is importing record numbers of both young, unjoined heifers and pregnancy-tested in-calf heifers to strengthen its local genetic mix. Australia has world class dairy cattle genetics and milk production rates, particularly of the Holstein Friesian and Jersey cattle breeds most sought after by Chinese dairy farmers. Australian Holstein Friesian and Jersey cattle are in great demand due to their more resilient genetics, and the stringent health protocols of the Australian dairy industry. Additionally, to meet their impressive milk industry targets, China benefits from importing a mix of genetics to strengthen its domestic stock, adding value to the high-quality genetics of Australian-bred cattle.

For the past 15 years, China has imported 150,000 to 200,000 dairy heifers each year from Australia, New Zealand, Uruguay and, more recently, Chile, in a bid to boost its genetic pool. China has had problems with disease in the past, and as a result its import regulations are very strict to avoid disease outbreak. These four countries are deemed safe for import and make up the majority of Chinese live dairy cattle imports. Australia's close geographic proximity to China is a significant advantage in this case, as it means that the cattle travel shorter distances to their destination, helping to minimise transport stress. For cattle travelling to China and South East Asia from South America by sea, the journey is almost twice as long as for those arriving from Australia. The length of journey is particularly important for the health and welfare of livestock. The health of the arriving dairy cattle is essential, as they are being imported for long-term breeding and milk production and are not intended for slaughter. It could be expected that Australia's geographic advantage is of added importance to the live dairy cattle export industry. Maintaining healthy, disease-free stock and the strong genetics of Australian dairy cattle will help to maintain the industry.

There has been a slowdown in China's demand for live dairy cattle. However, importing is expected to continue until Chinese farmers determine they have acquired enough stock to meet industry demands. Strong dairy consumption growth is projected, so demand for exports is expected to remain an opportunity as the industry continues to grow. Given the limited pool of competitors and Australia's geographic advantage, Australia is well positioned to continue exporting live dairy cattle to China, as well as continuing the expansion to other South East Asian markets. Australia can maintain competitiveness in the live dairy cattle export industry by ensuring the continued health of its dairy cattle population, as well as avoiding any drastic changes to regulations on live export and generally maintaining positive trade relations with China and other live dairy cattle importers. The US has similar cattle breeds and regulations to Australia and would be a big competitor for the Chinese market if it were to open up to them; however, China does not currently import cattle from the US and it is not considered a competitor at this stage. The US could be used an example of the importance of positive trade relationships.

The components of Australia's comparative advantage in live dairy cattle export relative to its neighbours are:

- Good genetic pool
- Stringent health protocols
- Disease-free livestock
- Resilient genetics, conveying the ability to thrive in variable weather conditions

- Large population of livestock
- Proximity to China and South East Asia (shorter travel time than some competitors)
- Businesses are experienced in regulations etc. for live trade to our export markets
- Good animal welfare and occupational health and safety practices.

6.2. Export certification and regulation pathways

The top three exporting destinations of Australian dairy cattle (combined) are China and to a lesser extent, Indonesia and Vietnam (they are more predominately beef feeder steer markets). This existing live export relationship and the related understanding of export/import approvals and permits make these three destinations relevant to the future of Australia's live dairy cattle export industry.

The export certification and regulation pathways include an export licence, checks by certified veterinarians, approvals from governments in both countries, and periods in quarantine in both origin and destination countries. Some destination countries have additional restrictions, such as China's restriction on only importing cows from the Bluetongue virus free area of southern Australia.

The export of livestock to international markets from Australia has become increasingly regulated. There are various factors involved, from certification to administration to quarantine requirements. As a result, there are a number of private companies experienced in helping both exporters and importers manage the process from farm to farm, providing assistance ranging from administrative advice to transport ships.

6.3. Growth and opportunities

New Zealand's live dairy cattle export industry has been predominantly targeted towards China and in 2021, all 110,000 plus breeding cattle exported by sea from New Zealand were sent to China (Goodwin, 2021; Kelly, 2022). The ban on live export from New Zealand puts Australian dairy farmers in a prime position to fill this gap in the market. Australia exported 170,000 breeding cattle in 2020 (of which 95,000 were dairy cattle), so New Zealand's ban on live exports would theoretically see Australia's export potential almost double, assuming China looks to Australia to replace all of the lost numbers. However, the Australian Livestock Exporters' Council (ALEC) has suggested that it is "simplistic" to assume that the entire live dairy cattle export business from New Zealand would immediately fall to Australia, although expect to see some potential for growth (Kissun, 2021). Although one of the biggest exporters of live dairy cattle to China, Australia is not alone and faces competition from South America. For the past 15 years, China has imported dairy heifers from Australia, New Zealand, Uruguay and, more recently, Chile, in a bid to boost its genetic pool.

Interviews with stakeholders in the live dairy cattle export industry supported the finding that few countries have access to the Chinese market, so Australia's position as an exporter is advantageous. Particularly, the US does not export live dairy cattle to China, and with the cessation of New Zealand's live export industry, the only competitor in this market is South America.

While the cessation of live dairy exports from New Zealand will leave a gap in the market that Australia could potentially fill, the limited area from which China accepts Australian cattle¹⁰ means that Australian farmers in the permitted area would need to significantly increase production to fill the gap created by New Zealand's cessation. So New Zealand's exit from the market will not be of immediate benefit to Australia.

¹⁰ Cattle destined for China can only be exported from Bluetongue virus free areas in Southern Australia.

In addition to this, the type of dairy cattle exported from New Zealand are different to those from Australia. New Zealand cattle are targeted for the high butterfat content of their milk, while Australian cattle are generally targeted for their high milk volumes. This difference in “products” also suggests that New Zealand’s exit from the market may not have much of an effect on Australia’s live dairy cattle export industry.

In addition to China, Australia exports some dairy cattle to the Middle East and South East Asia. There have been emerging markets for the live dairy cattle export industry in the region over the last five years. For example, Vietnamese dairy consumption is growing, and national production is not enough to meet these growing demands. According to the Vietnam Dairy Association, the dairy sector has grown over 10 per cent per annum since 2010, and the domestic industry only supplies just over one third of demand (Whitehead, 2020). Indonesia is another emerging regional live dairy cattle export market. Live export of Australian dairy cattle to Indonesia is already in operation; however, this opportunity is expected to grow as the Indonesian government looks towards domestic dairy production to meet increasing demands. The growth of new markets outside of China provides Australian dairy farmers with additional opportunities for live dairy cattle export, should it be deemed economically viable.

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Disclaimer

The assignment is a consulting engagement as outlined in the ‘Framework for Assurance Engagements’, issued by the Auditing and Assurances Standards Board, Section 17. Consulting engagements employ an assurance practitioner’s technical skills, education, observations, experiences and knowledge of the consulting process. The consulting process is an analytical process that typically involves some combination of activities relating to: objective-setting, fact-finding, definition of problems or opportunities, evaluation of alternatives, development of recommendations including actions, communication of results, and sometimes implementation and follow-up.

The nature and scope of work has been determined by agreement between BDO and the Client. This consulting engagement does not meet the definition of an assurance engagement as defined in the ‘Framework for Assurance Engagements’, issued by the Auditing and Assurances Standards Board, Section 10.

Except as otherwise noted in this report, we have not performed any testing on the information provided to confirm its completeness and accuracy. Accordingly, we do not express such an audit opinion and readers of the report should draw their own conclusions from the results of the review, based on the scope, agreed-upon procedures carried out and findings.

APPENDIX 1 QUESTIONS FROM SEMI-STRUCTURED INTERVIEWS WITH DAIRY FARMERS

Live Dairy Cattle Export Industry Economic Assessment

- 1) When and why did you start exporting dairy heifers?
- 2) How does live export allow you to manage your business risk? E.g. provides an additional income stream which can help with farm reinvestment or to offset a fall in milk price
- 3) If live export of animals were to cease, what would be the impact on:
 - a. The price you receive for heifers in the domestic market?
 - b. Your business operations?
 - c. Your suppliers' operations?
 - d. Any other impacts?
- 4) What proportion of your workforce (employees and unpaid owner-operator labour) would you attribute to the rearing of heifers for live export? ____%

Please provide any other comments that would assist with our reporting (e.g. barriers to growth, opportunities for growth, etc.).

APPENDIX 2 AUSTRALIAN LIVE DAIRY CATTLE EXPORT INDUSTRY

Appendix Table 2-1 No. & value of Australian live dairy cattle exports, 2001/02 to 2020/21

	Head of Cattle (no.)	Value (FOB \$m)	
		Nominal	Real 2020/21
2001/02	23,747	35.8	55.7
2002/03	23,652	32.1	48.2
2003/04	60,309	106.0	154.4
2004/05	46,623	83.0	118.2
2005/06	25,872	38.5	52.9
2006/07	29,805	46.6	62.9
2007/08	54,165	87.9	113.4
2008/09	32,568	81.5	103.6
2009/10	48,909	97.5	120.5
2010/11	48,253	97.2	115.7
2011/12	58,773	137.7	161.9
2012/13	87,422	193.0	222.2
2013/14	92,340	199.0	222.3
2014/15	73,217	167.1	184.3
2015/16	71,907	156.6	171.6
2016/17	72,811	127.0	137.0
2017/18	47,017	86.5	90.9
2018/19	92,347	188.6	195.4
2019/20	94,633	219.0	225.1
2020/21	90,723	257.5	257.5

Source: ABS unpublished data

Appendix Table 2-2 No. of Australian live dairy cattle exports by county of destination, 2017/18 to 2020/21 (head of cattle)

	2017/18	2018/19	2019/20	2020/21
China	28,550	74,963	77,210	86,228
Indonesia	4,118	1,933	2,123	338
Japan	2,936	2,193	1,657	350
Malaysia	2,201	3,002	2,403	3,267
Oman	0	3,500	2,625	0
Philippines	0	240	2,531	0
Taiwan	1,813	1,827	434	0
UAE	275	1,803	132	0
Other	7,124	2,886	5,518	540
Total	47,017	92,347	94,633	90,723

Source: ABS unpublished data

Appendix Table 2-3 Value of Australian live dairy cattle exports, county of destination, 2017/18 to 2020/21 (FOB \$ real 2020/21)

	2017/18	2018/19	2019/20	2020/21
China	51,451,823	153,509,717	178,812,790	247,536,527
Indonesia	6,821,223	3,201,802	5,562,380	1,004,000
Japan	8,096,819	5,431,321	4,909,725	1,185,450
Malaysia	3,604,386	4,672,155	4,201,646	6,009,600
Oman	0	12,127,230	8,576,734	0
Philippines	0	298,385	7,280,863	0
Taiwan	3,649,488	3,861,809	932,121	0
UAE	503,356	5,447,810	257,186	0
Other	16,734,179	6,885,155	14,569,342	1,729,412
Total	90,861,274	195,435,384	225,102,789	257,464,989

Source: ABS unpublished data



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