



## LIVE SHEEP TRADE BY SEA POLICY

IMPACT ON THE  
NEWROC ECONOMY



**Client:** NEWROC

**Title:** LIVE SHEEP BY SEA TRADE POLICY  
IMPACT ON THE NEWROC ECONOMY

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Prepared for:

## NEWROC

On behalf of the Western Australian shires of;

**Mukinbudin, Mount Marshall, Nungarin, Koorda, Trayning, Wyalkatchem & Dowerin**

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### VERSION CONTROL

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# 1 INTRODUCTION

This section provides an overview of the background, purpose and scope of the report.

## 1.1 Background and Context

The Minister for Agriculture, Fisheries and Forestry, Senator the Hon Murray Watt appointed an independent panel to consult with stakeholders and provide advice on how and when the government will phase out live sheep exports by sea.

In conducting the consultation, the panel will consider:

- potential mechanisms to phase out live sheep exports by sea
- a suggested timeframe and options for implementation
- potential ways to support the transition, including but not limited to consideration of markets, processing facilities and other opportunities
- other matters as appropriate<sup>1</sup>.

The panel has examined matters including but not limited to, the economic impact of the phase out on; agricultural production systems and on-farm management; supply chain arrangements; trade and market access; and lessons learned from other countries that have phased out live sheep exports by sea and states and territories that no longer export live sheep by sea.

The 30 September 2023 timeline has been extended and the panel will provide its report to the Minister for Agriculture, Fisheries and Forestry by 25 October 2023. At the time of this analysis, the panel's report has been provided to the Minister but has not been released to the public.

## 1.2 Report Purpose and Structure

Econisis was engaged to prepare an economic impact assessment for the North Eastern Wheatbelt Regional Organisation of Council (NEWROC) for the Federal Governments proposed phasing out of live sheep exports by sea on NEWROC Councils.

This report is comprised of the following key sections:

- **Introduction** – This Section provides an overview of the Report, its purpose and structure.
- **Project Context** – Outlining the key attributes and drivers of the region and the project.
- **Policy Overview** – this section provides an overview of the proposed policy of phasing out of live sheep exporting.
- **The Sheep Industry of Western Australia** – This section profiles key attributes of the sheep industry in Western Australia.
- **Regional Industry Profile** – this section reviews key data sets and indicators relating to the sheep industry in the NEWROC economy and the role of live export.
- **Economic Impact of Live Sheep Export Ban** – this section outlines three different approaches to quantifying the economic impact from the proposed live sheep export ban on NEWROC, its Local Government Areas, farmers and communities.
- **Conclusions**

<sup>1</sup> DAFF (2023) Phase Out of Live Sheep Exports by Sea Term of Reference for Consultation Process accessed <https://www.agriculture.gov.au/sites/default/files/documents/terms-of-references-lspo-consultation.pdf>



### 1.3 Statistical Geography

NEWROC is a voluntary organisation of Councils and includes seven Local Governments in the North Eastern sub-region of the Wheatbelt, WA. Relevant local governments include:

- Shire of Koorda
- Shire of Mt Marshall
- Shire of Mukinbudin
- Shire of Dowerin
- Shire of Nungarin
- Shire of Trayning
- Shire of Wyalkatchem



Figure 1 NEWROC Location

## 1.4 Glossary and Abbreviations

The following terms and abbreviations are referenced in this report.

**Table 1 Glossary and Abbreviations**

Term/Abbreviation	Definition
ABS	Australian Bureau of Statistics
EIA	Economic Impact Assessment
Externalities	External Costs or Benefits not captured in market prices
FTE	Full time equivalent
GVA	Gross Value Added
IO	Input-output
LGA	Local Government Area
NPV	Net Present Value
OIA	Office of Impact Analysis

## 2 POLICY OVERVIEW

This section provides an overview of the proposed policy of phasing out of live sheep exporting.

### 2.1 Independent Panel on the Phasing Out of Live Sheep Export by Sea

The Minister for Agriculture, Fisheries and Forestry, Senator the Hon Murray Watt appointed an independent panel to consult with stakeholders and provide advice on how and when the government will phase out live sheep exports by sea.

The independent panel appointed to consult with stakeholders on the phase-out of live sheep exports by sea completed its public consultations on 27 June 2023.

The independent panel provided its report with advice and recommendations to the Minister on 25 October 2023. The government is considering the report's findings and recommendations as well as the next steps for the government.

An update from the independent panel provides an overview of what was said during the consultation. It included information on stakeholder engagement, what the panel heard, information on market trends, as well as stakeholder suggestions and the panel's next steps. Since March 2023, the panel has received more than 4,100 submissions including more than 800 written submissions and more than 3,300 survey responses.

The 30 September 2023 timeline was extended, and the panel provided its report to the Minister for Agriculture, Fisheries and Forestry on 25 October 2023.

### 2.2 National and State Live Export Impact

Analysis was undertaken by Acil Allen in June 2023 on the performance and Value of Live Sheep Export Trade in Australia. This report included a point in time analysis of the potential impact of the phasing out of live sheep exports<sup>2</sup>.

The analysis found that live sheep export industry (live sheep and the associated wool clip) has, using an average of the last five financial years (2017-18 to 2021-22), directly contributed \$52 million of value-added annually.

It also confirmed that the lion's share of this value is in Western Australia, with live sheep export industry directly contributed \$45 million of value-added annually.

*Using a point in time model, Acil Allen confirmed that if the live sheep export trade ceased there is an estimated 19.19% reduction in the per head value of a male sheep in Western Australia. At the time of the report this represented a decline of \$21.84 per male sheep with a price response. This price impact would apply to all sheep – not just that of live export sheep.*

The report also confirmed that the removal of live sheep export flows to Middle East countries (namely Israel, Jordan, Kuwait, Oman, and the UAE) is unlikely to result in any substantive replacement of this trade by increase imports of Australian boxed or chilled sheepmeat and instead would see Australia's place in that market wholly replaced by other live sheep export providers.

This reflects the critical nature of live sheep imports to the food security of several Middle East countries, many of whom Australia has been a provider of trust, support and dependence for over 60 years.

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<sup>2</sup> Acil Allen (2023) Performance and Value of the Live Sheep Export Trade accessed at [https://assets.ctfassets.net/8fjsq0xyf4sy/705NQ22p0xPadU62VHBCMH/c5c923e32db8e310ee923ca486b68c35/Value\\_of\\_the\\_live\\_sheep\\_export\\_trade\\_FINAL\\_REPORT.pdf](https://assets.ctfassets.net/8fjsq0xyf4sy/705NQ22p0xPadU62VHBCMH/c5c923e32db8e310ee923ca486b68c35/Value_of_the_live_sheep_export_trade_FINAL_REPORT.pdf)



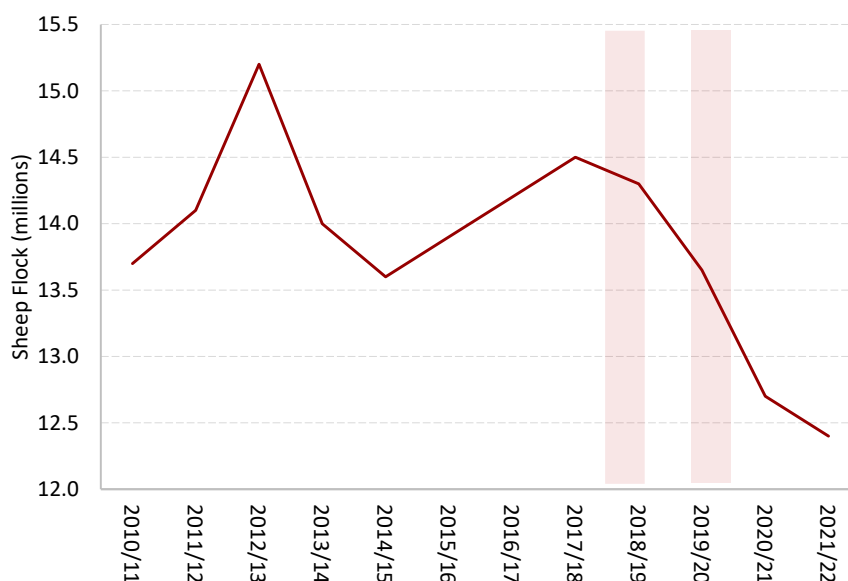
This will likely result in a significant deterioration in overall animal welfare globally as supply to Middle East countries shifts from Australia's high quality animal welfare regulations to less regulated countries. This undermines the fundamental rationale of the policy.

### 3 SHEEP INDUSTRY OF WESTERN AUSTRALIA

This section provides a summary of key data trends and information related to sheep industry and exports from Western Australia.

#### 3.1 Western Australian Sheep industry Profile

As of July 2022, the Western Australian (WA) sheep flock consisted of 12.4m sheep and lambs<sup>3</sup>. Following a period of relative stability between 2010/11 and 2018/19 where the flock hovered between 13.7 and 15.2m, the flock has started to decline falling to its lowest point since 1952 when the flock numbered 12.2m. These flock size movements were heavily influenced by both Government imposed and self-imposed halts to live exports due to animal welfare issues in 2017/18 and 2019/20 (highlighted below).



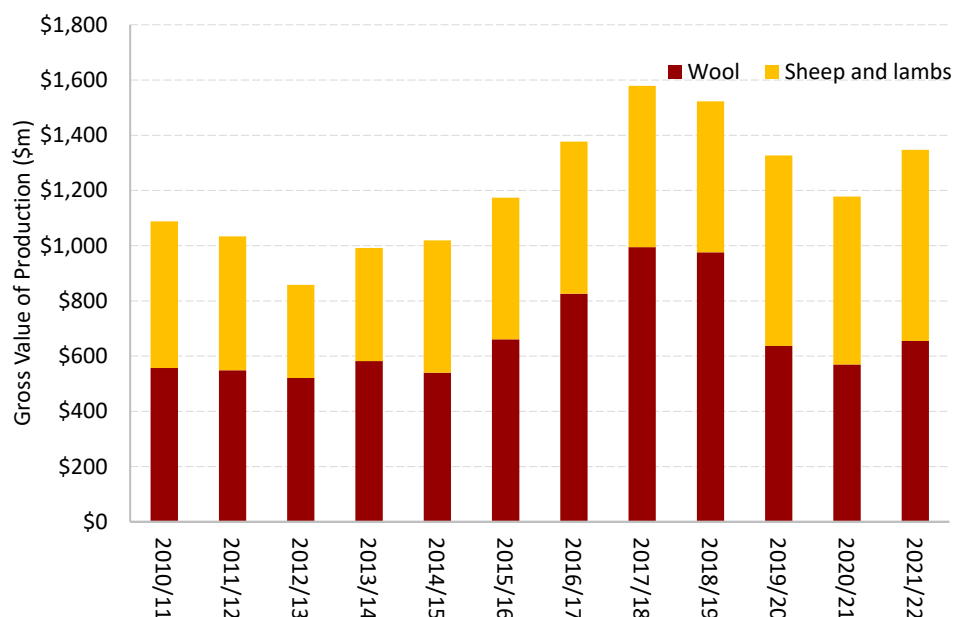
**Figure 2 Sheep Flock, Western Australia, 2010/11 to 2021/22 (including highlighted periods of live sheep export halts)<sup>4</sup>**

In 2021/22, the industry accounted for 43% of the value of all livestock industries in WA<sup>5</sup>. The combined sheepmeat and wool industries contributed a gross value of production of \$1.35b to the WA economy, up from \$1.18b the previous year.

<sup>3</sup> DPIRD (2023) The Western Australian sheep and wool industries accessed at <https://www.agric.wa.gov.au/sheep/western-australian-sheep-and-wool-industries>

<sup>4</sup> As above

<sup>5</sup> ABS (2023) Value of Agricultural Commodities Produced, Australia accessed at <https://www.abs.gov.au/statistics/industry/agriculture/value-agricultural-commodities-produced-australia/latest-release>



**Figure 3 Gross Value of Production, Wool and Sheep and Lambs, 2010/11 to 2021/22**

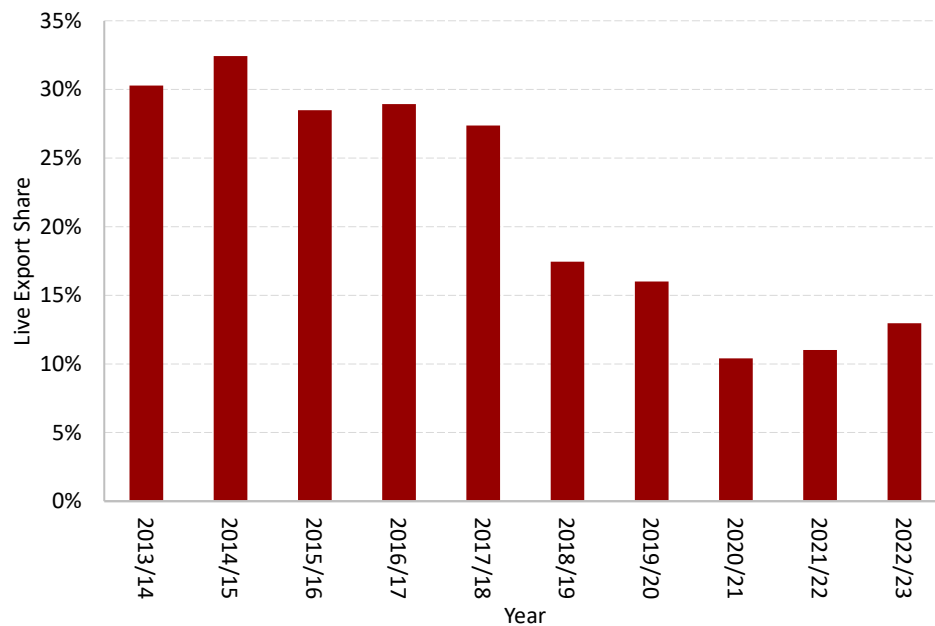
The wool and sheep and lamb segments of the industry are highly interrelated due to the mutual dependence on overall flock size and profile.

### 3.2 Turnoff Trends

The largest component of WA sheep turn-off is currently lamb slaughter, which in 2021/22 made up 57% of the total sheep turn-off. This segment has increased in prominence to the Western Australian sheep industry in recent years, increasing as a proportion of turn-off from 30% in 2010/11 to 57% last year<sup>6</sup>.

This increase in lamb slaughter turn-off proportions is partly due to the structural decline in live export volumes in recent years. Between 2013/14 and 2017/18, live export accounted for 29.5% of turn-off in Western Australia. However, sharp decline between 2017 and 2018 was largely due to the mid-year trade suspension and reduced stocking rates on ships imposed following the Awassi Express incident of 2017.

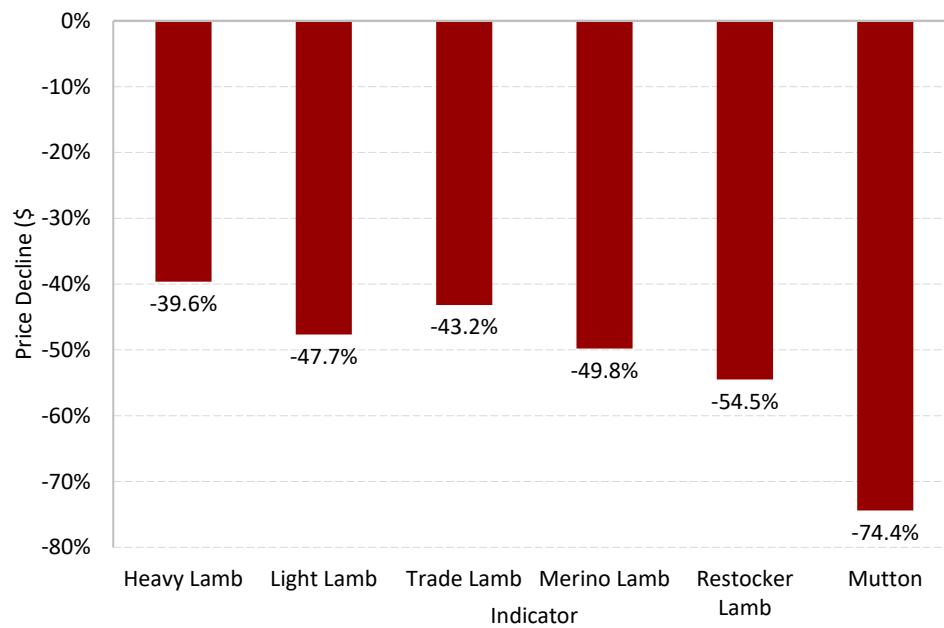
<sup>6</sup> DPIRD (2023) The Western Australian sheep and wool industries accessed at <https://www.agric.wa.gov.au/sheep/western-australian-sheep-and-wool-industries>



**Figure 4 Live Sheep Export Share of Sheep and Lamb Turn-Off, 2013/14 to 2022/23**

This created a sovereign risk issue for Australia as a live sheep export provider, due to global perceptions of the somewhat “knee jerk” reaction by the Australian Government at the time. This is believed to have raised concerns in key Asian and Middle Eastern markets as to the degree to which Australia could be regarded as a reasonable and reliable food security partner in sheepmeat and is said to have directly contributed to the decision by the Qatar Government to remove subsidies on Australian sheep.

This, coupled with climate, supply and restocking has contributed to a substantial decline in prices of sheepmeats over the past year to 15 October 2023. Prices have fallen to multi-decade lows including a 74.4% decline in mutton prices. This decline far exceeds that which can be attributed only to seasonal or cyclical factors and represents a structural decline in value.



**Figure 5 Price Declines, Lamb and Mutton Indicators, Australia, Year to 15 October 2023<sup>7</sup>**

<sup>7</sup> MLA (2023) Industry Daily Summary accessed at <https://www.mla.com.au/prices-markets/dailysummary/?species=Sheep>

## 4 REGIONAL INDUSTRY PROFILE

This section reviews key data sets and indicators relating to the sheep industry in the NEWROC economy and the role of live export.

### 4.1 General Economic Structure

#### 4.1.1 Census Profile

NEWROC LGAs have a significantly older median age, than the WA and Australian median of 38. This indicates an older age profile in the region, confirmed by the high share of the population which is 65+.

Mt Marshall is the only LGA which has a higher than average Personal weekly income. Every other LGA has lower than State and Australian wage averages across, personal, family and household. Most households are lone person households or couple families with children.

A high percent of dwellings are unoccupied, while a higher than average share of homes are owned outright.

**Table 2 Census Socioeconomic Profile, NEWROC, WA and Australia, 2021<sup>8</sup>**

Indicators	Koorda	Mt Marshall	Mukinbudin	Dowerin	Nungarin	Trayning	Wyalkatchem	Western Australia	Australia
<b>Headline</b>									
<b>Population</b>	361	459	579	715	255	298	470	2,660,026	25,422,788
<b>Median Age</b>	51	47	44	45	49	55	54	38	38
<b>Average Household Size</b>	2.2	2.3	2.3	2.3	2.1	1.9	1.9	2.5	2.5
<b>Share of Population 0-14 (%)</b>	18.0%	15.9%	21.7%	21.8%	12.4%	10.6%	11.9%	19.0%	18.2%
<b>Share of Population 65+ (%)</b>	26.0%	18.8%	20.1%	25.9%	26.8%	28.8%	33.4%	16.1%	17.2%
<b>Born in Australia</b>	82.3%	81.9%	78.4%	81.7%	68.6%	71.1%	74.7%	62.0%	66.9%
<b>Share of People Attending Educational Institutions</b>									
<b>Pre-School</b>	10	10	7	16	0	0	0	45,452	484,185
<b>Primary</b>	43	35	50	69	16	9	31	222,555	2,075,224
Primary - Government	53.8%	32.4%	29.4%	31.6%	11.1%	13.2%	29.1%	19.3%	18.5%
Primary - Catholic	0.0%	0.0%	0.0%	1.5%	11.1%	0.0%	0.0%	4.5%	5.2%
Primary - other non-Government	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.6%	2.2%
<b>Secondary</b>	7	11	31	33	7	11	14	175,841	1,629,624
Secondary - Government	3.8%	2.8%	13.6%	12.2%	10.0%	19.1%	14.6%	12.7%	12.2%
Secondary - Catholic	0.0%	3.7%	0.0%	0.0%	0.0%	4.4%	0.0%	4.5%	4.8%
Secondary - other non-Government	0.0%	2.8%	2.8%	3.1%	0.0%	0.0%	0.0%	4.6%	4.2%
<b>Tertiary</b>	9	16	19	16	5	5	13	172,239	1,789,994
Tertiary - Vocational education (including TAFE	3.8%	6.5%	4.5%	3.1%	0.0%	8.8%	11.7%	7.4%	7.8%

<sup>8</sup> ABS (2022) Census of Population and Housing 2021, accessed at abs.gov.au

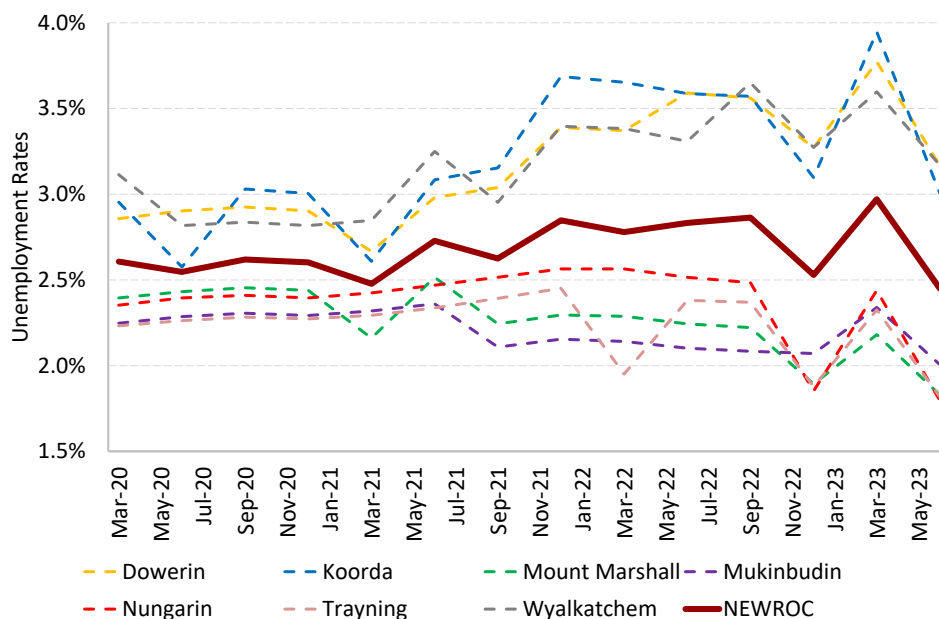


Indicators	Koorda	Mt Marshall	Mukinbudin	Dowerin	Nungarin	Trayning	Wyalkatchem	Western Australia	Australia
and private training providers)									
Tertiary - University of other higher education	6.2%	3.7%	4.5%	4.1%	8.9%	4.4%	2.9%	13.9%	15.4%
<b>Weekly Incomes</b>									
Personal	\$759	\$868	\$756	\$758	\$640	\$512	\$582	\$848	\$805
Family	\$1,524	\$1,802	\$1,875	\$1,531	\$1,268	\$1,125	\$1,481	\$2,214	\$2,120
Household	\$1,341	\$1,396	\$1,547	\$1,197	\$1,087	\$864	\$916	\$1,815	\$1,746
<b>Share of Household</b>									
Couple family without children	35.1%	30.2%	36.2%	31.2%	33.3%	32.8%	26.3%	28.0%	27.6%
Couple family with children	23.2%	26.4%	27.1%	23.7%	23.3%	12.0%	15.2%	32.0%	31.1%
One parent family	2.0%	7.7%	6.3%	7.8%	8.9%	10.4%	7.4%	11.0%	11.3%
Other family	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	1.0%	1.2%
Lone Person Households	37.1%	33.0%	28.1%	35.3%	34.4%	44.8%	45.6%	25.0%	25.1%
Group Households	2.6%	2.7%	2.3%	2.0%	0.0%	0.0%	4.1%	3.0%	3.8%
<b>Dwelling Occupancy</b>									
Occupied	66.0%	61.3%	73.4%	72.3%	83.8%	57.7%	64.5%	89.1%	89.9%
Unoccupied	34.0%	38.7%	25.3%	26.4%	16.2%	43.2%	35.8%	10.9%	10.1%
<b>Dwelling Type</b>									
Separate house	98.1%	96.0%	100.0 %	96.1%	92.5%	95.4%	96.2%	79.7%	72.3%
Semi-detached, row or terrace house, townhouse etc	0.0%	3.4%	0.0%	1.4%	0.0%	2.3%	2.9%	13.0%	12.6%
Flat or apartment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.5%	14.2%
Other dwelling	0.0%	0.0%	0.0%	3.5%	4.3%	0.0%	0.0%	0.6%	0.6%
<b>Tenure</b>									
Owned outright	53.5%	49.4%	49.8%	47.2%	51.6%	56.5%	50.2%	29.2%	31.0%
Owned with a mortgage	17.2%	13.2%	16.7%	20.9%	12.9%	13.0%	17.2%	40.0%	35.0%
Rented	16.6%	21.8%	21.9%	20.6%	19.4%	19.8%	22.0%	27.3%	30.6%
Other tenure type	5.7%	15.5%	12.1%	8.5%	9.7%	6.9%	8.1%	2.1%	2.0%
Tenure type not stated	5.7%	1.7%	1.4%	3.2%	3.2%	4.6%	1.9%	1.4%	1.5%

#### 4.1.2 Unemployment Rates

A review of unemployment rates data from the Jobs and Skills Australia since March 2020, confirms that NEWROC has had an unemployment rate of between 2.5% and 2.8% for most of the period since, falling to 2.4% in June 2023<sup>9</sup>.

<sup>9</sup> JSA (2023) Small Area Labour Market smoothed data accessed at <https://www.jobsandskills.gov.au/data/small-area-labour-markets>

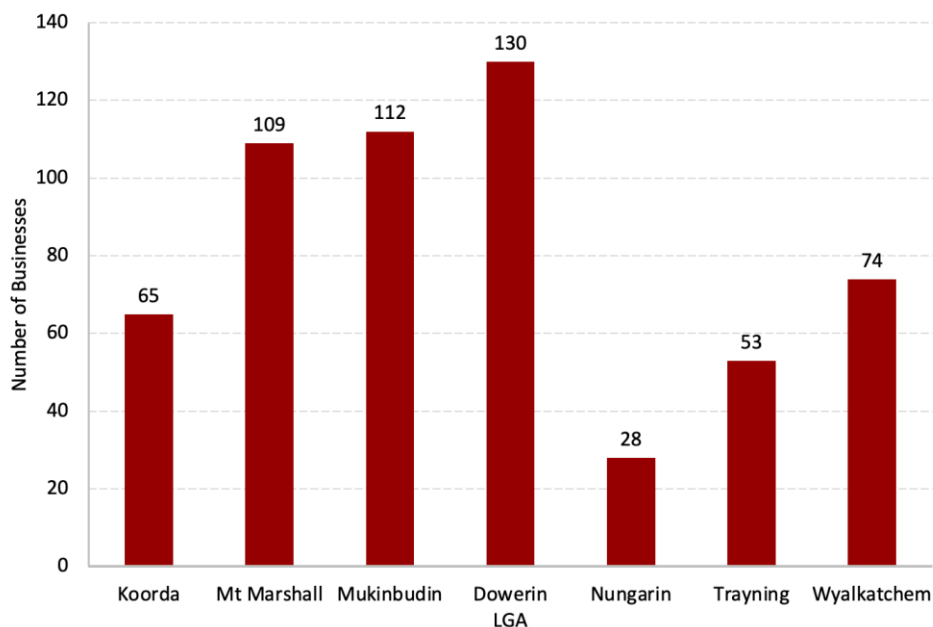


**Figure 6 Unemployment Rate, NEWROC and LGAs, 2020 to 2023**

This unemployment rate profile reflects the labour force constrained nature of the local area, due to a smaller population base and ageing demographic.

#### 4.1.3 Business Registrations

Dowerin LGA has the most registered businesses in NEWROC with 130. Nungarin has the least amount of registered businesses with 28<sup>10</sup>.



**Figure 7 Business Registrations, NEWROC LGAs, 2022**

The business registrations by industry show that 349 of the businesses in the NEWROC area are Agriculture, Forestry or Fishing businesses. This reflects the NEWROC's reliance on the Agriculture sector. Real Estate and Construction businesses also make up a reasonable share of businesses.

<sup>10</sup> ABS (2023) Count of Businesses accessed at [abs.gov.au](https://abs.gov.au)

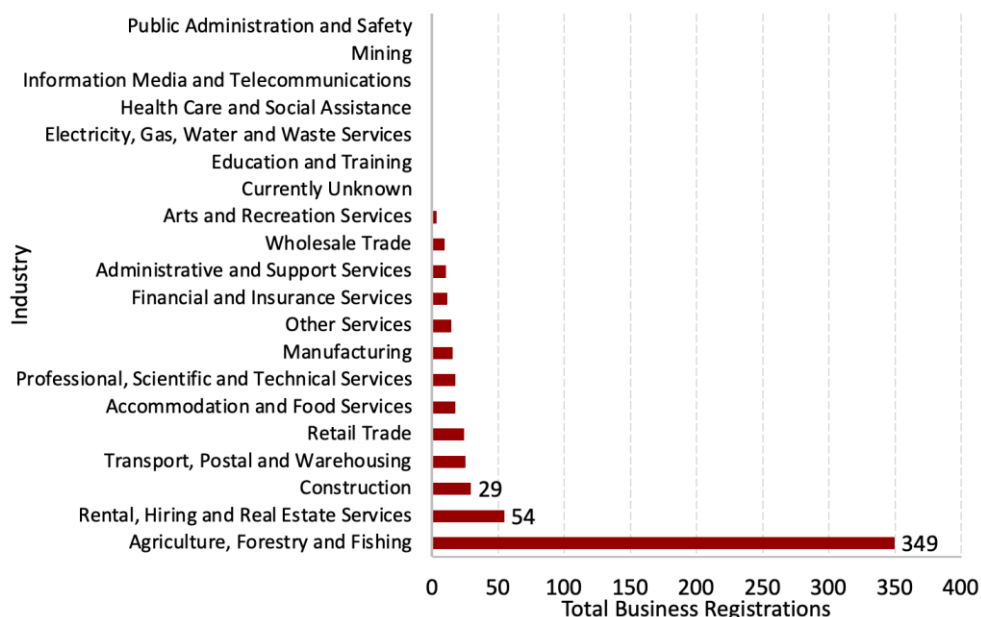


Figure 8 Business Registrations by Industry, NEWROC, 2022<sup>11</sup>

## 4.2 NEWROC Sheep Flock and Output Value

Data from the 2020/21 Value of Agricultural Businesses found that NEWROC LGAs were home to over 400,000 sheep, with Mount Marshall LGA accounting for the largest number at 124,000<sup>12</sup>.

Table 3 Sheep Flock Estimates, Business Numbers and Gross Value of Disposals, 2020/21

Locations	Estimates	No. of Businesses	Gross value (\$)
<i>Dowerin</i>	58,862	25	\$2,690,285
<i>Koorda</i>	75,984	33	\$3,472,834
<i>Mount Marshall</i>	124,136	57	\$5,857,472
<i>Mukinbudin</i>	45,520	21	\$2,147,924
<i>Nungarin</i>	18,526	8	\$874,171
<i>Trayning</i>	29,548	14	\$1,394,256
<i>Wyalkatchem</i>	49,998	22	\$2,285,147
<b>NEWROC</b>	<b>402,574</b>	<b>180</b>	<b>\$18,722,088</b>
<b>WA</b>	<b>12,714,684</b>	<b>4,305</b>	<b>\$607,667,201</b>
<b>Australia</b>	<b>68,047,402</b>	<b>31,839</b>	<b>\$4,332,328,417</b>

<sup>11</sup> As above

<sup>12</sup> ABS (2022) Value of Agricultural Commodities accessed at <https://www.abs.gov.au/statistics/industry/agriculture/value-agricultural-commodities-produced-australia/latest-release>

This flock supports 180 local businesses with a gross value (at the time of the data capture) of over \$18.7m.

*Note that this represents approximately 6.0% of the total economic output of the NEWROC region, based on comparison of economic output from REMPLAN and Economy ID. This share of economic output is higher than WA (approximately 4.5%) and Australia (3.9%) in 2020/21.*

It is however lower than the share of economic output in Koorda and Mount Marshall – with flock gross value representing approximately 9% of economic output in those two LGAs – confirming the critical importance of the sheep industry to those locations.

## 5 ECONOMIC IMPACTS OF LIVE SHEEP EXPORT BAN

This section outlines three different approaches to quantifying the economic impact from the proposed live sheep export ban on NEWROC, its Local Government Areas, farmers and communities.

### 5.1 Types of Potential Impacts

There are a number of different ways in which the impact of major policy decisions on critical and central economic industries within a region can be assessed.

Specifically, Econisis has assessed the impact based on the following two primary approaches:

- **Unit Price Impacts** – applying the reduction of sheep price estimated by Acil Allen to the NEWROC flock Gross Value in 2020/21.
- **Economic Multipliers** – using regionalised economic multipliers for the NEWROC economy to estimate direct and indirect economic output, supply chain and household consumption and expenditure impacts.

The results of this analysis are outlined below.

### 5.2 Unit Price Impacts

The Acil Allen point in time analysis found a 19% fall in the value of male sheep in the market in response to the banning of live sheep exports by sea. Applying this percentage to the gross value of sheep and lambs in the NEWROC region in 2020/21, this would represent a gross value reduction of \$3.725m.

**Table 4 Unit Price Impacts, NEWROC Sheep Flock Gross Value**

Locations	Estimate	Price Impact (\$)	Gross value (\$)	Value Impact (\$)
Dowerin	58,862	\$642,773	\$2,690,285	\$535,367
Koorda	75,984	\$829,745	\$3,472,834	\$691,094
Mount Marshall	124,136	\$1,355,565	\$5,857,472	\$1,165,637
Mukinbudin	45,520	\$497,078	\$2,147,924	\$427,437
Nungarin	18,526	\$202,304	\$874,171	\$173,960
Trayning	29,548	\$322,664	\$1,394,256	\$277,457
Wyalkatchem	49,998	\$545,978	\$2,285,147	\$454,744
<b>NEWROC</b>	<b>402,574</b>	<b>\$4,396,108</b>	<b>\$18,722,088</b>	<b>\$3,725,696</b>

However, when the point in time price impact of \$21.84 is applied to the flock estimate instead, this impact increases to \$4.4m across the NEWROC region.

It is also important to note that this impact is not just a one off and instead applies to the flock, year on year for the foreseeable future. Based on a 20 year assessment with a 7% discount rate (to adjust for present value in line with WA and Australian Government economic evaluation guidelines), the unit price impact is estimated at between \$39.47m and \$46.57m to the NEWROC economy.



**Figure 9 Present Value of Price and Value Change Impact from the Phasing Out of Live Sheep Export by Sea, 20 years at 7% Discount**

This price and value impact is expected to place considerable pressures on the operational viability on sheep-related agribusinesses in the NEWROC region. This means that price and value reductions may actually result in wholesale loss of flock capacity if agribusinesses fail as a result of the live sheep export policy change.

## 5.3 Economic Multipliers

### 5.3.1 Approach to Calculating Multipliers

At the core of an Economic Multiplier based impact assessment is Input–Output (IO) tables. IO tables are part of the national accounts by the ABS and provide detailed information about the supply and use of products in the Australian economy, and the structure of and inter–relationships between Australian industries.

IO tables are converted, through statistical analysis, into a series of Economic Multipliers. These Multipliers represent the relationship between the direct activity (expenditure or production) associated with an industry and the wider economy.

The results of an EIA are generally presented as both direct effects, that is effects from the direct activity of the Project or event, and indirect effects, which are additional effects from further rounds of spending in the supply chain. A third or consumption effect, resulting from rounds of consumer spending generated by the additional income in the region can also be calculated.

There are two broad levels of Multipliers that can be utilised for Impact Assessments:

1. **Simple Multipliers** – including the Direct or Initial Effect, First Round and Industry Supply Chain effects.
2. **Total Multipliers** – including the Simple Multipliers plus subsequent Induced Production and Household Consumptions effects.

Impact Assessments can assess:

- **Output** - the actual dollar amount spent on the Project in the Region.
- **Income** - the number of wages and salaries paid to labour.



- **Employment** - the full-time equivalent (FTE) per annum employment generated by the Project; and
- **Value Added** - the value added to materials and labour expended on the Project.

Econisis has undertaken an Impact Assessment for the NEWROC economy, focused providing separate analysis of **Simple and Total Multipliers**.

For the NEWROC economic impacts, this entailed the following tasks:

1. Transaction tables were developed from National IO tables for the NEWROC economy. For the regional economy, the Regional Transaction Table was calculated by applying employment-based location quotients for the Region, based on the results of the 2016/2021 Census of Population and Housing. This has the effect of excluding spending on imports to the Region since they generate no local economic activity.
2. Economic Multipliers were then generated for WA economy across 119 industry categories defined by the ABS.
3. Construction and operational expenditure and production associated with the development were allocated across 119 industry categories.
4. Economic impacts associated with the Project are calculated.

Economic Impact Assessments based on IO-tables and Economic Multipliers have been criticised by Government and academia. Econisis recognises Economic Multipliers are based on limited assumptions that can result in multipliers being a biased estimator of the benefits or costs of a Project.

Shortcomings and limitations of multipliers for economic impact analysis include:

- **Lack of supply**—side constraints: The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply-side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or if it is near capacity.
- **Fixed prices**: Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.
- **Fixed ratios for intermediate inputs and production**: Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount.
- **No allowance for purchasers' marginal responses to change**: Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.
- **Absence of budget constraints**: Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.

- **Not applicable for small regions:** Multipliers that have been calculated from the national IO table are not appropriate for use in economic impact analysis of Projects in small regions. For small regions multipliers tend to be smaller than national multipliers since the inter–industry linkages are normally relatively shallow. Inter–industry linkages tend to be shallow in small regions as they usually do not have the capacity to produce the wide range of goods used for inputs and consumption, instead importing a large proportion of these goods from other regions.

Despite this, IO tables and Economic Multipliers remain popular due to their ease of use and communication of results. Econisis has undertaken a number of steps and made appropriate adjustments to the EIA methodology to address and mitigate these concerns.

Econisis has presented **Simple and Total Multipliers** separately in the Assessment. This has the effect of isolating and separating Household Consumption impacts from the core economic supply chain and industry related impacts. By doing so, only those industries with a first round or supply chain connection are considered first.

Additionally, Econisis has developed economic multipliers for the **NEWROC economy only**. This has the effect of internalising and limiting the extent of the economic impact outside of the State.

Econisis regards the use of Economic Multipliers as part of this Assessment as appropriate and reliable. The results of the assessment are conservative, defensible and suitable for informing decision making.

### 5.3.2 Impact Scenarios

In addition to examining both economic output/supply chain impacts and household consumption/expenditure impacts, Econisis has undertaken three scenarios of the scale of the impact on flock value and numbers.

The value and price impacts have already been examined as part of the first analysis methodology.

As such, this analysis has focused on two potential scenarios:

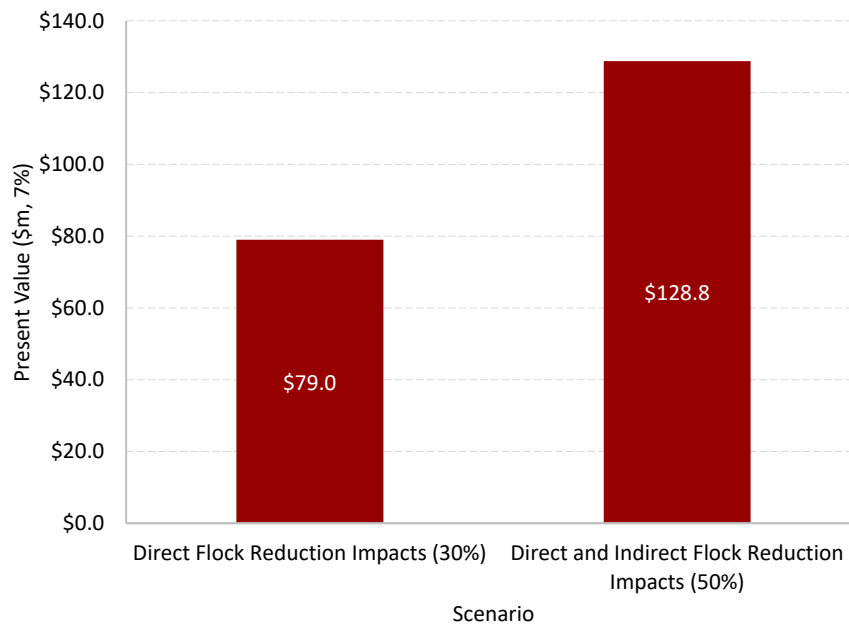
- The direct impact on the size of the flock that would otherwise be turned-off via live export. This uses the pre-COVID 5 year average share of 30%.
- The direct and indirect impact on the size of the flock due to the high degree of interrelationship between live export and other sheep-related industries such as wool. This reflects the expectation in the market of a first and secondary round downgrading effect of the overall flock size in Western Australia with the cessation of live exports. This uses a average value reduction of 50%.

Values have been assessed annually and then estimated over a 20 year period, converted into present value at a 7% discount rate.

### 5.3.3 Economic Output and Supply Chain Impacts

Overall, Econisis estimates that the economic output and supply chain impacts (i.e. simple multipliers) to the NEWROC economy will range from \$79.0m to \$128.8m in present value terms from the cessation of live sheep exports.

This variation reflects the extent to which second round flock size and value impacts eventuate. Such impacts are regarded as likely due to the constraints on transfer of sheep from live export to other turn-off methods (both domestically and internationally) and the strong interrelationship in over flock size between live export, sheepmeat and wool production.

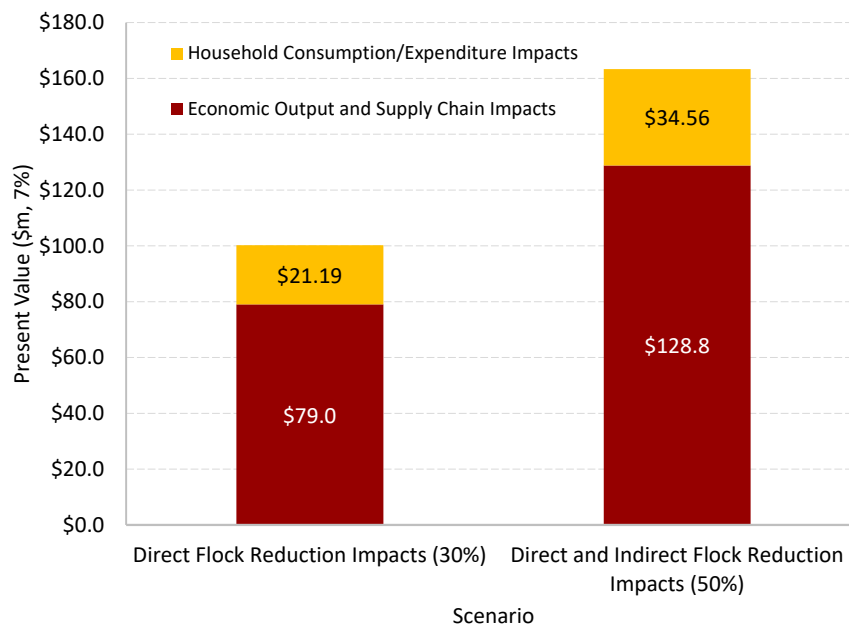


**Figure 10 NEWROC Economic Output and Supply Chain Impacts, by Scenario, Present Value over 20 Years at 7%**

#### 5.3.4 Household Consumption and Expenditure Impacts

The direct impact on sheep farmers and their supply chains are also expected to have a secondary impact on the households and communities in which these businesses operate. This includes through reduced incomes, earnings and expenditure into the wider economy.

Econisis has estimated this impact through the application of indirect economic multipliers relating to household consumption and expenditure impacts.



**Figure 11 NEWROC Economic Output, Supply Chain and Household Consumption Impacts, by Scenario, Present Value over 20 Years at 7%**

These impacts have the effect of adding a further \$21.2m to \$34.6m of impacts to the local NEWROC economy, through decreased household consumption and expenditure depending on the impact scenario.

## 5.4 Summary of Impacts

These methods of calculation highlight a the scale of potential impacts on the NEWROC economy of the phasing out of live sheep exports.

Direct price and value related impacts (i.e. with no flock size adjustments) would likely see impacts to the NEWROC economy ranging from \$39m-\$47m in present value terms over the next two decades.

When flock size and scale related impacts (both direct and indirect) are also considered, then the scale of this impact increases to \$79m to \$128m over 20 years.

This is further exacerbated when the centrality of sheep farm expenditure, employment and incomes to the functioning of local and regional communities is also considered, which adds a further \$21m to \$35m in economic impact.

Regardless of the method of calculation, the impact from the proposed cessation of live export is expected to be significant for the NEWROC economy and trigger the requirement for

## 6 CONCLUSIONS

The proposed phasing out of live sheep export policy is expected to have significant economic implications for the NEWROC farmers, communities and local economies. The sheep industry generally accounts for a larger share of NEWROC economic activity than both WA and Australia and live export is its principally a Western Australian turn-off market (due to proximity to key Middle East destinations).

Estimates by Econisis using unit price/value and economic multiplier approaches indicate the potential impact on the regional NEWROC economy at between \$39m and \$128m in economic output over 20 years (at a 7%) discount rate. This is dependent on the degree to which the loss of live export markets impacts just price or overall flock size as well and excludes the further impact to local communities and households from the loss of consumption and expenditure (representing a further \$21m-\$35m) in impacts.

And it is likely that this impact is already being experienced, as the impending loss of a critical competitive market for sheep production in Western Australia is being factored into to flock management decisions.

Given the importance of the sheep industry to the NEWROC economies and the high level of interrelationship between live export, sheepmeat and wool segments, the proposed live export ban is expected to have a negative economic impact on the region.

And this only represents the impact on the 7 regional local government areas in Western Australia. The scale of the impact across the State's wider sheep farming industry is likely to be much greater and will require significant investment and compensation by the Australian Government for the introduction of the market-limiting policy.

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